INSECTS OF GUAM—I

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FOREWORD

The papers printed in this bulletin are the results of studies of insects collected on an entomological survey of Guam in 1936. This survey was conducted under the auspices of the Hawaiian Sugar Planters' Association, for the purpose of studying insects of economic importance associated with the various crops grown in Guam and insects affecting man and domestic animals. Guam is the most important station between the Philippines and Honolulu on the route of the Pan-American Airways across the Pacific, and as knowledge of the Guam insect fauna was meager, it was deemed important to acquire as complete a knowledge as possible of this fauna. Unknown insects were already being found in planes arriving at Pearl Harbor, Oahu, and, in spite of the system employed in the fumigation of the planes, an occasional insect was found which had not fully succumbed. There was some concern lest unknown pests might survive and succeed in becoming established, and, perhaps, destructive to sugar cane or other crops grown in Hawaii.

The plan for the survey was initiated late in 1935 by Dr. Harold L. Lyon, Director of the Experiment Station of the Hawaiian Sugar Planters' Association. Through the efforts of Captain B. V. McCandlish, then Governor of Guam, the survey party, consisting of Mr. and Mrs. O. H. Swezey, and Mr. R. L. Usinger of the Entomology department, Bernice P. Bishop Museum, left Honolulu, April 17, 1936, on the U. S. Army Transport Grant, arriving in Guam April 27. For a few weeks we had the assistance of Mr. E. H. Bryan, Jr., Curator of Collections at Bishop Museum, who spent two months in Guam assisting in the establishment of the Guam Museum. Mr. Usinger continued with the survey until July 6, whereas Mrs. Swezey and I carried on until November 30, a period of seven months.

Due to the interest taken by Governor McCandlish, every facility was rendered by his staff, particularly the department of agriculture. Most helpful was the cooperation of Mr. A. I. Cruz, in charge of the Root Agricultural School, through whom we contacted the Chamorro farmers whose fields and gardens in the various districts of the island were explored for prevailing insect pests.

Guam is quite a good-sized island, being nearly 30 miles long and 4 to 8 miles wide. It lies between 144° 37′ and 144° 57′ east longitude and 13° 15′ to 13° 40′ north latitude. It is 3,330 miles from Honolulu and 1,520 miles from Manila, being the southern-most of the Marianas group of islands. The northern half of the island is an elevated limestone plateau of coral reef origin, which is about 300 feet high, with a few regions as high as 600 feet. At the margin are precipitous jagged limestone cliffs 200 to 300 feet above sea level,

and there are no coastal villages. This plateau was originally covered with a tropical jungle containing several kinds of large trees such as banyan, breadfruit, *ifil* (*Intsia bijuga*) and *joga* (*Elaeocarpus joga*). *Pandanus* of several species and many kinds of ferns, vines, and smaller trees make up the lower jungle growth. Much of the forest still remains, even though there is little soil covering the porous limestone.

Areas with sufficient soil for agricultural purposes are occupied by gardens and small farms, and there are a few small settlements. An automobile road traverses the western half of this area and extends to the north point of the island. Many of the small farms are connected by bullock cart trails through the jungle, from a half mile to three or four miles from the main road. Similarly, a branch road penetrates the eastern portion of the forested plateau. Guam has about 100 miles of automobile road. These roads and trails gave ready access for our study of the forest insects as well as those of the farms in the midst of the jungle, many of which still had logs and stumps among the growing crops.

The southern half of Guam is of quite different structure and topography. There is a low mountain range of volcanic origin near the western shore, with a few peaks above 1,000 feet, the highest towards the southern end being 1,334 feet in altitude. Permanent streams are formed on both sides of this mountain range, those on the eastern slope being the larger, draining a considerable plateau area which is mainly grassland, forested along the stream valleys. At the mouths of the valleys are located the coastal villages, at least a half dozen of some importance with populations ranging from 100 to 1,000. Much of the farming is carried on in the valleys, especially rice culture. On the plateau region are some cattle ranches of considerable area.

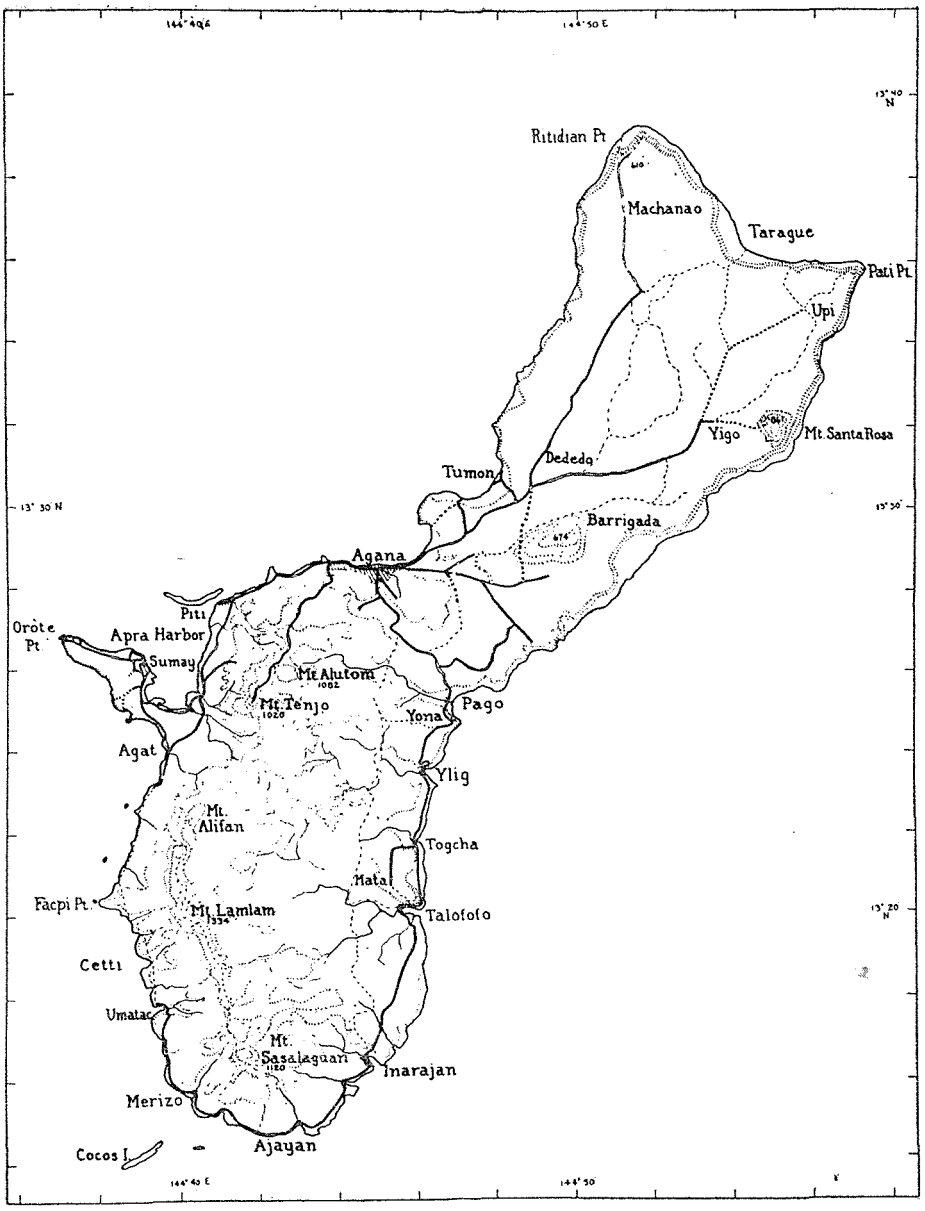
Agana, the capital, near the middle of the western coast, has a population of about 12,000, which is about half the population of Guam. Here are situated the Governor's Palace, post office, bank, hospital and government offices. The docks are at Piti, four and one half miles to the southwest, and ships anchor in Apra Harbor which lies to the south of Piti. The southern enclosure of the harbor is a westerly projecting peninsula, on which are located the marine barracks, the cable station and the Pan-American Airways offices, all at Sumay. The various features of topography, etc., are shown on the map, which is reproduced from an outline map constructed by Mr. Bryan, and was previously used in the Hawaiian Planters' Record, 44 (3) : 152, 1940.

The rainfall is generally distributed on the island, and amounts to about 90 inches annually, mostly during the months of July to November. Rice is the only irrigated crop and is grown in stream valleys which have sufficient level areas, during the period when water is available from the streams. The one crop a year is planted in September. Not enough rice is grown to supply local needs, and in 1936 importations were being made from Japan. The other

important crops are corn, copra and many kinds of fruits and vegetables. The insect pests which were found on these various crops have been listed with respect to food plants in a paper entitled "A Survey of the Insect Pests of Cultivated Plants in Guam" [Hawaiian Planters' Record, 44(3) : 151-182, 1940]. This list contains about 50 species which are not known in Hawaii. No doubt there are many among them which would become serious crop pests if they should reach Hawaii and become established.

Many entomologists—each a specialist in the respective families or groups studied—have assisted in the work of determining for publication the insect material obtained in this survey. Thanks are due to all of them for their painstaking efforts. There are more papers on other groups or families on which studies have not been fully completed. These are to be printed in a second volume. It is appropriate that the publication is being done by Bishop Museum, which cooperated in this survey. The Museum is keenly interested in all entomological research in Pacific islands, and has already published results of surveys in other islands in Polynesia.—O. H. SWEZEY.

CONTENTS



MAP OF GUAM

Guam is about 30 miles long and 4 to 8 miles wide. The portion of the island northeast of Agana, the capital, is a limestone plateau 200 to 300 feet in elevation. The docks are at Piti, and a channel 2 miles long extends to the ship anchorage in the outer part of Apra Harbor. Heavy lines on the map are automobile roads, broken lines are trails, and heavy broken lines are poor roads.

Insects of Guam—I

ODONATA

DRAGONFLIES OF GUAM

By O. H. Swezey and F. X. Williams
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The determinations in this paper are by F. X. Williams, and the collection notes are by O. H. Swezey.

ZYGOPTERA

Family COENAGRIIDAE

Subfamily COENAGRIINAE

1. Ischnura delicata (Hagen).

Agrion delicatum Hagen, Zool.-bot. Ges. Wien, Verh. 8: 479, 1858.

Ischnura delicata (Hagen) Selys, Acad. Belg., Bull. 2(41): 281, 1876.

Fraser, Fauna Brit. Ind., Odon. 1: 360, fig. 355, 1933.

Agana, May 4, Swezey, Usinger; Inarajan, May 7, 14, Swezey, Bryan; Piti, May 31, Swezey, Usinger; Sumay Road, June 25, July 15, Swezey; Piti, Aug. 24, Sept. 1, 21, Swezey; Merizo, Oct. 2, Swezey; Agat, Oct. 17, Swezey.

A widely distributed species throughout southern Asia, India, Ceylon, Burma, Malaysia, Sondaic Archipelago [Sunda Islands?], Borneo, New Guinea, Australasia, Philippines and Samoa. Now recorded from Guam for the first time. Abundant in lowlands, especially rice fields.

ANISOPTERA

Family AESCHNIDAE

2. Anax piraticus Kennedy, Ent. Soc. Am., Ann. 27: 346, 1934.

Piti, dead specimen on bark of *Pithecolobium* tree, Root Agricultural School, Aug. 19, 1936, collected by a student; Piti, at light, Sept. 12, Swezey, Oct. 17, Swezey. A wary high-flying species difficult to capture.

Described from a male specimen collected in Guam by Fullaway in 1911. A male specimen collected in 1936 was submitted to Dr. Kennedy for verification. In reply, Dr. Kennedy stated that he had not seen the species *panybeus*

Hagen with which he had compared *piraticus* in his original description, and now he says: "My opinion after seeing this second specimen is that it will be difficult to separate all specimens from Guam from *panybeus* of Celebes. They may prove to be one species with study of more material."

3. **Anaciaeschna jaspidea** (Burmeister).

Aeschna jaspidea Burmeister, Handb. Ent. 2 : 840, 1839.

Anaciaeschna jaspideus (Burmeister) Hagen, Zool.-bot. Ges. Wien, Verh. 17 : 32, 1867.

Anaciaeschna jaspidea (Burmeister) Fraser, Ins. Samoa 7(1) : 34, 1927; Fauna Brit. Ind., Odon. 3 : 152, 1936.

Agana, May 9, Bryan; Piti, Oct. 12, Nov. 3, Swezey; 4 specimens at light.

The first record of its occurrence in Guam. A species with wide range from India, extending to the Pacific islands as far as Samoa.

FAMILY LIBELLULIDAE

4. **Hemicordulia** species.

Umatac, May 14, Usinger, 3 specimens; Piti, June, Usinger, 1 specimen.

5. **Agrionaptera insignis insignis** (Rambur).

Libellula insignis Rambur, Ins. Neurop., 123, 1842.

Agrionoptera insignis (Rambur) Brauer, Zool.-bot. Ges. Wien., Verh. 14 : 164, 1864.

Agrionoptera insignis insignis (Rambur) Laidlaw, Fed. Malay States Mus., Jour. 16 : 220, 1930. Fraser, Fauna Brit. Ind., Odon. 3 : 274, figs. 83, 86c, 1936.

Orote Peninsula, April 9, Bryan; Yigo, April 13, Bryan; Mt. Alifan, April 20, 21, 30, Bryan; Agana, May 4, 25, Bryan, Swezey, Usinger; Inarajan, May 7, Swezey; Umatac, May 14, Usinger; Dededo, Aug. 11, Swezey.

Recorded for the first time from Guam, where it is quite common. This species ranges from Burma to Nicobar Islands, Sumatra, Java, Malaysia and Borneo.

6. **Diplacodes bipunctata** (Brauer).

Libellula bipunctata Brauer, Reise Novara, Neur., 86, 1866.

Diplacodes bipunctata (Brauer) Fraser, Ins. Samoa 7(1) : 40, 1927.

Mt. Alifan, April 20, Bryan; Merizo, April 24, Bryan; Agana, May 4, Usinger; Inarajan, May 14, Swezey, Usinger; Umatac, May 14, Usinger; Piti, May 23, Usinger; Mt. Chachao, May 16, Sept. 22, Swezey; beach near Cetti Bay, May 29, Usinger; Piti, Aug. 16, Sept. 16, Oct. 10, 11, Swezey; Orote Peninsula, Sept. 27, Swezey; Merizo, Oct. 2, Swezey; Libugon, Nov. 10, Swezey.

Recorded for the first time from Guam, though collected by Fullaway in 1911 without record. This species is distributed throughout Australia and the Pacific islands as far as Samoa.

7. **Pantala flavescens** (Fabricius).

Libellula flavescens (Fabricius), Ent. Syst., Suppl., 285, 1798.

Pantala flavescens (Fabricius) Hagen, Neur. North Am., 142, 1861. Perkins, Fauna Haw. 2(2) : 62, 1899. Fraser, Ins. Samoa 7(1) : 41, 1927; Fauna Brit. Ind., Odon. 3 : 414, fig. 115, 1936.

Umatac, May 14, Usinger; Piti, Aug. 16, 23, Sept. 4, 26, Oct. 8, 9, 25, Swezey; Orote peninsula, Sept. 27, Swezey.

A cosmopolitan dragonfly. It was collected in Guam by Fullaway in 1911, but not recorded. It is probably the most abundant dragonfly in Guam, and is the only Guam species which is also found in Hawaii.

8. **Tholymis tillarga** (Fabricius).

Libellula tillarga Fabricius, Syst. Ent., Suppl., 285, 1798.

Tholymis tillarga (Fabricius) Hagen, Stett. Ent. Zeitung 28 : 220, 1867. Fraser, Ins. Samoa 7(1) : 41, 1927; Fauna Brit. Ind., Odon. 3 : 411, fig. 114, 1936.

Sumay road, May 31, Usinger; Piti, Sept. 16, Oct. 5, 10, Nov. 2 at light, Swezey.

A widely distributed species from tropical Africa, Madagascar, throughout India, Burma, Ceylon to Australia and Oceania. Now recorded from Guam for the first time, where it is not common.

9. **Rhyothemis phyllis phyllis** (Sulzer).

Libellula phyllis Sulzer, Abgekurzte Gesch. der Ins., 169, pl. 24, fig. 2, 1776.

Rhyothemis phyllis (Sulzer) Hagen, Stett. Ent. Zeitung 28 : 232, 1867.

Rhyothemis phyllis phyllis (Sulzer) Fraser, Bombay Nat. Hist. Soc. Jour. 26 : 931, fig. 52, 1920; Fauna Brit. Ind., Odon. 3 : 421, 1936.

Agana swamp, May 4, Bryan, Usinger, May 25, Swezey; swamp 3 miles south of Piti, May 23, Usinger; Inarajan, June 8, Usinger.

This species occurs in Burma, Java, Sumatra, and Borneo. Now recorded for the first time in Guam, where it was found in swampy regions but not common.

10. **Rhyothemis variegata variegata** (Linnaeus).

Libellula variegata Linnaeus, Amoenitates Acad. 6 : 412, 1763.

Rhyothemis variegata (Linnaeus) Hagen, Stett. Ent. Zeitung 28 : 232, 1867.

Rhyothemis variegata variegata (Linnaeus) Ris, Cat. Col. Selys, 15 : 931, 935, 936, 1913. Fraser, Fauna Brit. Ind., Odon. 3 : 423, 1936.

Agana spring, April 6, 1 specimen, Bryan.

A species occurring in India, Ceylon, Burma and Malaysia. Now recorded for the first time in Guam.

11. Tramea limbata (Desjardins).

Libellula limbata Desjardins, Rapport Soc. Maurice, 1, 1832.

Tramea limbata (Desjardins) Kirby, Zool. Soc. Lond., Trans. 12 : 318, 319, 1889. Fraser, Ins. Samoa 7(1) : 41, 1927; Fauna Brit. Ind., Odon. 3 : 436, fig. 119 a, 1936.

Orote Peninsula, April 9, Bryan, Sept. 27, Swezey; Sumay Road, May 23, Usinger, 5 specimens.

The range of this species is from Africa and Madagascar across southern Asia and the Sundaic Archipelago [Sunda Islands?] to Australia and Oceania. Now recorded for the first time in Guam.

THYSANOPTERA

THRIPS OF GUAM

By DUDLEY MOULTON
REDWOOD CITY, CALIFORNIA

This paper is based upon thrips collected by O. H. Swezey and R. L. Usinger on Guam in 1936. Of the 22 species listed here, ten are described as new. Some are world wide, and some less widely distributed. I wish to express my thanks to Mr. Swezey for the privilege of examining this material. The holotypes and allotypes of the species described are in my collection (the numbers in parentheses are index numbers). Paratypes and identified specimens of previously known species are being deposited in the collection of the Entomology Department of the Experiment Station, Hawaiian Sugar Planters' Association, Honolulu.

TEREBRANTIA

SUPERFAMILY THRIPOIDEA HOOD, 1915

FAMILY THRIPIDAE UZEL, 1895

SUBFAMILY HELIOTHRIPINAE KARNY, 1921

1. **Heliothrips haemorrhoidalis** (Bouché).
   Thrips haemorrhoidalis Bouché, Schädl. Garten-Insecten, 42, 1833.
   Heliothrips haemorrhoidalis (Bouché) Burmeister, Handb. Ent. 2:412, 1838.
   Inarajan, June 25, on leaves of *Barringtonia racemosa,* one female, Swezey (5475).

2. **Selenothrips rubrocinctus** (Giard).
   Physapus rubricincta Giard, Soc. Ent. France, Bull., 263, 1901.
   Selenothrips rubrocinctus (Giard) Karny, Ent. Rundschau, Jahrg. 28: 179-181, 1911.
   Dededo, on leaves of *Terminalia catappa* (4567); Agana, on *Pithecolobium dulce* leaves (5471); Piti, on mango leaves (5472); Piti, on rose (5484); Inarajan, on *Barringtonia racemosa* (5492). Many females. Other specimens were taken from unknown hostplants.

SUBFAMILY PANCHAETOTHRIPINAE BAGNALL, 1912

3. **Dinurothrips guamensis,** new species.
   Female holotype: color golden brown darkened with black at sides of head and thorax; antennal segments 1 and 3 to 5 clear yellow, 2 dark golden brown, 6 to 8 brown with

extreme base of 6 yellowish. Fore legs, hind tibiae and all tarsi light golden yellow, with sides of femora and tibiae more or less shaded with blackish brown; middle femora and tibiae dark brown, yellowish at tips. Wings, especially the prominent veins, brown at base and with brown bands in third and fifth sixths, area between veins mostly clear; spines dark brown except distal one on fore vein, which is clear.

Head clearly wider than long, constricted abruptly behind eyes; cheeks arched and narrowed rather evenly toward base; clearly though indistinctly reticulate near posterior margin. Eyes prominent, protruding, especially in front for about one third their length; ocelli approximate, anterior ocellus directed forward. Antennal segment 2 widest, 3 and 4 more or less spindle shaped, 5 roundly conical, 6 and 7 closely joined, 8 long and slender; simple sense cones on 3 and 4.

Pronotum explanate at sides, reticulate; pterothorax broadly rounded at sides and narrowed posteriorly; mesonotum irregularly reticulate cross striate, with a distinct longitudinal suture; metanotum with a median triangular area which is striate longitudinally. Forewings strong, veins fused with marginal veins; with eleven spines on outer anterior margin of fused vein and with one near base and two near tip on inner side; with five irregularly placed spines on fused posterior vein. Each hind wing with a distinct median line extending to tip of wing. Abdominal segments reticulated at sides, clear in middle except for two or three transverse lines near anterior margins of segments 3 to 8. Spines at tip of abdomen short and stout, otherwise there are no conspicuous spines on abdomen.

Total body length 1.12 mm.; head length 0.11 mm., width at eyes 0.166 mm., across cheeks 0.160 mm.; prothorax, length 0.102 mm., width including explanate extensions 0.193 mm. Length of spines on ninth abdominal segment 40 microns, at tip of tenth segment 26 microns, which is approximately one fourth the length of the segment. Antennal segments, length (width): I, 33 (26); II, 33 (26); III, 40 (18); IV, 40 (20); V, 36 (22); VI, 30 (20); VII, 10 (10); VIII, 26 (5); total 216 microns.

Agana, June 26, on *Cestrum pallidum,* female holotype and eight female paratypes, O. H. Swezey (5464).

D. guamensis may be separated from *D. frontalis* Bagnall by its brown middle legs, brown hind femora, also by the absence of black rings or "eye spots" on tergites three to seven. In *D. frontalis,* the legs are yellow with femora slightly deeper in coloration especially the intermediate pair.

Subfamily Sericothripinae Karny, 1921

Tribe Sericothripini Priesner, 1926

4. Scirtothrips clarus, new species.

Female holotype: clear yellow, eyes black, crescents of ocelli orange.

Species with all the characters of the genus, but specifically set apart by its uniformly clear color, including the wings. The mouth cone is short but pointed, and reaches approximately half across prosternum. The single spine at each posterior angle of prothorax is relatively short. The fore vein of forewing has 3-3 basal and three scattered distal spines; hind vein has four spines. Length, 0.93 mm.

Orote Point, July 19, "predacious on red spider", holotype female, one paratype female, Swezey (5479).

S. clarus is most closely related to *S. albus* Jones found in California, but is immediately separated by the shorter mouth cone and orange crescents of ocelli. In *S. albus* the mouth cone extends to the posterior margin of the prothorax and the crescents of ocelli are yellow.

TRIBE DENDROTHRIPINI PRIESNER, 1926

5. **Dendrothripoides ipomeae** Bagnall, Ann. Mag. Nat. Hist. IX, **12**: 624, 1923.

Orote Pt., May 24, on morning-glory leaves, three females, Swezey (5469).

SUBFAMILY THRIPINAE KARNY, 1921

6. **Taeniothrips setipennis** Karny, Delhi Proefstation, Sumatra, **23**: 32, 1925 (from *Megalurothrips*).

Taeniothrips varicornis Moulton, Nat. Hist. Soc. Formosa, Trans. **18**: 292, 1928.

Piti, May 1, in flowers of *Leucaena glauca,* one female, Swezey (5464).

7. **Taeniothrips vitticornis** Karny, Siam Soc. Jour. **16**(2): 103, 1922 (from *Physothrips*).

Taeniothrips canavaliae Moulton, Annot. Zool. Jap. **11**: 295, 1928.

Piti, June 22, in flowers of *Barringtonia racemosa,* Swezey, Usinger; Inarajan, June 25, in flowers of *Barringtonia racemosa,* Swezey, Usinger. Five females.

8. **Thrips leucaenae,** new species.

Female holotype: head and thorax golden brown with back of head lighter and sides of pterothorax darker, abdomen brown; antennal segments 1, 2, and 4 to 7 brown with extreme bases of 4 and 5 lighter, segment 3 yellow; legs yellow with outer middle portions of middle and hind femora darkened with brown; wings brownish, lighter at base; prominent spines on body and wings brown; crescents of ocelli dark orange.

Head clearly wider than long, cheeks arched, back of head cross striate; ocelli large, with a stout spine immediately in front of and behind each posterior ocellus; fifth antennal segment broadly joined to six. Prothorax faintly cross striate and rather conspicuously spinose; posterior margin normally with three inner spines on either side. Spines of metanotal plate placed immediately on the anterior margin. Spines on fore vein of forewing as follows: (right wing) four basal, followed by nine continuing to past middle of wing, two and one distal; (left wing) four basal, followed by six and then 1-1-1-1; hind vein with fifteen-sixteen. Abdominal segments 3 to 7 each with a dark brown transverse line near anterior margin; comb on posterior margin of segment 8 complete but weak; tenth segment with complete dorsal suture.

Total body length 1.04 mm.; head length 0.13 mm., width 0.16 mm.; prothorax length 0.14 mm., width 0.20 mm.; spines on posterior angles of prothorax, outer 66, inner 82 microns; on ninth abdominal segment 106 and on tenth 113 microns. Antennal segments, length (width): II, 33 (24); III, 40 (18); IV, 53 (16); V, 40 (16); VI, 50 (16); VII, 16 microns.

Piti, May 1, June 22, in flowers of *Leucaena glauca* (5464) and *Barringtonia racemosa* (5474), holotype female, five paratype females, Swezey.

The spines of fore veins of forewings of the paratypes show much variation, one paratype having four basal followed by a second series of four and

with three distal. A second paratype, on the right wing, has four basal, four median and four widely scattered distal spines, while on left wing there are four basal, followed by six reaching to middle of wing and four scattered in distal half.

T. leucaenae is most closely related to *T. hawaiiensis imitator* Priesner (*albipes* Bagnall) and might possibly be a variation of this species. However until more specimens are available for comparison, it seems advisable to hold it as a separate species. I have examined a long series of *T. hawaiiensis* from the Hawaiian islands, China and Japan and the arrangement of spines on the fore vein is consistent with the usual two groups of three or four at the base and the three, sometimes four, distal spines. The basal spines invariably end opposite the second or third spine in the series on the posterior vein, never extending to or beyond the middle of the wing. The posterior angle spines of the prothorax also are longer in *leucaenae* than in *hawaiiensis* or its variety *imitator*.

9. Bolacidothrips orizae, new species.

Female holotype: pale yellow with indistinct cloudings of gray on pterothorax and on abdominal segments 1, 2, 5, and 6; antennal segments 1 to 4 clear yellow, 5 to 7 grayish brown. Each forewing is darkened with gray at extreme base and has two dark cross bands which correspond with the gray markings on thorax and abdomen.

Total body length 1.14 mm.; head length 0.147 mm., width 0.132 mm.; prothorax length 0.12 mm., width 0.14 mm.; spines on posterior angles of prothorax, outer 60, inner 40 microns; inner spines on anterior margin 23 microns. Antennal segments length (width): I, 23 (26); II, 33 (23); III, 43 (16); IV, 40 (16); V, 40 (16); VI, 53 (16); VII, 18; total 250 microns.

Inarajan, June 25, on rice, holotype female, two paratype females, Usinger (5488).

This species is co-generic with *graminis* Priesner but may be distinguished by its darkened fifth antennal segment and the uniformly light terminal segments of abdomen. In *graminis,* only the tip of the fifth antennal segment is darkened, and six is pale grayish in basal half.

TUBULIFERA

Family PHLAEOTHRIPIDAE Uzel, 1895

Subfamily PHLAEOTHRIPINAE Karny, 1921

Tribe HOPLOTHRIPINI Priesner, 1927

10. Gynaikothrips uzeli (Zimmermann).

Mesothrips uzeli Zimmermann, Inst. Bot., Buitenzorg, Bull. **7**: 12, 1900.

Gynaikothrips uzeli (Zimmermann) Karny, Treubia **3**: 325, 1923.

Orote Pt., May 24, on leaves of *Ficus* species, thirteen females, six males, Swezey (5470).

The thrips were very abundant in rolled and crumpled new leaves, causing an abnormal growth, or even death.

11. Macrophthalmothrips usingeri, new species.

Male holotype: predominating color brown with red hypodermal pigment; top of head brown, sides lighter and yellowish; eyes black; prothorax with a median brownish patch and lighter at the sides; pterothorax mostly brown; abdomen mostly brown with whitish areas at sides of segments two to seven, segments eight to ten uniformly deep brown. Antennal segments 1 and 2 clear yellow, 3 light brownish yellow, 4 brownish yellow in basal half, brown in distal half, 5 to 8 dark brown with 5 and 6 lighter at extreme bases. All coxae deep brown; otherwise fore legs clear yellow except the blackish thickening at base of femora, a blackish area on outer third quarter of tibia and dark spot on tarsus. Middle and hind femora blackish brown in basal two-thirds, whitish yellow in distal third; middle and hind tibiae blackish brown in middle third, whitish yellow in basal and distal thirds. Wings clear. Spines clear. Eyes occupying entire front of head; cheeks swollen behind eyes, bearing a group of three short, stout, transparent spurs on each side at crest of swelling. Each of enlarged fore femora with an armature on inner side at end of basal third which is about one third as long as the width of femur at this point. Three or four stout transparent spurs on dorsal surface at base of armature and one other on inner margin half way between base of armature and end of femur. Mouth cone long, extending part way over mesosternum. Six double fringe hairs on each forewing.

Total body length, abdomen distended, 1.82 mm.; head length 0.259 mm., width 0.17 mm.; mouth cone 0.220 mm. long. Antennal segments length (width): I completely covered by eyes; II, 40 (26); III, 80 (20); IV, 63 (23); V, 50 (20); VI, 63 (20); VII, 36; VIII, 23 microns. Width of fore femora 0.090 mm., length of spur in inner margin 0.030 mm.

Machanao, May 30, on algae-covered bark, holotype male, Usinger, after whom the species is named (5489).

This species is characteristic of the genus. Its nearest relative is probably *narcissus* Hood found in the Panama Canal Zone. In *narcissus* the abdomen is "darkest at base and much paler distally" while in *usingeri* the last three abdominal segments are deep brown and much darker than the preceding segments. In *narcissus* the fore femora are "pale yellowish white at either end, middle portion pale brownish and usually darker ventrally" while in *usingeri* the fore femora are entirely clear yellow with only a blackened basal ring. In *pulchellus* all femora are blackish brown.

TRIBE HAPLOTHRIPINI PRIESNER

12. Karnyothrips flavipes (Jones).

Anthothrips flavipes Jones, U. S. Dept. Agric. Bur. Ent. Tech. Ser. 23(1): 18, pl. 5, 1912.

Karnyothrips flavipes (Jones) Hood, Pan-Pacific Ent. 3(4): 176, 1927.

Piti, Aug. 16, on unidentified tree, in company with *Ceroplastes floridensis,* four females, Swezey (5481).

13. Karnyothrips melaleuca (Bagnall).

Hindsiana melaleuca Bagnall, Ent. Mo. Mag. II, 21: 61, 1911.

Karnyothrips melaleuca (Bagnall) Hood, Pan-Pacific Ent. 3(4): 176, 1927.

Yona, May 12, on young coffee berries, one female, Usinger (5490).

14. Haplothrips phyllanthi, new species.

Female holotype: color dark brown including all femora and middle and hind tibiae; fore tibiae clear yellow with a slight dusky shading on outer margins; fore tarsi yellow, middle and hind tarsi light brown. Antennal segments 1, 2, 7 and 8 brown, with 2 lighter at tip; 3 to 6 clear yellow with 6 slightly shaded in outer portion. Wings entirely clear. Prominent spines brown.

Head approximately as wide as long, broadly rounded; cheeks arched; eyes large, fully one third length of head; mouthcone short, stumpy; third antennal segment symmetrical, with only the outer sense cone present, hardly twice as long as wide; fourth segment broadly rounded, not quite twice as long as wide, with four sense cones; postocular spines about three fourths as long as eyes, with dilated tips. All spines present on prothorax and with dilated tips. Fore tarsus without tooth. Forewings with six double fringe hairs. Tube about one half as long as head and approximately twice longer than width at base. Hairs at end of tube longer than tube.

Total body length 1.57 mm.; head length 0.16 mm., width 0.15 mm. Prothorax length 0.117 mm., width including coxae 0.22 mm.; tube length 0.088 mm., width at base 0.048 mm. Antennal segments length (width): II, 30 (24); III, 40 (23); IV, 43 (30); V, 40 (23); VI, 33 (20); VII, 30; VIII, 20 microns. Spines at end of tube 100 microns.

Male allotype: similar to female in color and shape but fore tarsus with a short, broad-seated tooth.

Orote Peninsula, Aug. 2, on leaves of *Phyllanthus marianus,* holotype female, allotype male, and three paratype males, Swezey (5480).

This species may be compared with *aculeatus* and *kourdjumovi* but these two have pointed body spines; *cahirensis* another species with antennal segments three to six yellow has the third segment asymmetrical and with two sense cones; *cooperi* would seem to be more nearly related but this species has broader wings, the third antennal segment is stouter and the thoracic spines are clear.

15. Haplothrips gowdeyi (Franklin).

Anthothrips gowdeyi Franklin, U. S. Nat. Mus., Proc. 33: 724, figs., 1908.

Haplothrips gowdeyi (Franklin) Hood, Insec. Insc. Menstr. 1(12): 152, 1913.

Merizo, June 11, on *Heliotropium indicum,* five females, Usinger (5486).

16. Aleurodothrips fasciapennis (Franklin).

Cryptothrips fasciapennis Franklin, U. S. Nat. Mus., Proc. 33: 727, pl. 64, figs. 12, 13, 1908.

Aleurodothrips fasciapennis (Franklin), Ent. News 20: 228, 1909.

Yona, May 1, on young coffee berries, 1 male, Usinger (5490).

17. Mesothrips swezeyi, new species.

Holotype female (?): head, thorax and fore legs blackish brown, abdomen, middle and hind legs black with joints of legs lighter. Antennae uniformly blackish brown; prominent spines light yellow, almost clear. Wings light brown; forewings with a median dark streak that ends in a broadened cloudy area at about two thirds length of wing.

Head almost twice longer than width at eyes, where it is broadest, with cheeks almost straight and narrowed toward base; cheeks with several moderately short stout spines; eyes semiovate. Antenna with segments 3 and 4 elongate clavate, with 4 somewhat larger; 8 slightly constricted at base, clearly separated from 7. Anterior margin of prothorax almost straight; prothorax with a median, full-length thickening; postangular spines alone prominent, others small, all with pointed tips. Fore femora greatly enlarged, each fore tarsus armed with a stout, broad-seated tooth. Wings long, somewhat narrowed in the middle, fore pair with 32 double fringe hairs. Spines on sides of abdomen becoming very long and prominent on segments 6 to 9. Tube almost as long as head, more than four times longer than width at base.

Total body length 2.87 mm.; head length 0.485 mm., width across eyes 0.264 mm., near posterior margin 0.220 mm. Prothorax length 0.264 mm., width not including coxae 0.47 mm.; tube length 0.44 mm., width at base 0.102 mm. Fore femora length 0.47 mm., width at middle 0.19 mm. Antennal segments length (width): II, 80 (43); III, 106 (46); IV, 126 (50); V, 113 (46); VI, 96 (33); VII, 80 (30); VIII, 56; total 690 microns.

Upi, May 5, under bark of *Hibiscus tiliaceus,* holotype female (?), Swezey (5465).

This species may be separated from *jordani* by its uniformly blackish brown antennae, in *jordani* antennal segments three to eight are yellowish brown. In *jordani* also there is a thickened ring at base of head while this is wanting in *swezeyi.*

18. Mesothrips guamensis, new species.

Male holotype: blackish brown, only joints of legs and fore tarsi lighter; wings brownish.

Head 1.8 times longer than wide, sub-rectangular in shape, cheeks straight, slightly narrowed posteriorly and with a basal thickening; eyes broadly rounded, not protruding; cheeks with several scattered small spines; postoculars longer than eyes, pointed. Mouth cone reaching two thirds across prosternum, narrowed near the middle and from there more or less pointed to tip. Antennal segments 3 to 5 broadly clavate, 6 and 7 subovate but narrowed at base, 8 broadly spindle shaped. Segment 3 with two sense cones, 4 with five sense cones. Anterior margin of prothorax deeply concave, with a median thickening extending from lower line of crescent to a strong transverse line in front of posterior margin, forming an inverted T. All normal spines present, the outer pair at posterior angles longest, inner pair somewhat shorter, midlaterals still shorter and those on anterior margin and angles much smaller. Fore legs greatly enlarged, each fore tarsus armed with a broad-seated tooth. Wings long, slightly narrowed in the middle, each forewing with 34 double fringe hairs. Spines on posterior angles of abdominal segments 5, 6, 7 and 9 very long. Tube approximately 0.8 as long as head and 3.5 times longer than width at base.

Total body length 3.5 mm.; head length 0.47 mm., width across eyes 0.264 mm.; near posterior margin 0.22 mm. Prothorax length measured from a transverse line connecting anterior angles 0.308 mm., and 0.235 mm. when measured from the lower middle point of the anterior margin crescent; tube length 0.367 mm., width at base 0.102 mm. Antennal segments length (width): I, 50 (50); II, 76 (40); III, 113 (46); IV, 116 (50); V, 106 (43); VI, 66 microns. Segments 7 and 8 are not in position to be measured accurately. Length of spines: postoculars 150; those on anterior margin and angles subequal, 66;

midlaterals 83; on posterior angles outer 133, inner 100; on ninth abdominal segment 367, at tip of tube 294 microns. Length of fore femora 0.455 mm., width near middle 0.176 mm.

Upi, May 5, under bark of *Hibiscus tiliaceus* along with *Mesothrips swezeyi,* holotype male, Swezey (5465).

This species, although having the same general appearance and color as *swezeyi* is easily separated by the crescent-shaped fore margin of prothorax. From *jordani* it may be separated by its uniformly dark brown antenna; from *setidens* by its broadly triangular tarsal tooth without setae; and from *alluaudi* Vuillet which has a clear yellow third antennal segment (in *guamensis* the antenna is uniformly dark brown).

Subfamily MEGATHRIPINAE Priesner, 1927

Tribe COMPSOTHRIPINI Priesner, 1927

19. Bolothrips artocarpi, new species.

Female holotype: head and abdominal segments 5 to 9 black, thorax and abdominal segments 1 to 4 deep golden brown and blackened at the sides. Antennal segments 1 to 4 mostly golden brown with distal half of 3 and much of 4 mottled with gray; 5 to 8 uniformly deep brown. Legs blackish brown with inner distal ends of all femora whitish to golden yellow; fore tibiae golden brown, middle and hind tibiae blackish brown. Wings washed with brown, darkened at bases. Prominent spines blackish brown.

Head only slightly longer than wide, cheeks broadly rounded and evenly narrowed to base; eyes fairly small and flattened on outer margin. Antennae one and one third longer than head, segments 3 to 7 pedicellate, 3 and 4 oblong conical, 5 and 6 broadly clavate, 8 clearly separated but broadly joined with 7. Postocular spines placed close behind eyes, pointed. Prothorax with a median, full length darkened line; with all normal spines present, pair at posterior angles long, pointed, others very short. Fore tarsi unarmed. Forewings with eight double fringe hairs. Tube two thirds as long as head.

Total body length 1.96 mm.; head length 0.25 mm., width behind eyes 0.22 mm.; prothorax length 0.117 mm., width excluding coxae 0.279 mm.; tube length 0.176 mm., width at base 0.073 mm. Antennal segments length (width): III, 66 (31); IV, 60 (33); V, 56 (31); VI, 56 (31); VII, 36 (26); VIII, 23; total 330 microns. Length of spines, postoculars 60 microns, on prothorax, midlaterals and those on anterior angles about equal, 26 microns; outer on posterior angles 76 inner 46 microns; on ninth abdominal segment 100 and at tip of tube 140 microns.

Mt. Alifan, May 21, on dead twigs of *Artocarpus communis,* holotype female, one paratype female, Swezey (5468).

This species has the general appearance of *Hoplothrips hoodi* Morgan in color and general appearance, according to Morgan's description, especially in the lighter colored proximal antennal segments which become gradually darker and also because of the light color of inner distal tips of all femora. It appears however that the species should more properly be placed in the genus *Bolothrips,* and close to *B. semiflavus* Moulton [B. P. Bishop Mus. Occ. Papers **15** (12): 147, 1939], which name refers to the color of the antennae. The species *artocarpi* may be separated from *semiflavus* by the rounded shape of the eyes

on the underside of the head, in *semiflavus* the eyes are prolonged and extend backward on the ventral side.

20. **Machatothrips artocarpi** Moulton, Nat. Hist. Formosa, Trans. 18: 322, 1928.

Upi, May 5, under bark of *Hibiscus tiliaceus,* five specimens (5465); Piti, Oct. 1, under bark of *Heritiera littoralis,* eight specimens (5483); Yigo, Oct. 18, under bark of *Elaeocarpus joga,* two specimens (5485); all collected by Swezey.

21. **Rhaebothrips lativentris** Karny, Suppl. Ent., Deutsch. Ent. Mus. 2: 128, 1913.

Umatac, May 14, on leaves of *Elephantopus spicatus,* seven females, four males, Swezey (5466).

22. **Rhaebothrips fuscus,** new species.

Female holotype: color blackish brown with joints of legs and tarsi lighter, fore tibiae lighter especially at ends and fore tarsi almost yellow; antennal segments 1 and 6 to 8 blackish brown, 2 lighter in outer half, 3 and basal two thirds of 4 clear yellow, distal part of 4 clouded with brown, 5 yellowish in basal half, blackish brown in distal half. Wings washed with brown, lighter in basal third; median streak darkened in middle third; prominent spines brownish yellow. Head 1.6 longer than wide, cheeks straight, gently narrowed in basal fourth and with a thickened ring at posterior margin; postocular spines about one fourth longer than eyes; mouth cone broadly rounded, reaching one half across prosternum; antenna 1.8 longer than head, segment 3 longest, distinctly longer than 4 and with two sense cones. Prothorax with concave fore margin, all normal spines present, those at posterior angles longest. The median thickening extends from anterior margin to near posterior margin, being almost complete. Fore legs only slightly enlarged, fore femora normal, not bent as in the male; fore tarsus with a claw-shaped tooth near end on the inside much as in *Karnyothrips.* Median streak of forewings conspicuous only in middle third. Sixteen double fringe hairs on forewings. Tube 0.8 as long as head, three times longer than width at base.

Total body length (abdomen distended) 3.04 mm.; head length 0.352 mm., width behind eyes 0.22 mm.; prothorax length 0.176 mm., width without coxae 0.323 mm.; tube length 0.308 mm., width at base 0.102 mm.; length of spines, postoculars 0.116 microns; those on anterior margin and angles 40 microns, midlaterals 73 microns, outer on posterior angles 88 microns, on ninth abdominal segment 260 microns, at tip of tube 176 microns. Antennal segments length (width): II, 66 (36); III, 123 (34); IV, 113 (33); V, 93 (33); VI, 80 (30); VII, 56 (26); VIII, 26, total, 632 microns.

Male allotype, similar in size and color to female but darker, almost black. Wings wanting. Fore legs greatly enlarged, fore femora with a strongly curved, almost angular inner margin and outer margin broadly rounded.

Piti, May 1, on grass, holotype female (macropterous), allotype male (apterous), two females, one male (5487); Sasa, type locality, June 26, from unknown host plant, one female, two males (5493); all collected by Usinger. Also listed as type material: Fiji Islands, Taviuni, two males (3406), Viti Levu, two males (3414); Wayaya, one female, two males (3476); Darnley Island, Torres Straits, one male, one female (3416); all collected by A. M. Lea.

The species *fuscus* is larger than *lativentris* Karny but smaller than *major* Bagnall. In *lativentris,* the postocular spines are shorter than the eyes, the mouth cone reaches nearly to the posterior margin of the prosternum and the third and fourth segments of antenna are about equal in length, being 100 microns long. *R. major* Bagnall, a larger species, has darker wings and twenty-eight double fringe hairs on forewings.

HOMOPTERA

CERCOPIDAE OF GUAM

By Dr. V. Lallemand
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(Translated from the French by O. H. Swezey.)

The following observations are made on Cercopidae collected in Guam in 1936, and sent to me through the kindness of O. H. Swezey.

1. **Lallemandana phalerata** (Stål).

Ptyelus phaleratus Stål, Ofv. Vet.-Akad. Förh., 250, 1854; Eugenies Resa, Hemipt., 287, 1859.

Clovia phalerata (Stål) Hemiptera Africana 4: 75, 1866. Lallemand, Gen. Insect. Homopt. 143: 44, 1912.

Coloration and design quite variable; frons may be completely brown; majority with three transverse bands, of which the first is quite fine and often less distinct than the other 2; posterior part of pronotum varies strongly in shade, ochreous brown, light or dark; 2 anterior bands of elytra may go only partly from base of clavus, or sometimes quite broad along the suture, passing from it upon the corium or scarcely passing the radius; clavus in apical half and corium in the adjacent area may be paler, almost brownish yellow.

Ritidian Point, April 15, ex ferns, Bryan; Mt. Alifan, April 20, Bryan; Agana, May 4, ex *Polygonum,* Swezey, May 25, ex *Jussiaea,* Usinger, June 26, ex *Jussiaea,* Usinger; Upi Trail, May 5, Usinger; Mt. Chachao, May 16, ex *Cycas,* Sept. 22, ex *Scaevola frutescens,* Swezey; Machanao, Aug. 6, ex *Piper guahamense,* Swezey; Asan, Aug. 22, ex *Ficus,* Swezey; Orote Peninsula, Sept. 27, ex *Psychotria,* Swezey. Sixteen specimens.

2. **Lallemandana phalerata luteomaculata,** new variety.

Transverse bands of vertex generally paler, clear brown instead of blackish brown, the first band not distinct, even absent; band on scutellum much wider; about the basal fourth of clavus and a more or less rectangular spot on middle of corium yellow; middle of frons brown, on each side of which a fine yellow band starting from mesosternum unites with that of the opposite side at anterior margin of head.

Talofofo, April 11, Bryan; Ritidian Point, April 15, Bryan, June 30, ex *"hamlat",* Usinger; Barrigada, July 22, ex *Premna,* Swezey; Machanao, Aug. 6, Swezey; Dededo, Sept. 7, ex *Ipomoea pes-caprae,* Swezey.

These few examples constitute a well set-off variety, intermediate between the species and *Lallemandana eugeniae* (Stål) which I have reviewed as only a variety of *phalerata.*

3. **Lallemandana phalerata eugeniae** (Stål).
Clovia eugeniae Stål, Hemiptera Africana 4: 75, 1866.
Mt. Alifan, May 21, 1 specimen, Swezey.

4. **Lallemandana swezeyi,** new species.

Upper part of body very clear ochreous brown, clothed with a reddish villosity; apical margin of elytra slightly darker; under surface a little paler; posterior part of clypeus, anterior half of proclypeus, cheeks, a series of spots forming a band on the sides of the sternum, brownish; second joint of rostrum anterior tibiae, extremity of tarsi and their spines, brown; wings hyaline, slightly smoky, veins black. Vertex much wider than long, shorter than pronotum; extremity of elytra rounded. Length 7 mm.

Upi Trail, May 5, ex ferns, Swezey, Bryan.

MEMBRACIDAE OF GUAM

By O. H. Swezey

Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

1. **Leptocentrus taurus** (Fabricius).

Membracis taurus Fabricius, Syst. Ent., 676, 1775.

Leptocentrus taurus (Fabricius) Stål, Analect. Hemipt., 386, 1866. Funkhouser, Cat. Hem. Membr., 428, 1927.

Umatac, March 28, Bryan; Mt. Alifan, March 28, Bryan; Ritidian Pt., April 15, 16, 22, on "pengua" and *Hernandia peltata,* Bryan; Tarague, April 19, Bryan; Yona, April 29, on cane, Bryan; Piti, April 30, on *Hibiscus tiliaceus,* Swezey and Usinger; Mt. Tenjo, May 3, on *Leucaena glauca,* Swezey; Upi Trail, May 5, Swezey; Umatac, May 28, on *Thespesia populnea,* Swezey; Tumon, May 30, on *Intsia bijuga,* Swezey; Mt. Alifan, June 19, on *Pipturus argenteus,* Swezey; Machanao, June 30, Swezey; Piti, Oct. 12, on *Glochidion marianum,* Swezey. Besides these records, this insect was observed, but no specimens taken in Asan, Nov. 2, on *Erythrina indica,* Swezey; Piti, on *Malachra capitata,* Sept. 17, Swezey.

This is the only member of the Membracidae which we found in Guam. It is commonly called the "Carabao bug" on account of its lateral thoracic horns. It is generally distributed and occurs on many kinds of trees and plants, but not numerous enough to be rated as a pest. W. D. Funkhouser has kindly verified my identification.

This insect is widely distributed in India, Ceylon, Borneo, Timor, and the Philippines. It was not previously recorded from Guam, though collected by Fullaway in 1911.

PSYLLIDAE FROM GUAM

By JOHN S. CALDWELL
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Through the kindness of O. H. Swezey, I have had the opportunity of examining a small but interesting collection of psyllids collected in Guam in 1936, containing six species. Of these, one species and one variety are here described as new. The established species are well known and are listed here with their host records. The collection and distribution notes are by O. H. Swezey.

Leptynoptera sulfurea Crawford. Host, *Calophyllum inophyllum.*

Tyora ornata (Kirkaldy). Host, *Heritiera littoralis.*

Mesohomotoma hibisci (Froggatt). Host, *Hibiscus tiliaceus.*

Arytaina iolani Crawford. Host unknown.

Arytaina variabilis Crawford variety *glabrascuta,* new variety. Host *Intsia bijuga.*

Trioza guama, new species. Host, *Glochidion marianum.*

SUBFAMILY PAUROPSYLLINAE

1. **Leptynoptera sulfurea** Crawford, Philip. Jour. Sci. **15**(2) : 147, pl. 1, figs. 5, 6, 1919.

   Leptynoptera sulfurea variety *rubrocincta* Uichanco, Philip. Jour. Sci. **18** (3) : 271, pls. 1, 3, 4, 5, figs. 4, 20, 38, 48, 1921.

   Leptynoptera didactyla Laing, Ann. Mag. Nat. Hist. IX, **9**: 554, fig. 1, 1922.

   Yigo, Nov. 13, reared from *Calophyllum inophyllum* leaves, Swezey; Umatac, on beach, on *Calophyllum inophyllum,* May 28, Swezey.

   L. sulfurea was described from Amboina, Moluccas, on a single specimen, without mention of food plant. The variety *rubrocincta* was described from the Philippines as occurring on *Calophyllum inophyllum,* the young feeding beneath the rolled over edge of the leaves. The Guam specimens were reared from the same tree, and similarly situated on the leaves. They agree pretty well with the characters which Uichanco gives as distinctions between the variety and *sulfurea,* except that the Guam specimens lack the red markings on the abdomen. Uichanco had one female in which these were not evident. He concludes: "When more is known about the Moluccan insect, the variety *rubrocincta* may finally have to be merged with the species."

   The species *didactyla* described from Fiji in 1922, on *Calophyllum inophyllum* seems more likely to be the same as Guam material, especially on account of white lines on the thorax which are not mentioned in the description of *sulfurea.*

   As *Calophyllum inophyllum* is widely spread in Pacific tropics, no doubt

this psyllid will be found more widely spread when more collecting is done. The tree occurs in Hawaii, but does not have the psyllid.

SUBFAMILY CARSIDARINAE

2. **Tyora ornata** (Kirkaldy).

Nesiope ornata Kirkaldy, Linn. Soc. N. S. Wales, Proc. **33**: 390, fig. 5, 1908. Crawford, Philip. Jour. Sci. **15**(2): 161, 1919.

Tyora ornata (Kirkaldy) Crawford, Ins. Samoa **2**(1): 30, 1927.

Described from Fiji without mention of host plant, but a later record from Fiji (1922) states that it was "feeding on the underside of the leaves of *Heritiera littoralis.*" This species has also been recorded from Borneo. The Guam material (28 specimens) was all collected from the leaves of *Heritiera littoralis,* a tree growing near the shore along the road to Sumay, June 21, and July 15, Swezey. This is another widespread tree in the Pacific, and no doubt this psyllid will be found more widely distributed by future collecting. It was being preyed on by larvae of a lacewing fly.

3. **Mesohomotoma hibisci** (Froggatt).

Tyora hibisci Froggatt, Linn. Soc. N. S. Wales, Proc. **26**: 287, pl. 15, fig. 8, pl. 16, fig. 18, 1902.

Mesohomotoma hibisci (Froggatt) Crawford, Ins. Samoa **2**(1): 30, 1927.

Piti, April 30, Swezey and Usinger; Mt. Alifan, May 21, Swezey and Usinger; Machanao, June 30, Aug. 6, Swezey; Barrigada, July 22, Swezey; Ritidian Pt., Aug. 6, Swezey, all collected on *Hibiscus tiliaceus* leaves. Infestations by this psyllid noted on same tree at Inarajan, June 8; Fadian, Aug. 19; Yigo, Oct. 21. Collected by Fullaway in 1911.

Described from Brisbane, Australia, where it occurred on *Hibiscus tiliaceus,* collected by Tryon. In the collection of the Hawaiian Sugar Planters' Association are some specimens collected on *Hibiscus* at Suva, Fiji, Dec. 12, 1904, probably by Perkins. The species is also recorded from New Caledonia and Tahiti. In Guam, growing leaves of *Hibiscus tiliaceus* are infested, and the young insects are hidden by considerable white flocculent waxy material. Commonly found in all places. They are preyed on by larvae of a lacewing fly and a syrphid fly.

SUBFAMILY PSYLLINAE

4. **Arytaina iolani** Crawford, Philip. Jour. Sci. **15**(2): 174, pl. 2, fig. 11, 1919.

Ritidian Pt., June 2, Usinger; Agana, June 26, Usinger; Talofofo, June 19; Piti, Sept. 1, swept from morning-glory vines, Swezey. One specimen each.

Described from Los Banos, Philippines, without mention of food plant. The single host plant record from Guam is not sufficient to be dependable.

5. Arytaina variabilis glabrascuta, new variety (fig. 1).

General color light tan to dark brown with vertex of lighter shade; four basal antennal segments lighter than terminal. Apex of forewing with five large dark areas between the veins, the first in the cubital cell and the last almost at apex of pterostigma; a dark spot present at apex of clavus and sometimes a dark spot present on membrane at junction of cubitus and medius. Structurally similar to the species except body is not covered with stiff pubescence; veins lack setae except costa; pterostigma slightly more elongate, and antennae are longer than body without wings. Length to tip of forewing, male 2.7 mm., female 3 mm.; forewing, male 2 mm., female 2.2 mm.

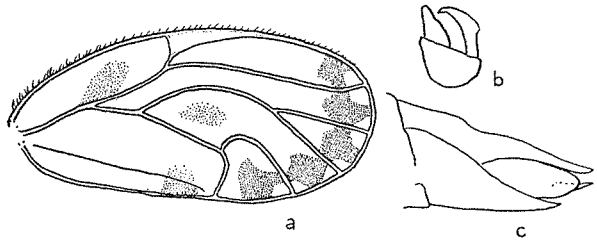

FIGURE 1.—*Arytaina variabilis glabrascuta,* new variety: **a**, forewing of male; **b**, profile of male genitalia; **c**, profile of female genitalia.

Orote Peninsula, April 9, Bryan, male holotype, female allotype, and paratypes; Umatac, Tumon, Upi Trail, Machanao, Mt. Alifan, Barrigada, from March to July, Bryan, Swezey, paratypes. Umatac, Mar. 28, Bryan; Magua, Mar. 31, Bryan; Tiyan, April 2, Bryan; Orote Peninsula, April 9, Bryan; Mt. Alifan, April 20, Bryan, June 19, Swezey; Piti, May 1, Usinger; Upi Trail, May 5, Usinger; Tumon, May 30, Swezey; Machanao, June 4, 30, Swezey and Usinger; Barrigada, July 6, 22, Swezey. Ninety-five specimens.

This insect was very abundant in Guam, always on the *ifil* tree (*Intsia bijuga*), an important tree of the native forests, though a few stragglers were taken on other trees.

The species *variabilis* was described from the Philippines by Crawford in 1917, without mention of food plant. It was later recorded from Malay and Borneo. No doubt it also occurs on *Intsia bijuga,* as this tree grows there also.

SUBFAMILY TRIOZINAE

6. Trioza guama, new species.

General color; body entirely black except ventral sclerites of abdomen narrowly edged with ivory; antennae light yellow except first and last two segments black; genal cones white; tibiae and tarsi light yellowish. Vertex scarcely deflexed; hind margin not concave. Genal cones about one fourth as long as vertex, blunt, slightly divergent, greatly lowered from but parallel to the plane of the vertex. Antennae longer than width of head. Head almost as broad as thorax; eyes prominent. Thorax not arched. Forewing little over twice as long as broad; veins not setose; radial sector short, curved toward costa; marginal cells subequal. Posterior spurs present on metacoxa; hind tibia with no basal spur but with apical ratio of 2-1. Length to tip of forewing, 2.5 mm.; forewing 2 mm.

Piti, Aug. 18, on *Glochidion marianum,* Swezey, holotype male. In collection of Experiment Station, Hawaiian Sugar Planters' Association.

APHIDIDAE AND ALEURODIDAE OF GUAM

By O. H. Swezey
Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

Family APHIDIDAE

1. **Aphis gossypii** Glover, Pat. Office Rec., 62, 1854.

The widely distributed cotton aphis was found to a slight extent on taro. Some bad infestations of it were seen on eggplant. Fullaway reported it on cotton and cowpeas in 1911, and what was probably the same species on watermelon, cucumber, eggplant, and radish. He also reported an undetermined aphid on beets.

From parasitized *gossypii* on taro at Inarajan, May 14, 6 *Aphelinus* issued. They appear to be near *Aphelinus maidis,* but do not have the darkened mid and hind tibiae of that species.

2. **Aphis maidis** Fitch, Nox. and Ben. Ins., New York 2 : 318, 1856.

The corn aphis was very abundant on corn at times. It especially infested the tassels just before or at the time of expansion. I did not find it on other plants, but in 1911, Fullaway reported it also occurring on broom and Kafir corn. Three species of ladybeetles were found feeding on the corn aphis, *Harmonia arcuata, Coelophora inaequalis,* and *Anisolemnia mulsanti.* The first mentioned was most abundant and very effective in reducing an infestation. The last mentioned was only occasionally seen. A syrphid fly was commonly seen also, its green larvae feeding on aphids.

3. **Aphis nerii** Boyer de Fonscolombe, Soc. Ent. France, Ann. **10** : 167, 1841.

The milkweed aphis was found once at Piti. A colony occurred on the common milkweed (*Asclepias curassavica*) at the Agricultural School Farm. Another colony was found on the same plant at Fadian.

A large green aphid was found on the large marsh reed (*Trichoon roxburghii*) on two occasions, once at Inarajan and again at Piti, but I failed to preserve any for identification.

Aphis sacchari was not observed at any time on sugar cane.

Fullaway reported in 1911 an aphid on banana resembling *Pentalonia nigronervosa,* a species known on banana in Hawaii.

Family ALEURODIDAE

1. **Neomaskellia bergii** (Signoret).

Aleurodes bergii Signoret, Soc. Ent. France, Ann. IV, **8** : 395, 1868.
Neomaskellia bergii (Signoret) Laing, Ins. Samoa **2**(1) : 45, 1927.

This sugar cane aleurodid was found sparsely in small colonies on cane in a small field on the Sumay Road about two miles south of Piti, October 3, 17, 1936. At Mata, November 11, some larger colonies were found on a single stool of cane in a garden. They were attended by the "fire ant" (*Solenopsis geminata rufa*). On Mt. Alifan, May 26, a colony was found on the grass *Paspalum conjugatum.*

This aleurodid is known to infest sugar cane from Mauritius, Ceylon, Java, Philippines, Formosa, to Fiji and Samoa. This is the first record of it in Guam.

Immature aleurodids were found on taro leaves in a gulch near Mt. Tenjo, May 3. No adults were obtained and no material preserved.

NEUROPTERA

NEUROPTEROID INSECTS FROM GUAM

By NATHAN BANKS
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In 1936, O. H. Swezey and R. L. Usinger collected insects on Guam, and through the kindness of Mr. Swezey, I have examined the neuropteroid forms. There are 20 species present in the collection, the great majority psocids; five species are new. The others were first described from various parts of the Pacific area, but their real distribution is not known, since these fragile insects have been collected from but few islands. Fair sized collections have been made in only two island groups, the Hawaiian and Philippine, and these have almost nothing in common. Guam, however, has species from both groups.

CORRODENTIA

FAMILY PSOCIDAE

1. **Psocus kauaiensis** Perkins, Fauna Haw. 2(2): 79, 1899.

Mt. Tenjo, May 5; Dededo, May 11; Machanao, June 5; Sumay Road, June 21, on *Heritiera littoralis;* 8 specimens.

This is a common species in the Hawaiian islands.

2. **Myopsocus bakeri** Banks, Phil. Jour. Sci. **11,** D: 199, pl. 1, fig. 3, 1916.

Tarague, May 17, 5 specimens.

All are darker than the type from Luzon, but the marks are in the same place, and the venation and hind border of the wing the same as the type, which came from the Philippines.

3. **Hemipsocus chloroticus stenostigmus,** new variety (fig. 1, *d*).

Differs from the numerous *chloroticus* seen in having the pterostigma much narrower, only little more than one half as wide as the costal area before it, and the posterior side, instead of being plainly bowed, is straight for most of the distance; the radial sector and medius connected by a short cross vein usually united at one point. Fork of radial sector is as long as its pedicel; fork of medius 3 times as long as pedicel; areola postica subtriangular, more than twice as long as high.

Agana, May 4, 1 small male.

Variations are so common in the venation of Psocidae that it is hardly safe to call this a separate species, even though the shape of the pterostigma is quite constant.

True *H. chloroticus* occurs from Ceylon eastward to Formosa, and also in the Philippines.

4. Caecilius arotellus, new species (fig. 1, *a, c*).

Body pale yellowish, no mark on clypeus; vertex sometimes a little darker, and sometimes darker on sides of thoracic notum; legs and antennae pale. Wings hyaline, sometimes very faintly yellowish, often yellowish on pterostigma, not at all fumose. The wings are moderately slender; in the forewings the stigma is long, swollen behind, and tapering to tip; the union of radial sector and medius is quite short, but little more than one half the basal section of radial sector; the fork of radial sector is very slender; much longer than its pedicel; the branches of the medius nearly straight; the areola postica, nearly twice as long as high, highest toward base, and reaching fully one half way on hind margin to the branch of medius; the principal veins have one row of hairs, the stigma with many hairs. In hindwing, the medius curves up less divergent from the radial sector than usual; union of radial sector and medius is about twice as long as the basal section of radial sector. Length of forewing, 2 to 2.2 mm.

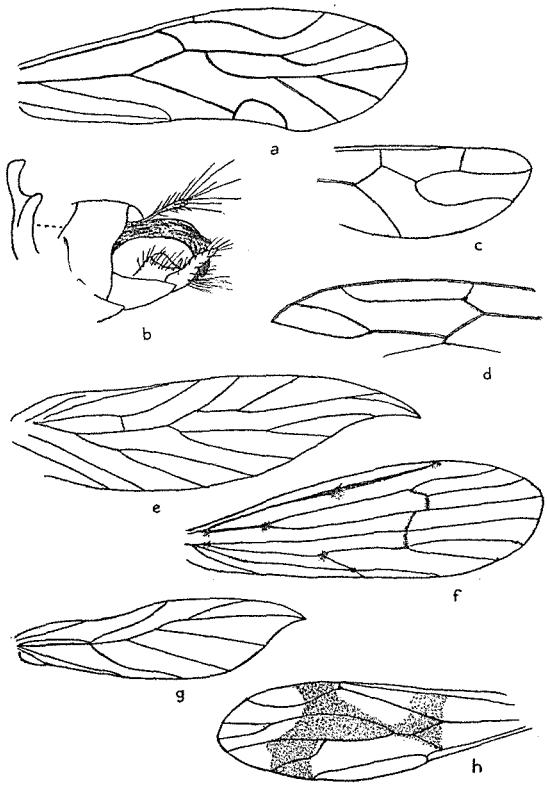


FIGURE 1.—**a,** *Caecilius arotellus,* forewing; **b,** *Œcetinella punctata,* genitalia from side, and lower appendage from below; **c,** *Caecilius arotellus,* part of hind wing; **d,** *Hemipsocus chloroticus* variety *stenostigmus,* stigma; **e,** *Echmepteryx pretiosa,* forewing; **f,** *Œcetinella punctata,* forewing; **g,** *Echmepteryx pretiosa,* hindwing; **h,** *Mepleres ornatus,* forewing.

Piti, Machanao, Mt. Tenjo, Dededo, Fonte Valley, Sumay, Merizo, Upi Trail, Santa Rosa Peak, May, July, August, October, November, many speci-

mens. Type and paratypes in collection of Hawaiian Sugar Planters' Association, paratypes also in Museum of Comparative Zoology (no. 23828).

The venation is similar to that of *C. luridus* Enderlein of New Guinea, but the wing is more slender, the areola postica larger, and the wing not fumose. The apical half of forewing is very much like *C. angustus* Enderlein of Australia, but the wing is not so long, and the cubitus runs nearer to the anal than to the medius; from *C. castella* Banks of the Philippines it differs in having the fork of the radial sector much more slender, and in the larger areola postica; these differences hold in a considerable series of each species.

5. **Mepleres ornatus,** new species (fig. 1, *h*).

Head and thorax rather rufous, both with long, nearly erect, pale hairs, numerous on the lower part of face; legs yellowish; antennae yellowish with many long, stiff hairs; abdomen yellowish brown, short. Wings whitish, with whitish veins, except in the brown areas. Forewing with a transverse mark behind base of stigma back to hind margin, connected to a broad median streak behind radial sector over the median but stopping before fork of medius, and extending above to costal margin beyond stigma, and behind over basal part of the areola postica. Hindwings with a faint brown mark over the basal part of radial sector and wing tip faintly clouded. Hairs along veins and wing margin long as usual. Fore wing slender; stigma as long as width of wing, but not enlarged beyond middle, sides parallel; radial sector and medius united for a short distance; fork of radial sector wide at base and as long as its stem; fork of medius very slender and about one half as long as fork of radial sector. Areola postica very long, nearly as long as the stigma, nearly evenly convex, and at greatest width much wider than the space above to the medius. In the hind wing, the union of radial sector and medius is twice as long as in forewing; the branch of radial sector is much nearer to the forking than to the tip of wing. Length of forewing, 2 mm.

Piti, July 5, 1 specimen; Barrigada, June 12, 1 specimen. Type in collection of Hawaiian Sugar Planters' Association, paratype in Museum of Comparative Zoology (no. 23829).

6. **Pseudocaecilius marshalli** Karny, Jour. Ent. Res. **16**: 288, 1926.

Piti, July 5, Oct. 27; Sumay, Oct. 17; Machanao, June 5; Libugon Farm, July 10.

One specimen has the radial sector and medius united at only one point, and in some others there is only a very short space of union; in one it is united for a greater distance than figured by Karny. It was described from the Fiji islands.

7. **Peripsocus suffitus** Enderlein? Hist.-Nat. Mus. Nat. Hung., Ann. **1**: 293, pl. 14, fig. 71, 1903.

Tumon, Nov. 13.

This specimen is much like *suffitus* in wing shape and color, but the stigma is darker and slopes more toward tip, and fork one is longer. *P. suffitus* was described from one specimen from New Guinea.

8. **Ectopsocus hawaiiensis** Enderlein, Zool. Anzeig. **41**: 356, 1913.

Machanao, June 5, 2 specimens.

9. **Micropsocus waterstradti** Enderlein, Zool. Jahrb. Syst. **14**: 547, pl. 35, figs. 11, 12, 1901.

Mt. Tenjo, May 3, 3 specimens.

The stigma shows a distinct basal dark spot as is usual in this genus, although it is not shown in Enderlein's original figure. The branches of the medius are nearer each other than in his figure, but vary in the three specimens. The species was described from New Guinea.

10. **Psyllipsocus ramburii** Selys-Longchamps, Ent. Mo. Mag. **9**: 146, 1872.

Piti, Nov. 2, 8, two specimens.

Widely spread, often in houses or greenhouses. Both specimens have the venation with the five-sided cell as figured by Enderlein (Mus. Nat. Hung., Ann. **1**: pl. 11, fig. 59c) but the forks of the radial sector and medius are not connected by a cross vein.

11. **Psylloneura simbangana** Enderlein, Hist.-Nat. Mus. Nat. Hung., Ann. **1**: 316, figs., 1903.

Piti, Sept. 20, 2 specimens.

Enderlein's type was perhaps teneral and thus reddish; these are wholly dark, and wings evenly fumose; they agree in venation with his figure 58c. It was described from southern Dutch New Guinea.

12. **Sva dahliana** Enderlein, Zool. Jahrb. Syst. **20**: 110, 1904.

Machanao, June 5; Agana, May 25; Tarague, May 17. One specimen each.

This species was described from an alcoholic specimen from Ralum, Bismarck Archipelago. In these dried specimens, the scales are more numerous; those on the wing, seen from behind, have a decidedly purplish hue, and those on the thorax above, seen from in front, are also purplish. The body and wings are very dark brown, in one the head is almost black; the antennae are pale, except the brown basal part; the hair around outer margin of forewing is snow white, before it, the hair on costa is nearly black.

13. **Echmepteryx pretiosa,** new species (fig. 1, *e, g*).

Face yellowish to gray, hair in middle and below white, darker each side by eyes; eyes with short, erect hair; vertex pale, with white hair, sometimes a dark spot each side; thorax with mostly pale yellowish hair, a tuft of dark each side in front; antennae gray, with basal joint brown, covered with fine, stiff hair; legs pale, tibiae with two dark bands; wings with mostly yellowish to whitish scales, but with spots and transverse bands of dark brown to black; two brown spots near base; an almost black band near middle, widened in middle behind, more or less connected to lateral dark spots beyond, and thence to a larger median spot; the extreme wing tip dark; anterior fringe mostly yellowish, but from middle out with patches of dark; hind fringe white toward base, then a large black patch beyond which is mostly whitish to gray.

Fringe on outer side fully one half width of wing. The scales as usual in genus are partly broad and short, with erect scales longer and slender, pointed; these scales in the proper light have a golden shimmer. Hind wings whitish hyaline, with gray fringe toward

tip in front, and a very long white fringe on outer side, which toward base is fully two thirds of the wing width.

Both wings are falcate at tip, the fore pair more strongly so; hindwing with the front margin toward base plainly concave; venation as figured. Length of forewing, 1.4 to 1.6 mm.

Piti, Agat, Machanao, Upi Trail, Mt. Tenjo, Mt. Chachao, and Mt. Alifan, mostly in May, a few in late April and early June.

Type and paratypes in Hawaiian Sugar Planters' Association collection, also paratypes in Museum of Comparative Zoology (no. 23830).

NEUROPTERA

Family NOTHOCHRYSIDAE

1. **Chrysopa oceanica** Walker, List Neur. Ins. Coll. British Mus. (2) : 238, 1853.

Yigo, Piti, Orote Peninsula, Umatac, Barrigada, Sumay, March to November, many specimens.

This species is known from various islands of the Pacific.

2. **Chrysopa tagalica** Banks, Wash. Ent. Soc., Proc. **15** : 174, 1913.

Mt. Alifan, May 21, Usinger, 1 specimen.

This species differs from *C. basalis* in lacking the black mark on the basal joint of the antennae. It was described from the Philippines.

3. **Chrysopa satilota** Banks, Psyche **17** : 102, 1910.

Merizo, June 11; Piti, Sept. 15, April 30.

Known from Samoa, Australia and elsewhere.

Family MICROMIIDAE

1. **Eumicromus pusillus** (Gerstaecker).

Micromus pusillus Gerstaecker, Ver. Neu-vorpom., Mitt. **25** : 171, 1893.

Piti, Inarajan, Tarague, Agana, Fadian, Dededo, Barrigada, Machanao, April to November, many specimens.

Widely distributed from Malacca out over much of Oceania.

Family MYRMELEONIDAE

1. **Distoleon perjurus** (Walker).

Myrmeleon perjurus Walker, Cat. Neuropt. Ins. British. Mus., 340, 1853.

Piti, Yona, two specimens.

I identify these with this species of Walker, since they are closely related to his *striola* (*bistrigatus* Rambur), but differ in having the last tarsal joint marked with black, as I noted on the type in 1912. They show the spot at the

rhegma more plainly than in *bistrigatus,* and these two specimens show a fainter mark where the anal connects with the cubital fork; the mark near stigma is distinct, and the last radial cross vein is also dark; the radius in these specimens has several moderately long dark streaks (not in *bistrigatus*) and at these places the radial cross vein is also dark. The wings are more slender than in *bistrigatus. M. torvus* Walker appears to be the same, and its description fits one of the specimens better in that the streak in the hindwing is broken; the type also has the last tarsal joint partly dark.

I noted in 1912 that *M. violentus* Walker was also the same species, except that the streak in the hindwing was not distinct; this, however, varies in many species. *D. perjurus* and *D. violentus* were described from the "Sandwich Islands"; *D. torvus* without locality.

Petersen (1918) puts *perjurus* as a synonym of *bistrigatus* for which he makes a new genus, *Eidoleon,* based on the fact that *bistrigatus* in the hindwing has a "third anal vein", or rather a cross vein from the second anal to the wing margin. These specimens I have identified as *perjurus* do not possess that vein, so go in *Distoleon;* however, I am doubtful of the value of this vein as a generic character.

2. **Myrmeleon celebensis** McLachlan, Tidjschr. Ent. 18: 5, pl. 1, fig. 8, 1875.
Agat, May 31; Piti, Aug. 18.

Recorded from many of the islands in the northern parts of Oceania, from Philippines, Sunda Islands, and Malacca.

TRICHOPTERA

Family LEPTOCERIDAE

1. **Œcetinella punctata,** new species (fig. 1, *b, f*).

Body pale yellowish, head with white hair, also white hair on palpi; antennae pale, scarcely darker at tips of joints; legs pale, unmarked.

Wings hyaline, with pale, almost white hair; fringe of hindwings gray; on forewings the forkings are clouded with brown, also a brown spot at base of the thickened part of the radius, and one at the tip, cross veins dark and narrowly margined with dark; on each side of thickened part of radius the membrane is opaque. In forewing, the discal cell reaches much farther basad than the base of the fifth fork (in *confluens* nearly equal); the forking of medius is near base of wing, opposite to the origin of the radial sector. In hind wing, the forking of radial sector more basad than in *Œ. confluens;* fully twice the length of the cross vein before base of fork three.

The male genitalia show a heavy, dark median piece from above, bent downward, near its base each side is a slender spatulate process, with long hairs at tip, near the turn of the heavy dark piece is a slender projection; the lower appendages are rather slender, but little curved, and, seen from below, show an inner projection near apical third. Length of forewing, 5 mm.

Piti, Nov. 29, 1 specimen. Type in collection of Hawaiian Sugar Planters' Association.

LEPIDOPTERA

BUTTERFLIES OF GUAM

By O. H. Swezey

Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

We procured 14 species of butterflies in Guam in 1936, whereas only 10 species are known in Hawaii. Some of the species in Guam are abundant, a few of them rather scarce. They are mostly immigrants, possibly some of recent arrival, as only three or four have been previously recorded. Most Guam butterflies are known elsewhere, two of the species occurring in Hawaii. Most of the species were determined by comparison with named specimens in the Philippine Bureau of Science, Manila, and the collections at Lingnan University, Canton, China. Three species were determined by Dr. Guy A. K. Marshall, Director of the Imperial Institute of Entomology, London.

Family PAPILIONIDAE

1. Papilio xuthus Linnaeus, Syst. Nat. 1(2) : 751, 1767.

Ritidian Pt., April 15, 22, Bryan; Tarague, April 19, Bryan; Inarajan, May 1, Bryan, May 7, Swezey; Piti, May 16, Usinger; Tarague, May 17, Swezey; Mt. Alifan, May 26, Swezey; Tumon, May 30, Swezey; Machanao, June 2, Swezey; Barrigada, July 22, Swezey; Ritidian Pt., Aug. 6, Swezey; Dededo, Aug. 11, Sept. 7, Swezey; Fadian, Aug. 19, Swezey; Piti, Sept. 12, 18, Swezey. Some were reared from caterpillars found on orange and on *Triphasia.*

This is the only swallowtail butterfly in Guam. It has a wide range in the Orient, from India through China to Korea, Japan, Formosa, Ryukyu Islands, Bonin Islands to the Philippines. Its caterpillars feed on citrus foliage. Some anonymous life history notes are given under the title "Protective Coloring" [Guam Recorder 6(12) : 230, 1930] ; the scientific name is not given. It was collected by Fullaway in 1911 and Schultze recorded it from Guam (Philippine Jour. Sci. 28 : 567, 1925). It is abundant now. Sometimes the butterflies may be seen clustered by the hundreds at road pools or muddy spots. (See figure in Hawaiian Planters' Record 44(3) : 168, 1940.) The large green caterpillars are more often found on *Triphasia trifoliata,* a thorny shrub or small tree, than they are on orange trees. We did not find them so abundant on orange as to be considered a pest.

FAMILY NYMPHALIDAE

2. **Danaida plexippus** (Linnaeus).

Papilio plexippus Linnaeus, Syst. Nat., 10th ed., 471, 1758.

Danaida plexippus (Linnaeus) Walker, Ent. Mo. Mag. **25**: 187, 1914. Poulton, Ent. Soc. London, Trans., 453, 1928; B. P. Bishop Mus., Bull. **114**: 299, (1934) 1935.

Ritidian Pt., April 15, 22, Bryan; Mt. Alifan, May 4, 26, June 19, Swezey; Fadian, Sept. 18, Swezey; Piti, Sept. 17, Swezey; Orote Peninsula, Sept. 27, Swezey; Yigo, Oct. 21, Swezey. The caterpillars were most numerous in a weedy clearing on Mt. Alifan.

This is the widespread American species known as the monarch or milkweed butterfly. There has been confusion in literature because various names have been used for it, particularly *archippus* Fabricius and *plexippus* Linnaeus. It has finally been considered that *plexippus* Linnaeus is the correct name as is explained by N. D. Riley (Ent. Soc. London, Trans., 454, 455, 1928). Where the name *plexippus* has been used for the related Oriental butterfly, *genutia* Cramer should be used.

The monarch has spread from America across the Pacific to the various island groups following the spread of the milkweed (*Asclepias curassavica*) on which its caterpillars feed. They feed on any species of *Asclepias* or related plants, but *A. curassavica* has been the particular species which in historical times spread over the Pacific area. This weed is abundant in Guam, along roadsides and in waste land and fields, sometimes forming dense stands almost acres in extent. Correspondingly the butterfly is abundant. As it is a common species, we paid little attention to it.

3. **Euploea eleutho** (Latreille and Godart).

Danais eleutho Latreille and Godart, Encycl. Meth. 9(2), Suppl. (Guam).

Danais eleutho Latreille and Godart, Quoy and Gaimard, Freycinet Voy., 554, pl. 83, fig. 2, 1824.

Euploea eleutho (Latreille and Godart) Schmeltz, Verh. Ver. Nat. Unterh., Hamburg 2: 180, 1876.

Ritidian Pt., April 15, Bryan; Agana, May 4, Usinger; Machanao, June 30, Swezey; Fonte Valley, Aug. 7, Swezey.

This butterfly was apparently originally described from Guam. Only a few were collected in 1936. We did not find its caterpillar, nor its food plant. It was collected by Fullaway in 1911.

4. **Euploea (Salpinx) leucostictos** subspecies **kadu** Eschscholtz.

Euploea leucostictos Gmelin, Linn. Syst. Ent., 13th ed. **1**(5): 2289, 1788 (Java).

Euploea kadu Eschscholtz, Kotzebue, Voy. Explor. South Seas 3 : 210, fig. 15, *a, b,* 1821 (Guam).

Euploea (*Salpinx*) *kadu* Eschscholtz, Kershaw, Butterflies of Hong Kong, 14, 1907.

Euploea kadu Eschscholtz, Fruhstorfer, Seitz Gross-Schmetterlinge der Erde **9** : 262-264, 1910.

Talofofo, April 4, Bryan; Ritidian Pt., April 15, Bryan; Agana Swamp, May 4, Usinger; Inarajan, May 7, Swezey; Tarague, May 17, Swezey; Machanao, June 4, 30, Swezey; Barrigada, July 6, Swezey; Fadian, August 19, Sept. 18, Swezey; Asan, Aug. 22, Swezey; Orote Peninsula, Aug. 27, Swezey; Yigo, Oct. 21, Swezey; Ylig Valley, Nov. 18, Swezey.

For the new combination of name as given above, I am indebted to R. L. Usinger, who worked it out from literature at the California Academy of Sciences. The species *leucostictos* was described from Java, and according to Fruhstorfer has several variations, and ranges from farther India, to the Nicobars, Sunda Islands, and Formosa. *Kadu* was described from Guam, and according to Matsumura has been taken in Formosa and the Ryukyu Islands. F. X. Williams reared a specimen from *Ficus retusa* at Los Banos, Philippines, June 28, 1921.

We found this fine blue butterfly fairly common on forest trails in Guam. It was reared on only one occasion. A black caterpillar was found on leaves of a broad-leaved *Ficus* at the Asan reservoir, August 22. It formed a chrysalis in a few days, and the adult issued September 3. Our material was identified by comparison with a specimen labelled *"Salpinx kadu* Esch." at Philippine Bureau of Science, Manila. The description of *kadu* by Eschscholtz is apparently from the male, although it is not so stated. Our Guam material was of both sexes. The color and spotting is about the same in both sexes, but Eschscholtz's description of the widely curved backward extension of the inner margin of the forewing so that it covers a considerable portion of the costal part of the hindwing applies only to the male. There is no such expansion of the inner margin of the forewing in the female, it being nearly straight. Also, the female hindwing does not have the large costal pale area of the male where covered by the expansion of the forewing.

5. **Hypolimnas bolina** (Linnaeus).

Papilio bolina Linnaeus, Syst. Nat., 10th ed., 479, 1758.

Hypolimnas bolina (Linnaeus) Waterhouse, Ent. Soc. London, Trans., 493, 1904. Poulton, Ent. Soc. London, Trans., 460, 1928; B. P. Bishop Mus., Bull. **114** : 300, (1934) 1935.

Inarajan, March 28, Bryan; Talofofo, April 1, Bryan; Ritidian Pt., April 15, Bryan; Mt. Alifan, June 27, Swezey; Barrigada, July 22, Swezey; Piti,

July 30, Sept. 17, Swezey; Ritidian Pt., Aug. 6, Swezey; Yigo, Oct. 21, Swezey. Five females and 11 males.

This is a widely distributed butterfly in the Pacific, it or some of its forms being known from most groups of Pacific islands within the tropics, even as far north as Fanning and Wake, but not yet known in Hawaii. It also occurs in New Zealand, Australia, the Philippine Islands, China, India, and Japan. We found it very common in Guam, especially along forest roads and trails. No caterpillars were found, hence its host plant in Guam was not learned.

6. Hypolimnas anomala (Wallace).

Diadema anomala Wallace, Ent. Soc. London, Trans., 285, 1869.

Hypolimnas anomala (Wallace) Fruhstorfer, Seitz Gross-Schmetterlinge de Erde 9: 542-543, 1912.

Ritidian Pt., April 22, Bryan; Tarague, May 17, Usinger; Mt. Alifan, May 26, Swezey; Machanao, June 4, Swezey; Barrigada, July 22, Swezey; Ritidian Pt., Aug. 6, Swezey; Piti, Sept. 4, Swezey; Orote Peninsula, Sept. 27, Swezey. Twenty specimens, mostly reared.

This butterfly was determined by comparison with specimens in the Bureau of Science, Manila. It was described from Java and Malacca.

This is another abundant butterfly in Guam. Its caterpillars feed on *Pipturus argenteus,* a small tree of the forests. In one place on Mt. Alifan, they were so numerous as to defoliate the trees, and apparently had been doing this for one brood after another, so that the trees were badly injured. A butterfly was observed ovipositing on the underside of a leaf. The 360 eggs were laid in a compact cluster of one layer. At Machanao, a butterfly was observed at rest near another cluster which contained 631 eggs. On the same tree another female was ovipositing, and the cluster contained somewhat fewer eggs.

The caterpillars feed gregariously for a time, eventually becoming scattered when nearly full grown. They reach a length of 35 to 40 mm. They are black and very spiny, the head orange brown, and the eyes black. There are two long (4 mm.) spiny black rigid upright somewhat diverging projections on the top of the head. Each segment of the body has a transverse row of spiny upright yellow tubercles 2 mm. long, about six to eight per segment, those on the first segment less developed, only two on the last segment backwardly projecting. Legs black. Spiracles oval, black.

The chrysalis is suspended on the underside of some appropriate object. They were quite numerous on the underside of stems of dead coconut leaves of adjacent trees. The chrysalis is about 20 mm. in length. It is testaceous with rows of sharp black tubercles on dorsum, and black lines showing the wing venation.

7. Hypolimnas octocula subspecies **marianensis** Fruhstorfer.

Diadema octocula Butler, Ann. Mag. Nat. Hist., IV, 3: 19, pl. 9, fig. 5, 1869.

Hypolimnas octocula subspecies *marianensis* Fruhstorfer, Seitz Gross-Schmetterlinge der Erde 9: 554-555, 1912.

Piti, from hibiscus at residence, Oct. 17, Swezey.

The species *octocula* was described from "Tologu" which Wallace suggested might be Gilolo.

The subspecies was named for the Marianas Islands. I secured but a single specimen, which was determined for me by Dr. Guy A. K. Marshall.

8. Issoria egistina (Latreille and Godart).

Argynne egestina Latreille and Godart, Encycl. Meth. 9, Suppl.: 816-817, 1824. Quoy and Gaimard, Voy. autour du Monde, 256, pl. 83, fig. 4, 1824 (Guam).

Atella egistina (Latreille and Godart) Wallace, Ent. Soc. London, Trans., 4: 343, 1869.

Issoria egistina (Latreille and Godart), Fruhstorfer Seitz Gross-Schmetterlinge der Erde 9: 473-475, 1912.

Ritidian Pt., April 22, Bryan; Yona, April 29, Bryan; gully near Mt. Chachao, June 16, Usinger, Sept. 22, Swezey; Piti, May 23, Sept. 4, Swezey.

This butterfly was described from Guam. I am indebted to R. L. Usinger for looking up the literature on it at the California Academy of Sciences. It was not possible to determine which authors should get credit for the species, as each group of authors (Latreille and Godart, and Quoy and Gaimard) attributes the species to the other group. Each group has given a description of the species, and the publication of each was in the same year 1824. Fruhstorfer, in the above citation, has considerable discussion of the different species of *Issoria* related to *egistina* and seems to consider them all as subspecies.

We found it rather rare, though quite widely spread. We reared it from a small native tree called *luluhut* (*Gymnosporia thompsonii*). The caterpillar and pupa are similar to the figures of *Issoria sinha bowdenia* (Butler) [Hopkins, Insects of Samoa 3(1): pl. 4, figs. 6, 7, 1927]. Also collected by Fullaway.

9. Neptis guamensis Swinhoe, Ann. Mag. Nat. Hist. VIII, 18: 483, 1916.

This species was described from Guam, without particulars. We did not see it in 1936.

FAMILY PIERIDAE

10. Catopsilia crocale (Cramer).

Papilio pomona Fabricius, Syst. Ent., 479, 1775.

Papilio crocale Cramer, Pap. Exot. 1: 87, pl. 55, fig. C, D, 1775.

Catopsilia pomona (Fabricius) Kershaw, Butterflies of Hong Kong, 101, pl. 9, figs. 18, 19, 20, pl. 5a, 1907.

Catopsilia crocale (Cramer) Fruhstorfer, Seitz Gross-Schmetterlinge der Erde **9**: 162-163, 1910.

Piti, Sept. 19, 20, Oct. 5, 30, Swezey; Piti, Sept. 30, student at Agricultural School; Merizo, Oct. 2, Swezey. Mostly reared specimens.

Kershaw considers *crocale* to be a dimorphic female of *pomona*. This butterfly is known in Japan, China, and Siam and is widely distributed in British India. It is said to be the commonest butterfly in the East Indies, and its range extends to Australia. It has many variations. It was not previously recorded from Guam. I reared it from green caterpillars on leaves of *Cassia grandis* and *C. fistula*. Eggs were found also on the leaves. They are deposited singly. Some of the eggs are parasitized by a trichogrammatid. Of six eggs collected at Merizo, parasites issued from two eggs, a parasitism of 33 percent. Of 19 eggs at Piti, parasites issued from five eggs, a parasitism of 26 per cent.

11. **Appias leis subtuslutea** Roepke.

Catophaga leis Hübner and Geyer, Zutr. Samml. Ex. Schm. 4: 37, figs. 771, 772, 1832.

Appias leis subtuslutea Roepke, Rhopalocera Javanica 12: 66, pl. 9, figs. 12, 15, 1935.

Ritidian Pt., April 22, Bryan; Tarague, May 17, Swezey; Machanao, June 7, Swezey.

This butterfly has a wide distribution, the typical form in Java, and several subspecies in India, Andamans, Nicobar, Sunda Islands, Moluccas, New Guinea, Australia, South Sea islands. The subspecies *subtuslutea* occurs in west Java. It is particularly distinguished by the hindwing of the female being entirely chrome yellow beneath, as is also the forewing at apex beyond the black bar. Of the few specimens collected in Guam, the best female agreed with this coloration and the figures in Rhopalocera Javanica cited above. This species was not previously recorded from Guam, and was quite rare.

12. **Terias hecabe** (Linnaeus).

Papilio hecabe Linnaeus, Syst. Nat. 1(2): 763, 1767.

Terias hecabe (Linnaeus) Walker, Ent. Soc. London, Trans., 464, 1895. Kershaw, Butterflies of Hong Kong, 97, pl. 9, fig. 21; pl. 12, figs. 7, 8; pl. 3a, figs. 19, 20, 1907.

Ritidian Pt., April 22, Bryan, Aug. 6, Swezey; Agana, May 4, Usinger, May 15, 25, Sept. 11, Swezey; Machanao, June 4, Swezey; Barrigada, July 6, Swezey; Piti, Oct. 6, 12, Swezey.

This yellow butterfly, including its variations, has a wide distribution in the tropics and Pacific islands, from India to Japan, and Samoa to Australia. It

was not previously recorded from Guam. We reared it from the foliage of *Pithecolobium dulce,* and not from any other leguminous plant, although in other countries, its larvae feed on various legumes. The butterflies were common everywhere.

FAMILY SATYRIDAE

13. Melanitis leda (Linnaeus).

Papilio leda Linnaeus, Syst. Nat. 1(2) : 773, 1767.

Melanitis leda (Linnaeus) Walker, Ent. Soc. London, Trans., 449, 1895. Kershaw, Butterflies of Hong Kong, 24, pl. 3, figs. 2, 3; pl. 1a, figs. 9, 10, 1907.

Agana Swamp, May 4, Usinger; gully near Mt. Chachao, May 16, Swezey; Piti, Oct. 12, 29, Nov. 6, Swezey; Piti, Agricultural School Farm, student collector.

This butterfly, including several forms, has a wide distribution in the Orient and Pacific regions. The first record in Guam was by Fullaway who reared it from caterpillar on corn in 1911. It is not common now. We did not find any caterpillars. A few butterflies were collected in shady places. I have reared this butterfly from sugar cane in Samoa. In the Philippines, it is considered a rice pest.

FAMILY LYCAENIDAE

14. Cosmolyce boeticus (Linnaeus).

Papilio boeticus Linnaeus, Syst. Nat. 1(2) : 789, 1767.

Polyommatus boeticus (Linnaeus) Kershaw, Butterflies of Hong Kong, 75, pl. 9, figs. 2, 10, 1907.

Cosmolyce baetica (Linnaeus) Toxopeus, Tijdschr. Ent. **70** : 268, 1927.

Cosmolyce boeticus (Linnaeus) Hemming, Entomologist **66** : 224, 276, 1933.

This is a widespread butterfly in the Orient and Pacific regions. It is abundant in Hawaii. It was recorded in Guam by Fullaway in 1911. Our specimens were nearly all from Barrigada (June 12, 14, Swezey), where they were associated with the weed *Crotalaria saltiana,* the larvae feeding in the pods. There was a dense growth of this weed in a fallow corn field. It was about the only place where we observed this plant. One specimen of the butterfly was reared from pod of *Crotalaria quinquefolia* growing sparsely in fallow rice fields at Sasa, June 22, Swezey. The same trichogrammatid parasite which was reared from eggs of *Catopsilia crocale* was also reared from eggs of this butterfly.

15. Zizula gaika (Trimen).

Lycaena Gaika Trimen, Ent. Soc. London, Trans. 3(1) : 403, 1862.

Zizula Gaika (Trimen) Chapman, Ent. Soc. Lond., Trans., 483, 493, 495, pl. 52, fig. 8, pl. 53, fig. 12, 1910.

Ritidian Pt., April 16, Bryan; Piti, April 30, Swezey; Agana, near spring, May 25, Swezey.

This tiny blue butterfly was described from South Africa. Dr. Marshall informs me that it has spread throughout the whole of the Old World tropics, and has also been found in Venezuela. We found it very abundant in Guam, in gardens and in low roadside weeds. We did not discover its larva, so do not know its food plant there. There are specimens in the U. S. National Museum, collected by Fullaway in 1911. Our specimens were determined by Dr. Guy A. K. Marshall.

SPHINGIDAE OF GUAM

By O. H. Swezey

Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

Only a few specimens of hawkmoths were obtained in 1936, except for the species whose caterpillars feed on morning-glory leaves. Apparently none had been recorded from Guam before this, though one or more species were collected by Fullaway in 1911.

1. **Chromis erotus eras** (Boisduval).

Deilephila eras Boisduval, Voy. Astrolabe, Lep., 185, 1832.

Chromis erotus eras (Boisduval) Rothschild and Jordan, Nov. Zool. **9,** Suppl.: 504, 1903.

Santa Rosa Peak, May 19, reared from green caterpillar on *Morinda indica,* Usinger; Dededo, Sept. 7, reared from *Morinda indica,* Swezey; Piti, Oct. 20, at light, Swezey; Yigo, Nov. 8, reared from green caterpillar on *Morinda indica,* Swezey.

This variety is known from the Moluccas and Tenimber [Timorlaut] Islands east to Tahiti, Austral Islands, Marquesas, and the Tuamotus. It was collected in Guam by Fullaway in 1911. Specimens in Tring Museum were recorded previous to that. We caught it at light, and also reared it. Caterpillars were found on other occasions besides those listed, but failed to mature.

There are two specimens in Bishop Museum, labeled "*Chromis erotus cramptoni* Clark" (male and female cotypes), named evidently for Dr. H. E. Crampton who visited Guam in 1920, the date on the specimens. I have not been able to find in literature where Clark described this variety, but I presume that it is the same insect which Rothschild and Jordan have recorded from Guam as *Chromis erotus eras.* I cannot see what differences warrant the new varietal name.

2. **Deilephila placida placida** (Walker).

Darapsa placida Walker, List. Lep. Ins. Brit. Mus. **8**: 186, 1856.

Deilephila placida placida (Walker) Rothschild and Jordan, Nov. Zool. **9,** Suppl.: 512, 1903.

Agana, April 28, in Government House, Swezey; Tumon, June 5, at light, Swezey.

This hawkmoth occurs in Andamans, Singapore, Sumatra, Philippines, and east to the New Hebrides. It is now recorded for the first time from Guam. The identification is by B. Preston Clark.

3. **Theretra silhetensis intersecta** (Butler).

Chaerocampa intersecta Butler, Zool. Soc. London, Proc., 623, 1875.

Chaerocampa silhetensis Snellen, Tijdschr. Ent. 22 : 65, 1877.

Theretra pinastrina intersecta (Butler) Rothschild and Jordan, Nov. Zool. **9,** Suppl.: 784, 1903. (B. Preston Clark tells me that since this publication, Jordan decided that *silhetensis* had preference to *pinastrina.*)

Agana, Government House, at light, Aug. 9, one specimen.

This hawkmoth is recorded from the Papuan subregion westward to the Philippines, Celebes and Sumba. It was not previously recorded from Guam.

4. **Herse convolvuli** (Linnaeus).

Sphinx convolvuli Linnaeus, Syst. Ent., 10th ed., 490, 1758.

Herse convolvuli (Linnaeus) Rothschild and Jordan, Nov. Zool. **9,** Suppl.: 11, 1903.

Mt. Alifan, May 21, reared from *Ipomoea* species; Orote Peninsula, May 24, reared from *Ipomoea* species; Piti, July 18, at light, Oct. 12, at light, Swezey, 3 specimens; Dededo, Sept. 7, reared from *Ipomoea* species (Swezey).

This species has a wide distribution in the eastern hemisphere, and the island groups of the Pacific, except Hawaiian islands, where the American species *Herse cingulata* has been known for a long while. It is now recorded from Guam for the first time. Its caterpillars feed on morning-glory leaves (*Ipomoea* species). They were collected in several stages of growth and a few reared to maturity. The full grown caterpillar is about 60 mm. long, light green with an oblique bar of mauve above the spiracles. The spiracles are oval, light yellow with black centers. The egg is spherical, light green, smooth. They are placed singly on the under side of leaves. They were collected on several occasions. Sometimes the eggs are parasitized. From an egg collected on morning-glory leaf in corn field at the Agricultural School, Piti, September 15, 18 trichogrammas issued. A larger parasite was reared from eggs a few times and from different localities. This parasite issued from 4 of 9 eggs collected at Piti, July 30, which would be a parasitism of 44 percent. Perhaps these egg parasites are effective on other species of hawkmoths, and account for their scarcity in Guam.

5. **Cephonodes armatus** subspecies **marianna** Rothschild and Jordan, Nov. Zool. **9,** Suppl.: 471, 1903.

Cephonodes armatus Rothschild and Jordan, Nov. Zool. **9,** Suppl.: 470, 1903.

Agat, May 31, dead on beach mobbed by ants, Swezey; Barrigada, July 22, reared from green caterpillar on *Morinda indica,* Swezey; Piti, Oct. 10, at light, Swezey. Four specimens.

This subspecies was described from Rota Island, about 30 miles northeast of the north point of Guam. It has not been heretofore recorded from Guam.

COLEOPTERA

STAPHYLINIDAE OF GUAM

By MAX BERNHAUER
NOTAR IN HORN, N. DONAU
(Translated from the German by O. H. Swezey.)

Sir Guy A. K. Marshall, Director of the Imperial Institute of Entomology (British Museum) in London, kindly transmitted to me for study the Staphylinidae collected by O. H. Swezey in Guam in 1936. Types are placed in the British Museum and in my own collection.

Two subspecies of the extremely variable species *Lispinus impressicollis* Motschulsky were found in the material.

1. Lispinus impressicollis guamensis, new subspecies.

Pitchy, a little shining, antennae, palpi and legs rusty yellow. *Head* narrower than prothorax, in front with fairly strong impressions, shining smooth, without puncturation. *Antennae* fairly short, the penultimate segment in widest view about half wider than long. *Thorax* somewhat narrower than the elytra, about one third broader than long, rather flat, before middle strongly widened, sinuate, more so posteriorly than anteriorly, each side of middle with a flat longitudinal impression laterally deeper, with very fine and sparse puncturation which is stronger and denser in the impression, moderately shining. *Elytra* about a third longer than prothorax, considerably longer than wide, with edges parallel, finely, distinctly but sparsely punctured, indistinctly shagreened. *Abdomen* laterally fairly strongly shagreened, along the middle more feebly shagreened, laterally with a few large punctures. Length, 2.5 mm.

Agat, May 31, under bark, Usinger; Yigo, Oct. 18, ex dead small-leaved *Ficus,* Swezey.

Though agreeing with the species in its longer, narrower size, the new subspecies differs in its much finer and sparser puncturation, much weaker thoracic impressions and longer elytra. When more material is obtained, it may prove to be a distinct species.

2. Lispinus impressicollis iridescens, new subspecies.

Pitchy, the antennae, palpi and legs clear ferruginous. *Head* narrower than the prothorax, with two impressions on the vertex, distinctly punctate, moderately shining. *Antennae* short, thickened toward the apex, the penultimate segments strongly transverse. *Prothorax* as wide as elytra, moderately transverse, greatly widened toward the middle; posteriorly, considerably contracted, yet scarcely sinuately, the median groove short, very narrow, finely and sparsely punctured, scarcely shagreened, moderately shining. *Elytra* little longer than prothorax, as long as wide, distinctly bluish iridescent, very finely and sparsely punctured, moderately shining, scarcely shagreened. *Abdomen* moderately shining, sparsely punctured. Length 2 mm.

Yigo, Oct. 18, ex dead small-leaved *Ficus,* Swezey.

This race, perhaps likewise a distinct species, stands near subspecies *robus-*

ticollis Bernhauer. It differs essentially in its somewhat smaller, narrower form, finer and sparser puncturation, finer impressions on the prothorax, and especially in the more distinct iridescence of the elytra.

3. **Trogophloeus (Carpalimus) usingeri,** new species.

Deep black, moderately dull, legs only a little brighter. *Head* narrower than the prothorax, shagreenly punctured. Eyes large, expanded over nearly the whole side, moderately flat, the temples very short. *Prothorax* much narrower than the elytra, about a half wider than long, strongly widened in middle, posteriorly much stronger and almost rectilinearly narrowed, before the posterior edge for the whole width with a deep wide curved transverse furrow, open anteriorly, on each side of the middle with a deep longitudinal furrow, between these raised, more shining than the remaining prothorax, the upper surface shagreenly punctured. *Elytra* about a half longer than prothorax, with prominent shoulders, together somewhat wider than long, fairly equal width, finely and extremely densely punctured, little shining. *Abdomen* very finely and densely punctured, moderately shining. Length, 1.8-2 mm.

Inarajan, June 8, Usinger.

A remarkable species through its smallness and very flat large eyes and small temples.

4. **Holotrochus swezeyi,** new species.

Deep black, moderately dull, antennae, palpi and legs dark rust red. *Head* much narrower than prothorax, between the antennal scapes with a feeble roundish impression, finely and fairly densely punctured, at base moderately dull. Eyes fairly large, convex. *Antennae* shorter than head and prothorax together, strongly thickened towards the apex, the penultimate segments almost double as wide as long. *Prothorax* almost as wide as the elytra, strongly transverse, rounded on the sides with hind angles sharply right angled; before these with a flat impression, with two very fine longitudinal lines along middle, finely but distinctly and fairly densely punctured, little shining. *Elytra* hardly as long as prothorax, together much broader than long with sharply protruding shoulders, finely and rather thickly punctured, hardly shining. Length, 2 mm.

Dededo, May 11, ex rotten log, Swezey.

This species stands next to *Holotrochus splendens* Bernhauer from Tonkin. Easily distinguished, however, by smaller narrower form, denser puncturation, especially of the prothorax and elytra, as well as smoky luster of upper surface.

5. **Palaminus swezeyi,** new species.

Clear reddish yellow, shining, the antennae, palpi and legs whitish yellow, the deep black eyes sharply prominent. *Head* somewhat narrower than the prothorax, transverse, coarsely and densely punctured. Eyes large, prominent, the temples extremely short, prominently sharp pointed. *Antennae* almost as long as head and prothorax together, penultimate segments somewhat longer than wide, the apical segment wider and longer than the penultimate, thickened in the middle, towards the apex strongly and acuminately narrowed. *Prothorax* distinctly narrower than elytra, scarcely as long as wide, quite evenly convex, on the sides, moderately rounded, posteriorly narrowed, in front of the scutellum a shining raised longitudinal callosity, otherwise coarsely and quite densely punctured. *Elytra* almost a third longer than the prothorax, much longer than total width, fairly parallel-sided, less strongly punctured than the prothorax, yellow haired. *Abdomen* as normal, sculptured with crossing oblique lines, on the seventh tergite very fine and sparsely punctured, clothed with coarse long yellow hairs. Length, 2-2.1 mm.

Upi Trail, May 5, ex ferns; Machanao, June 2, Aug. 6, ex *Piper guahamense,* Swezey; Barrigada, July 22, ex *Morinda,* Swezey.

Distinguished from the closely related *Palaminus philippinus* Bernhauer by somewhat smaller form, narrower head, short even moderately convex prothorax, stronger rounded sides of the prothorax, hardly discernible longitudinal furrows of the upper surface of the prothorax, and somewhat shorter and more sparsely punctured elytra.

6. Palaminus minutissimus, new species.

Pitchy black, shining, head and pronotum pitchy brown, elytra dark brown with lighter hind margin, apex of abdomen somewhat reddish, antennae, palpi and legs clear yellow. *Head* scarcely wider than the prothorax, coarsely and moderately densely punctured. Eyes very large, extending entirely over sides of head, without temples, posterior edge of head sharply angled. *Antennae* moderately long, penultimate segments longer than wide, apical segments wider and longer than penultimate. *Prothorax* considerably narrower than elytra, almost as long as wide, little rounded on sides, posteriorly strongly constricted, deeply and moderately punctured, on posterior half a strong raised median ridge. *Elytra* about a half longer than total width, posteriorly slightly widened, deeply and densely punctured, clothed with coarse yellow hair. *Abdomen* densely sculptured with crossing oblique lines, the seventh tergite shining and sparsely punctured. Length, 2 mm.

Dededo, May 11, Usinger; Tumon, May 30, Swezey.

A minute species, distinguished by the coloration.

7. Scopaeus opacicollis, new species.

Dark reddish yellow, elytra somewhat lighter, antennae, palpi and legs clearer pale yellow. *Head* distinctly wider than prothorax, little longer than wide, posteriorly somewhat widened, almost straight truncate behind, rounded except in the angular arrangement of hind edges, on sides rectilinear, dull, extremely finely and densely shagreenly punctured, in front somewhat less finely and less densely punctured, less dull. Eyes slightly convex; temples approximately three times as long as dorsal longitudinal section of eyes. *Antennae* quite elongate, not thickened toward the apex, the penultimate segments not or scarcely wider than long. *Prothorax* somewhat narrower than elytra, about one fourth longer than wide, moderately flat, widest before middle, feebly rounded at sides, shagreenly punctured like head, dull, with an extraordinarily narrow, fine, somewhat shining median line. *Elytra* as long as prothorax, parallel-sided, somewhat longer than total width, with prominent shoulders, distinctly rougher with densely shagreened punctures, dull, clothed with yellow hair like the remainder of the body. *Abdomen* shagreenly punctured, dull. Length, 3.8-4 mm.

Piti, July 27, Swezey.

A medium-sized, uniformly reddish yellow species, near *Scopaeus testaceus* Motschulsky, easily separated from it however, by the much wider and shorter, posteriorly broader head.

8. Oligota apicata obscuricornis, new subspecies.

Differing from *O. apicata* Erichson in the dark antennae, somewhat lighter only on extreme base.

Tumon, May 30, in rotten seed of *Barringtonia speciosa,* Swezey.

At present I cannot see any other distinguishing characters, and the similarity is great. It can scarcely be considered a distinct species.

9. Atheta (Microdota) usingeri, new species.

Reddish to blackish brown, the base and hind margin of the elytra light yellow, base and apex of abdomen reddish yellow, antennae rust brown with paler scape, palpi and legs dirty yellow. *Head* shiny, much narrower than prothorax, transverse, puncturation sparse, extremely fine, and scarcely visible. Eyes fairly large, temples behind them shorter than lengthwise section of eyes viewed from above; underside finely edged. *Antennae* much longer than head and prothorax together, but still short, thickened toward the apex, the third segment much shorter than the second, the fourth about as long as wide, the following segments gradually becoming shorter and wider, the penultimate fairly strongly transverse, in the shortest view about one half again as wide as long, apical segment large, longer than the two preceding together. *Prothorax* convex, as wide as elytra at the shoulders, about half wider than long, widest posteriorly, with blunt hind angles, strongly narrowed anteriorly, feebly rounded, without impression in front of the scutellum, extremely finely and sparsely punctured, shiny, clothed with fine grayish yellow hair like upper surface of body. Epipleurae fairly strongly recurved, visible posteriorly when viewed from the side. *Elytra* hardly longer than prothorax, together much wider than long, inner side of outer posterior angles distinctly margined; moderately finely punctured, much stronger and denser than on the prothorax, distinctly rough, laterally as well as on thorax with dark uneven cilia. Prothorax is somewhat narrowed posteriorly, at the base the first free lying tergites transversely furrowed, finely and sparsely punctured, finer and sparser posteriorly, shiny, on the sides with numerous black cilia. Length, 1.5-1.9 mm.

Barrigada, June 12, ex leaf mold, Usinger.

Distinguished by the coloration and the moderately strongly convex ciliated prothorax. With the acquisition of greater material, it may be placed in a new subgenus.

RHIPICERIDAE OF GUAM

By Elwood C. Zimmerman
Entomologist, Bernice P. Bishop Museum

Several specimens of a recently described species of Rhipiceridae were collected in Guam by Swezey and Usinger. The species was described by Blair from two males from the Palau Islands, southwest of Guam. The male holotype, the allotype female, and the type of the larva here described are in Bishop Museum. The Guam material contains both sexes and larvae.

Callirhipis (Parennometes) onoi Blair, B. P. Bishop Mus. Occ. Papers **16** (6) : 133, 1940; male, illustrated. (See pl. 1; fig. 1.)

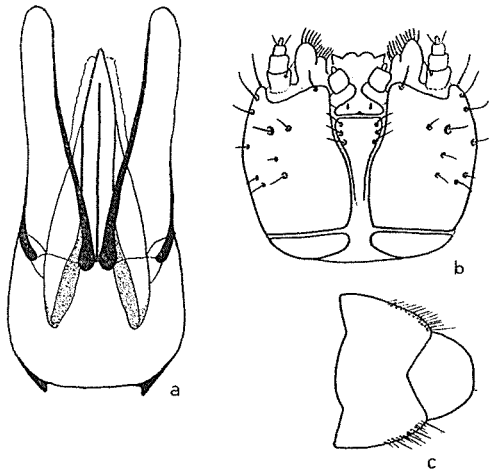


Figure 1.—Details of *Callirhipis onoi:* a, male genitalia, dorsal view; b, ventral elements of larval head; c, caudal tergite of male.

Female: external characters differ from the male principally as follows: dorsum bare and shiny, with only a few, small, scattered, inconspicuous setae, without any long hairs as in male. *Antennae* differing as illustrated, shafts of all segments distinctly longer than broad, third segment about as long as four plus one half of five, distal segment as long as three preceding segments combined. *Pronotum* much less coarsely sculptured than in male, depressions not so deeply impressed as in male. *Elytra,* except for vestiture, essentially similar to those of male. Length of females, 10.5-15 mm.

Allotype female, illustrated, Barrigada, from rotten log, June 12, 1936, Swezey; one male, illustrated, Agana, June 25, Usinger; Agana, from *Pandanus* log, May 4, Swezey; one female and three males, Yigo, from log of fertile breadfruit, Oct. 18, Swezey. The larvae were also found by Swezey as follows: Mt. Tenjo, in *Areca* palm stump, May 3; Sumay Road, in *Lumnitzera pedicellata,* June 23; Fadian, in log, Sept. 18; Mt. Alifan, from rotten

log, May 26; Agana, from rotten log of *Pandanus,* May 4. Swezey says that the larvae of this beetle were often found abundant in the solid wood of logs on the ground.

The fourth segments of the antennae of the male were described by Blair as being slightly longer on the outer edge than the breadth of the apex. However, the proportionate length and breadth of the fourth segment in the male is subject to some variation, and it may be slightly longer than broad, as long as broad or slightly transverse.

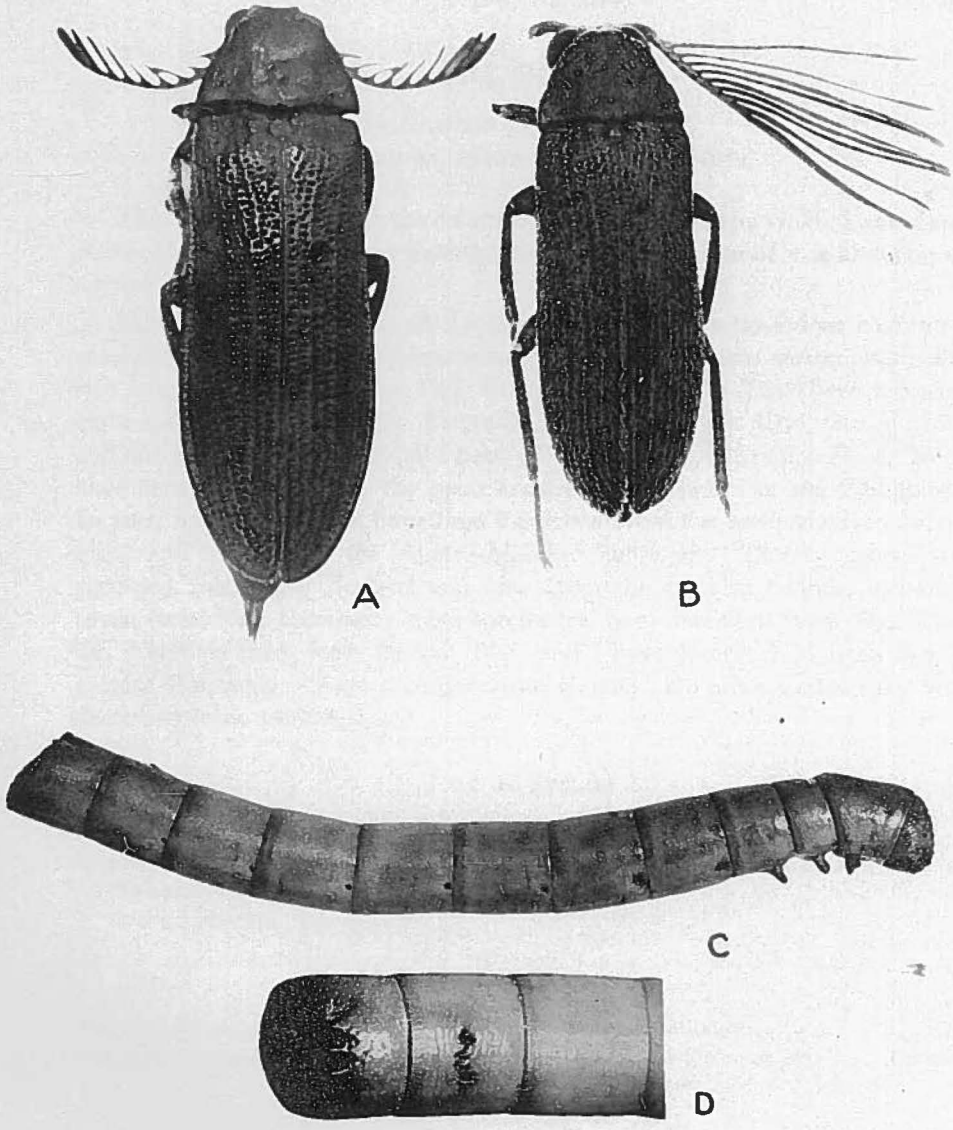
The male genitalia of the holotype and a Guam specimen have been studied. The illustrations shown here were made from a Guam specimen. Larva, figure 1.

Yellowish brown to brown with the clypeo-labral areas and mandibles black, margins of the foveae and spines of the seventh abdominal tergite black, distal areas of eighth abdominal tergite and the apical segment black.

Head with cranium with numerous, well defined, small to moderately large punctures most of which are separated by at least the diameter of a puncture, longitudinally plicate on sides behind; antennae retracted into deep pits; labrum with sinuous anterior margin with four convex lobes; maxillary palpi 4-segmented; labial palpi 2-segmented; distal margin of mentum with four lobes, the two median ones convex, lateral ones triangular. *Thorax* with prothoracic tergum finely and densely longitudinally striate in anterior two ninths and posterior one ninth, these two striate areas sloping ventrad, area between fore and hind striate areas coarsely, transversely strigate; mesothoracic tergum less than one half as long as prothoracic tergum, with sculpture essentially like that of prothoracic tergum but without distinct striae in anterior part; metathoracic tergum less than twice as long as mesothoracic tergum and slightly shorter than the first abdominal tergum and essentially like first abdominal tergum in sculpture, the strigae much less strongly developed than those of prothorax and mesothorax; mesothoracic spiracles large and as well developed as those of first abdominal segment, metathoracic spiracles almost obsolete. *Abdomen* with seventh tergum with two hornlike processes on either side of median line and each flanked by a large fovea about twice as long as a process; eighth tergum with six tubercle-like processes along the dorsal margin of the distal declivity, the two median processes most strongly developed, hooklike, with a deep, oblique groove extending forward along outer edge of each second process, declivitous part of tergum continuous with the doorlike distal tergum and similarly sculptured; ninth tergum with surface uneven, coarsely and densely punctate throughout, punctures separated by much less than diameter of a puncture and each bearing a stiff, erect, spike-like seta. Length of mature larva described, 43 mm.

Type of larva, Agana, from rotten log of *Pandanus,* May 4, 1936, Swezey.

The larvae appear to vary little in structure during their various instars.



CALLIRHIPIS (PARENNOMETES) ONOI BLAIR: A, FEMALE ALLOTYPE; B, MALE; C, SIDE VIEW OF MATURE LARVA; D, DORSAL VIEW OF CAUDAL END OF LARVA.

CIIDAE OF GUAM

By Elwood C. Zimmerman
Entomologist, Bernice P. Bishop Museum

This report, based upon the collections made in Guam by O. H. Swezey and R. G. Oakley, includes the descriptions of three species of *Cis* and one of *Ceracis*.

It is not surprising that all the species are new, for no Ciidae have been recorded heretofore from Micronesia. Although the islands of the Pacific are rich in species of Ciidae, few have as yet been described. Blackburn recorded eight species of Ciidae from Australia (five described in 1888, two in 1891, and one in 1907), but none have been described from that region since. None have been described from the great areas of New Guinea or the Philippines. In fact, only two species have been described from the Indo-Malayan subregion, and none from the Austro-Malayan subregion. Twenty species are recorded from New Zealand and nine from the Loyalty Islands, including seven from New Caledonia. One species has been described from Fiji; Blair has described three from Samoa; Blair and I have described 13 from Southeastern Polynesia; 49 are recorded from Hawaii. No other Ciidae have been described from the Pacific.

List of Species

1. **Cis quadridentatus,** new species.
2. **Cis guamae,** new species.
3. **Cis agariconae,** new species.
4. **Ceracis palaceps,** new species.

Key to Genera

Antennae 10-segmented; anterior tibiae simple on the outer edge.....**Cis.**
Antennae 8-segmented; anterior tibiae serrate or spinose on the outer edge.....**Ceracis.**

Key to Species of Cis

1. Dorsum very densely and conspicuously hirsute; elytra pale yellow with well-defined dark maculae.....1. **Cis quadridentatus** Zimmerman.
   Dorsum not at all hirsute, the setae minute and inconspicuous.....2
2. Hind angles of the lateral carina of the prothorax obviously obtusely angulate, not rounded off; fore edge of head not distinctly upturned nor toothed; mostly black but with some yellowish clouds on the elytra; 1.75-2.25 mm. long.....2. **Cis guamae** Zimmerman.
   Hind angles of the lateral prothoracic carina obviously broadly rounded and not all angulate; front edge of head upturned and toothed on each side of the clypeus; concolorous, yellowish brown to chestnut brown; 1.25-1.3 mm. long .....3. **Cis agariconae** Zimmerman.

1. Cis quadridentatus, new species (figs. 1, *c, e, i;* pl. 1, *A*).

Dermal coloration as follows: elytra basically pale yellow with a large black humeral spot, a prominent black spot at base between scutellum and humeral spot, and with a broad, conspicuous, black, zigzag fascia extending from middle at suture to side and there greatly expanded into a low, broad triangle that extends forward to base and posteriorly almost to apex, these black markings conspicuous; prothorax either almost or entirely dark or with a variable amount of yellow, sometimes entirely black, occasionally yellow with a broad, irregular dark vitta on either side; head usually dark, but occasionally with anterior parts yellowish; appendages usually brownish yellow; under surface brownish yellow and infuscated or fuscous; dorsal setae very dense, golden yellow or black, erect, stiff, coarse, spikelike on elytra, swirled on pronotum.

Head not concealed from above by pronotum, crown almost straight in longitudinal contour in both sexes, but very slightly convex in female and slightly concave in male, densely setose, setae somewhat smaller than, but similar to, those on pronotum, and arising from small, closely placed punctures, surface appearing asperate; anterior margin slightly sinuous in the female but with four well-developed teeth in the male, the emarginations between teeth subequal. *Antenna* with the body of the first segment obliquely truncate at the apex, one fourth longer than broad, twice as long and twice as high as 2, 2 submoniliform, two thirds as long as 3, 3 slender, about three times as long as broad, as long as 4 plus 5, 4 longer than broad, as long as 5 plus half of 6, 5 to 7 successively slightly more transverse; club dark, as long as six preceding segments which are yellow, segments subequal in size and shape but 10 slightly longer and more pointed at apex, 8 and 9 about as broad as long. *Prothorax* slightly broader than long (1.9:1.7), base slightly but distinctly sinuous, sides broadly arcuate, apex broadly rounded and but slightly emarginate at middle in female, but usually upturned and with a moderate or well-developed tooth on either side of middle in male; the lateral carina very narrowly visible from above, its basal angle rounded, thence slightly arcuate to apex and there extending beyond anterior margin, thus making anterior angle roundly acute rather than obtuse and making an emargination between lateral carina and apical margin when viewed from side; densely punctate, punctures small but coarse, distinct, narrowly separated. *Elytra* about five sevenths as broad as long, about twice or somewhat less than twice as long as prothorax, bullet-shaped, subparallel on sides in basal half, thence roundly narrowing to apex; densely and conspicuously punctate as pronotum; lateral carina broadly rounded into basal carina. *Wings* fully developed. *Legs* finely and sparsely setose, femora and tibiae finely alutaceous. *Sternum* finely setose, sculpture similar to but shallower and less distinct than that of dorsum; intercoxal process of the prosternum more than half as long as transverse diameter of a coxa (4:7), mesocoxae hardly half so widely separated as fore coxae, metacoxae separated about as far as mesocoxae. *Venter* finely punctate, the setae conspicuous, moderately long, fine, hairlike; first ventrite simple in female, but with a small, median, setose, crater-like tubercle in male; intercoxal process narrowly triangular. Length, 2.5-2.75 mm.; breadth, 1.0-1.25 mm.

Holotype male, in the U. S. National Museum, allotype female in Bishop Museum, and 20 paratypes taken from fungus at Mata, Aug. 24, 1938, R. G. Oakley.

This species resembles *Cis bisetosus* Blair from the Marquesas, and *Cis rapaae* Zimmerman from Rapa in size and shape, but the color pattern and setae are very different on this species. *Cis quadridentatus* closely resembles *Cis insignis* Scott (1926) from the Seychelles, but it differs in color pattern as well as structure. The conspicuous bicolored dorsum with its distinct design will readily separate this pretty species from the two other Guam *Cis*.

2. **Cis guamae,** new species (fig. 1 *d*; pl. 1, *B*).

Dermal coloration in mature specimens as follows: dorsum quite shiny; elytra black, with a variable, oblique yellowish cloud at basal third which is sometimes small and isolated from suture, or large and reaching from suture to side, with a larger, similarly colored macula usually occupying most of caudal third; pronotum black with apex yellowish; head black; antennae yellow, clubs infuscate; legs yellow or brownish yellow; lower surface fuscous to black; dorsal setae pale.

Head not concealed from above by pronotum; distinctly convex dorsally and laterally in both sexes, finely alutaceous, shiny, finely and densely punctate, punctures separated by about breadth of their diameters, each puncture bearing a minute seta that projects but slightly from puncture; fore legs with only slightly developed flanges on either side in both sexes, not at all distinctly toothed. *Antennae* with body of first segment about twice as long as broad, about twice as long as 2, 2 about one fourth longer than broad or as broad as long, two thirds as long as 3, 3 almost three times as long as broad, as long as 4 plus 5, 4 almost as long as 5 plus 6, 5 to 7 successively shorter and more transverse; club with segment 11 about three fourths to fully as long as 9 plus 10, 9 and 10 each broader than long. *Prothorax* distinctly broader than long (3.7:3), base slightly sinuous, appearing distinctly angulate at hind corners above, but slightly arcuate on sides from base to apex, lateral carinae broadly exposed throughout their lengths from above, apex broadly rounded, not upturned, nor toothed, nor otherwise modified in either sex; lateral carina slightly arcuate, hind angles obviously angulate, obtuse, but forming only slightly more than right angles, fore corners visible from above, distinctly angulate, rather similar to hind angles; dorsum shiny, densely, finely, distinctly punctate, punctures separated by interstices equal to or narrower than their diameters and bearing flecklike setae that project but slightly beyond sides of punctures. *Elytra* two thirds as broad as long, twice as long as prothorax, very slightly arcuate on sides, almost parallel in basal two thirds, thence broadly rounded to apex; lateral margin visible throughout its length from above, angulately rounded at base; dorsum shiny, puncturation dense throughout and similar to that of pronotum; setae speck-like, hardly protruding from punctures. *Wings* fully developed. *Legs* with femora and tibiae finely reticulate, finely and sparsely setose. *Sternum* coarsely reticulate, evidently at most obscurely punctate; intercoxal process of prosternum slightly more than one half as broad as transverse chord of a coxa (4:7), broadly convex transversely, not carinate and slightly but conspicuously protruding forward beyond apex of prosternum, thus making anterior margin of prosternum concave on either side of middle; mesocoxae separated by only about half as far as fore coxae; metacoxae somewhat more widely separated than mesocoxae; metasternum as long along median line as ventrite 1 plus half of 2. *Venter* obscurely punctate, reticulate, finely setose; ventrite 1 evidently not modified in male. Length, 1.75-2.3 mm.; breadth, 0.75-0.1 mm.

Holotype female, in Bishop Museum, and six paratypes taken from a dead branch of breadfruit at Piti, Oct. 5, 1936, and two paratypes "ex dead small leaf ficus" at Yigo, Oct. 18, 1936. All the specimens were collected by Mr. Swezey.

I could find no external differences on a specimen I assume to be a male to separate it from the females other than the fact that the first ventrite seemed to have some longer setae toward the middle. None of the specimens have a trace of a median tubercle on the first ventrite.

To the unaided eyes, most of the specimens appear quite black, but some of them are obscurely or distinctly bicolored.

This species somewhat resembles *Cis collenettei* Blair from southeastern Polynesia. It differs from that species in that it is smaller, narrower, more

parallel-sided, has the sides of the prothorax straighter and the side margins more strongly developed, has more definite puncturation, and has the elytra clouded with yellow instead of being concolorous.

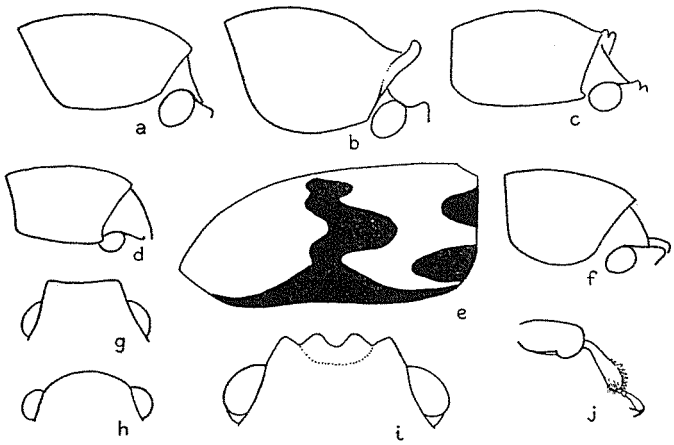


FIGURE 1.—Details of Ciidae. **a**, outline of head and pronotum of *Ceracis palaceps*, female; **b**, the same of the male; **c**, the same of *Cis quadridentatus;* **d**, the same of *Cis guamae;* **e**, diagram of elytral markings of *Cis quadridentatus;* **f**, outline of head and pronotum of *Cis agariconae;* **g** and **h**, dorsal outlines of the front margins of the heads of the male and female of *Ceracis palaceps;* **i**, the same of *Cis quadridentatus;* **j**, fore leg of male of *Ceracis palaceps.*

3. **Cis agariconae,** new species (fig. 1, *f*; pl. 1, *C*).

Derm shiny, rather pale to dark chestnut brown in mature specimens, concolorous above and below, appendages yellowish brown; dorsal setae minute, pale.

Head exposed from above, crown convex, somewhat less convex on male than on female, shiny, finely alutaceous, microscopically punctate, setae minute, hardly discernible; anterior margin developed into a rounded, slightly upturned tooth on either side of clypeus in female and into a very prominent, upturned triangular tooth in male. *Antennae* with body of first segment ovate, about two thirds as broad as long, almost as long as 2 plus 3, 2 slightly longer than 3, submoniliform, broader at base, 3 and 4 elongate, subequal, together as long as 5 to 7 which are very small and successively more transverse; club slightly longer than five preceding segments, 9 and 10 subequal in size and shape. *Prothorax* broader than long (2.2: 1.7), base subtruncate, broadly arcuate on sides, broadly convex apically, fore margin simple and unmodified in either sex; lateral carina and its fore and hind angles visible throughout its length from above, hind corners strongly and conspicuously rounded, not at all angulate, thence continued in a broad curve and rounded into apical margin; dorsum shiny, densely, microscopically, evenly punctate throughout, punctures separated by interstices equal to or somewhat broader than their diameters; the setae not or hardly discernible even under high magnification. *Elytra* shiny, two thirds as broad as long, about two and one third times as long as prothorax, slightly arcuate in basal two thirds, thence convexly narrowed to the apex; the lateral carina broadly rounded into basal carina; sculpture consisting of dense, irregular, shallow, variable punctures distinctly larger than those on pronotum, evidently appearing to be somewhat confluent in some places, interspersed with minute punctures similar to those on pronotum; setae microscopic. *Wings* fully developed. *Legs* with femora and tibiae finely and sparsely setose. *Sternum* rather coarsely reticulate, at most shallowly and indistinctly

punctate; intercoxal process of prosternum about half as broad as transverse chord of a coxa, V-shaped in cross section in front of coxae and only slightly interrupting apical margin of prosternum; mesocoxae about half as widely separated as fore coxae; metacoxae about as broadly separated as mesocoxae; metasternum as long along median line as ventrite 1 plus half of 2. *Venter* reticulate, apparently impunctate, sparsely setose; ventrite 1 simple in female, with a small pit behind the middle in the male. Length 1.25-1.3 mm.; breadth 0.5-0.6 mm.

Holotype male, in the U. S. National Museum, allotype female in Bishop Museum, one male and two female paratypes taken from tree fungus July 25, 1937, Oakley, no. 90.

This species resembles *Cis cheesmanae* Blair from the Marquesas, but it is smaller, less robust, and distinctly less coarsely and conspicuously punctured.

In Scott's key (1926) to the *Cis* of the Seychelles, this species runs to his *Cis cacuminum,* and it is evidently closely allied to that species. However, *C. cacuminum* is shiny black, it evidently lacks the median pit on the first ventrite of the male, the metasternum and venter are evidently definitely punctate, and from the nature of its habitat there are good reasons for believing that it is an endemic product of the highlands of the Seychelles.

Genus **CERACIS** Mellié, 1848

4. **Ceracis palaceps,** new species (fig. 1, *a, b, g, h, j*; pl. 1, *D*).

Derm moderately shiny, rather uniform chestnut brown above and below, concolorous, appendages yellowish brown; dorsal setae microscopic.

Head almost or entirely concealed from above by prothorax, crown and front but very shallowly concave in female, almost flat, very deeply and conspicuously excavated in male from side to side and top to clypeus, with a very slightly elevated median area between eyes, closely, microscopically punctate, setae microscopic; female with fore margin evenly convex in outline and not or but inconspicuously elevated; male with fore margin produced into a conspicuous, slightly upturned, transversely concave, apically truncate flange that projects almost as far beyond fronts of eyes as length of an eye, side margins slanting obliquely backward in a continuous line with inner margins of eyes. *Antennae* yellow with club fuscous, body of segment 1 slightly longer than broad, subovate, longer on outer side, not quite as long as 2 plus 3, 3 as long as 4 plus 5, twice as long as broad, 4 slightly longer than 5, 4 and 5 transverse; club longer than four preceding segments, segments 6 and 7 subcircular in outline and subequal in size and shape, 8 slightly longer than 7. *Prothorax* as broad as long in female, slightly longer, including apical projection, than broad in male; base slightly convex, slightly arcuately narrowing from base to fore margin on sides, fore margin produced over head, simply rounded in female, but with a broad, conspicuous strongly developed, dorsally emarginate, upturned process in male; longitudinal dorsal contour evenly convex from base to apex in female, evenly convex from base to about apical fourth in male, outline thence more steeply declivitous and interrupted by a slight depression before apical process and slightly more impressed on either side than at middle; lateral carina and fore and hind corners entirely concealed from above, the carina fine, similar to basal carina, hind corner broadly rounded off, thence continued in a curve, which is more convex basally than distally, to fore margin, and forming an obtuse angle of about 135 degrees with fore margin; reticulate, microscopically punctate, punctures separated by interstices as broad or broader than their diameters; setae microscopic, hardly discernible even under high magnification. *Elytra* almost two thirds as broad as long and

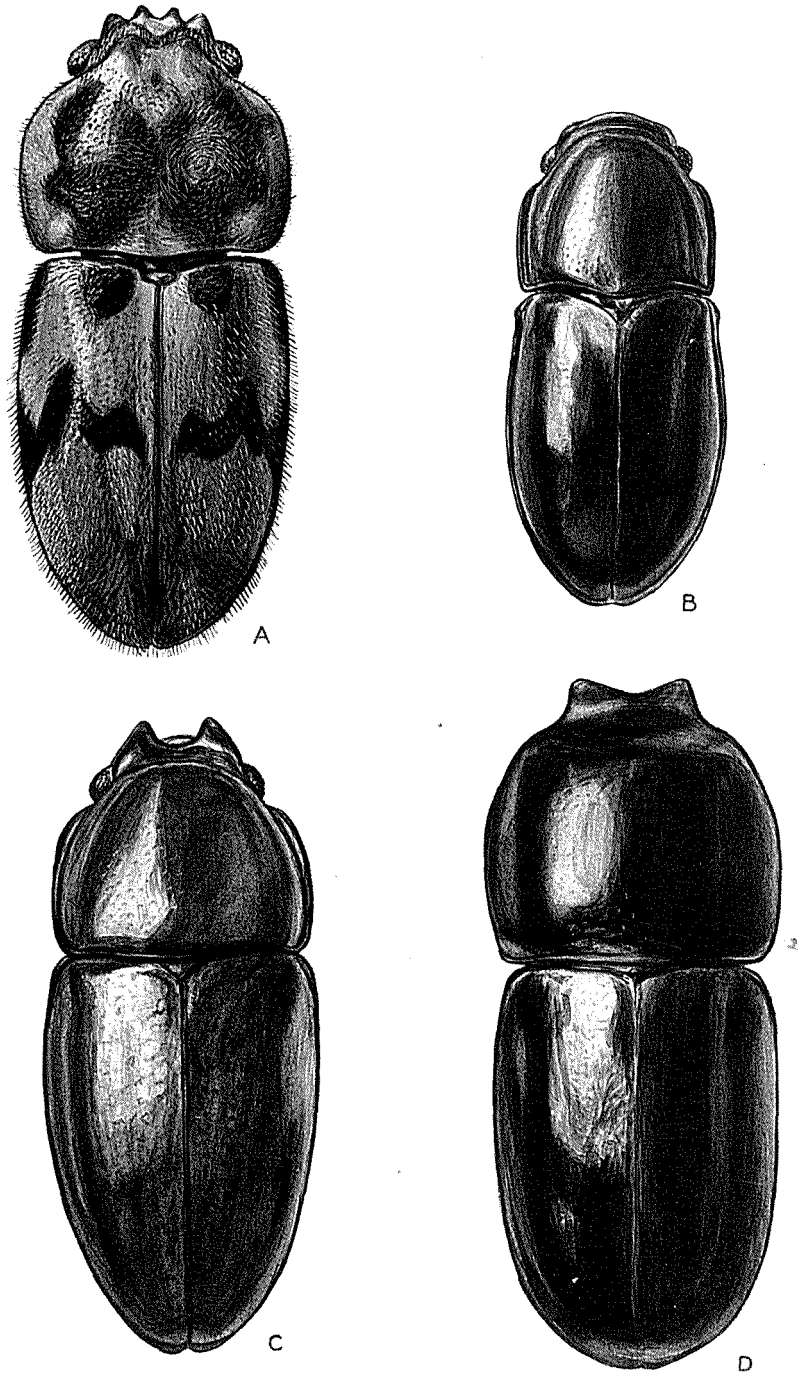
about one third longer than prothorax, bluntly bullet-shaped, subparallel-sided in basal two thirds, thence rounded to apex, base subtruncate; reticulate, punctures microscopic, dense, evidently rather shallow and not very distinct individually, appearing about as large as those on pronotum, but denser and evidently obscured by reticulations; setae microscopic, hardly discernible even under high magnification. *Wings* fully developed. *Legs* with femora stout, grooved for reception of tibiae, fore pair with a well-developed flange on the lower anterior edge in apical fourth; fore tibia compressed, expanded apically, armed with a few slender teeth on outer edge of about distal fourth in female, armed half way up side on male, mid tibiae armed with slender spine-like teeth in apical fourth in both sexes, hind tibiae with a row of slender spines or stiff setae in apical fourth in both sexes, mid and hind tibiae not so greatly expanded distally as fore tibiae, which, in males, may be only slightly less than half as broad as long. *Sternum* reticulate, with at most only microscopic, inconspicuous puncturation, setae hardly discernible; intercoxal process of prosternum reduced to an almost paper-thin lamella, not elevated and not continued forward to the evenly and continuously concave anterior margin, fore margin of a coxa only half as far from anterior margin as transverse chord of a coxa; mesocoxae almost contiguous, only very slightly separated; metacoxae very slightly separated, metasternum about as long along median line as first two ventrites plus half of third. *Venter* coarsely reticulate, not obviously punctate, setae minute; first ventrite about as long behind a coxa as 2 plus 3, simple in female, with a round, margined, setiferous, crater-like pit in male. Length, 1.25-1.5 mm.; breadth, 0.5-0.6 mm.

Holotype male, in the U. S. National Museum, allotype female in Bishop Museum, and 44 paratypes collected from a tree fungus, Aug. 25, 1937, Oakley (no. 90).

The eight segmented antennae together with the serrate tibiae and the very narrowly separated fore coxae will readily separate this species from the other Guam Ciidae.

With the exception of one species described by Pic from Sumatra, there are no other *Ceracis* recorded from the Pacific. Most of the species are American. Champion has described one species from India (*Ceracis fasciculosus,* 1922). The Fijian *Cis compressicornis* (Fairmaire) Lesne was described as a *Ceracis,* but Lesne (1917) has shown that it belongs to *Cis.*

The first and second tarsal segments are fused in this species; there is only a slight constriction and no distinct suture between the segments.



A, *CIS QUADRIDENTATUS,* MALE; **B,** *C. GUAMAE,* FEMALE; **C,** *C. AGARICONAE,* MALE; **D,** *CERACIS PALACEPS,* MALE. (WASH DRAWINGS BY M. E. POOR.)

ELATERID AND EUCNEMID BEETLES OF GUAM

By R. H. Van Zwaluwenburg
Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

Family ELATERIDAE

Four species of Elateridae have been previously recorded from the island of Guam. As a result of collections made by the Guam Entomological Survey in 1936, three more species, here described as new, can be added. A fourth, represented by an incomplete specimen, adds still another, hitherto unknown from the island. Types of the new species are in the collection of the Experiment Station, Hawaiian Sugar Planters' Association.

1. **Agrypnus bifoveatus** Candèze, Monographie des Elaterides 1: 41, 1857.
This Philippine species has long been known from Guam. Three specimens were taken by Mr. Swezey at Piti, one at light, Aug.-Oct.

2. **Lacon modestus** (Boisduval).
Agrypnus modestus Boisduval, Voy. Astrolabe, 108, 1835.
Yona, May 12, 14, R. L. Usinger; Piti, Aug. 17, Swezey; Machanao, June 30, R. L. Usinger, several at light.
This species is widely distributed in the Pacific. Specimens in the Survey collection are from widely separated points on Guam.

3. **Simodactylus cinnamomeus** (Boisduval).
Aeolus cinnamomeus Boisduval, Voy. Astrolabe, 106, 1835.
This species occurs in Guam but is not represented in the Survey collection.

4. **Simodactylus** species.
A specimen of this genus, lacking head and thorax, was found by R. L. Usinger June 27, 1936 on Mt. Alifan; its reddish brown elytra measure 12 mm. in length. It is very different from the Polynesian *S. cinnamomeus* (Boisduval). The Mt. Alifan insect appears similar to *S. hesperius* Van Zwaluwenburg from Palau and the Carolines, and to *S. palauensis* Van Zwaluwenburg from Palau; like them, it bears a resemblance to some of the Philippine species of the genus. Its occurrence in the mountain forest suggests that it is native to Guam.

5. **Melanoxanthus melanocephalus** (Fabricius).
Elater melanocephalus Fabricius, Spec. Ins. 1: 272, 1781.
A single specimen was taken by Swezey in a house in Piti, Sept. 9, 1936. It occurs throughout the Pacific area, and westward to the islands of the Indian Ocean.

6. Melanoxanthus guamensis, new species.

Slender. Generally blackish; head and antennae blackish with two or three basal segments of the antennae sometimes rufous; pronotum blackish or flavous suffused with blackish, but with hind angles always flavous, anterior margin usually flavous; scutellum black; base of elytra flavous, this coloration sometimes distinctly separated from, but usually confluent with, an elongate flavous marking on the basal one half; on posterior one third of elytra a smaller, elongate-oval, flavous spot; suture always black or dusky. Body beneath flavous to blackish; legs flavous. Pubescence fine, semi-erect, fulvous. *Front* convex on disk, flattened anteriorly; punctation moderately coarse, uniform; anterior margin broadly rounded. Antennae in male barely exceeding, or in female just failing to attain, the tips of the hind prothoracic angles; 2d and 3d segments subequal, together shorter than 4th; 4 to 10 feebly serrate, diminishing in length. *Prothorax* slightly longer than median width, even in female; sides narrowed from base of hind angles to anterior one third (slightly more arcuately in female than in male), thence more rapidly to anterior margin. Pronotum convex, flattened on disk, lightly punctate, punctures on disk as on head, subumbilicate toward sides; faintly impressed medianly at base. Hind angles stout, acutely unicarinate. Punctation of propleura umbilicate, shallow, sparse, distinctly coarser than on prosternum. Mucro subhorizontal, widely excavate between fore coxae. *Scutellum* moderately inclined; flat, elongate, acute behind. *Elytra* at base narrower than hind prothoracic angles; sides narrowed to middle in female, or beyond in male, thence conjointly narrowed to apex; apex subtruncate, sutural angles finely spinulose. Strial punctures rather coarse; intervals flat, finely punctulate. Length, males 3.5-3.6 mm.; females 3.75-4.25 mm.

Machanao, June 5, Usinger, holotype male; Inarajan, July 25, on *Pithecolobium dulce,* Swezey, allotype female; Ritidian Pt., April 15, Bryan, two paratype males; Inarajan, May 6, Usinger; Ritidian Pt., June 2, Usinger, three paratype females; Machanao, June 5, Usinger; Mt. Alifan, June 27, Usinger.

The area occupied by the flavous maculations varies considerably. This species is similar to the Philippine *M. vicinus* Fleutiaux, but shows the following differences: 1, the base of the elytra is flavous, not black as in *M. vicinus;* 2, the maculation on the basal half of the elytra is longitudinal, not oblique; 3, the antennae of the male barely exceed, not just fail to attain, the tips of the hind prothoracic angles; 4, the base of the pronotum is barely impressed medianly, not acutely channelled as in *vicinus.*

7. Melanoxanthus palustris, new species.

Moderately slender. Generally yellowish brown, with pronotum somewhat more reddish; sutural margin dusky; meso- and metasterna, and abdomen castaneous. First four antennal segments light yellowish brown, the remainder darker. Legs light brown. Pubescence yellowish, fine, very short. *Front* very slightly convex; punctation moderately coarse, uniform, lightly impressed; anterior margin rather acutely rounded. Antennae failing to attain tips of hind prothoracic angles by less than the length of terminal segment in male, or by about the length of last two segments in female; 3d segment half as long again as 2d, the two together subequal to 4th; 4 to 10 feebly serrate; 11th broadly oval. *Prothorax* about as long as median width in both sexes, but not as long as width across tips of hind angles; sides posteriorly subparallel on basal one third in male, or arcuately rounded on posterior one third in female, thence subarcuately narrowed to anterior margin. Pronotum strongly convex; punctation coarser than on head, subumbilicate, lightly impressed, separated on disk by less than their own diameters, subconfluent toward sides; basal declivity rather abrupt, vaguely impressed medianly. Hind angles stout, acutely unicarinate. Propleura sparsely, shallowly umbilicate-punctate generally, almost impunctate toward base;

prosternum more closely, uniformly punctate. Mucro briefly upturned behind fore coxae, thence posteriorly subhorizontal; excavate between coxae. *Scutellum* sagittate; moderately inclined, flat, bluntly rounded apically. *Elytra* at base narrower than hind prothoracic angles; sides narrowed to beyond middle in male, or subparallel to about middle in female, thence conjointly narrowed to apex; apex rounded, entire; each elytron briefly divergent apically along suture, sutural angle finely spinulose. Strial punctures rather coarse; intervals flat, finely punctulate. Length, male 4.1 mm.; females 4.5 mm.

Atantano, Sept. 27, ex *Lumnitzera,* Swezey, holotype male; Sumay Road, June 23, ex *Lumnitzera,* Usinger, allotype female, paratype female.

This species was taken only on *Lumnitzera pedicillata,* but it is by no means certain that it is specific to this mangrove. Both localities given above refer, according to Mr. Swezey, to the same mangrove swamp, the only region in which the species was found.

8. **Melanoxanthus usingeri,** new species.

Slender, generally flavous; head blackish with irregular yellowish area behind anterior margin; antennae more or less uniformly yellowish brown; pronotum with blackish spot near lateral margin behind middle and along middle of disk; on either side anteriorly with ill-defined blackish markings; dusky along suture of elytra almost to apex, the dusky line widening behind middle to cover three intervals on either side (extending very vaguely as far as the 5th interval) thence narrowing regularly to the end of the dusky line along suture; each humerus with a small blackish mark. Body beneath generally yellowish brown, with abdomen darker. Legs light brown. Pubescence yellow; fine, short. *Front* moderately convex; punctation subumbilicate, uniform; on basal one third a brief, median, cariniform prominence which fails to attain the anterior margin of the pronotum; anterior margin of front broadly rounded. Antennae failing to attain tips of hind prothoracic angles by the length of the last three segments; 3d segment half as long again as 2d, the two together subequal to 4th; 4 to 10 feebly serrate, gradually diminishing in length; 11th elongate oval. *Prothorax* longer than median width; sides arcuately narrowed from base of hind angles to anterior one third, thence more rapidly to anterior margin; moderately convex; basal declivity moderate, not impressed medianly; punctation on disk finer than on head, coarser, subumbilicate toward sides. Hind angles short, blunt; slightly divergent; acutely unicarinate. Mucro briefly upturned behind fore coxae, posteriorly subhorizontal; excavate between coxae. *Scutellum* sagittate, moderately inclined; convex toward base; coarsely punctulate. *Elytra* at base as wide as hind prothoracic angles; sides subparallel to about middle, thence conjointly narrowed to apex; apex rounded, entire, not spinulose at sutural angles. Strial punctures rather fine; intervals flat, subrugose toward base. Female, length 8.0 mm.; width 2.1 mm.

Agat, May 31, ex *Pithecolobium,* Usinger, holotype female.

Its larger size and the triangular widening of the dusky marking along the suture will distinguish this species from the other two described above.

Family EUCNEMIDAE

Fornax coxalis Fleutiaux, Soc. Ent. France, Bull. 43: 250, 1938.

Barrigada, June 12, in rotten log, Swezey.

Apparently the only representative of this family in Guam. Described from Ponape, Caroline Islands, and Guam: Piti, in bamboo; Mt. Alifan, in rotten log.

COLEOPTERA HETEROMERA FROM GUAM

By K. G. Blair
British Museum (Natural History), London

The collection here dealt with was sent for determination by O. H. Swezey of Honolulu to the Imperial Institute of Entomology, which referred it to me. Only two of the species appear to have been hitherto recorded from these islands though many are of fairly wide distribution in the South Pacific.

Family TENEBRIONIDAE

1. Gonocephalum incisum (Blanchard).

Epilasium incisum Blanchard, Voy. Pôle Sud 4: 157, pl. 10, fig. 16, 1853 (Guam).

Ritidian Pt., April 22, Bryan, one specimen.

Gebien [Coleopt. Catalog. (22) 1910] places the species erroneously in *Trichoton* Hope. It is, however, closely allied to *Leichenum verrucosum* Fairmaire and *L. impictum* Fairmaire both from Fiji, and with these must be removed to *Gonocephalum* Solier.

The genae are wide, the eyes not divided as in *Trichoton,* the thorax coarsely and closely granulate, the granules on the more elevated parts sloping backwards, each with a reddish seta at tip; in an indistinct longitudinal depression on each side of the middle they are sharper and more elevated, and on the rather sharply explanate side margins much finer. The elytral striae are very ill-defined, but the alternate intervals 3, 5, and 7 are wider than the others and more elevated, especially 3 and 7 at base. The striae are sinuate and the wider intervals behind the middle interrupted by somewhat indistinct depressions. Sculpture sharply granulate but the granules smaller than those of thorax, tending to be uniseriate in the narrow intervals; a smaller granule accompanying each puncture of the striae renders these more indistinct. The elytral epipleura end about the base of the 5th ventral segment of the abdomen (continuous to apex in *Trichoton*). Legs moderately stout, tips only of femora visibly exposed beyond the elytra (much too long in Blanchard's figure).

2. Uloma cavicollis Fairmaire, variety.

Uloma cavicollis Fairmaire, Rev. Zool., 447, 1849.

Machanao, June 5, two males, one female; Mt. Alifan, May 26, three males, four females, Swezey, Usinger; Mt. Tenjo, May 3, one female and larva in rotten trunk of *Areca* palm, Swezey; Agana, May 4, one female in rotten *Pandanus* trunk, Swezey; Fadian, Sept. 18, one male, one female (larva in rotten log, adult, Nov. 22), Swezey; Yigo, Nov. 13, one male in rotten stump, Swezey.

All these specimens agree in having the dorsal interstices of the elytra very flat, as in the variety *ponapensis* Blair from the Caroline Islands.

FAMILY ANTHICIDAE

1. Formicomus (Anthelephilus) imperator (Laferté).

Anthelephilus imperator Laferté, Monogr., 66, pl. 24, fig. 2, 1848.

Formicomus imperator (Laferté) Pic, Coleopt. Catalog. (36) : 18, 1911.

Piti, July 18, from pumpkin leaves having mildew, 28 examples, Swezey; Piti, June to November, 14 examples, Swezey; Yona, April 27, 29, among dead leaves, three examples, Bryan; Inarajan, July 25, Sept. 30, on rice, four examples, Swezey; Machanao, Aug. 11, on sugar cane, two examples, Swezey; Fonte Valley, Aug. 7, from weeds, five examples, Swezey; Fadian, Aug. 19, on *Sida,* two examples, Swezey.

First described from Linga, Sunda Islands, the species is widely distributed, being known from Ceylon (*F. quisquiliarius* Nietner), Japan (*F. cribriceps* Marseul) and the Chusan Archipelago (coll. J. J. Walker in British Museum). For synonymy see Krekich von Strassoldo (Wien. ent. Zeitung 32 : 231, 1913).

A striking character in the female of this species that does not appear to be mentioned in any of the descriptions, is the high pointed crest on the pygidium. This is perhaps less developed in *cribriceps* than in *quisquiliarius* and the present form.

2. Anthicus oceanicus Laferté variety **guamensis,** new variety.

Differs from the typical form in having the fulvous area of the elytra predominant, the dark areas being reduced to a narrow indistinct patch at base, a median band sometimes interrupted on suture and apex.

Yona, May 12, from pigeon pea, one example, Usinger; Mt. Alifan, May 26, from corn, one example, Swezey; Umatac, May 28, one example from *Ipomoea pes-caprae* Swezey; Mt. Chachao, May 16, one example, Swezey; Piti, June 3, one example on sedges, Swezey; Machanao, June 5, among dried leaves on fallen tree, one example, Swezey; Fonte Valley, Aug. 7, on weeds, one example, Swezey.

This variety represents variation in a direction opposite to that of variety *francoisi* Pic from the Society Islands, Fiji and the New Hebrides, in which the whole insect is darker. The typical form has been recorded from Hawaii, the Marquesas Islands, New Caledonia, Krakatao, Ceylon, the Seychelles Islands, Kokos Keeling Islands and North Australia (*rectefasciatus* Lea).

FAMILY EUGLENIDAE (XYLOPHILIDAE)

1. Euglenes bifossicollis, new species.

Short, compact, brownish testaceous, thorax and elytra moderately, closely and strongly punctate with double pubescence, a long suberect hair arising from each puncture, the interspaces clothed with a fine depressed pubescence. Head broad, eyes large, separated by a space scarcely greater than the width of labrum. Antennae thickened toward apex, joints 3 to 5 elongate, 8 to 10 transverse. Thorax transverse, a little narrower than

head across eyes, a pair of divergent impressions in middle before base. Elytra not twice as long as combined widths, with a shallow transverse impression at basal third. Legs moderately slender (no evident sexual modifications). Length 1.25 mm.

Dededo, May 11, from *Ochrosia* and *Piper guahamense,* Swezey, 18 examples; Mt. Chachao, May 16, on *Cycas,* Swezey, five examples; Piti, April 30, from *Hibiscus tiliaceus (pago)*, Swezey, one example; Upi Trail, May 5, Swezey, one example; Inarajan, May 7, Swezey, one example; Machanao, May 17, Usinger, two examples; Tumon, May 30, on *Intsia bijuga,* Swezey, one example; Ritidian Pt., June 2, Usinger, Machanao, June 4, Swezey, two examples; Mt. Alifan, June 27, Swezey, seven examples.

Resembles *Xylophilus fijianus* Champion but is stouter, lacks the dark fascia on the elytra, and the space between the thoracic foveae is not elevated; the antennae also are shorter and stouter and entirely testaceous.

2. **Euglenes guamensis,** new species.

Similar in form to *E. bifossicollis,* but thorax smaller and more strongly transverse, without the prebasal foveae; the puncturation is finer, the coarser hairs more decumbent and not conspicuous, the fine decumbent pubescence exhibiting dark markings on a silvery ground as follows: on thorax an elongate median patch and a smaller spot near each angle; on elytra an irregular transverse band (or three spots united) at basal one fourth, a strongly zigzag transverse band just beyond middle, projecting farthest forward on suture and nearly as far in middle of disk. Antennae stout (female), joints 4 to 11 of equal thickness, 6 to 10 strongly transverse. Hind femora rather strongly incrassate. Length 1.25 mm.

Libugon Farm, Aug. 10, holotype female, swept from unknown tree; Inarajan, May 7, one female; Piti, Oct. 29, swept from bamboo, one female; Agana, May 15, one example, head and prothorax missing; all collected by Swezey.

Very close to *Xylophilus marquesanus* Blair (B. P. Bishop Mus., Bull. 98: 290, fig. 1, 1935), but rather smaller with stouter antennae and the dark markings of the elytra differently disposed.

Family RHIPIPHORIDAE

Micropelecotoides fulvosericans (Fairmaire).

Pelecotomoides fulvo-sericans Fairmaire, Pet. Nouv. Ent. 2: 279, 1878.

Machanao, June 2, miscellaneous sweeping, Swezey, one male; Machanao, June 4, Usinger, one male; Barrigada, June 12, one male, Usinger; Upi Trail, May 5, Usinger, one female.

The males vary from 2.5 to 4 mm. in length; the female is scarcely as large as the smallest male. Described from Fiji and recorded also from Tonga.

Family MORDELLIDAE

1. **Glipa guamensis,** new species.

Black, with markings of white pubescence. Scutellum clothed with white pubescence. Elytra each with four transverse white bands, one near base broadly interrupted on shoul-

der, the second narrower, chevron-like, with point directed forward just before the middle, 3d similar, midway between this and apex, 4th crescentic, subapical, none of them encroaching upon sutural margin or epipleura, apex of each rounded, minutely denticulate. Anal style more than twice as long as hypopygium, with patch of white pubescence on each side near base. Underside and legs black with a patch of white pubescence on each side of first four segments of abdomen; posterior margin of these segments shining, glabrous; metasternum and posterior legs shining with thin black pubescence. Length of elytron 6 mm.

Cañada, April 8, Bryan, one fragmentary example.

Allied to the common and widely distributed *Glipa tricolor* Wiedemann but differs in the form of the elytral markings and the more thinly pubescent and shining underside with but little white pubescence.

2. **Mordellistena castanea** (Boheman).

Mordella castanea Boheman, Eugenies Resa, Ins. Col., 108, 1858 (Guam).

Mordella dodonaeae Montrouzier, Soc. Ent. France, Ann. III, 8: 306, 1860 (New Caledonia).

Mordellistena dodonaeae (Montrouzier) Blair, Ann. Mag. Nat. Hist. IX, 9: 567, 1922 (Fiji); Insects of Samoa 4(2): 86, 1928 (Samoa).

Santa Rosa Peak, May 19, Swezey, 12 examples; Piti, July 5, Oct. 27, 29, on bamboo leaves, Swezey, four examples; Agana, May 25, from *Pithecolobium,* Usinger, three examples; Agat, May 31, from *Thespesia populnea,* one example, Swezey; Agat, Oct. 17, from *Calophyllum inophyllum,* Swezey, one example; Orote Pen., May 24, on *Psychotria,* Usinger, one example; Umatac, May 28, Usinger, one example; Mt. Chachao, May 16, on *Cycas,* Swezey, one example; Machanao, Aug. 6, on *Piper guahamense,* Swezey, one example.

Though Boheman's description gives insufficient detail to make this identification certain, these captures from the original locality are assumed to be this species.

Family MELOIDAE

Zonitis oceanica Blair, B. P. Bishop Mus., Occ. Papers 16(6): 146, fig. 9, 1940.

Santa Rosa Peak, May 19, on sword grass, Usinger, one male, one female; Mt. Sasalaguan, April 25, Bryan, one female.

Family PYTHIDAE

Lissodema guamense, new species.

Elongate oblong, convex, black, with front of head, funicle of antennae, legs and underside reddish. Rostrum short, strongly but not closely punctured, frons slightly and evenly convex, punctured as rostrum. Antennae extending to base of thorax, club very distinct, as long as joints 2 to 8 together. Thorax fully as wide as elytra, very convex from side to side, less so from front to base, without depressions or foveae; sides finely margined, each with four teeth, the two anterior closer together than the two posterior, each tooth with a fine erect bristle arising from its upper side; greatest width across second tooth, base finely margined, disk punctured as frons. Elytra subparallel, seriately punctured, the

punctures not close, fairly strong near base but very fine from the middle onwards, with scattered erect setae especially towards sides and apex; pygidium exposed. Prothorax beneath more coarsely and closely punctured than above, sides of meso- and metasterna also strongly and closely punctured, middle of metasternum and abdomen finely punctate. First three joints of tarsi (two of posterior) closely compact, with long hairs beneath, the next smaller, the claw-joint about as long as the first three together. Length, 2.5 mm.

Piti, under bark, Nov. 6, Swezey, holotype.

In its parallel-sided form, *L. guamense* resembles *L. luzonica* Pic from the Philippine Islands, geographically its nearest congener, but that species is larger, rufous in color and has the thorax impressed at base and the sides multidentate. The numerous Japanese species all have the thorax narrower than the elytra. Type in Bishop Museum collection.

Family ANOBIIDAE

Genus **DORCATOMIELLA** Blair

Dorcatomiella Blair, B. P. Bishop Mus., Bull. 98: 292, 1935.

Dorcatomiella guamensis, new species.

Unicolorous pitchy brown, with sericeous pubescence forming light and dark patches according to the direction of the hairs. On the thorax this radiates from the mid point of each side of the base forming a basal light patch on each side and a feeble median crest. On the elytra it is directed mainly backwards but with a transverse outward sweep in the middle of the disk and another near the apex. Basal to the first of these, the hairs are mostly dull golden with silvery hairs intermixed, and between the two transverse sweeps entirely dull golden forming vague dark patches on the elytra. Length, 1.5 mm.

Piti, April 30, ex *Hibiscus tiliaceus* (*pago*) Swezey, two examples; Inarajan, May 6, Usinger, one example; Mt. Chachao, May 16, from *Cycas,* Swezey, one example; Barrigada, June 12, Usinger, eight examples.

Differs from *D. sericeovariegata* Blair, from Tahiti, in its considerably smaller size and the different pubescent pattern; the antennae also differ, the first joint of the club being thickened on basal two thirds, thence acuminate to apex in the Guam species.

NEW LONGICORN BEETLES FROM GUAM (CERAMBYCIDAE)*

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SUBFAMILY CERAMBYCINAE

TRIBE OBRIINI

Genus **IPHROBRIUM** Gressitt, 1935

1. Iphrobrium guamensis, new species.

Female: slender, elongate, dorso-ventrally compressed. Body chestnut brown, darker or paler in part; head reddish brown, almost pitchy on neck; eyes pitchy black; palpi testaceous; antennae brownish testaceous, darker brown on scape and apices of third to fifth segments; prothorax reddish castaneous, shiny, a pitchy black stripe along each side of upper surface from apex to base, lower parts of sides reddish testaceous; scutellum reddish; elytra brownish testaceous with external margins, apices and two narrow transverse bands pitchy gray brown; ventral surfaces reddish testaceous; meso- and metasterna duller brown; legs brownish testaceous with swollen portions of posterior femora pitchy brown. Dorsal surfaces clothed with thin golden brown pubescence; metasternum with dull brown pubescence, and second abdominal sternite densely fringed on apical margin with golden.

Head longer than broad, almost as long as prothorax, finely granulose, smooth on neck. Antennae slightly longer than body, moderately slender; scape subarcuate, longer than third segment; fourth slightly shorter than third; fifth nearly as long as third and fourth combined, subequal to sixth and seventh, respectively. Prothorax nearly twice as long as broad, briefly collared at each end, a little broader at apex than at base; surfaces smooth, finely granulose. Elytra slightly broadened behind middle, conjointly rounded posteriorly; surfaces finely granulose-punctate. Legs slender; posterior femora compressed and swollen in apical two-thirds. Length, 8.5 mm.; breadth, 1.8 mm.

Machanao, June 5, Usinger, holotype female.

Differs from *I. dilatipenne* Gressitt of the Ryukyu (Loochoo) Islands in being darker and more shiny, more elongate, with the prothorax more cylindrical and the elytra less expanded posteriorly. Type in collection of B. P. Bishop Museum, Honolulu.

SUBFAMILY LAMIINAE

TRIBE ACANTHOCININI

Genus **NONYMOIDES** Blair, 1939

2. Nonymoides swezeyi, new species.

Male: somewhat oval in outline, dorso-ventrally compressed and somewhat flattened above. Body reddish brown, darker in part, largely pale on appendages; head dull reddish brown, pitchy across middle of frons; antennae pale reddish testaceous, darker brown on extreme apices of basal segments and on distal halves of last five or six segments; pronotum light reddish brown with several small dark brown spots, sides of prothorax brownish black; elytra light reddish brown with small spots of darker reddish brown, mostly along

* Contribution from Lingnan Natural History Survey and Museum, Lingnan University, Canton, China.

costae and suture, deflexed portions dark reddish brown near base; ventral surfaces testaceous brown, with middle abdominal segments and central portion of metasternum largely dark brown; legs testaceous with preapical portions of femora, tibiae and tarsi dark brown. Body surfaces thinly clothed beneath with silvery buff hairs; dorsal surfaces somewhat irregularly clothed, with median and lateral pale stripes and dark spots in intervening areas, on pronotum, and narrow broken stripes of pale on elytral costae; front of head partly glabrous; antennae finely ciliate.

Head wider than deep, slightly constricted behind eyes, deeply punctured with intervening areas micropunctulate; frons nearly twice as wide as high, shallowly grooved along midline; vertex slightly concave; inferior eye lobes about as wide as deep, occupying three fourths space between antennal insertions and bases of mandibles. Antennae one third again as long as body, finely tapering; scape elongate, subcylindrical, three fourths as long as third segment; fourth nearly as long as third and slightly longer than fifth and sixth combined. Prothorax not quite twice as broad as long, briefly spined at each side near base, each spine preceded by a feeble swelling; disk moderately plane, finely and closely punctured. Elytra gradually narrowed posteriorly; surface of each seriate-punctate on outer two fifths of dorsal disk, first costa separating two areas of irregular punctures. Sides of thorax finely punctured; abdomen impunctate. Length, 6 mm.; breadth, 2.4 mm.

Female: dorsal surfaces dark reddish brown; elytra crossed by two irregular bands of whitish buff pubescence, one near base and other near apex. Length 4.8 mm.; breadth 1.8 mm. Paratype female: length, 6.4 mm.; breadth, 2.6 mm.

Inarajan, May 7, on *Citrus,* Swezey, holotype male; Upi Trail, May 5, Usinger, allotype female, paratopotype male and paratopotype female.

Differs from *N. latior* Blair in having the frons and pronotum much more finely and closely punctured, the pronotal disk flatter, the sides of the prothorax more swollen before lateral tubercles, which are less prominent, and the elytra more finely punctured internally, and less regularly striate-punctate externally, the punctures close and irregular along middle.

Named in honor of O. H. Swezey, collector of part of the material, as a token of esteem and gratitude for the privilege of studying this collection. Type in collection of B. P. Bishop Museum.

3. **Nonymoides minimus** Blair, B. P. Bishop Mus., Occ. Papers **16**(6) : 156, fig. 12, 1940.

Orote Pt., April 8, Bryan, one specimen; Piti, April 30, one specimen, May 2, on *Pithecolobium dulce,* two specimens, Usinger; Agana, May 15, Usinger, one specimen; May 25, on *Pithecolobium,* Swezey, one specimen; Upi Trail, May 5, Swezey, Usinger, two specimens; Inarajan, May 7, on dead branches of *Citrus,* two specimens, on *Pithecolobium,* Swezey, one specimen; Taragüe, May 17, Usinger, one specimen; Ritidian Pt., June 2, Usinger, three specimens; Machanao, miscellaneous sweeping, June 2, Swezey, one specimen, June 5, among dried leaves of felled trees, Usinger, ten specimens; June 30, Swezey, one specimen.

Key to Guam Species of Nonymoides

Elytral punctures irregular between first and second costae after suture; prothorax at least twice as broad as long, its disk nearly flat or feebly swollen; punctures on elytra much larger and sparser than those of pronotum.....**N. swezeyi.**

Elytral punctures in regular longitudinal rows beyond first costa after suture; prothorax less than twice as broad as long, its disk distinctly swollen; punctures on elytra not much larger or sparser than those of pronotum.....**N. minimus.**

Subfamily CERAMBYCINAE *

Tribe CALLIDIOPINI

4. Ceresium species.

Piti, May 7, Swezey, in house, one specimen; Machanao, June 30, Usinger, three specimens.

5. Ceresium guttaticolle (Fairmaire).

Hesperophanes guttaticollis Fairmaire, Rev. Zool., 2(2): 63, 1850.

Ceresium guttaticolle (Fairmaire) Blair, B. P. Bishop Mus., Bull. **114**: 274, 1934.

Machanao, under bark, June 4; Piti, at light, June 8, July 12, Swezey.

Of wide distribution in the Pacific. Recorded from the Marquesas and Lord Howe Island. Some authors synonymize it with *Ceresium unicolor.* The Guam specimens were determined by E. C. Zimmerman.

Subfamily LAMIINAE

Tribe PTERICOPTINI

6. Sybra carolina Matsushita (?), Sapporo Nat. Hist. Soc., Trans. **14**: 121, 1935. Blair, B. P. Bishop Mus., Occ. Papers **16**(6): 153, 1940.

Mt. Tenjo, May 3, Usinger, six specimens; Upi Trail, May 5, Usinger, one specimen; Dededo, May 11, Usinger, two specimens; Mt. Chachao, May 16, Swezey, two specimens; Tarague, May 17, Usinger, one specimen; Mt. Alifan, May 21, from dead breadfruit tree, Swezey, Usinger, eight specimens, June 19, from *Pipturus argenteus,* Swezey, two specimens, June 27, Usinger, four specimens; Agana, May 25, Usinger; Piti, May 28, Usinger, one specimen, June 13, at light, Swezey, two specimens, Oct. 6, at light, Swezey, one specimen; Agat, May 31, on *Hernandia peltata,* Swezey, one specimen; Tumon, May 30, on *Barringtonia speciosa,* Swezey, one specimen; Machanao, June 5, Usinger, one specimen, Aug. 6, Swezey, one specimen; Barrigada, June 14, on *Crotalaria saltiana,* Swezey, one specimen; Ritidian Pt., June 30, Usinger; Orote Pt., July 19, Aug. 2, Swezey, two specimens; Inarajan, July 25, on *Barringtonia racemosa,* Swezey, one specimen; Yigo, Nov. 8, on corn tassels, two specimens, Nov. 13, among dead papaya leaves, three specimens, Swezey.

* The following section is compiled by O. H. Swezey from material partially identified by J. L. Gressitt.

7. **Sybra** species.

Antennae red, longer.

Upi Trail, May 5, Swezey, one specimen; Agat, May 23, reared from dried male spike of breadfruit tree, adult, July 27, Swezey, one specimen; Piti, June 24, one from dried male spike of breadfruit tree, two specimens, Oct. 19, at light, one specimen, Swezey.

TRIBE APOMECYNINI

8. **Ropica** species.

Ritidian Pt., April 15, Bryan, one specimen; Yona, April 29, in dead leaf of *Areca* palm, Bryan, one specimen; Mt. Alifan, April 20, Bryan, one specimen; Piti, April 30, on *Hibiscus tiliaceus,* Swezey, Usinger, two specimens, May 22, from fallen breadfruit, Swezey, one specimen, at light, Aug. 13, Sept. 13, Swezey, two specimens; Mt. Tenjo, May 3, Usinger, one specimen; Upi Trail, May 5, Bryan, Swezey; Dededo, May 11, Usinger, one specimen, Aug. 11, on corn, Swezey, one specimen; Santa Rosa, May 19, Swezey, one specimen; Agana, May 25, Usinger, one specimen; Machanao, June 5, Usinger, one specimen; Yigo, Nov. 8, on corn tassel, one specimen, Nov. 13, among dead papaya leaves, four specimens, in seed cluster of *Coccothrinax* palm, Swezey, one specimen; Tumon, Nov. 13, on mango, Swezey, one specimen.

ANTHRIBIDAE OF GUAM

By Elwood C. Zimmerman
Entomologist, Bernice P. Bishop Museum

This paper is the result of my study of the Anthribidae of Guam, collected mostly by Mr. O. H. Swezey and Dr. R. L. Usinger in 1936. It contains eight species, three of which are described as new.

As far as I know, the only species of Anthribidae heretofore recorded from Guam are *Araecerus fasciculatus* (De Geer) and *Jordanthribus planifacietus* Zimmerman. So far as Anthribidae are concerned, Micronesia is unknown ground. The collection made at Guam is a welcome addition to our knowledge of the faunas of Oceania.

Little can be said at present concerning the faunistic affinities of the anthribid fauna of Guam, as endemic species are few. Because five of the eight species are found elsewhere, four of them having a wide distribution, it is possible that the three species which I have described as new are not truly endemic species. Only further collecting will solve this problem. There is little doubt, however, that the Guam Anthribidae will prove to be derived from the islands to the south and west. There are, I believe, no Anthribidae found in Guam of economic importance that are not found elsewhere, hence Guam is probably not to be regarded as a center of origin of anthribids of importance to agriculture. The two species of *Araecerus* are probably the only species that might cause damage to crops.

CHECK LIST

1. **Jordanthribus planifacietus** Zimmerman. Guam, Society, Austral, and Mangareva Islands.
2. **Jordanthribus conspersus,** new species. Guam.
3. **Notioxenus fulgidus,** new species. Guam.
4. **Melanopsacus parvulus,** new species. Guam.
5. **Mauia subnotatus** (Boheman). Indo-Pacific.
6. **Araecerus fasciculatus** (De Geer). Almost cosmopolitan.
7. **Araecerus vieillardi** (Montrouzier). Oceania.
8. **Araeocorynus cumingi** Jekel. Guam and the Philippines.

Key to the Genera

1. Antennae inserted on the front of the head at the inner dorsal corners of the eyes, the first segment much longer than the second.....**Jordanthribus.**
   Antennae inserted at the sides or front of the base of the rostrum at the lower edge of the eyes, the first segment shorter or not distinctly longer than the second..... 2

2(1). Interscrobal area as broad or broader than the interocular area; antennae inserted below the middle of the eye and distinctly more on the side of the rostrum than on the front of the rostrum.....**Mauia.**
   Interscrobal area slightly or conspicuously narrower than the interocular area; the antennae inserted near the inner lower corners of the eyes and more on the front than the side of the rostrum..... 3

3(2). First hind tarsal segment about as long as 2 to 4 inclusive.....**Araecerus.**
First hind tarsal segment much shorter than the three following segments together, usually not longer than 2 plus 3..... 4

4(3). Body, in the Guam species, bare and shiny above; dorsal prothoracic carina curving forward to the sides and distant from the base at the sides, not angulate at the sides and without a distinct lateral carina.....**Notioxenus.**
Body pubescent; dorsal prothoracic carina reaching the sides close to the base and there conspicuously angulate and with a distinct lateral carina.... 5

5(4). Less than 2 mm. long; lateral prothoracic carina straight, not reaching the middle, not upturned at the apex; first fore tarsal segment slender, fully twice as long as broad.....**Melanopsacus.**
More than 4 mm. long, lateral prothoracic carina reaching the middle and there slightly curved upward; first fore tarsal segment short and broad, as broad as long.....**Araeocorynus.**

Genus **JORDANTHRIBUS** Zimmerman, 1938

Key to the Species

1. Males 2
Females 3

2(1). Side margins of the rostrum continuously concave between the middle and apical expansion and not at all expanded at the apical third of the distance between the top of the head and mandibles and with the margin not elevated; antennae with the third segment simple and without an apical prolongation.....**J. planifacietus** Zimmerman.
Side margins of the rostrum very conspicuously elevated into a flange at one third of the distance between the top of the head and base of mandibles, the flange making a lateral expansion that is almost as broad as the apical part; third antennal segment with a conspicuous terminal hooklike ventral prolongation about one third as long as the third segment..... .....**J. conspersus** Zimmerman.

3(1). Front of head and rostrum obviously slightly convex from side to side; sides of rostrum not sharply separated from dorsum; pygidium one third broader than long.....**J. planifacietus** Zimmerman.
Front of head and rostrum broadly and conspicuously flattened, not at all transversely convex; sides of rostrum shallowly concave and sharply separated from the dorsum by a rather vague dorso-lateral carina; pygidium but slightly broader than long.....**J. conspersus** Zimmerman.

Only these two species of the genus are known; *J. planifacietus* is the genotype.

1. Jordanthribus planifacietus Zimmerman, B. P. Bishop Mus., Occ. Papers 14(13) : 237, figured, 1938 (fig. 1, *a, b* ; pl. 1, *B*).

This species is smaller and conspicuously paler in color than is *J. conspersus*. The more salient differences are summed up in the synoptic table, and a detailed description is given in the paper cited above. Length, 1.75-2.25; breadth, 0.8-1.0 mm.

Seven specimens representing both sexes of this peculiar species were collected at Machanao by Usinger, June 5, 1936; five of them were from dead leaves of a fallen tree, the other two were beaten from dried leaves of fallen

branches; 22 specimens from the National Museum were found by Oakley on *Pandanus* leaves, Dec. 30, 1938, no. 38-9035.

In southeastern Polynesia I found this species on dead banana leaves and coconut fronds and swept it from low herbage. Its widespread distribution indicates that the species has been artificially spread by commerce.

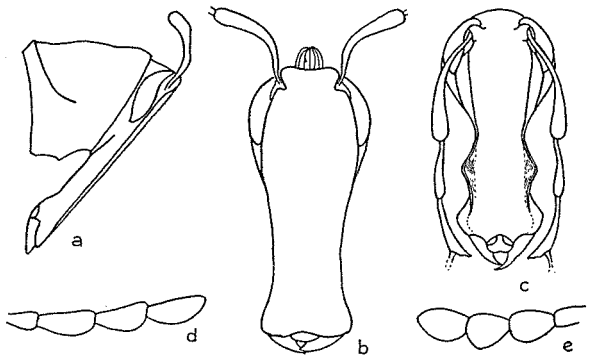


FIGURE 1.—**a**, side view of prothorax, head, and rostrum, and **b**, front view of head and rostrum of *Jordanthribus planifacietus* Zimmerman; **c**, front view of head and rostrum of *J. conspersus* Zimmerman; **d**, antennal club of *Araecerus fasciculatus* (De Geer); **e**, antennal club of *A. vieillardi* (Montrouzier).

2. **Jordanthribus conspersus,** new species (fig. 1, *c*; pl. 1, *A*).

Female: derm yellowish, infuscate, with dorsum confusedly infumated with yellowish and fuscous patches; pubescence grayish white.

Head with vertex convex and making a rounded angle with front which is flattened continuously with rostrum; crown finely punctate, front set with rather large, comparatively coarse, shallow subconfluent punctures; pubescence hairlike, that on front finer and longer than that on crown; cheeks concave; eyes reniform, the distance between their dorsal apices slightly less than the length of an eye (12:15). *Rostrum* slightly shorter, from ventral angulation with head to apex of mandibles, than head; conspicuously and continuously flattened above with front of head, sides making an angle with dorsum, sculpture and pubescence as that on front of the head, greatest distal breadth twice as broad as distance between tops of eyes. *Antennae* with first segment sinuous, as long as 2 plus 3, 2, 3, and 4 subequal in length, 4 as long as 5 plus half of 6, 5 to 8 each successively very slightly smaller, almost subequal in length, segments 9 and 10 subequal in length, elongate-triangular, 11 elongate-oval, almost as long as 10 plus half of 9. *Prothorax* strongly transverse (2.7:1.7), disk slightly, transversally depressed just beyond middle, shallowly and densely punctate, each puncture bearing a sharp, conspicuous seta; lateral carina forming a continuous curve with dorsal carina, not quite reaching middle of side. *Elytra* slightly less than three fourths as broad as long, two and three fourths as long as prothorax, subparallel-sided in basal two thirds, with a shallow depression at basal third of each elytron; striae well impressed, punctures distinct; intervals broader than striae, not punctate; pubescence prostrate, similar to but somewhat shorter than that on prothorax. *Legs* with fore tibiae as long as fore femora, first fore tarsal segment one third as long as a fore tibia. *Sternum* with fore coxae separated by half the diameter of a fore coxa, mid and hind coxae equally separated by a distance half again as broad as separation of fore coxae; metasternum between mid and hind coxae slightly broader than a metacoxa at trochanter, shallowly

punctate; pubescence broader and condensed on pleurae. *Venter* shallowly and densely punctate throughout, pubescence abundant, but not dense; fifth ventrite as long as four plus half of three. *Pygidium* as broad as long, as long as ventrite four plus five, shallowly punctate, rather densely pubescent, apex broadly rounded. Length, 3.0 mm.; breadth, 1.5 mm.

Male: differs from female principally in structure of the rostrum and antennae; rostrum about one fourth longer than ventral angulation of head to apex of mandibles than head, about one fourth as thick at base as long, continuously flattened with head from tops of eyes to apex, sides suddenly explanate beginning at half the distance between lower edge of eye and base of mandibles, margin raised and flangelike and making sides conspicuously angulate (see fig. 1, *C*), broadest part of angulation more than one fourth broader than base, but slightly narrower than greatest apical breadth of rostrum; front of head with conspicuous, long, dense hair from antennal tubercle to base of rostrum, without a series of long, coarse, conspicuous, erect setae between antennae; antenna with first segment strongly arcuate, not quite as long as 2 plus 3, 2 about as long as 3, 3 somewhat longer than 4, with its lower edge produced into a strong hook at apex fully twice as long as breadth of base at 4, lengths of following segments as follows: (4, 1.4) (5, 1.4) (6, 1.3) (7, 1.1) (8, 1.0) (9, 0.9, 0.4 broad at apex) (10, 0.7, 0.4 broad at apex) (11, 0.9, 0.4 broad at middle).

Holotype female and one female paratype collected from *Citrus* at Inarajan, by Swezey, May 7, 1936, in Bishop Museum; allotype male collected by Fullaway and labeled "Island Guam" no. "1133" to be deposited in the National Museum.

This species may be separated from its congener, *Jordanthribus planifacietus,* by its larger size and darker coloration as well as by the characters given in the key.

Genus **NOTIOXENUS** Wollaston, 1861

This genus has a discontinuous, predominantly tropicopolitan distribution. Only one species, the southeastern Polynesian *Notioxenus cylindricus* Jordan (1933), is known from the entire Pacific region east of Guam. Two species have been described from Japan, and it is probable that many undescribed species are to be found in the regions to the south and west of Guam.

3. **Notioxenus fulgidus,** new species (pl. 1, *F*).

Derm shiny black, with legs and antennae yellowish and variably infuscated; without dorsal vestiture.

Head usually entirely concealed from above by prothorax, densely punctate, interstices narrower than punctures; clothed, excepting crown, with long, coarse, shaggy, anteriorly inclined hair in male, evidently clothed only with fine inconspicuous setae in female; crown and front evenly convex; interscrobal area three fourths as broad as interocular area; eyes about three fourths as broad as interocular area. *Rostrum* slightly and evenly arcuate distally, distance between lower margin of scrobe and apex shorter than first antennal segment; mandibles with a small antemedian tooth. *Antennae* reaching backward only to about middle of prothorax, first segment about one seventh shorter than second, slightly broader at base than apex, 2 clavate, arcuate, but slightly shorter than 3 plus 4 plus 5 which are subequal in size, 5 as long as 6 plus half of 7, 7, 8 and 9 each successively slightly shorter; segments 9, 10, and 11 forming a rather compact asymmetrical club, 9 and 10 triangular, truncate at apex, almost straight on inner side, but slanting out rapidly to form acute angles with apical margins on outer side, 9 slightly longer than 10, as long as broad, 10 somewhat shorter

and broader than 11 which is ovoid, articulation between segments being near inner sides, thus marking emarginations between segments much deeper on the outer than inner sides. *Prothorax* large and bulky, slightly longer than broad, distinctly broader than elytra (3:2.7), strongly and evenly convex dorsally, slanting downward toward apex, apical margin two fifths lower than summit which is at basal third, straightly and broadly expanding from base to dorsal carina, which is but slightly arcuate, thence strongly arcuate to apex, distinctly more broadly arcuate behind than beyond middle; dorsal carina less than one sixth from base at its middle, continued forward in a slight curve on sides to a point above and slightly beyond anterior edge of coxal cavity; dorsum densely and evenly punctate, punctures of moderate size, their interstices not broader than their diameters. *Elytra* slightly more than one seventh longer than broad, only one seventh longer than prothorax, base truncate and well margined, slightly rounded on sides; punctures similar to, or somewhat coarser than those on pronotum, arranged in rows, striae sometimes impressed on sides near base; setae in punctures extremely small, almost invisible. *Legs* with hind femora somewhat more broadly expanded below and more compressed than others; fore tibiae as long as fore femora; first fore tarsal segment less than one fourth as long as a fore tibia, lobes on third segment long, slender and free, fourth segment slender and projecting well beyond third, claws with a minute subbasal tooth. *Sternum* with prosternum coarsely reticulate and distinctly punctate, fore coxae separated by not more than a fifth of the diameter of a coxa; mesocoxae almost as widely separated as breadth of a metacoxa; metasternum minutely setose, not more than one third as broad between mid and hind coxae as a metacoxa at trochanter. *Venter* finely reticulate, finely setose, indistinctly punctate, usually longitudinally concave in male and convex in female, fifth ventrite almost as long as four plus three. *Pygidium* vertical, reticulate, minutely punctate and setose, well margined, about one fourth broader than long in female, but as long as broad in male. Length, 1.25-1.75 mm.; breadth, 0.6-0.75 mm.

Holotype male and three paratypes collected on Orote Peninsula, May 24, 1936, by Swezey, the holotype and one paratype from *Pipturus,* the other two paratypes from "*Ficus* small leaf"; allotype and seven paratypes collected by Usinger at Piti, May 22, 1936; five paratypes from the same locality collected by Swezey as follows: one from *Glochidion,* Aug. 18; one found in a garden, Oct. 7; one from dead orange twigs, Oct. 9; one from dead breadfruit branch, Oct. 27; one swept from bamboo, Oct. 29; and one collected by Swezey from *Citrus* at Inarajan, May 17; holotype and allotype in Bishop Museum.

According to Jordan, this species is evidently allied to *Notioxenus tomicoides* Sharp, 1891, from Japan, but it is longer and has the apical half of the elytra less strongly punctate and the abdomen not coarsely punctate as on *N. tomicoides.*

This small species is perhaps the most easily recognized of the known Guaman Anthribidae. Its large prothorax together with its bare, shiny black derm make it conspicuous among the other species which are pubescent and not shiny.

4. **Melanopsacus parvulus,** new species (pl. 1, *E*).

Male: derm piceous to black, appendages yellow; rather evenly and thinly clothed with prostrate golden hair above, pubescence not forming patterns.

Head coarsely reticulate, indistinctly punctate, pubescence short and sparse; eyes almost straight on scrobal side, about one fifth higher than broad; interocular area almost twice as broad as height of an eye; inner margin of scrobes not distinctly ele-

vated but with a minute lateral convexity above insertion of antennae, interscrobal distance hardly more than half as broad as narrowest interocular breadth. *Rostrum* continuously sculptured with head, as long from insertion of antennae to lateral apical angulation as interscrobal breadth. *Antennae* with first segment rather vaguely spindle shaped, but one side more inflated than the other, second segment as long as first, rather evenly expanded from base to apex which is almost twice as broad as base, as long as 3 + 4 + 5, fourth segment evidently slightly shorter than 3 or 5, 5 somewhat longer than 6, 6-8 subequal in length, but each successively slightly thicker; segments of club rather symmetrical, entire club as long as preceding five segments, segments subequal in size and shape, first two about as broad as long, terminal one slightly longer. *Prothorax* about one third broader than long, subhemispherical in outline; densely and minutely punctate; dorsal carina antebasal throughout, very slightly posteriorly concave at middle, lateral angle with lateral carina very slightly more than 90 degrees; lateral carina straight or just perceptibly concave, ending at about one third distance from extreme base to apex of side. *Scutellum* minute, punctiform, hardly discernible. *Elytra* one seventh longer than broad, twice as long as prothorax, very slightly arcuate on sides from base to apical third, thence broadly rounded, each elytron individually slightly convex at base; punctures arranged in regular strial rows, intervals broader than punctures; humeral callosities almost obsolete. *Pygidium* very slightly broader than long, side margins straightly convergent distally, apex rounded, half as broad as base; minutely and indistinctly punctate. *Sternum* with prosternum coarsely reticulate, densely punctate on sides, slightly shorter between coxal cavity and fore margin than a coxa; mesosternum and metasternum reticulate but not obviously punctate, metasternum not quite as long between mid and hind coxae as a hind coxa at trochanter. *Venter* reticulate but evidently not punctate; finely setose. Length, 1.25 mm.; breadth, 0.7 mm.

Holotype male, to be deposited in the United States National Museum, labeled "Island Guam, 1425" collected by Fullaway. One paratype—an immature specimen, yellow throughout, collected at Agat from *Hernandia,* May 31, 1936 by Usinger—is in Bishop Museum.

This minute species is about one half a millimeter smaller than Jordan's *minutus* or *pusillus* and is probably the smallest member of the genus thus far described. Its size—together with its antebasal dorsal pronotal carina, the structure of its antennae, head, and venter—and the nature of the sculpture will serve to distinguish it.

Genus **MAUIA** Blackburn, 1885

This genus contains three species. In addition to the widespread genotype listed herein, one species has been described from Papua and one from the Malay Peninsula.

5. Mauia subnotatus (Boheman) (pl. 1, *G*).

Araecerus subnotatus Boheman, Eugenies Resa, 116, 1859.

Mauia satelles Blackburn, Roy. Soc. Dublin, Trans. III, 3 : 195, 1885.

Contexta murina Jordan, Deutsche Ent. Zeitsch., 78, 1902.

This species might be confused with small, narrow specimens of *Araecerus,* but the interscrobal area is broader than the interocular area rather than being narrower as in *Araecerus*. The elytra are usually conspicuously tessellated with

patches of pale and dark, rather coarse squamules. Length, 2.5-3.5 mm.; breadth, 1.0-1.5 mm.

Three specimens of this species were collected by Swezey on Guam as follows: one specimen from the dry leaf of a large taro at Agana, May 4, 1936; one specimen from *Thespesia populnea* at Umatac, May 28, and one specimen from the seed cluster of a palm (*Coccothrinax*?), Yigo, Nov. 13. The National Museum sent the following, all taken by Oakley: four in roof of thatched house, Sept. 10, 1937, and one labeled "Hong Kong China, Guam 416, II-20-38, with Philippine Clipper, 38-8993."

This species is widespread in the Pacific and in the Old World tropics. It frequents dead leaves, twigs, and branches of many plants.

Genus **ARAECERUS** Schoenherr, 1826

This genus is predominantly Indo-Australian. The two species found in Guam have become very widespread and are readily carried by commerce. They jump rapidly when disturbed.

Key to the Species

Segments of the antennal club strongly asymmetrical, each almost straight on one side and strongly convex on the other (fig. 1, *d*), second antennal segment usually only about half as long as the third; mesocoxae and fore tibiae of male unarmed.....**A. fasciculatus** (De Geer).

Segments of the antennal club almost symmetrical, each rounded on either side (fig. 1, *e*), second antennal segment about three fourths as long as the third; mesocoxae of the male with a conspicuous conical tooth; fore tibiae of the male armed below with a small but rather strong apical mucro and usually with numerous variable teeth and longer, hairlike pubescence than dorsally.....**A. vieillardi** (Montrouzier).

These two species are closely allied, and greatly resemble one another. They can be separated only after detailed examination.

6. **Araecerus fasciculatus** (De Geer), (fig. 1, *d*).

Curculio fasciculatus De Geer, Mem. Ins. **5**: 276, table 15, fig. 2, 1775.

(See Coleopterorum Catalogus for detailed synonymy.)

This species has been distributed to such an extent by commerce that it is now almost cosmopolitan. It is a pest of coffee, cocoa, nutmeg, and other products. It is approximately equally represented with *A. vieillardi* in Guam, where the following specimens were collected: four specimens collected by Usinger: one at Yona, May 12, 1936, one at Barrigada from *Crotalaria,* June 12, two on Mount Alifan, from breadfruit, May 21; 14 specimens collected by Swezey: one from Dededo, May 19, one from a cornfield at the same locality, Aug. 11, one at Inarajan from rice, July 25, one from Piti, July 31, one at Barrigada, from sunflower, Nov. 25, and nine from the seed cluster of a palm (*Coccothrinax*?); and four specimens collected by D. T. Fullaway.

7. Araecerus vieillardi (Montrouzier), (fig. 1, *e*; pl. 1, *C*).

Urodon vieillardi Montrouzier, Soc. Ent. France, Ann., 873, 1860.

This is a variable, common, and widespread species in Oceania. Its range is extended westward to the Philippines and eastward to Mangareva. Specimens range in size from 2 to 4 mm.; small males often have the teeth on the inner sides of the tibiae obsolete.

Twenty-one specimens from Guam are before me. Five specimens collected by Usinger as follows: one at Inarajan, May 6, 1936; two, at Taragüe, from *Messerschmidia* (*Tournefortia*), May 17; two at Mount Alifan, one from dead breadfruit, May 21, the other May 26. Fifteen specimens collected by Swezey as follows: three at Santa Rosa Peak, from dead corn stalks, May 19; three at Piti from fallen breadfruit, May 23; two from Orote Point, May 24; one at Tumon from *Barringtonia speciosa,* May 30; one at Agat, from *Hernandia,* May 31; one from Agana, June 26; one at Machanao, from *Piper guahamense,* Aug. 6; one from Piti, Aug. 17, and two from seed cluster of a palm (*Coccothrinax*?). I have seen another specimen collected by D. T. Fullaway.

Genus **ARAEOCORYNUS** Jekel, 1855

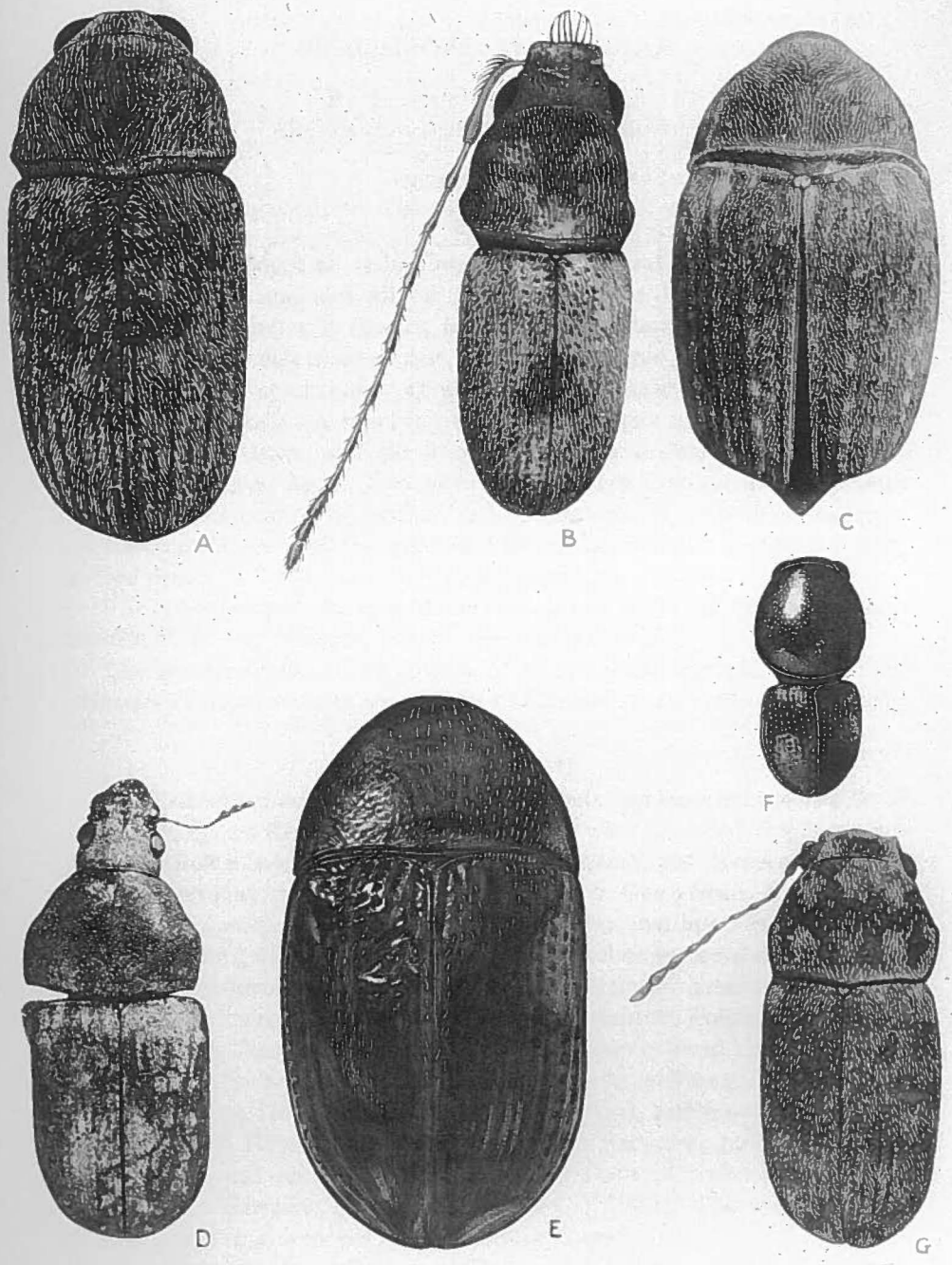
This genus is closely allied to *Araecerus,* but the upturned lateral prothoracic carina and the broad first fore tarsal segment will readily separate it from *Araecerus.*

The genus is a small one and its members inhabit the Indo-Malayan and Austro-Malayan subregions.

8. Araeocorynus cumingi Jekel, Ins. Saund. 1: 152, table 1, figs. 6a-6b, 1855, (pl. 1, *D*).

Three specimens of this species were collected at Guam as follows: one at Tumon, from *Barringtonia,* May 30, 1936, and one at Inarajan, "ex pago" by Swezey, June 8; and one specimen collected by Fullaway.

This species resembles a giant *Araecerus vieillardi* or *A. fasciculatus.* Insofar as I know, this is the first record of the occurrence of the species outside the Philippine Islands, where it is endemic.



A, *JORDANTHRIBUS CONSPERSA*, FEMALE; **B**, *J. PLANIFACIETUS*, MALE; **C**, *ARAECERUS VIEILLARDI*; **D**, *ARAEOCORYNUS CUMINGI*; **E**, *MELANOPSACUS PARVULUS*; **F**, *NOTIOXENUS FULGIDUS*; **G**, *MAUIA SUBNOTATUS*. (*E* IS FROM A WASH DRAWING BY M. E. POOR, THE OTHERS ARE FROM PHOTOGRAPHS MADE BY W. TWIGG-SMITH.)

CURCULIONIDAE OF GUAM

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INTRODUCTION

SCOPE

This report, based on collections made by several entomologists on the island of Guam, includes all of the Curculionidae known to inhabit the island. These number 49 species, included in 34 genera, of which 33 species and 8 genera are described as new. One new cossonid is described from the Marquesas, and several new combinations and new generic and specific synonyms are made. A number of described species are for the first time recorded from Guam, and the known geographical distribution of several genera is greatly enlarged. Two species are removed from the list, one because of an incorrect citation of locality, and one because of a misidentification. I have examined types of the previously described endemic species and redescribed them.

The holotypes and allotypes of the new species are in the type collection of Bernice P. Bishop Museum, unless otherwise indicated.

The measurements of the lengths of all specimens exclude the head and rostrum; all measurements were made with the aid of an eyepiece micrometer.

PREVIOUS WORK

The first authentic collection of Guam weevils was reported upon by Boheman in "Eugenies Resa" in 1859. In that paper were described *Trigonops subfasciata* (Boheman), *Trigonops impura* (Boheman), and *Menectetorus setulosus* (Boheman). Boheman (in Schoenherr's Gen. Spec. Curc., 1843) described *Trigonops insularis* (*"Celeuthetes"*), but that insect is not Guaman. From 1859 until this writing there have been no data recorded concerning the endemic Curculionidae of Guam. There have been only some scattered notes of economic character, the most important of which are Fullaway's report on his research in Guam in the report of the Guam Agricultural Experiment Station for 1911, Swezey's "A Preliminary Report on an Entomological Survey of Guam" (The Hawaiian Planters' Record, 1936), and especially Swezey's "Entomological Report of Guam" (The Guam Recorder, January and February 1937), and his "Survey of the Insect Pests of Cultivated Plants in Guam" (The Hawaiian Planters' Record 44 (3), 1940). The weevils noted in these reports are widespread pests of various crops.

The first extensive collection of Guam weevils was made by Fullaway in 1911. Part of this material is in Bishop Museum; the remainder, which is in

the United States National Museum, I have also had before me. Much of it was named, but most of the identifications were erroneous. In 1936 O. H. Swezey, of the Hawaiian Sugar Planters' Experiment Station, and R. L. Usinger, then of Bishop Museum, made the most extensive and careful survey of the Guam insect fauna yet made. E. H. Bryan, Jr., of Bishop Museum, added a small collection to the material in 1936. R. G. Oakley, who was stationed at Guam by the United States Department of Agriculture, assembled a valuable collection ranking second in comprehensiveness to that made by Swezey and Usinger. Most of these collectors captured species not taken by any of the other workers.

I believe that these assembled materials form a sound basis as a representative collection of the Curculionidae of Guam, although there are undoubtedly other species to be found on the island.

As far as I have been able to ascertain, the only Curculionidae heretofore accurately recorded from Guam are the following: *Trigonops subfasciata* (Boheman), *T. impura* (Boheman), *Cylas formicarius* (Fabricius), *Menectetorus setulosus* (Boheman), *Euscepes postfasciatus* (Fairmaire), *Rhabdocnemis obscura* (Boisduval), *Cosmopolites sordidus* (Germar), *Polytes mellerborgi* (Boheman), *Calandra oryzae* (Linnaeus).

The other records listed herein are new.

Species of Economic Importance

In the Otiorhynchinae, any or all of the eight species of *Trigonops* might at times be of economic importance as defoliators of various plants (pl. 7,*B*). Their larvae are, I assume, subterranean in habit and might cause damage to the roots of various garden plants. However, their life histories have not been studied and evidently nothing is known of the food ranges or habits of the larvae. *Viticis guamae,* of the Brachyderinae, belongs to a group of defoliators, but this species is a rare forest insect and is probably not important to agriculture. *Cylas formicarius* (Fabricius) is a tropicopolitan pest of the sweet potato. The two new species of Anthonominae, *Usingerius maculatus* and *Amblycnemus dentipes,* are probably to be looked upon as forest insects of no agricultural importance.

In the Barinae, *Athesapeuta ulvae* is a sedge borer related to the Philippine *Athesapeuta cyperi* that has been used in Hawaii and Fiji in the control of the sedge called nutgrass (*Cyperus rotundus*) in sugar-cane fields.

In the Ithyporinae, the peculiar *Swezeyella muscosa* can be taken as an interesting component of the endemic fauna of the forests and will probably remain as such.

Among the Cryptorhynchinae, *Euscepes postfasciatus* is the only species of true economic importance. It is another tropicopolitan pest of sweet potatoes. The other 13 species of Cryptorhynchinae are mostly subcortical species of the

forests, most of which will probably never cause damage of an economic sort. Some of them might damage rustic construction made from unpeeled logs or limbs of forest or introduced trees or shrubs.

None of the 16 species of subcortical Cossoninae can be considered of importance to agriculture. They feed on dead tissues. On the other hand, most all of the species of Rhynchophorinae are of distinct economic importance. *Rhabdocnemis obscurus* is the well-known and widely spread borer of sugar cane. *Cosmopolites sordidus* is a serious tropicopolitan pest of bananas. *Polytes mellerborgi* has a similar distribution and also feeds on bananas. The cosmopolitan *Calandra oryzae* damages rice and corn. *Diocalandra frumenti* is a widespread coconut insect.

All of the weevils of known economic importance in Guam are widespread, introduced species. None of the endemic species is to be feared, unless there be local outbreaks of *Trigonops* as defoliators of minor importance.

Analysis and Relationships of the Fauna

In this section I shall omit from the discussion all of the introduced species, and consider only those thought to be endemic products (36 species, roughly 73 percent, are endemic; 13, roughly 26 percent, are introduced), because those species introduced by man have no bearing on the natural relationships of the fauna.

A comparative analysis of the Guam curculionid fauna would be less difficult and the results would be more conclusive, if we had a comprehensive knowledge of the faunas of that vast insular area lying between the Solomons and the Malay Peninsula, including all of the islands surrounding Guam and their neighbors to the west, south, and east. It is probable that the majority of the new species described herein are truly endemic products of the forest of Guam, but there are good reasons for assuming that all of the eight new genera described herein will be found elsewhere.

I believe that the Curculionidae of Guam originated from ancestral stocks derived from that great arc of islands sweeping from the Solomons through New Guinea and including the Philippines. There is great similarity between the Guam fauna and that of Fiji, Samoa, and southeastern Polynesia. Several of the genera which signalize the faunas of the central and eastern Pacific are here listed for the first time as inhabiting the far western Pacific. Some of the new genera are closely allied to central and southeastern Pacific genera. There are genera that lead to New Zealand, and one genus that points toward distant Seychelles. From the list of species alone, it appears that the nearby Philippines, to which one would expect a great affinity, seem to have had little influence on the fauna. But we know comparatively little about the weevil fauna of the Philippines. Actually, the fauna of Guam is probably as closely allied to that of the Philippines as to that of the islands to the south and southeast.

Present evidence shows that endemic species have developed in seven subfamilies on Guam. When the faunas of the Philippines or New Guinea are considered, we find that there are many more subfamilies developed in those regions, and that, comparatively speaking, Guam has a rather undiversified weevil fauna. The Guam fauna, qualitatively and quantitatively, is more like the more isolated central Pacific islands in its diversity and development than it is like the "continental" islands. The number of subfamilies in which there have been endemic species developed in several of the central Pacific archipelagos are as follows: Hawaii, 3; Marquesas, 4; Society, 4; Austral, 5; Samoa, 12; Fiji, 15 + (?); New Caledonia, 20 (?).

As on the Pacific islands east of Fiji, we find that on Guam three subfamilies predominate. These are the Cossoninae, Cryptorhynchinae and Otiorhynchinae. The endemic weevils of Guam may be listed as follows in accordance with their approximate percentages of comparative developments:

	percent		percent
Cossoninae	36	Brachyderinae	3
Cryptorhynchinae	27	Barinae	3
Otiorhynchinae	22	Ithyporinae	3
Anthonominae	6		

In Samoa the approximate proportions are as follows:

	percent		percent
Cossoninae	37	Anthonominae	3
Cryptorhynchinae	32	Ithyporinae	3
Barinae	7	Rhynchophorinae	3
Otiorhynchinae	6	Acicneminae	1
Brachyderinae	3	Tychiinae	1
Erirrhininae	3	Diabathrarinae	1

In isolated Hawaii with its three subfamilies containing endemic species, the proportions are: Cossoninae 65 percent, Otiorhynchinae 20 percent, and Cryptorhynchinae 14 percent.

It is evident that the development of the weevil fauna of Guam is quite typical of that of an Oceanic island.

The Brachyderinae are represented by a species of the ottistirine genus *Viticis*. The tribe Ottistirini is best developed in the Malay-Papuan areas. *Viticis* is a peculiar genus known to me from Amboina as well as from Guam and Fiji.

The Otiorhynchinae contain a well-developed complex of the celeuthetine genus *Trigonops,* which is abundantly represented among the islands surrounding Guam.

The Anthonominae are represented by two genera. One, *Amblycnemus,* is now known by described species from Samoa and Guam only, but there are

other new species before me from intervening islands. The other genus, *Usingerius,* is new and at present seems isolated, but when more comprehensive studies are made of the faunas of the other islands of the western Pacific we may expect to find other representatives of it and other genera allied to it.

The Barinae are represented by a single *Athesapeuta* which may prove to be introduced. That genus is predominantly Oriental and Indo-Malayan.

The Ithyporinae are represented by a new genus closely allied to the eastern Oceanic *Spanochelus* and the Australian *Fergusoniella.* Although *Spanochelus* is known in literature from the Samoan genotype only, I have found it rather abundantly represented from Fiji eastward, and I assume that it will be found west of Fiji. I am not acquainted with *Fergusoniella* in nature, and it is recorded only from Australia.

The Cryptorhynchinae show relationships with the faunas of the lands from India to the Marquesas. The Sophrorhini are represented by a species of *Deretiosus,* which genus reaches its greatest diversity in New Guinea and is distributed from the Philippines to Samoa. The discovery of a new species of *Oreda* is noteworthy, because two of its species are New Zealand forms; one is from southeastern Australia and another has been described from New Caledonia. The single species of *Menectetorus* represents a genus whose distribution reaches from Burma to Samoa. The new genus, *Neoampagia,* belongs to a group of genera distributed from Malaya to southeastern Polynesia. The new genus *Daealus* has its allies in the islands to the south and southwest of Guam. The four new species of *Microcryptorhynchus* represent a large genus of minute weevils whose known distribution extends southeastward from Guam through scores of islands to the Marquesas and Mangareva Islands in southeastern Polynesia as well as penetrating Australia and reaching Tasmania.

When we discuss the Cossoninae, we cannot show such clear-cut relationships with every genus, principally because the Cossoninae are little known. We may assume, I believe, that the affinities of this group are similar to those found in the other subfamilies, however, and that when more extensive collections are made and studied the several lacunae will be closed. The new trypetine genus, *Cylindrotrypetes,* will, I believe, remain monotypic and an apparent anomaly only so long as collections from surrounding islands are not much more carefully made or more completely studied than at present. Three new species are assigned with some diffidence to the monotypic Seychellean genus, *Choerorrhinodes,* although none is known from the intervening area. Further study may indicate some changes here, but it may not be so unusual, as it now seems to have an apparent connection between the faunas of the Seychelles and the Orient and the western Pacific. In *Stenotrupis* we have a genus well represented in the Pacific. The new genera *Tytthyoxydema* and *Rhinanisodes* have relatives in neighboring islands, *Rhinanisodes* apparently in New Zealand. *Himatinum* has its species scattered widely in far corners of the world; the

nearest areas to Guam inhabited by the genus are Java and India. The new genus *Dryotribodes,* found on opposite sides of the Pacific at present, is obviously closely allied to another Pacific genus. *Eutornus* has a normal distribution that extends from Burma through the Philippines to New Zealand. On Guam is found a second species of *Macrancylus;* the genus is Oceanic. *Phloeophagosoma* has a number of species distributed widely from Madagascar through India to the Philippines, Japan, and out into the Pacific to Hawaii.

This review has shown the definite relationships between the Indo-Pacific faunas and the indubitable continuity of the faunas of the islands of the Indo- and Austro-Malayan subregions with those of Polynesia.

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Mr. Otto H. Swezey and Dr. R. L. Usinger's careful work and observations in Guam assembled the most comprehensive collection of Guam insects in existence. I express my sincere thanks to Mr. Swezey for various notes and for aiding in making this paper as complete as possible. To him, too, are due thanks for arranging to have the photographers and artists of the Hawaiian Sugar Planters' Experiment Station prepare part of the illustrations. Miss M. E. Poor, formerly Assistant Entomologist at Bishop Museum, made the wash drawings. Mr. L. L. Buchanan of the United States Bureau of Entomology and Plant Quarantine arranged to have the Guam collections made by Mr. D. T. Fullaway and Mr. R. G. Oakley sent to me for study. I wish to express my sincere thanks to Dr. A. Roman, representing the Naturhistoriska Riksmuseum of Stockholm, for arranging a generous loan of the holotypes of the four Guam weevils described by Boheman. I wish to thank Sir Guy A. K. Marshall for his kindness and cooperation at all times during my work on this report. To him belongs much of the credit for the completed paper. He was especially helpful during my work on the Cossoninae, which could hardly have been written without his cooperation.

LIST OF THE CURCULIONIDAE OF GUAM

BRACHYDERINAE

1. **Viticis guamae,** new species.

OTIORHYNCHINAE

2. **Trigonops inusitata,** new species.
3. **Trigonops inaequalis,** new species.
4. **Trigonops subfasciata** (Boheman).
5. **Trigonops hirsuta,** new species.
6. **Trigonops impura** (Boheman)
7. **Trigonops incrinita,** new species.
8. **Trigonops convexa,** new species.
9. **Trigonops vulgaris,** new species.

APIONINAE

10. **Cylas formicarius** (Fabricius).

ANTHONOMINAE

11. **Usingerius maculatus,** new genus, new species.
12. **Amblycnemis dentipes,** new species.

BARINAE

13. **Athesapeuta ulvae,** new species.

ITHYPORINAE

14. **Swezeyella muscosa,** new genus, new species.

CRYPTORHYNCHINAE

15. **Deretiosus ficae,** new species.
16. **Camptorhinus dorsalis** (Boisduval).
17. **Oreda maculata,** new species.
18. **Menectetorus setulosus** (Boheman), new combination.
19. **Neoampagia imitator,** new genus, new species.
20. **Anaballus amplicollis** (Fairmaire).
21. **Euscepes postfasciatus** (Fairmaire).
22. **Acalles samoanus** Marshall.
23. **Daealus tuberosus,** new genus, new species.
24. **Daealus tibialis,** new species.
25. **Microcryptorhynchus guamae,** new species.
26. **Microcryptorhynchus premnae,** new species.
27. **Microcryptorhynchus spinifer,** new species.
28. **Microcryptorhynchus basipennis,** new species.

COSSONINAE

29. **Cylindrotrypetes suffusus,** new genus, new species.
30. **Choerorrhinodes constricticeps,** new species.
31. **Choerorrhinodes marshalli,** new species.
32. **Choerorrhinodes flavisetosus,** new species.
33. **Stenotrupis tenuis,** new species.
34. **Tytthoxydema exilis,** new genus, new species.
35. **Rhinanisodes planicollis,** new genus, new species.
36. **Himatinum bisetosum,** new species.
37. **Dryotribodes obscurus,** new genus, new species.
38. **Dryotribodes angularis,** new species.
39. **Oxydema fusiforme** Wollaston.
40. **Oxydema longulum** (Boheman).
41. **Aphanocorynes humeralis** Marshall.
42. **Eutornus nigriceps,** new species.
43. **Macrancylus niger,** new species.
44. **Phloeophagosoma sulcirostre,** new species.

RHYNCHOPHORINAE

45. **Rhabdocnemis obscura** (Boisduval).
46. **Cosmopolites sordidus** (Germar).
47. **Polytus mellerborgi** (Boheman).
48. **Calandra oryzae** (Linnaeus).
49. **Diocalandra frumenti** (Fabricius).

In addition to the above species, *Dryotribodes denticulatus,* new species, from the Marquesas is described herein, and the following nomenclatorial changes, not included in the preceding list, are made: *Trigonops insularis* (Boheman), new combination for *Celeuthetes insularis* Boheman, 1843 = *Celeuthetes spongicollis* Fairmaire, 1849, new synonym, = *Celeuthetes griseus* Fairmaire, 1849, new synonym; *Fergusoniella,* new name for *Fergusonia* Lea, 1911, not Hoffman, 1878; *Pseudapries* Lea, 1908, is reduced to a synonym of *Menectetorus* Faust 1894; *Chaetectetorus tutuilae* Marshall, 1931, and *Chaetectetorus vitiensis* Zimmerman, 1937, are transferred to *Menectetorus.*

Subfamily Brachyderinae

Tribe Ottistirini

Genus **VITICIS** Lea, 1930

Heretofore, this genus has been known only from the genotype, *Viticis bidentatus* Lea (Zimmerman, B. P. Bishop Mus., Occ. Papers 14(15):306-308, 1939) from Viti Levu, Fiji. It is easily recognized by its 6-segmented antennal funicle and its 3-segmented tarsi (the claw segment is wanting and the third segment is rounded and solid distally) together with its separated coxae and dentate femora.

Although the distribution of the genus now seems quite discontinuous, numerous new species undoubtedly will be described from various intervening islands. Since the writing of these notes, I have seen a new species from Amboina.

1. Viticis guamae, new species (pl. 1, *B*).

Derm black, dulled by coarse reticulation, tarsi diluted with red, antennae amber colored; scales moderately dense, somewhat irregularly condensed on some areas, especially at base of pronotum and on sides of elytra near base and beyond middle, the scales oval, convex, solid, with a pearly luster.

Head with crown finely punctate, setae fine, prostrate near top, becoming broader and more squamiform toward eyes; front broadly, shallowly, slightly or distinctly concave between eyes, the concavity extending well above level of tops of eyes in middle; eyes slightly longer than shortest distance between them, separated from prothorax by a distance about equal to two thirds of their length. *Rostrum* straightly expanded on sides, sub A-shaped from base to apex, but with the epistome projecting and making middle two thirds of the otherwise truncate apex strongly convex, as broad across broadest apical part as length plus one half length of an eye; squamose on either side of front to antennae, thence coarsely reticulate and with scattered punctures, densely squamose on sides along fore margins of scrobes. *Antennae* with scape as long as funicle excluding club; first funicular segment about as broad as long, as long as 2 plus 3, 2 hardly longer than 3, 4 to 6 successively slightly broader; club but slightly longer than broad, as long as the preceding five funicular segments. *Prothorax* four fifths as long as broad, apex slightly convex, base concave on either side of middle, but slightly arcuate on sides from base to apex, distance across base one fifth broader than that of apex; coarsely and densely punctate throughout; longitudinal dorsal contour evenly and slightly arcuate. *Elytra* two thirds as broad as long, three times as long as the prothorax; longitudinal dorsal outline rising evenly from base to reach summit at or slightly behind middle; broadest at apical third,

almost straightly and slightly expanded on the sides from the obtusely angulate humeri to apical third, lateral outline then constricted, then broadly rounded at apex; base convex on either side of bare scutellum; striae coarse, punctures coarse and as broad or broader than intervals basally, but becoming smaller and narrower than intervals distally, setae borne by punctures minute; intervals convex, the tenth costate behind. *Legs* with femora and tibiae rather densely clothed with elongate prostrate squamae; fore femora with strongly developed subtriangular tooth at basal fourth, apex of which is slightly bent distad, mid femora with two small tubercle-like teeth at about basal fourth, hind femora not toothed; fore and mid tibiae with a distinct tooth at inner apical angle and some small denticles along lower edge in apical half; third fore tarsal segment as broad as its length plus that of second segment. *Sternum* with scattered squamae at sides only, otherwise bare; metasternum coarsely reticulate, almost impunctate except along coxal cavities and at sides. *Venter* almost entirely bare, with a few scattered setae, almost impunctate in middle; fifth ventrite with a small median fovea. Length, 2 mm.; breadth, 1 mm.

Holotype, sex not determined, Asan, Aug. 22, 1936, Swezey; one paratype, Upi Trail, May 5, Usinger.

This species may perhaps be distinguished from the genotype most readily by its lack of conspicuous asperate callosities above the eyes. It is distinct from any other Guam weevil.

Subfamily Otiorhynchinae

Tribe Celeuthetini

Genus **TRIGONOPS** Guérin-Méneville, 1841

The genus *Trigonops* is the only representative of the Otiorhynchinae known to inhabit Guam. It is an Indo-Australian genus abundantly represented in the islands to the south of Guam—New Guinea, the Solomons, Java, and others. A number of new species from the Caroline and Palau Islands in the collections before me await description. It seems unusual to me that the allied genus *Sphaeropterus* has not populated Guam, for I have before me a number of species from the Caroline and Palau Islands.

Heretofore, there have been three species of *Trigonops* (described as *Celeuthetes*) reported from Guam, but one of these species is not a Guam insect. To the two known species, I add six new ones to make a total of eight species now known from Guam. My reasons for concluding that one of the species was recorded from Guam in error are as follows: Boheman, in Schoenherr's Gen. Spec. Curc. 7(1):251, 1843, described *Celeuthetes insularis* from "Insula Guaham." The male holotype, however, bears the labels "Fidje Ins." and "Thorey." It is therefore evident that the locality in the type description is a misquotation. Moreover, the holotype is identical with the male of *Trigonops spongicollis* (Fairmaire) which is widely distributed in the south Pacific through the Fijian, Tongan, Samoan, Cook, Society, Austral, and other islands of that region and which was originally described from Tahiti. The confusion does not end here, however. A typical male specimen taken by me from a colony of *Trigonops spongicollis* (Fairmaire) was sent to the National Museum

at Paris for comparison with the type. Dr. Lesne pronounced it the same as *Trigonops grisea* (Fairmaire). I have dissected specimens taken from the same plant and have found that *Trigonops spongicollis* is a quite sexually dimorphic species and that *Trigonops grisea* is only the male of *Trigonops spongicollis*. The following synonymy is, therefore, necessary:

Trigonops insularis (Boheman), new combination.

Celeuthetes insularis Boheman, in Schoenherr's Gen. Spec. Curc. 7(1):251, 1843. Male

Celeuthetes spongicollis Fairmaire, Rev. Zool., 505, 1849. Female. (New synonym.)

Celeuthetes griseus Fairmaire, Rev. Zool., 508, 1849. Male. (New synonym.)

Elytrurus squamatus Rainbow, Austr. Mus., Mem. 3:92, 1897. Synonymy by Marshall, Roy. Ent. Soc. London, Trans. 87(3):69, 1938.

There was considerable difficulty in drawing up the descriptions of the Guam *Trigonops* because of the variation found between the individuals of some of the species.

Key to the Species of Guam Trigonops

1. Elytra conspicuously uneven, with numerous irregularities on the disk; intervals 5, 6, and 7, especially 5 and 6, rather prominently and irregularly elevated at the top edge of the lateral declivity; prothoracic puncturation very coarse and dense, the punctures tending to be longitudinally confluent, the interstices irregular, some broader, many narrower than the punctures (length 5 to 8 mm.) ..... 2. **T. inusitata** Zimmerman.

   Elytra not so formed; prothorax not very coarsely punctate, the interstices almost always broader than the punctures; if the prothorax is comparatively coarsely punctate and elytral intervals 5, 6, and 7 elevated, then the disk of the elytra is never irregular and the length is less than 5 mm. 2

2(1). Pronotum obviously depressed above, distinctly angulate at the sides of the disk at base in front of elytral intervals 6 and 7, the angulation formed by a low, rounded, short, longitudinal carina that is covered with paler scales in fresh specimens, disk, when denuded, densely and conspicuously granulate and with scattered indistinct punctures ..... 3. **T. inaequalis** Zimmerman.

   Pronotum usually quite distinctly convex above and not obviously depressed, without a baso-lateral carina before elytral interval 6 3

3(2). First funicular segment obviously longer than second, fully a fourth or a third longer than second 4

   First funicular segment as long or just perceptibly longer than second, never a quarter longer (usually between 15/13 or 12/11 as long) 5

4(3). Prothorax as long or slightly longer than broad; scales on dorsum each appearing hard, smooth, convex and shiny ..... 4. **T. subfasciatus** (Boheman).

   Prothorax broader than long; scales of dorsum not smooth, convex and shiny, but appearing soft and spongy, each coarsely reticulate or farinaceous ..... 5. **T. hirsuta** Zimmerman.

5(3). Entire elytra including disk bristling with long, almost straight conspicuously erect or but slightly curved, black, hairlike setae; disk of pronotum with short erect setae ..... 6. **T. impura** (Boheman).

   Elytral and pronotal disks with decumbent or prostrate setae only, never with conspicuously erect setae 6

6(5). Discal elytral intervals without any setae on basal half..... 7. **T. incrinita** Zimmerman.
Discal elytral intervals with setae on basal halves..... 7

7(6). Eyes not strongly convex and not protuberant (as in fig. 1, *a*), as long or slightly longer than distance between them; distance between median angle of interocular suture and apex of transrostral carina more than three fourths to fully as long as narrowest interocular breadth; setae on mid and hind femora closely appressed to derm, with their recurved tips usually touching or almost touching the derm..... 8. **T. convexa** Zimmerman.
Eyes strongly convex (as in fig. 1, *b*), shorter than distance between them; distance between median angle of interocular suture and apex of transrostal carina much shorter than narrowest interocular breadth; setae on mid and hind femora, especially along lower edge, slanting rather distinctly away from derm and giving lower edge of femora a rather spiny appearance.....9. **T. vulgaris** Zimmerman.

2. **Trigonops inusitata,** new species (pl. 1, *F*).

Derm very dark brown to black; rostrum with brown scales, often with a greenish or bronzy cast at base, those on apical declivitous part usually mostly greenish; head with brown scales with bronze and green scales intermixed; pronotum with pale, almost white scales, with fawn-colored and darker brown scales interspersed, lateral scaling palest, most scales with a bronzy cast; elytra predominantly with dark brown bronzy scaling, usually with a conspicuous, almost white, broadly V-shaped fascia across middle, but this fascia subject to great variation, often absent or indistinct; legs with paler scaling beyond middle of club of femora than proximally, tibiae with similarly colored, rather dark brown bronzy scales as on bases of femora; scaling below similar to that on sides of elytra.

Head with round, rather deep punctures on front, punctures usually not separated by more than their diameters, and variable, usually somewhat obscured by the scaling, each puncture bearing a white, recurved seta which does not reach much beyond the margin of its puncture, scales close, not imbricated; eyes evenly convex, not strongly protuberant and only slightly interrupting longitudinal lateral outline of head, about as long as narrowest interocular breadth. *Rostrum* with basal part between transrostral carina and basal suture almost straight or slightly convex longitudinally, slightly shorter than distance between eyes, with a variable median carina that is usually distinct only near the transrostral carina; declivitous apical part rather shiny, with small obscure punctures, scales becoming smaller and sparser distally; apex, sides, and venter of rostrum, including sides of mandibles, bristling with long erect setae. *Antennae* with scape slightly longer than funicle excluding club, densely squamose and with numerous, rather long, white, recumbent or subrecumbent setae, apex only slightly enlarged; funicle with short and long setae and without scales, length of segments as follows: (1, 1.8) (2, 1.8) (3, 1.3) (4, 1.2) (5, 1.1) (6, 1.1) (7, 1.0); club about as long as segments 3 plus 4, its first segment bearing the ratio of 10:6 to its second, first segment as long as funicular segment 7. *Prothorax* slightly broader than long (4.5:4.0), broadest at middle, subequally narrowed from middle to base and middle to apex, disk but slightly convex or somewhat depressed; punctures coarse and deep, somewhat irregular and variable, often making dorsum somewhat irregular, some tending to be longitudinally confluent, interstices variable in breadth, some only as broad as a scale and narrower than punctures, others as broad as punctures, others broader; each puncture bearing a recurved, transversely directed seta about as long as its puncture; puncturation less coarse and deep on pleurae. *Elytra* from about two thirds to about three fourths as broad as long, broadest in females, broadest at the posterolateral corners of the extensions of humeral angulations; base truncate or slightly concave, almost straightly and angulately expanded on sides to about basal fifth to form conspicuous pseudo-humeri, thence rather broadly rounded to distal third, thence sharply narrowed to apex, or more or less regularly narrowed from just behind basal angulation; disk usually conspicuously irregular, with variform undulations and low, rounded, feeble protuberances

of derm, intervals 5 to 7 usually prominently and irregularly elevated distally; intervals each with a row of decumbent white setae, first intervals usually with a small common fascicle on a line between and slightly before apices of fourth intervals; striae distinct throughout; scales usually free and narrowly separated, appressed, reticulate and iridescent. *Legs* with femora about as narrow as tibiae at base and about one tenth longer, hind pair reaching to apex of fourth ventrite in female, to middle of fifth in male, strongly clavate, middle of bulbous part about seven tenths length of femora from base and there about three times as broad as base, densely squamose and with scattered inclined white setae; tibiae, excepting a slight distal expansion, subparallel-sided, slightly sinuous, densely squamose and with setae more erect than on femora. *Sternum* with scaling almost entirely concealing derm above coxae, somewhat sparser between coxae; punctures moderately dense, not very coarse, shortest distance between mid and hind coxae about as long as breadth of a mesocoxa. *Venter* with first two ventrites tumid in female, broadly impressed down middle in male; punctures shallow, each giving rise to a rather long, suberect seta; scaling dense but not entirely concealing derm; ventrite 5 about twice as long as 3 plus 4, rather coarsely asperate, closely set with fine setae. Length, 5-8 mm.; breadth, 3-4 mm.

Holotype male, Barrigada, on *Morinda,* July 22, 1936, Swezey; allotype female, Ritidian Point, May 22, Bryan; and following paratypes: 20 specimens taken by miscellaneous sweeping, Machanao, June 2, Swezey; two specimens collected from *Piper guahamense,* and one each from *Calophyllum, Pipturus, Ochrosia,* and *Macaranga,* June 4, Swezey; one, June 5, Usinger; four, June 6, Swezey; two, June 30, Swezey; Upi Trail, one taken by Usinger and two by Bryan, May 5, six, by miscellaneous sweeping, Swezey; one taken from ferns by Swezey; one taken from *Premna* by Swezey, Sept. 1; one, Orote Peninsula, May 9, Bryan; five, Ritidian Point, April 15, Bryan and four, April 16, four, April 22, five, June 2, Usinger; Barrigada, one from miscellaneous sweeping, June 12, Swezey; one from *Hibiscus tiliaceus,* one from *Intsia bijuga,* and three from *Morinda,* July 22, Swezey; Mt. Alifan, one, May 20, Bryan; Dededo, one, May 11, Swezey; Magua, one taken from *Codiaeum,* March 31, Bryan; five, without specific locality, July 1923, Hornbostel; three, D. T. Fullaway, labeled only "Island Guam."

In the National Museum collection are the following paratypes: 18 specimens bearing labels "Guam 134, R. G. Oakley, ix-15-37, on *Piper guahamense,* 37-26120" and one labeled "Island Guam" taken by Fullaway.

This variable species is one of the most easily recognized of Guam members of the genus because of its coarsely sculptured pronotum and uneven elytra. It is allied to *T. vulgaris* and *T. convexus,* but it is quite distinct from either of those species.

3. **Trigonops inaequalis,** new species (pl. 1, *E, H*).

Derm reddish brown to black, venter and appendages diluted with red; color pattern of scaling subject to considerable variation, evidently easily changed by age and abrasion; holotype male, a fresh, perfect specimen with the following scaling: head, rostrum, antennae, prothorax, elytra, and legs rather evenly clothed with bluish-gray somewhat iridescent scales, but pronotum with rather bright yellow scales around anterior edge, a conspicuous, entire median vitta, and a vitta covering baso-lateral angulation in front of elytral intervals 6 and 7 and extending almost to middle of side, elytra with intervals 1, 3, 5, 7, and 11 entirely clothed from base to declivity with bright yellow scales, the yellow extending

farther caudad on sutural intervals, elytra therefore beautifully vittate, the areas caudad and laterad of the vittate parts of intervals with small patches of yellow squamae; femora with some yellowish scaling on dorsa of their clubs; scaling on allotype female as follows: basic coloration without so much blue as in holotype, scales more yellowish, scaling on head and rostrum with distinct yellowish cast; pronotum with a similar pattern of yellow scales as on holotype, but much less distinct because of more yellowish background scales; elytra with numerous scattered patches of yellow squamae with a bronzy luster and not vittate; scaling on old, abraded specimens with hardly a trace of the scale pattern of perfect types.

Head with the front minutely granulate, rather densely squamose, scales round, not imbricated, punctures not large, rather close, obscured by scaling, each bearing a short, rather inconspicuous recurved seta; eyes moderately convex, not protuberant, but their outlines distinctly discontinuous with sides of head, as long as shortest interocular distance. *Rostrum* without a distinct median carina on area between transrostral carina and basal suture, area between carina and suture flattened and somewhat shorter than distance between eyes; declivitous apical part shiny, with small punctures and small, scattered squamae; apex, and sides of mandibles with numerous long setae. *Antennae* with scape but slightly expanded distally, densely squamose and with rather long setae, not quite as long as funicle excluding club; funicle with lengths of segments as follows: (1, 1.9) (2, 2.3) (3, 1.7) (4, 1.5) (5, 1.3) (6, 1.3) (7, 1.3); club slender, about as long as 7 plus 6 plus three fourths of 5, its first segment three tenths longer than its second. *Prothorax* about as broad as long, broadest at or slightly behind middle, with a distinct basal pseudocarina formed by a low rounded longitudinal angulation in basal third at sides before elytral intervals 6 and 7; disk usually obviously depressed, densely granulate, the granules mostly hidden by scales in unabraded specimens, with rather small punctures usually separated by interstices broader than their diameters, each puncture bearing a short, decumbent, transversely directed seta that hardly extends over margin of puncture; scales rounded, convex, appearing solid, minutely reticulate. *Elytra* about five sevenths as broad as long, twice as long as prothorax, broadest somewhat before middle; base slightly concave; rather evenly and straightly expanded on sides from base to about basal fourth, thence convex to about middle, thence strongly narrowed to pointed apex; striae well marked, strial punctures, especially those near base on disk, each preceded by a low polished tubercle; intervals flat, their discal setae short, prostrate, inconspicuous, longer, more numerous and erect or suberect near apex, usually with a feeble sutural fascicle slightly behind apical fourth; scales flat, rounded, not completely concealing derm, conspicuously reticulate. *Legs* with hind femora reaching almost to apex of fifth ventrite in male, about a third broader at base than base of tibia, bulbous part slightly more than twice as broad as base, its middle one third from apex, densely squamose, setae slanting; hind tibiae slightly shorter than femora, densely squamose, with long, slanting or almost erect white setae, almost straight along outer edge. *Sternum* less densely clothed than dorsum, mesosternal epimera bare except for a patch of scales at posterio-lateral side; intercoxal process of mesosternum usually more densely squamose than mid section of metasternum which is free from scales or has scattered squamae; metasternum between mid and hind coxae about two thirds as long as breadth of a mesocoxa. *Venter* with first two ventrites with fine setae borne from scattered punctures and free from scales except at sides, flattened in male, tumid in female; ventrites 3 and 4 together shorter than fifth, setose and punctate at sides only; ventrite 5 densely and coarsely punctate, rather densely setose, not squamose. Length, 7.5-9.0 mm.; breadth, 3.5-4.0 mm.

Holotype male, Dandan, from *Glochidion,* July 17, 1936, Swezey; allotype female and three female paratypes, Fullaway, labeled "Island Guam." In the National Museum collections are two paratypes taken by Oakley on *Premna gaudichaudii,* July 23, 1937 "37-24081" and one from the same lot as the allotype.

This species is most distinct from any of the other Guaman *Trigonops*. Perfect, vittate specimens can be recognized at a glance because of their distinctive appearance and beauty. The abraded specimens are almost as easily recognized because of the granulate, depressed prothorax with the short basolateral carinae.

4. **Trigonops subfasciata** (Boheman) Faust, Stett. Ent. Zeitung 58:236, 1897.

Celeuthetes subfasciatus Boheman, Eugenies Resa, 126, 1859.

Holotype male: derm reddish brown; densely clothed with mostly pale brown scales intermixed with almost white scales, almost concolorous; darker scales forming a patch on either side of base of pronotum before elytral intervals 3-5; elytra with a rather vague broad V of paler scales, the apex of which is on the suture above apex of ventrite 2, arms across sixth interval just in front of middle; dorsal squamae smooth, shiny and with a rather pearly luster, rounded, convex and appearing hard.

Head with dense scaling concealing punctures which give rise to decumbent setae that extend well beyond margins of punctures; eyes conspicuously convex, moderately prominent, strongly interrupting lateral cephalic outline, little longer than half distance between them. *Rostrum* with area between transrostral carina and basal suture flat longitudinally, abruptly and obviously depressed below level of carina, slightly convex laterally, without a median carina, squamose part somewhat more than half as long as interocular breadth; apical declivitous part, with exception of a few minute scales near base, bare and shiny, densely and rather coarsely punctate. *Antennae* (left antenna lost from type) with scape longer than funicle plus first segment of club; funicular segments as follows in length: (1, 1.5) (2, 1.1) (3, 0.9) (4, 5, 6 and 7, 0.8), club elongate oval, as long as funicular segments 7 plus 6 plus 5 plus half of 4, second segment six tenths as long as basal segment. *Prothorax* slightly longer than broad, broadest slightly behind middle, arcuate on sides, somewhat more narrowed anteriorly than posteriorly, slightly, almost imperceptibly constricted just before apex, disk slightly, gently convex longitudinally, rather densely punctate, the punctures usually separated by interstices about as broad as their diameters, obscured by dense scaling, setae arising from interstices instead of from punctures, strongly arcuate, medially inclined. *Elytra* subovate, three fourths as broad as long, twice as long as prothorax, almost straight in longitudinal dorsal outline in basal half, base concave rather straightly expanded on sides to basal fourth thence rather evenly arcuate to pointed apex; striae deep throughout; intervals almost flat on disk, obviously convex at sides and apex; scaling very dense, closely appressed; setae on disk decumbent, becoming erect caudad, interval one with two rows on declivity. *Legs* with hind femora reaching beyond base of fifth ventrite, broadest part of club twice as broad as base and about five eighths of length from base, densely squamose, almost all of setae slanting and not strongly decumbent, hind tibiae slightly shorter than femora, densely squamose and bristling with setae. *Sternum* with intercoxal process of the prosternum half as broad as a fore coxa, distance between coxal cavity and fore margin one third that between cavity and hind margin, coarsely punctured, scales coarsely reticulate, numerous; mesosternum with area just laterad to coxa bare, but epimera densely squamose, intercoxal process densely squamose; metasternum between mid and hind coxae about three fourths as long as breadth of a metacoxa, closely set with large deep punctures in middle, punctures becoming smaller laterally, each puncture bearing a long slanting seta, densely clothed with coarsely reticulate iridescent scales. *Venter* with first ventrite broadly and conspicuously impressed in male, first two ventrites coarsely and densely punctate, punctures bearing conspicuous erect setae, densely squamose, but less densely so down middle of first ventrite and at middle of base of second; ventrites 3 and 4 with a row of coarse setiferous punctures from side to side; ventrite 5 densely and coarsely punctate, setose and conspicuously squamose. Length, 6 mm.; breadth, 3 mm.

Holotype male, labeled "Guam" and "Kinb.", in the Naturhistoriska Riksmuseum at Stockholm.

It is strange that this species is not represented among the many Guaman specimens of the genus before me. It is obviously closely allied to *Trigonops hirsuta,* but the prostrate discal elytral setae and different squamae will distinguish the species.

5. Trigonops hirsuta, new species (pl. 1, *D*).

Derm dark reddish brown to black; scaling almost uniformly grayish white or with a brownish cast, browner in old specimens, scales in fresher specimens giving iridescent reflections; pronotum normally with a variable, broad vitta from base to apex on either side of median line of slightly to distinctly darker scales; elytra either concolorous or appearing vaguely vittate because of darker, paler or more densely squamose areas on some intervals; scaling otherwise almost or quite concolorous.

Head with front almost straight in longitudinal dorsal outline, densely squamose, less densely so at sides than mesad, punctures denser and more conspicuous laterally, bearing prostrate or inclined medially directed setae; eyes quite prominent, unevenly convex, roundly subconical, much more steeply rounded behind than distally, about three fourths as long as distance between their inner margins. *Rostrum* with area between transrostral carina and basal suture flattened longitudinally and distinctly sunken below level of carina, distance between carina and suture three fourths or somewhat more than three fourths as long as interocular breadth; apical declivitous part concave between and above antennae, rather densely squamose at base, bare or with but a few scattered squamae distally, shallowly punctate. *Antennae* with scape as long as funicle plus first two segments of club, densely squamose, finely setose; funicular segments as follows in length: (1, 1.6) (2, 1.0) (3, 0.9) (4-7, 0.7); club rather elongate subcylindrical; about as long as funicular segments 5-7 inclusive plus three fourths of 4, its first segment about one fourth longer than its second. *Prothorax* as long as broad to distinctly broader than long, broadest at or slightly behind middle, dorsal contour gently convex laterally and longitudinally; densely punctate, but puncturation obscured by dense scaling which entirely conceals derm of interstices which are as broad or slightly narrower than diameters of punctures on disks; setae medially inclined, arising from lateral dorsal edges of, and extending across punctures. *Elytra* about three fourths as broad as long, somewhat more than twice as long as the prothorax, broadest at or slightly in front of middle, rather evenly ovate in basal two thirds, thence sharply narrowed to apex, evenly convex dorsally; striae deep and well defined throughout, their punctures close; intervals slightly convex on disk, more strongly so behind and laterally, densely squamose, scales, as on almost all of body, appearing soft and spongy, their edges somewhat minutely serrate, their surfaces beaded; setae erect throughout, discal ones curved, but seen as distinctly erect when viewed from side, becoming more numerous and longer caudad; usually with a poorly developed sutural fascicle on declivity. *Legs* with hind femora reaching to slightly beyond apex of fourth ventrite in female to about middle of fifth in male, base slightly broader than base of hind tibia, broadest part of club about twice as broad as base and two thirds length of femora from base, densely squamose, setae slanting or suberect throughout; hind tibia one ninth shorter than femora, straight on outer side above distal expansion, densely squamose, setae erect or nearly so. *Sternum* with prosternum deeply and coarsely punctate, squamose, setae erect, distance between coxal cavity and anterior margin one third that between cavity and hind margin, intercoxal process one fourth to almost one half as broad as a coxa; mesosternum almost entirely bare, shiny, just above the coxa, side pieces punctate and densely squamose throughout; metasternum between the mid and hind coxae as broad as a mesocoxa, coarsely punctate, punctures denser toward middle, that area, therefore, less densely squamose than sides, setae erect and conspicuous. *Venter* with first ventrite continuously, broadly and deeply concave with metasternum down middle in male, depressed before and behind middle in female, coarsely and densely punctate, denser on disk, scales becoming

smaller and scattered medially, setae long and erect; second ventrite not quite so coarsely punctate as first, less densely squamose at middle of base; third and fourth ventrites punctate, setose and densely squamose throughout; fifth ventrite densely punctate, squamose and setose. Length, 5-7 mm.; breadth, 3-4 mm.

Holotype male, Inarajan, from *Ipomoea pes-caprae,* May 6, 1936, Usinger; allotype female, Umatac, same host, May 28, Usinger; and the following paratypes: eight specimens with the same data as the holotype; 20 specimens with the same data as the allotype; five specimens, Inarajan, May 17, Bryan; one specimen, Tumon, from *Premna,* May 30, Swezey; one specimen, Magua, from *Codiaeum,* March 31, Bryan; one specimen, Fadian, from *Sida,* Aug. 19, Swezey; one, Piti, from *Morinda,* Sept. 21, Swezey; one, Agat, Oct. 17, Swezey; one, Hornbostel, labeled "Guam I, 1924"; two, Fullaway, labeled "Island Guam." The following paratypes are from National Museum material: 30 specimens, from "Lobelia" [*Scaevola frutescens*], May 22, 1937, Oakley no. 728, and one, from *Hibiscus tiliaceus,* Sept. 17, 1937, Oakley, no. 37-26121.

This species may readily be distinguished from all other Guam *Trigonops* by the peculiar scaling in combination with its long first funicular segment and erect elytral setae. It is very closely allied to *T. subfasciatus,* but the scales are beaded or granulate instead of being smooth, hard, shiny, and entire as on the dorsum of *T. subfasciatus.*

6. **Trigonops impura** (Boheman) Faust, Stett. Ent. Zeitung **58**:236, 1897 (pl. 1, *A*).

Celeuthetes impurus Boheman, Eugenies Resa, 127, 1859.

Derm dark reddish brown to black, quite shiny where exposed, appendages usually more strongly diluted with red; scaling almost uniformly dirty gray with a brownish cast above, scales slightly or conspicuously iridescent; head with green scaling at base; a few green scales scattered on rostrum; prothorax without any distinct markings; elytra colored as the pronotum, concolorous, setae white, gray, or black; scaling on the legs similar to or slightly paler than that of elytra.

Head with front coarsely, deeply and variably punctured, punctures in part concealed by scaling, with a few suberect setae near interocular sulcus; eyes strongly convex, not quite hemispherical, rather strongly protuberant, from slightly more than one half to three fourths as long as distance between their inner margins. *Rostrum* with area between transrostral carina and basal suture flattened or slightly convex and distinctly depressed below level of carina, about three fourths as long as interocular breadth, laterally convex, with a vague trace of a median carina; apical declivitous part almost flat transversely, shallowly, rather densely punctate, with scattered small green scales. *Antennae* with scape rather densely squamose, setae erect, varying in length from as long as seven funicular segments to as long as funicle plus first segment of club; funicle with lengths of segments as follows: (1, 1.2) (2, 1.0) (3, 0.7) (4, 0.6) (5, 0.5) (6-7, 0.5); club rather narrowly pointed, almost as long as three preceding funicular segments together, its first segment but slightly longer than the second. *Prothorax* slightly broader than long, broadest at about middle, rather gently arcuate on sides; coarsely, deeply, densely punctate, punctures variable, either separated by interstices, narrower, as broad as or broader than their diameters or confluent and forming conspicuous longitudinal grooves of chains of punctures; setae arising from intervals, inconspicuous when viewed from directly above, but seen as distinctly erect when viewed from side; interstices densely clothed with rounded,

reticulate, iridescent scales. *Elytra* about three fourths as broad as long, about 2.5 times as long as prothorax, base concave, broadest at about middle, rather evenly rounded laterally to behind middle, thence strongly, slightly concavely, pointedly narrowed to the apex, longitudinal dorsal contour rather evenly convex; striae deep and distinct throughout, their punctures bearing minute, inconspicuous setae; intervals slightly convex on disk, the fifth and sometimes the sixth and seventh, usually more elevated caudad, setae long, conspicuously erect, bristling, only slightly arcuate, discal ones as long and conspicuous as others; squamae dense, flattened, reticulate, appearing granulate and iridescent. *Legs* with hind femora extending slightly beyond apex of fourth ventrite in female, densely squamose, setae long, fine, slanting to almost erect, broadest part of club twice as broad as base and at about three fourths of distance from base to apex; hind tibiae slightly shorter than femora (5:5.5), almost straight on outer side from base to apical expansion, densely squamose, setae slanting erect. *Sternum* with distance between anterior margin of prosternum and fore edge of coxal cavity one half that between cavity and hind margin, intercoxal process somewhat more than one third as broad as a coxa, densely squamose, coarsely punctate; mesosternum with side pieces densely squamose, coarsely punctate, almost or quite bare just above coxa, intercoxal process coarsely and densely punctate, squamose, setae erect; metasternum between mid and hind coxae two thirds to four fifths as broad as a mesocoxa, coarsely and densely punctate, squamose on interstices, setae long, erect. *Venter* with first two ventrites strongly tumid in female, flattened down middle in male, coarsely and densely punctate, densely squamose, but denuded in middle in male, setae long, slanting erect; ventrites 3 and 4 punctate and setose from side to side and with a few scattered squamae; ventrite 5 densely punctate and setose, squamae scattered. Length, 4 mm.; breadth, 2 mm.

Holotype female, labeled "Guam" and "Kinb." in the Naturhistoriska Riksmuseum at Stockholm. One specimen, Mt. Tenjo, May 3, 1936, Usinger; another, Talofofo, from the plateau, June 17, Swezey.

The conspicuously erect dorsal setae alone will distinguish this small species from all of the Guam *Trigonops* except *T. hirsuta,* but the elytral setae are longer than in that species, the antennae are differently formed; this species is smaller, has a different facies, and is not closely allied to *T. hirsuta.*

7. **Trigonops incrinita,** new species (pl. 1, *C*).

Derm dark reddish brown to black; scaling basically white or grayish white, normally almost entirely concolorous, but when abraded appearing blotched or tessellated with small to large black areas; elytra usually with a vague post-median V of denser scaling.

Head with the front densely squamose, scaling concealing puncturation which is evidently fine and shallow, setae inconspicuous; eyes rather flatly convex, not strongly interrupting longitudinal lateral cephalic outline, as long or slightly longer than narrowest interocular breadth. *Rostrum* with area between transrostral carina and basal suture slightly to distinctly convex longitudinally, either distinctly impressed below level of carina or continuous in outline with apical part of rostrum, with a fine median carina, about three fourths to almost as long between the carina and basal suture as the interocular breadth; apical declivitous part densely but not coarsely punctate, with numerous scales at base and scattered scales distally. *Antennae* with scape densely squamose, closely set with decumbent setae, the tips of most of which touch derm, longer than funicle to slightly longer than funicle plus first segment of club; funicle with lengths of segments as follows: (1, 1.4) (2, 1.3) (3, 1.1) (4, 1.0) (5, 0.9) (6, 0.8) (7, 0.7); club rather stoutly oval, slightly shorter than preceding three funicular segments. *Prothorax* as long as broad, broadest at or slightly behind middle, subequally narrowed toward base and apex, disk gently convex sometimes just perceptibly flattened along middle in basal half; discal punctures comparatively rather small, separated by interstices about as broad or broader than their diameters, concealed by dense scaling, scales angular and forming a reticulate

pattern, some of discal interstices bearing small, low tubercles; setae few, small, hardly discernible. *Elytra* three fourths as broad as long, twice as long as prothorax, broadly rounded on sides from subtruncate or concave base to about apical third, thence sharply narrowed to apex, broadest before middle; discal striae shallow, almost concealed by scaling in some places, distinctly deeper on lateral declivities, their discal punctures rather deep, striae often not impressed between them, some near the base sometimes with low tubercles at their bases; discal intervals quite flat, scaling very dense, almost imbricated, scales mostly angular, flat, appearing rather dull because of their minute reticulation, without discal setae, with only a few setae on declivity. *Legs* with hind femora reaching to or behind middle of fifth ventrite, broadest part of club slightly more than twice as broad as base and at five eighths of distance between base and apex, densely squamose, setae closely appressed to derm and not slanting or erect; hind tibiae almost straight on outer side from base to apical expansion, densely squamose, setae decumbent or but slightly slanting away from derm. *Sternum* with prosternum about one half as long from anterior margin to fore edge of coxal cavity as distance between hind margin and cavity, intercoxal process one fourth to one third as broad as a coxa, densely squamose, densely punctate; mesosternum densely squamose excepting a small bare area just above coxa; metasternum one third to one half as long between mid and hind coxae as breadth of a mesocoxa, densely squamose from inner margins of coxae outward, less densely toward middle, rather closely punctate, setae decumbent. *Venter* with first ventrite free from scales in middle, densely clothed laterally, punctures separated by interstices about as broad as their diameters, setae rather long, decumbent; second ventrite sculptured and setose as the first, but with denser scaling medially; third and fourth ventrites sculptured and evidently setose for their entire breadths; ventrite 5 coarsely and densely punctate, densely setose, most of setae decumbent, but with some long erect setae near apex, with only a few scattered scales. Length, 4.5-5.0 mm.; breadth, 2.5-3.0 mm.

Holotype, sex not certain, Guam, from *Hibiscus tiliaceus,* Sept. 17, 1937, Oakley, numbers 135 and 37-26161 (in U. S. Nat. Museum); and two abraded paratypes, labeled "Island Guam", Fullaway.

This species is closely allied to *T. vulgaris* and *T. convexa,* but can be separated from those species, as well as all of the other Guam species, by the absence of discal setae on the elytra.

8. **Trigonops convexa,** new species (pl. 1, *I;* fig. 1, *a*).

Derm dark reddish brown to black; scaling subject to great variation, dorsum varying from grayish white to coppery brown; pronotum usually with dark scales in front of elytral intervals 2 and 3; elytral marking variable, but usually with a patch of white squamae at least on third interval at about middle or with a V-shaped fascia of white scales across elytra.

Head rather closely punctured, punctures obscured by dense scaling, setae recumbent; eyes broadly convex, not protuberant, not sharply interrupting lateral cephalic outline, as long as or slightly longer than interocular breadth. *Rostrum* with basal part between transrostral carina and basal suture convex to very strongly convex longitudinally, not depressed below transrostral carina, with a variable, longitudinal median carina, three fourths or more than three fourths as long as interocular breadth; declivitous apical part finely to moderately coarsely punctured in middle, more coarsely and densely toward sides and base, squamose and with erect or suberect setae at base. *Antennae* with scape longer than seven funicular segments, setae so curved that their apices touch or almost touch derm; funicle with lengths of segments as follows: (1, 1.3) (2, 1.2) (3 and 4, 0.9) (5, 6, and 7, 0.8); club about as long as three preceding funicular segments, its first segment about three eighths longer than second. *Prothorax* about as long as broad, broadest at or slightly behind middle; discal puncturation variable, the punctures comparatively fine to rather coarse, setae decumbent, arising from outer sides of punctures and extending

across them toward median line; interstices often with low granules. *Elytra* more than three fourths as broad as long, twice as long as prothorax, broadly convex on sides from base to beyond middle thence sharply narrowed to apex; striae well defined, but not deeply impressed between punctures, not concealed by scaling, usually with polished granules bearing quite conspicuous setae at bases of punctures toward base; intervals flat or hardly convex on disk, the sixth usually distinctly more elevated and carinate behind, especially in males; scales angular, their surfaces minutely reticulate, closely appressed; setae rather short, slightly slanting or decumbent on disk. *Legs* with hind femora reaching to slightly beyond apex of fourth ventrite in female, to about apex of fifth in male, setae decumbent, not slanting distinctly away from derm; hind tibiae bristling with slanting setae, straight on outer margin. Sternum with prosternum one half as long between a coxal cavity and fore margin as between cavity and hind margin, intercoxal process about one fourth as broad as a coxa; mesosternum with side pieces densely squamose, intercoxal process coarsely punctate; metasternum between mid and hind coxae about two thirds as long as breadth of a mesocoxa, coarsely punctate in middle and there with long, slanting setae and scattered scales. *Venter* with first ventrite almost free from scales in middle, slightly flattened or tumid in female, distinctly flattened in male, coarsely punctate, setose as the metasternum; second ventrite denuded at middle near base, otherwise densely squamose; third and fourth ventrites punctate and setose from side to side; fifth ventrite densely punctate and setose and with few or no scales. Length, 4-6 mm.; breadth, 2-3 mm.

Holotype male, Upi Trail, May 5, 1936, Usinger; allotype female, Machanao, June 30, Swezey; seven specimens taken at same time and place as holotype by Swezey, five by miscellaneous sweeping and two from ferns; 19 specimens with same data as allotype, but two from *Ficus;* two specimens from same locality, June 5, Usinger; two, same locality, one from *Ipomoea pes-caprae,* June 4, and the other Aug. 6, Usinger; three, Ritidian Point, June 2, Usinger; five, Yigo, Nov. 13, Swezey; one, Dededo, Nov. 8, Swezey; three, Orote Peninsula, May 9, Bryan; two, Orote Peninsula, one Sept. 1, from *Premna,* the other, Sept. 27, from *Sida,* Swezey; one, Upi Trail, May 5, Bryan; two,

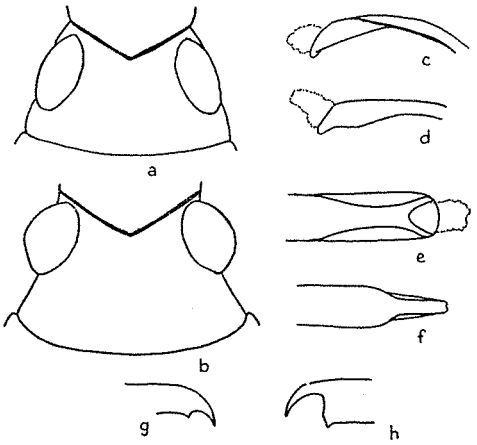


FIGURE 1.—Outlines of structures of Curculionidae: **a, b,** outlines of heads of (*a*) *Trigonops convexa* and (*b*) *T. vulgaris,* showing convexity of eyes; **c, d,** lateral outlines of aedeagus of (*c*) *Microcryptorhynchus guamae* and (*d*) *M. premnae;* **e, f,** dorsal outline of aedeagus of (*e*) *M. premnae* and (*f*) *M. guamae*; **g, h,** apices of mesotibiae of (*g*) *Choerorrhinoides flavisetosus* and (*h*) *C. marshalli.*

Sumay, in cultivated hedge of hibiscus, Oct. 31, Swezey; one, Fullaway labeled "Guam Island."

This is a puzzling, variable, difficult species to describe. It is allied to *T. vulgaris* which it resembles in size, shape, and coloring, but it can be separated from that species by its much less convex eyes. Some specimens might be separated from small, abnormal specimens of *T. inusitata,* with difficulty but most examples are much smaller than those of *T. inusitata* and, together with the characters mentioned in the key, can be readily separated.

This species varies greatly in size, shape, color, color pattern and structure. Two extreme individuals might almost be described as two species if found separately and if no series of specimens showing intergradation of details were available.

In the National Museum material is a series of specimens which appear to be distinct from *T. convexa.* However, I have been unable to find satisfactory characters by which to separate them and have left them unnamed.

9. Trigonops vulgaris, new species (pl. 1, *G;* fig. 1, *b*).

Derm dark reddish brown to black; scaling variable, basically brownish gray to grayish brown, often with some dark brown scaling, prothorax usually with lateral scaling paler and often with a pale median vitta, with at least a patch of dark scales in front of elytral intervals 2 and 3; elytra usually with a broad V-shaped fascia of paler scales.

Head with the small punctures almost all concealed by dense scaling, usually with a small bare spot, or short bare vitta adjacent to apex of interocular suture; eyes quite strongly protuberant, subhemispherical, abruptly interrupting lateral cephalic outline, obviously shorter than distance between them. *Rostrum* with area between transrostral carina and basal suture normally flat or but slightly longitudinally convex and slightly or distinctly depressed below level of transrostral carina, distance between carina and basal suture obviously shorter than narrowest interocular breadth, with or without a trace of a median carina; apical declivitous part finely to coarsely punctate, squamae scattered except for usual condensation at base. *Antennae* with scape longer than seven funicular segments, setae usually, but not always, conspicuously slanting away from derm; funicular segments as follows in length: (1, 1.3) (2, 1.2) (3, 0.9) (4, 5, 6, and 7, 0.8); club as long as three preceding funicular segments, its first segment a third or a fourth longer than second. *Prothorax* slightly broader than long, broadest at about middle and rather evenly arcuate on sides; disk closely set with moderately large punctures, interstices narrower or broader than punctures and densely squamose, setae inserted at outer edges of punctures, transversely placed, usually quite closely appressed and extending across their punctures. *Elytra* about three fourths as broad as long, twice as long as prothorax, broadest somewhat before middle, broadly arcuate on sides to about apical third thence strongly narrowed to apex; striae well defined throughout, discal punctures often preceded by small tubercles near base; intervals flat to slightly convex on disk, densely squamose, scales finely to rather coarsely reticulate, rounded or angular, flat, closely appressed to derm, discal setae usually quite conspicuous and slanting steeply away from derm, but in some individuals much shorter, decumbent and not conspicuous, normally longer and more erect on declivity, often with a feeble sutural fascicle on declivity. *Legs* with hind femora reaching to about middle of fifth ventrite in female and about to apex in male, setae usually slanting away from derm, especially along lower edge of shaft, but often rather closely appressed dorsally; hind tibial setae bristling. *Sternum* with prosternum one half as long between fore margin and coxal cavity as between cavity and hind margin, intercoxal process one fourth to one third as broad as a fore coxa, coarsely punctate, densely squamose; mesosternum with side pieces, excluding bare space adjacent to coxae, densely

squamose; metasternum more than three fourths to about as long between mid and hind coxae as breadth of a mesocoxa, densely, moderately coarsely punctate, setae slanting steeply. *Venter* with first ventrite mostly or entirely free from scales down middle in both sexes, punctate as metasternum, tumid in female, depressed or impressed in male; second ventrite free from scales at middle of base only; ventrites 3 and 4 punctate, setose and sometimes squamose from side to side; ventrite 5 densely punctate and setose, usually with scattered squamae. Length, 4-5.5 mm.; breadth, 2-3 mm.

Holotype male, Machanao, Nov. 25, 1936, Swezey; allotype female, same locality, from *Piper guahamense,* June 4, Swezey; and the following paratypes: 10 specimens with the same data as the allotype, three with same data but from "spiny amaranth", five with same data but from *Ipomoea pes-caprae,* two with same data but one labeled "ex *Ipomoea* sp.", the other "on *Amaranthus spinosus*", one taken at same locality in miscellaneous sweeping, June 2, Swezey; four specimens, Dededo, from *Ficus* sp. (*hodda*), Aug. 7, Swezey, one from banana, the other from *Ipomoea pes-caprae,* one at same place, May 11, Usinger; five, Yigo, from *Terminalia,* Nov. 13, Swezey; two, Barrigada, from *Piper,* July 22, Swezey; two, Upi Trail, May 5, one by Swezey from fence, one by Bryan; one, Talofofo, Nov. 18, Swezey; four from "Island Guam", Fullaway. The following specimens are from the National Museum: six, from *Piper guahamense,* Aug. 15, 1937, Oakley, no. 134, 37-26120; seven, from *Vigna sinensis,* Sept. 30, 1937, Oakley no. 155, 37-26126; one specimen taken by Fullaway.

The strongly convex, protuberant eyes will serve to distinguish this species from its ally, *T. convexa.*

Subfamily APIONINAE

Tribe EURHYNCHINI

Genus **CYLAS** Latreille, 1802

10. Cylas formicarius (Fabricius) (pl. 6, *D*).

Brentus formicarius Fabricius, Ent. Syst., Suppl., 74, 1798.

Cylas turcipennis Boheman, in Schoenherr's Gen. Spec. Curc. **1**:369, 1833.

The color-form *elegantulus* (Summers) with steel-blue elytra, red legs, antennae, prothorax and mesothorax was taken as follows: four from Piti, one, May 10, 1936, Usinger; one, from sweet-potato vines, Nov. 17, Swezey; and two swept from morning-glory vine on sugar cane, Sept. 1, Swezey.

This species is a well-known tropicopolitan pest of sweet potatoes.

Subfamily ANTHONOMINAE

Two species of Anthonominae were procured on Guam. Each is new and belongs to a different genus. The genera, one of which is new, may be distinguished by the following synoptic table:

KEY TO THE GENERA OF ANTHONOMINAE OF GUAM

1. Scrobes straight and lateral throughout, not at all oblique near the antennae: prosternum entire and not canaliculate before the coxae.....**Usingerius.**
2. Scrobes passing rapidly and obliquely downward to the venter of the rostrum, ventral in the posterior half; prosternum broadly canaliculate before the coxae.....**Amblycnemus.**

Genus **USINGERIUS,** new genus

Head subglobular, interocular area only about one half as broad as base of rostrum; eyes anterior, their fore margins at base of rostrum, large, coarsely faceted, strongly convex, separated beneath by breadth of rostrum. *Rostrum* slender and elongate, longer than prothorax in both sexes; antennae inserted just beyond middle in female, and within apical third in male; scrobes lateral, extending to eyes; mandibles dentate and decussate. *Antennae* with scape very slender, filiform, rather abruptly but not strongly clavate at the apex, reaching to eyes in both sexes, obviously longer than funicle; funicle only 6-segmented, only first segment distinctly elongated; club 4-segmented, not strongly compacted. *Scutellum* well developed, pubescent. *Elytra* broadly ovate, distinctly broader at subrectangular humeri than base of prothorax; ten striate, tenth stria complete; without posterior calli; each elytron individually rounded at apex. *Wings* functional. *Legs* rather stout; femora stout, strongly but not abruptly clavate, each armed with a large tooth at distal third, hind pair reaching to or slightly beyond hind margin of fourth ventrite; tibiae slightly compressed, slightly sinuous in outline, with a fine dorsal carina, without a distinct apical mucro, but with a minute vestige of one on hind tibiae of male; tarsi with segment 2 about as long as 1, trapezoidal, 3 about as long as 2, about twice as broad as long, deeply bilobed, 4 projecting for about half its length beyond apex of 3, claws deeply and strongly cleft. *Sternum* with prosternum plain before globose coxae, distance between fore margin and coxae about equal to that between fore and mid coxae, fore coxae practically contiguous, cavities extremely narrowly separated, almost confluent; mesosternum with intercoxal process sloping strongly ventro-caudad, narrowing posteriorly, roughly subtriangular, its apex about half as broad as a coxa; side pieces distinct; metasternum between mid and hind coxae about as long as breadth of a mesocoxa, episternum broad, suture distinct. *Venter* with intercoxal process strongly convex, about as broad as length of a coxa at trochanter; coxae reaching to metepisterna only; ventrites 1 and 2 fused, but suture not obliterated; five ventrites subequal in length along a line behind trochanters.

Genotype: *Usingerius maculatus,* new species.

This is a rather aberrant genus because of its lack of distinct apical mucrones on the tibiae. It has, in part, this character together with the 6-segmented funicle in common with *Amblycnemus,* but the genera are not allied. These two characters in combination with the cleft claws, strongly toothed femora, structure of the head, rostrum and venter will adequately distinguish the genus. The head, rostrum, and antennae recall *Nanophyes;* but on that genus, in addition to other differences, the claws are connate and not cleft and the tibiae are mucronate; it belongs to a different subfamily.

I dedicate this genus to my friend Dr. R. L. Usinger in recognition of his researches in Guam.

11. **Usingerius maculatus,** new species (pl. 6, *A, B*).

Derm pale to dark reddish brown, appendages usually mostly yellowish but often suffused with black; rather densely clothed with squamules, cephalic vestiture golden;

pronotum either with entirely golden and pale yellow vestiture or variably suffused with dark-colored squamules; elytra subject to great variation in color pattern of vestiture, variably marked with areas of golden, pale yellow, whitish and dark brown squamules; scutellum with dense squamules and paler than its surrounding area; vestiture of legs and underside white to yellowish.

Head with crown coarsely reticulate, finely and densely punctate; interocular area about one fourth as broad as an eye measured from front, derm concealed by vestiture; eyes quite prominently protuberant. *Rostrum* gradually and slightly widened from base to apex, apex only slightly broader than base, one third longer then pronotum in male, one and three fifths as long in female, gently arcuate from base to apex; antennae inserted slightly beyond middle in female, slightly in front of apical third in male; with two finely punctate striae on either side above scrobe from base to antennae in female, otherwise shiny and impunctate dorsally; these striae much more coarsely punctate in male, their intervals appearing as carinae, and with prostrate setae to antennae, otherwise finely punctate. *Antennae* with club of scape subequal in size and shape to first funicular segment; funicle with first segment as long as 2 plus 3, half as broad as long at rounded apex, 2 almost as long as 3 plus 4, 3 to 6 subsequal; club as long as preceding five funicular segments, constrictions and sutures between the three basal segments quite distinct. *Prothorax* much broader than long (8:5 to 7:4), broadest just in front of base, base with a distinct prescutellar lobe, sides broadly rounded to apical fourth, thence conspicuously constricted, constriction not distinctly impressed across dorsum; densely set with small, coarse punctures; squamules prostrate, directed anteriorly. *Elytra* five eighths as broad as long, three times as long as prothorax; dorsal contour slightly impressed at basal third, base subtruncate between scutellar emargination and rounded humeri, subparallel on sides to about middle thence broadly rounded to apices; striae well marked throughout, the punctures slightly broader than their striae; intervals slightly convex, more strongly so laterad and caudad, squamules prostrate, those along median lines directed straight back, those on sides directed obliquely inward and backward. *Legs* rather loosely clothed with rather shaggy hair, with femoral tooth large, triangular, as high along outer edge as breadth of apex of a tibia; tarsi with inner process of each claw reaching to about apical fourth of claw. *Sternum* densely clothed with hair; with mesosternal process slightly protuberant; metasternum only slightly impressed in female, deeply canaliculately impressed down middle in male. *Venter* with first ventrite but slightly depressed in female, but with canaliculation very conspicuously continued from metasternum through second ventrite in male, canaliculate area almost free from hair, but with long, erect, curved hair along sides, more or less arched across canal; hair suberect or erect down middle of all ventrites in male, but mostly decumbent or slightly inclined in female; ventrites minutely punctate throughout. *Pygidium* hidden in female, usually broadly exposed in male and in that sex coarsely and densely punctate and with a slightly raised apical area. Length, 2-2.5 mm.; breadth, 1.2-1.3 mm.

Holotype male, Inarajan, May 7, 1936, Swezey; allotype female, same place and time, Usinger; and following five paratypes: two, same data as allotype; two, Piti, from *Pithecolobium,* May 2, Usinger; and one, at Sumay Road, from mangrove swamp, June 23, Usinger.

No two of the specimens have identical color patterns, but the species has a distinct, easily recognized facies.

Genus **AMBLYCNEMUS,** Marshall, 1921

The new species of this genus described here differs rather radically from the genotype (*Amblycnemus stevensoni* Marshall, Insects of Samoa 4(5):226, fig. 6, 1921) in having the femora strongly toothed. It has, however, the other

peculiar characters of *Amblycnemus* and is, therefore, placed in that genus; I have other new species at hand which also have toothed femora.

In the original description of the genus, the statement is made that one of the most aberrant characters of the genus was the fact that the tibiae completely lacked terminal mucrones. In specimens of the genotype at hand the tibiae of the females have no traces of apical tibial mucrones; the males, however, have the mid and hind tibiae distinctly mucronate at the inner apical angles. In the new Guam species, this situation is duplicated: the males have a prominent mucro at the inner apical angles of the mid and hind tibiae, and the females have no trace of tibial mucrones.

I have before me other new species of the genus, from Fiji and the Palau and Caroline Islands. Many new species will ultimately be described from the vast area between Samoa and Guam.

12. Amblycnemus dentipes, new species (pl. 6, *F*).

Derm black, with antennae, apices of tibiae and tarsi yellowish; apex of pronotum and occasionally a variable part of disk yellowish; elytra with three variable, irregular, entire or broken transverse yellow fasciae, one at base, one before, and one just behind middle, apex also often yellowish, derm varying from mostly black with but small areas of yellow to mostly yellow with small areas of black; vestiture white or pale yellow.

Head with crown coarsely reticulate, minutely punctate, rather loosely and evenly clothed with prostrate anteriorly directed squamiform setae; front with a row of curved, dorsally directed squamules along inner margins of eyes, slightly more than half breadth of an eye, measured from the front. *Rostrum* in male one fifth longer than pronotum, coarsely reticulate throughout, with three prominent striae on either side between median line and scrobes from base to near antennae bearing coarse, curved dorsally or basally inclined squamules; female with rostrum almost a third longer than pronotum, finely alutaceous and quite shiny, lateral striae, excepting one next to scrobe, finer and bearing shorter, finer, much less conspicuous setae. *Antennae* inserted at apical fifth of rostrum in male, apical fourth in female; funicle with the first segment as long as 2 plus about half of 3, 2 not quite as long as 3 plus 4, 4 longer than 5, 5 and 6 subequal, submoniliform; club about as long as preceding four funicular segments. *Prothorax* about one fifth broader than long, broadest at about middle, strongly rounded on sides in basal two thirds then strongly constricted, constriction shallowly impressed across dorsum, apex truncate dorsally, oblique laterally, base almost truncate, but very feebly concave on either side of middle; densely and coarsely punctate throughout, interstices obviously narrower than punctures; with scattered, anteriorly directed, decumbent squamules interspersed with fine hairlike setae, squamules coarser near base. *Scutellum* rounded, convex, bare, dull. *Elytra* about two thirds as broad as long, three times as long as prothorax, gently arcuate in longitudinal dorsal outline, base shallowly bisinuate, subparallel-sided from roundly rectangular humeri to beyond middle, conjointly and broadly rounded at apex; striae broad and deep, their punctures subquadrate, tenth stria terminating above metacoxa; intervals distinctly convex, each with a row of conspicuous, posteriorly directed, curved, decumbent squamiform setae. *Legs* with the femora each with a long, narrow, sharp, strongly developed, conspicuous tooth near distal third, coarsely reticulate, coarsely but indistinctly punctate, punctures bearing conspicuous, curved, decumbent setae; all tibiae unarmed at their apices in female, mid and hind tibiae armed at inner apical angle with a distinct mucro in male. *Sternum* with prosternal canal with low, inconspicuous side walls, cavity, as well as median post coxal piece, densely clothed with compound, feathery scales, coxae separated by about breadth of apex of antennal scape; intercoxal process of mesosternum almost vertical at fore edge of coxae, coxae not quite separated by as much as breadth of a coxa; metasternum coarsely and densely punctate on sides, coarsely punctate along

coxae and hind margin below, with disk impunctate, punctures bearing long curved setae, sclerite about as long between mid and hind coxae as breadth of a mesocoxa, intercoxal process between the mesocoxae extending almost to anterior edge of coxae. *Venter* coarsely reticulate, with scattered, shallow punctures bearing decumbent setae; first ventrite irregularly depressed at base and apex in female, broadly and continuously concave in male. Length, 1.7-1.8 mm.; breadth, 0.7-0.8 mm.

Holotype male, Inarajan, May 7, 1936, Usinger; allotype female, Mt. Alifan, from *Asplenium nidus,* May 26, Swezey; and the following paratypes: one with identical data as the holotype; one, Paasan, June 15, Usinger; two, Machanao, June 30, Usinger; and one, Dededo, from *Ochrosia,* Sept. 11, Swezey.

This species is smaller, narrower, differently colored, and otherwise quite distinct from the only other described species of the genus. There is no other Guam weevil with which it might be confused.

Subfamily BARINAE

Genus **ATHESAPEUTA** Faust, 1894

This genus contains the only Guam representative of the subfamily. Most of the known species of *Athesapeuta* have been described from India, others are recorded from Africa, Madagascar, China, and the Netherlands Indies. One species has been described from the Philippines, but probably numerous species occur there as well as in the islands to the west, south and east.

The Philippines species has been found of some use in the control of nut grass (*Cyperus rotundus*) and has been introduced into Hawaii and Fiji as an aid to the control of that sedge in sugar-cane fields. The new species described here is also a sedge eater.

13. **Athesapeuta ulvae,** new species (pl. 6, *C*).

Derm dark reddish brown to black, appendages reddish, pronotum usually quite shiny black on disk, elytra black down middle in non-squamose areas but reddish on squamose sides beyond fourth or fifth intervals at least, sternum usually more reddish than venter; squamae white or pale yellow, forming following dorsal patterns: sides of pronotum densely clothed from base to apex beyond fifth or sixth elytral intervals, usually with a few scales at base of interval 2, a dense patch at base of interval 3 followed a short distance by loose scaling, a dense conspicuous patch of broader squamae over intervals 2-5 just before apical third, intervals 1-3, and sometimes 4 in part, otherwise bare of scales, excepting a few at apex only, outer intervals all with one or two rows of squamae from base to apex, most outstanding marks being patches of scales at bases of third intervals and those on either side behind middle.

Head with crown with minute, widely spaced punctures bearing minute setae, without scales; line of separation of head and rostrum shallowly impressed and not making an abrupt groove; with a patch of squamae along inner margin of eye. *Rostrum* measured from apex to top of eyes as long as pronotum plus scutellum in male, one fifth longer than pronotum in female, strongly arcuate, almost evenly and slightly expanded on sides from base to apex, laterally compressed at base, but becoming dorso-ventrally depressed beyond antennae; with fine punctures except on sides behind antennae, punctures arranged in three

lines above each scrobe. *Antennae* with first funicular segment as long as 2 plus 3 plus 4, almost four times as long as broad, 2 not quite as long as 3 plus 4, 3-7 each successively slightly shorter and more transverse; club about as long as preceding five funicular segments. *Prothorax* slightly broader than long (2.5:2.2), very slightly arcuate, almost straight on sides from base to about apical seventh, thence conspicuously constricted and narrowed to apex, constriction shallowly and broadly interrupting longitudinal dorsal outline which is otherwise gently convex and highest behind middle, apex sinuous, three fifths as broad as base; base rather strongly bisinuate; discal punctuation, on bare area, not at all coarse, punctures small, round, separated by interstices at least as broad as their diameters and bearing minute, hardly discernible punctures; puncturation coarse, dense and rough on squamose areas and laterally; squamae appressed, broad and spatulate. *Scutellum* usually triangular behind, bare, variably impressed. *Elytra* about six sevenths as broad as long, one and three fourths as long as prothorax, base strongly bisinuate, broadest at apices of poorly defined humeri, thence very slightly narrowed within apical third, thence broadly rounded to apex, without any subapical constriction or posterior calli; striae about a third as broad as intervals, their punctures indistinct behind middle but slightly indenting margins of intervals near base and on sides; intervals flat, quite shiny, their punctures minute in non-squamose areas and there bearing minute setae, arranged in one or two irregular lines, those bearing squamae coarser; squamae prostrate, spatulate, quite broad. *Legs* with femora closely set with punctures bearing prostrate, lanceolate, squamiform setae, edentate; tibiae with finer squamiform setae than femora, all edentate in middle, not carinate; unci strongly developed, teeth at inner apical angles distinct. *Sternum* with prosternum coarsely and densely punctate, punctures bearing spatulate or subspatulate squamae, anterior transverse impression strong and deep; mesosternum coarsely and densely punctate and squamose, intercoxal process broader than a coxa; metasternum as long between mid and hind coxae as breadth of a mesocoxa, episternum densely squamose, punctures denser outside of coxae, smaller and bearing smaller setae between coxae. *Venter* with first ventrite distinctly flattened and slightly concave in male, tumid in female; entire venter rather densely punctate except along middle where punctures are smaller, fewer and bear finer setae, setae becoming broader and squamiform laterally. *Pygidium* coarsely and densely punctate, densely setose, subhemispherical in ventral outline and one third broader than long in male, longer in female. Length, 2-3 mm.; breadth, 1-1.6 mm.

Holotype male, Santa Rosa Peak, May 19, 1936, Usinger; allotype female, Mt. Alifan, May 26, Usinger; and the following paratypes: one from Piti, May 1, two from hills at Piti, June 6, ten from same place, July 13, four from same place, July 24, five from Piti, Aug. 1, ten from same place, Aug. 21. All the paratypes were swept by Swezey from sedges, and he also found larvae at the bases of sedge plants. One paratype labeled "Island Guam" and collected by Fullaway is from the National Museum material.

This species is closely allied to the Philippine *Athesapeuta cyperi* Marshall (Bull. Ent. Research 18:266, 1928), but that species may easily be distinguished from this by its much more coarsely and densely punctate pronotal disk, more coarsely punctate elytral striae and especially by the presence of a large tooth at about the middle of each fore tibia on the male.

Subfamily ITHYPORINAE

A new genus including one new species represents this subfamily in Guam. The new genus belongs to a group of peculiar genera which include *Fergusonia* Lea of Australia, *Cranopoeus* Marshall and *Spanochelus* Marshall, the last two of which are abundantly represented at least among the islands from

Fiji to the Marquesas, but few of the species have been described. Other genera and species will undoubtedly be found to show that the group has a wide distribution in Australasia and probably also in Indo-Malaya.

It is worthwhile to note here that *Fergusonia* Lea is a homonym; I suggest the following change:

Fergusoniella, new name.

Fergusonia Lea, Soc. Ent. Belg., Mem. 18:125, 1911; homonym, preoccupied by the amphibian *Fergusonia* Hoffmann, in Bronn's, Die Klassen und Ordnungen des Thier-Reichs wissenshaftlich dargestelt in Wort und Bild 6(2):629, 1878.

Genus **SWEZEYELLA,** new genus

Head globular, immersed in prothorax, narrowly exposed from above; eyes oval, separated by breadth of rostrum above and below. *Rostrum* almost straight, about as long as pronotum in male, about one third longer in female; antennae inserted at about the apical third in female, slightly beyond in male; scrobes passing rapidly ventrally, entirely ventral behind half distance between eyes and their origin, not coalescing at base of rostrum and there shallow; mandibles decussate, strongly toothed. *Antennae* with scape slender, almost reaching eye, about as long as funicle plus club; funicle only 5-segmented, first segment longer than second, second longer than third; club evidently 3-segmented, basal segment making up at least half its mass. *Prothorax* transverse; postocular lobes feebly developed and with short vibrissae. *Scutellum* not visible. *Elytra* short and rather subquadrate, conspicuously broader across humeri than base of prothorax; without posterior calli; with ten striae, the tenth abbreviated. *Wings* functional. *Legs* with femora moderately clavate, edentate, hind pair reaching beyond apex of fourth ventrite; tibiae compressed, stout, not carinate, strongly uncinate at apex; tarsi with third segment much longer and broader than transverse second segment, deeply and broadly bilobed; fourth segment extending only to apices of setae on segment 3 and bearing only a single claw. *Sternum* with prosternum with its apical margin deeply, roundly emarginate, broadly and shallowly concave in front of contiguous coxae; mesosternum with intercoxal process sloping cephalo-dorsad, plain, about half as broad as a coxa, mesepimeron only a fraction as large as mesepisternum; metasternum about as long between mid and hind coxae as breadth of a metacoxa, metepisternal suture usually partly or completely obliterated, reaching first ventrite above coxal cavity. *Venter* with intercoxal process of first ventrite broadly rounded; ventrite fully as long along median line as segments 2 plus 3 plus 4, truncate behind, ventrite 2 somewhat longer than 3, 3 and 4 subsequal, 5 about as long as 3 plus 4, sutures between segments deep and straight. *Pygidium* with apex exposed from above.

Genotype: *Swezeyella muscosa,* new species.

This genus is most closely allied to *Spanochelus* Marshall [Insects of Samoa 4(5):278, fig. 10, 1931]. It differs from that genus, however, in its unusual 5-segmented antennal funicle. Its 5-segmented funicle and single tarsal claws constitute a pair of characters rarely found among weevils of this and allied subfamilies. *Spanochelus* Marshall and *Fergusoniella* have single tarsal claws, but their 7- and 6-segmented funicles, respectively, in addition to other characters, will readily separate them from this genus.

I take much pleasure in naming this genus for Mr. O. H. Swezey as a token of friendship and appreciation and in recognition of his careful work in Guam.

14. Swezeyella muscosa, new species (pl. 6, *E*).

Derm reddish brown to black, for the most part densely clothed with rather short, coarse, somewhat matted hair, usually with a waxy exudation obscuring derm and vestiture; vestiture rather uniformly dirty gray above, or with elytra and pronotum with small patches of white; normally with a conspicuous basal patch of dense white hair from scutellum across first three intervals; setae white, and showing as white flecks even when encrustation is heavy.

Head with coarsely reticulate, minutely punctate derm hidden by dense pile, frons with a small median fovea, interocular area as broad as base of rostrum. *Rostrum* as long as pronotum in male, one third longer in female, about as high as broad behind antennae, evenly and slightly expanded from base to apex on sides; densely punctate from base to apex, more coarsely so in male; densely setose to antennae in male, only near base in female. *Antennae* with scape rather evenly enlarged distally and not at all abruptly clavate; funicular segment 1 almost as long as 2 plus 3, 2 as long as 3 plus 4, 3-5 subequal in length and successively slightly broader; club as long as preceding four funicular segments, its apical part sharply pointed and about three fourths as long as basal segment. *Prothorax* two sevenths broader than long (3.5:2.5), broadest at basal third; strongly rounded on sides to basal third, thence strongly constricted, constriction continued broadly and deeply across dorsum and causing an angulation in longitudinal dorsal outline which is strongly convex from there to base; apex slightly arcuate dorsally, truncate laterally; median line impressed as a shallow sulcus on disk; puncturation obscure; vestiture dense, directed forward, normally with some subspatulate setae on either side of median line in basal third, others following a transverse line across basal third to side where they are more numerous, and with numerous similar setae in and beyond subapical constriction, forming a row near apex. *Elytra* but slightly longer than broad, broadest across prominent subrectangular humeri, rather strongly bisinuate at base; denser vestiture across first three intervals usually making scutellar area appear broadly V-shaped, almost straight and parallel-sided from behind humeri to apical third, thence broadly, roundly narrowing to apex; discal striae about one third as broad as intervals at middle, somewhat coarser toward base, punctures little evident except near base, first stria evidently deeper and coarser than others in the basal fourth, stria 10 not extending beyond apex of metepisternum, striae 7 and 8 not reaching base but ending at humeral calli; intervals slightly convex, vestiture dense, prostrate, each with a row of widely spaced, semi-erect, subspatulate setae, in fresh, non-encrusted specimens the pile around bases of setae also white. *Legs* with vestiture dense; tibiae appearing expanded toward apices and with scattered, inclined, stout setae; tarsi with first segment about as broad as long, somewhat longer than second, second almost twice as broad as long and about half as long as third which is slightly broader than long. *Sternum* with intercoxal process of mesosternum narrowing behind, its apex not quite half as broad as a mesocoxa; metasternum with dense vestiture. *Venter* hirsute; with first ventrite divided by a suture, running from its basal third on sides to intercoxal process, deep behind coxae, shallow across the intercoxal process, slightly depressed in middle in male, strongly tumid in female; ventrite 5 plain, but more coarsely sculptured than others. *Pygidium* narrowly exposed, gently arcuate. Length, 1.5-2.0 mm.; breadth, 0.8-1.2 mm.

Holotype male, Ritidian Point, June 2, 1936, Usinger; allotype female, Mt. Chachao, May 16, Usinger. The following paratypes collected by Swezey: one, Santa Rosa Peak, May 19; one, plateau at Talofofo, June 17; one, Piti, from *Glochidion,* Aug. 18; two, from same host and place, Sept. 21, and one with some data but taken Oct. 12.

No difficulty will be had in recognizing this distinct little member of Guam fauna because of its unique structural details.

Subfamily CRYPTORHYNCHINAE

Key to the Guam Genera

1. Scutellum visible; metepisternum distinct throughout its length 2
   Scutellum hidden; metepisternum partially or entirely hidden, never distinctly visible and broadly exposed throughout its length 6

2(1). Pectoral canal without any side walls, ending in the metasternum, mesosternal receptacle open or nearly so and densely squamose ..... **Deretiosus.**
   Pectoral canal ending in the mesosternum or prosternum, the mesosternal (or prosternal) receptacle usually distinctly cavernous and with distinct elevated side walls 3

3(2). Femora armed with a small or large tooth below 4
   Femora edentate 5

4(3). Pectoral canal ending in the prosternum, densely squamose throughout; prosternal receptacle with the high side walls contiguous to the coxae; eyes closely approximated below ..... **Camptorhinus.**
   Pectoral canal ending in the mesosternum, not squamose between the coxae; eyes very widely separated below ..... **Oreda.**

5(3). Metasternum between the mid and hind coxae about twice as long as the breadth of a mesocoxa; femora not grooved for the reception of the tibiae; dorsum with fascicles and spongy scaling; body subparallel-sided ..... **Menectetorus.**
   Metasternum between the mid and hind coxae not as long as the breadth of a mesocoxa; femora shallowly grooved for the reception of the tibiae; dorsal scaling smooth, not at all fasciculate or spongy; body subrhomboidal ..... **Neoampagia.**

6(1). Femora minutely or distinctly toothed (examine fore pair carefully); pectoral canal in part or entirely squamose 7
   Femora edentate; pectoral canal bare 8

7(6). Form subquadrate; pectoral canal squamose throughout; mesocoxae separated by the breadth of a coxa; metasternum shorter between mid and hind coxae than the breadth of the base of the femora ..... **Anaballus.**
   Form elongate; pectoral canal squamose only in front of the coxae; mesocoxae separated by only about half the breadth of a coxa; metasternum longer between the mid and hind coxae than the base of the femora ..... **Euscepes.**

8(6). Pectoral canal terminating between the fore and mid coxae, always before the mesocoxae ..... **Acalles.**
   Pectoral canal terminating between the mesocoxae, distinctly behind their fore margins 9

9(8). Dorsum conspicuously multituberculate ..... **Daealus.**
   Dorsum not tuberculate; minute species, Guam species less than 2 mm. long ..... **Microcryptorhynchus.**

Genus **DERETIOSUS** Pascoe, 1871

This sophrorhine genus contains many species and is distributed from New Guinea eastward as far as Samoa, westward to the Philippines, Java, and Sumatra and south into Australia. One other Micronesian species has been described; it is *Deretiosus concolor* Zimmerman, 1938, from Ponape, Caroline Islands; and I have recorded the New Guinean *D. subaridus* Lea, 1928 from Truk, Caroline Islands.

15. Deretiosus ficae, new species (pl. 3, *A*).

Derm reddish brown to black, almost everywhere concealed by dense scaling; scaling dirty gray or muddy colored in old abraded specimens, but as follows in fresh, clean examples: head basically fawn colored, becoming paler dorsally, sometimes with some black spots, with an outstanding basal patch of white scales at top of eye; prothorax almost entirely white with setae and fascicles fawn colored, or paler or darker, with discal area from base to median fascicles fawn colored and black or almost or entirely black, apex sometimes mostly black on either side of median line beyond median fascicles; elytra mostly fawn colored and white with at least the scutellum, bases of first three intervals and third interval to first fascicle black, or with first three intervals almost entirely black to middle, with a black patch at base of fifth interval, and with black extending over part of fourth and fifth intervals at middle or extending to sides and there irregularly clouded with black, and with variations between these extremes in color, the basal half, or somewhat more than half of the elytra, dark, the apical part distinctly paler; legs spotted and ringed with fawn and brown on a pale or white background; scaling below mostly white, but with last three ventrites mostly dark.

Head with scaling on crown spongy and in rosettes, spatulate setae hardly projecting above squamae; front flattened or shallowly concave, with large, round, flat, prostrate scales, with a conspicuous cluster of long, stout, erect, spatulate setae along basal half of inner margins of eyes. *Rostrum* at most finely carinate in male, with one median and two lateral carinae; punctate throughout in both sexes. *Antennae* with first funicular segment as long as 2, 2 as long as 3 plus more than half of 4, 3 hardly longer than 4, 5-7 moniliform and each successively broader; club ovate, as long as three preceding funicular segments. *Prothorax* one quarter broader than long, almost straightly, hardly expanded on sides from base almost to apical third, thence abruptly angulate, forming nearly a right angle, and deeply constricted, distance across constriction distinctly less than three fourths breadth across dorsum at angulations, apex almost hemispherical beyond lateral emarginations, median line even and hardly convex longitudinally in basal three fourths; scales large, rounded, flat; with a well-developed fascicle on either side of median line, bordering a line drawn between fore edges of lateral angulations, and a well-developed apical fascicle on either side of median line, the lateral angulations with a few stout setae but not fasciculate, with a few scattered, stout, erect setae behind median fascicles, two or three between them and lateral angulations, and scattered ones on apical fourth; lateral expansions flange-like and quite strongly overhanging sides. *Scutellum* quite strongly protuberant. *Elytra* five eighths as broad as long, two and two thirds as long as prothorax; intervals 1 and 2 each with a row of stout, erect setae arising from small pustules, 3 with a low basal fascicle that reaches its summit and extends to a distance from base equal to that between base of prothorax and fore margin of a median fascicle, and with two small fascicles between this and beginning of pale coloration at about or slightly behind middle, or with interval more or less continuously raised there, otherwise with a row of erect setae arising from pustules, 4 with pustules and setae only, 5 with a basal fasciculate callus similar to but shorter and smaller than that on 3, with a small callus on a line between first two calli on 3 and with two or three irregular or fragmented calli behind this, the last at apex of interval, first usually quite elongate, but variable, 6 with pustules and setae, 7 bearing conspicuous subrectangular humeral callus which is followed by stout setae bearing pustules, 8 rather strongly elevated above first two ventrites, 9 elevated above metasternum. *Legs* with femoral teeth strong and triangular. *Sternum* with metasternal receptacle not overhanging, very steep and terminating at about hind margin of mesocoxae in male, concave and terminating at about half way between mid and hind coxae in female. *Venter* with setae decumbent on first two ventrites, first ventrite hardly differing in sexes; fifth ventrite coarsely punctate, almost or quite bare at apex, broadly convex in male, roundly pointed in female. Length, 5-7 mm.; breadth, 2.5-3.5 mm.

Holotype male, reared by Swezey from a pupa found in the bark of dead "small leaf" *Ficus* at Yigo, Oct. 18, 1936; allotype female taken at Barrigada,

June 14, Usinger; and the following paratypes collected by Swezey: eight with identical data as the holotype, eight from *Ficus* at Machanao, June 30, and two from *Ficus* at Agat, Aug. 15.

This is quite a distinct species because of its color pattern and position and number of dorsal fascicles and calli. It does not closely resemble any of the other described species of the genus.

Genus **CAMPTORHINUS** Schoenherr, 1826

Camptorhinus Schoenherr, Curc. disp. method., 283, 1826.
Rhinodes Sturm, Cat. Ins. Samml., 190, 1826.

16. Camptorhinus dorsalis (Boisduval) (pl. 2, *B*).

Cryptorhynchus dorsalis Boisduval, Voy. Astrolabe 2:434, 1835.
Camptorhinus dorsalis (Boisduval) Boheman, in Schoenherr's Gen. Spec. Curc. 4(1): 177, 1837.
Camptorhinus artensis Montrouzier, Soc. Ent. France, Ann. III, 8:825, 1860.

This elongate, subparallel-sided, densely squamose species with its coarsely punctate elytral striae, its hind femora projecting beyond the apices of the elytra, and its prosternum developed into a strong receptacle behind the coxae is easily recognized. It varies greatly in size; the extremes in length in the specimens at hand are 3.5-8.0 mm.

The following specimens from Guam are before me: two, Agana, May 8, 1936, Bryan; 9 labeled "Island Guam", Fullaway; and six taken "in dead tree", July 14, 1937 (by Oakley ?), no. 37-24077. There are also five specimens among the National Museum material that were collected by C. Bignell in 1917 at Fulakora, Solomon Islands. In Bishop Museum there is a large series of specimens taken by J. A. Kusche at Guadalcanar, Solomon Islands, in January 1921.

This species has evidently not been listed from either Guam or the Solomons heretofore. It is widespread, however, and is a common insect along the east coast of Australia.

Genus **OREDA** White, 1846

The discovery of a new species of this genus on Guam is of considerable zoogeographic interest. The genotype and one other species have been recorded from New Zealand, one species, *O. dubia,* was described by Lea from New South Wales (although this species is listed in the index to Coleopterorum Catalogus part 151, the name was omitted from the list on page 58), and a fourth species was described by Heller from New Caledonia. There are now five known species of the genus. Further collecting, or the study of existing collections, from the intervening areas should reveal other species.

17. Oreda maculata, new species (pl. 2, *F*).

Derm black, quite shiny where exposed; densely squamose above and below, scaling colored as follows: head and rostrum with white or yellowish and black scales intermixed; prothorax black with a patch of yellowish or white scales on either side of apex, scales in discal fovea pale, with a pale patch on each side in line with discal foveae, a short pale prescutellar vitta and with pale scaling at base at least in front of elytral intervals 4 and 5; elytra mostly black but with a scattering of small patches or specks of white or yellowish and with a large, conspicuous, pale, irregular macula consisting of brownish yellow scales beginning at the base on the first two intervals and extending to near middle, but broadening out and extending laterally over intervals 3 to 5 behind their basal fascicles or calli and usually with a distinct pale patch at apex of interval 5; legs with femora with a pale band at base and usually a pale, dorsal, subapical patch and flecked with pale, but otherwise black, tibiae with apical half or third mostly pale, otherwise black; scaling below usually predominantly white, but with a variable amount of black scaling.

Head densely punctured, derm concealed by scaling; interocular area slightly expanded from top of eyes to base of rostrum, coarsely punctate, squamae erect or suberect; inner and dorsal margins of eyes making almost right angles (when viewed from front). *Rostrum* coarsely and densely sculptured and densely squamose almost to apex in male, only at base in female; not carinate. *Antennae* with scape about as long as first five funicular segments; funicle with segment 1 as long as 2 plus three fourths of 3, 2 as long as 3 plus half of 4, 3 slightly longer than 4, 4-7 moniliform and each successively broader, 7 transverse; club ovate, about twice as long as broad and not quite as long as preceding six funicular segments. *Prothorax* slightly broader than long (4.5:4), broadest at middle, strongly rounded on sides in basal two thirds but almost straightly expanded in basal half, thence quite strongly constricted, constriction continued broadly across dorsum, base concave on either side of middle, the postero-lateral angles projecting back against elytral interval 6; puncturation coarse, deep, very dense, subconfluent, the interstices densely clothed with erect or suberect squamae; dorsum irregular, gibbose at base, median line deeply impressed across gibbose part in basal fourth, disk with a rounded, shallow fovea on either side of median line at middle. *Elytra* two thirds as broad as long, twice as long as prothorax, almost parallel-sided from base to between middle and two thirds, thence roundly narrowed to above apex of fourth ventrite and there distinctly constricted; apex slightly but distinctly emarginate; base strongly convex from scutellar emargination to fifth interval and there deeply emarginate, margin bare and appearing flange-like to fourth interval, humeri rounded and prominent; dorsum depressed on area covered by the pale macula; intervals three or four times as broad as striae, except at base where striae are coarser, third, fourth, and fifth elevated at base before pale macula, third and fifth elevated beyond macula to about apex of fifth; derm almost everywhere concealed by dense scaling. *Legs* densely sculptured and squamose; femora with a small but distinct ventral tooth near outer edge at distal fourth; tibiae with uncus well developed, tooth at inner apical angle distinct but small; hind tarsus with first segment not quite as long as 2 plus 3, 2 slightly longer than broad, 3 transverse, lobes rounded, 4 longer than 2 plus 3. *Sternum* with pectoral canal densely set with lanceolate squamae in prosternum, side wall of prosternal part slightly sinuous near fore margin, but not deeply incised, cavity terminating at fore margin of mesocoxae in male, slightly behind fore margin in female, receptacle with a median costa, which is developed into a tooth on male, from termination of canal to mesosternum; mesocoxae separated by slightly less than breadth of a mesocoxa, densely punctate, coxae reaching elytra. *Venter* with first ventrite roundly emarginate in middle behind, deeply and broadly concave and coarsely punctured and with erect squamae in male, flat, less coarsely punctate and with flat, prostrate, broadly lanceolate scales in female; 2 as long as 2 plus 3 in male, longer in female; 2-5 all densely clothed with broad, appressed scales. Length, 5-7 mm.; breadth, 2-3 mm.

Holotype male, allotype female, and four paratypes found at Machanao under bark of *Elaeocarpus,* June 30, 1936, Swezey; and one paratype from the National Museum material labeled "Island Guam" collected by Fullaway.

This black, subparallel-sided species with the large irregular elytral macula is most distinct from any other Guam weevils and can be easily recognized.

This species differs in particular from the genotype, *Oreda notata* White, in that it does not have the side walls of the pectoral canal deeply notched at the subapical constriction of the prothorax so that there appears to be a tooth there. Lea (Linn. Soc. New South Wales, Proc., 24: 523, 1899) in a key, used this character in a generic sense, but I doubt that it is of generic value. The small femoral teeth are quite similar to those on *Oreda notata;* the other characters of generic rank are quite in keeping with those of the genotype.

Genus **MENECTETORUS** Faust, 1894

Menectetorus Faust, Mus. Civ. stor. nat. Genova, Ann. **34**: 284, 1894.
Pseudapries Lea, Soc. ent. Belg., Mem. **16**: 182, 1908. (New synonym.)

The genus *Menectetorus* was described for the reception of a single species from Burma, and until now has remained monotypic. A cotype of the genotype (*M. luctuosus*) was included in some material sent to me for study from the National Museum by Mr. Buchanan. It is distinctly congeneric with typical species of *Pseudapries,* and that genus must fall as a synonym. *Menectetorus luctuosus* closely resembles the genotype of *Pseudapries.*

In Coleopterorum Catalogus (part 151, Cryptorrhynchinae, p. 70), Hustache has placed *Pseudapries* among the Colobodina in the Ithyporinae. The genus has nothing in common with the Ithyporinae and should be placed next to *Chaetectetorus* in the Cryptorhynchina.

In 1909, Lea separated *Pseudapries* from *Chaetectetorus* on the comparative length of the metasternum and first abdominal segment, the metasternum being longer along the median line than the first ventrite in *Pseudapries,* shorter in *Chaetectetorus.* However, on the genotype of *Chaetectetorus* (*C. bifasciatus*) the metasternum is fully as long or slightly longer than the first ventrite; a better character is: second ventrite much longer than 3 plus 4, almost as long as 3 plus 4 plus 5 = *Chaetectetorus;* and, second ventrite shorter than 3 plus 4 = *Menectetorus.* Following the use of this character, it becomes necessary to transfer the Fijian and Samoan *Chaetectetorus* to *Menectetorus* as follows:

Menectetorus tutuilae (Marshall), new combination.
Chaetectetorus tutuilae Marshall, Insects of Samoa 4(5): 296, fig. 15, 1931. Samoa.

Menectetorus vitiensis (Zimmerman), new combination.
Chaetectetorus vitiensis Zimmerman, Haw. Ent. Soc., Proc. 9(3): 447, fig. 1, 1937. Fiji.

All the members of this genus have very dense, spongy scaling; the elytra are usually more or less fasciculate and the pronotum has a number of large, conspicuous discal foveae.

Most of the species thus far described have been recorded from Australia, but one has been described from New Guinea, one from Fiji, one from Samoa, and the genotype from Burma. I have seen other species, however, that show that the genus also inhabits the Philippines and is well represented on the mainland of New Guinea.

18. Menectetorus setulosus (Boheman), new combination (pl. 3, *B*).

Cryptorhynchus setulosus Boheman, Eugenies Resa, Coleopt., 140, 1859.

Head with brown to dark brown scales, with a row of erect spatulate setae along inner margins of eyes and scattered on crown. *Rostrum* not carinate. *Prothorax* as long as broad, emarginate at sides just behind middle and at subapical constriction; disk with five foveae, three across a line drawn between lateral emarginations of subapical constriction and one on either side of median line on a line drawn between submedian lateral marginations; variable in coloration, but with the sides almost or quite white, median line usually white, base of disk to and sometimes including foveae darker to black, the apical half darker to black. *Scutellum* pale. *Elytra* three fifths as broad as long, two and one half times as long as prothorax; all intervals with a row of conspicuous, erect spatulate setae, 1 and 2 flat, about as broad as striae which are not impressed between punctures, 3, 5, and 7 elevated, 3 and 5 more than 7, in some places the setae more condensed; scaling mostly dark brown to black with patches of white and fawn-colored scales, with the most conspicuous marks consisting of a conspicuous oblique white fascia on each elytron that begins on interval 7 at about breadth of first three intervas from base and extends over third interval to a point about as far from base as breadth of an elytron. *Legs* with all femora edentate. *Sternum* and venter with white scaling. Length, 3-4 mm.; breadth, 1.25-1.75 mm.

Holotype female labeled "Guam" and "Kinb." in the collection of the Naturhistoriska Riksmuseum at Stockholm.

In addition to the holotype, the following specimens are before me: one, Yona "on dead Areca palm leaf", April 29, 1936, Bryan; seven, Barrigada, from dead *pago* (*Hibiscus tiliaceus*), June 12, Swezey; one, Machanao, from under bark of *Elaeocarpus,* June 30, Swezey; three, Barrigada, from under bark of *Intsia,* July 6, Swezey; two, Barrigada, under bark of *Intsia bijuga,* July 22, Swezey; two, Dededo, from under bark of *Hibiscus tiliaceus,* Sept. 7, Swezey; and eight at Yigo, from dead bark of *Elaeocarpus,* Oct. 18, Swezey.

The following specimens are from the National Museum material: three labeled "Island Guam" taken by Fullaway, six "in dead tree", July 14, 1937, Oakley, no. 37-24077, and 17 taken "on drying tree bark" by Oakley, Sept. 15, 1937, no. 140, 37-26124.

The brief description of the salient characters should enable one to recognize this species without much difficulty. It is quite a normal species of the genus.

Genus **NEOAMPAGIA,** new genus

Body subrhomboidal in lateral outline, strongly convex dorsally, densely squamose. *Head* with crown exposed from above; interocular area expanding from top to apex, narrowest part distinctly narrower than breadth of base of rostrum; eyes large, coarsely faceted, subcontinuous in outline with head. *Rostrum* slightly shorter to slightly longer than pronotum, slightly arcuate, depressed dorso-ventrally. *Antennae* inserted at or slightly beyond middle of rostrum, with scape reaching eye, about as long as funicle excluding club; first and second funicular segments each at least twice as long as any two of the following segments, subequal or 1 slightly longer than 2, 3-7 subequal; club stout, ovate, shorter than funicle. *Prothorax* subconical, strongly transverse, base slightly bisinuate; ocular lobes obtuse. *Scutellum* distinctly visible, but small. *Elytra* subcontinuous in lateral outline with prothorax, base distinctly bisinuate, humeri not prominent, striae fine, intervals broad. *Wings* completely developed for flight. *Legs* with femora sublinear, not clavate, shallowly grooved below, not toothed; tibiae angulate at base, otherwise almost straight, carinate, terminal uncus strongly developed, without a tooth at inner apical angle; tarsi with segment 1 elongate, 2 longer than broad, 3 broadly bilobed, 4 slender and projecting well beyond the apex of 3, claws small. *Sternum* with pectoral canal deep, terminating between the mesocoxae; mesosternal receptacle cavernous, the walls comparatively stout but only slightly projecting below level of metasternum, ends of side walls touching fore coxae, mesocoxae narrowly separated from fore coxae; metasternum distinctly narrower between mid and hind coxae than breadth of a mesocoxa; metepisterna distinct throughout, separating metacoxae from elytra and reaching first ventrite behind and there about two thirds as broad as base of a hind femur, distinct in front and separating at least basal half of mesepimera from elytra. *Venter* with first two ventrites fused but suture between them fine and distinct, not obliterated; first ventrite longer than 2 plus 3 along median line, intercoxal process broadly A-shaped, broader than length of ventrite 2 or length of the metasternum along median line, continuous in contour with second ventrite, not carinate or sulcate, ventrite 2 slightly longer than 2 plus 3, 2 and 3 equal; 5 as long as 2.

Genotype: *Neoampagia imitator,* new species.

At first sight the genotype of this genus appears to be a normal *Ampagia* Pascoe (Ent. Soc. London, Trans., 208-209, 1870), but when the legs and venter are examined the species seem referable to *Ampagioides* Zimmerman (1936). However, the genotype cannot be assigned to either of those genera for the following reasons: the metepisterna are distinct and entire and conspicuously separate the hind coxae from the elytra and the mesosternal receptacle hardly projects below the level of the metasternum instead of being prominent with very high walls that project to a level near or below that of the apices of the mesocoxae. Moreover, this genus differs from *Ampagia* in not having the hind femora broadly expanded and angulate and in not having a median area on the first ventrite bounded by impressed lines from the coxae to the apex. The genus also seems to be somewhat allied to *Alatidotasia** Lea (Deutsche Ent. Zeitschrift, 523, 1910), insofar as I can tell from descriptions alone. However that genus has a different type of mesosternal receptacle, the metacoxae are closer together, the body is glabrous except for isolated patches of squamae, and it is more closely allied to *Trigonopterus* Fauvel (Soc. Linn. Norm. 8: 157, 1862).

* This genus has been omitted from Coleopterorum Catalogus (151), 1936.

19. Neoampagia imitator, new species (pl. 3, *G*).

Derm reddish brown to piceous; head with brown scales with an interocular pale patch, upper margins of eyes partially margined with pale scales and with a pale patch on either side of the median line on crown; pronotum with dark brown scales on disk but with a pale cross consisting of a pale median vitta and a transverse pale fascia at about middle, sides with whitish, yellowish and fawn-colored scales, darker scaling therefore appearing as four discal dark maculae; elytra predominantly with dark brown to black scales but with an ill-defined, irregular roughly V-shaped broad area of fawn-colored scales within basal half from near humeri on sides to suture, pale scaling continued down first two or three intervals to posterior calli, pale area there expanded to apex, pale areas tessellated with dark patches and probably subject to considerable variation; legs and lower surface clothed with yellowish white or grayish white scales.

Head densely punctate on crown, the derm concealed by the dense appressed scaling; interocular area one half as broad at top as base of rostrum, coarsely sculptured, scales directed dorsally and becoming narrower and setiform distad. *Rostrum* in male coarsely punctate-striate to antennae on either side of impunctate median line, with small dense punctures beyond antennae. *Antennae* inserted very slightly past middle in male; scape as long as funicle excluding club, gradually clavate; funicular segment 1 slightly longer and thicker than 2, 2 slightly longer than 3 plus 4, 3 to 7 each successively more transverse; club as long as preceding five funicular segments plus half of sixth, more than half as broad as long, obtusely rounded at apex, 4 segmented, but terminal segment not easily discernible, the two basal segments large and subequal in length. *Prothorax* one third broader than long, apex arcuate, only half as broad as base, arcuately narrowing from base to apical fourth and there rather broadly constricted, constriction broadly, shallowly and distinctly impressed across dorsum; densely punctate and very densely squamose throughout, scales ovate, punctures bearing decumbent, lanceolate, squamiform setae; subcarinate at sides at base in front of humeri. *Elytra* four fifths as broad as long, two and one half times as long as prothorax, almost continuous in outline with base of prothorax for a short distance behind humeri on sides, thence arcuately, triangularly narrowing to broadly rounded apex, strongly convex dorsally, longitudinally and laterally, reaching a summit slightly before middle and there higher than highest point on pronotum, longitudinal outline discontinuous with that of pronotum, scaling very dense, ovate scales imbricated; striae shallow and concealed by scaling on disk, but traceable because of their punctures bearing squamiform, spatulate setae that usually rise somewhat above scales and are white or usually paler than surrounding scales, stria 7 deeply impressed from humerus to basal third, edge of interval above it therefore forming a distinct carina, 9 similarly impressed and interval above it forming a similar carina, but these carinae variable in development, 10 deeply impressed at base, but fine behind metacoxa; intervals, except partially elevated ones mentioned, broad and flat. *Legs* coarsely punctate and squamose; hind femora reaching to slightly behind posterior margin of fourth ventrite; tibiae with three lateral carinae on either side and one dorsal carina. *Sternum* densely squamose; pectoral canal terminating at middle of mesocoxae; metasternum broadly concave, with a fovea on median line at base and apex. *Venter* with first ventrite broadly and deeply concave in male; ventrites 1 and 2 densely squamose, but scales not entirely concealing derm, minutely punctate except for some coarser punctures at base of first; 2 and 3 squamose at sides and along basal margin only; 5 densely and coarsely punctate, setose and squamose. Length, 3-3.5 mm.; breadth, 1.6-2.0 mm.

Holotype male, to be stored in the National Museum and one male paratype in Bishop Museum, taken by Fullaway and labeled "Island Guam."

This is a most distinct species which could not be confused with any of the other Guam weevils. Its densely squamose, subrhomboidal body will serve to distinguish it at a glance. I have called it *imitator* because of its resemblance to various species of *Ampagia* and *Ampagioides*.

Genus **ANABALLUS** Blanchard, 1851

20. Anaballus amplicollis (Fairmaire) (pl. 2, *A*).

Acalles amplicollis Fairmaire, Rev. Mag. Zool. II, **1**: 36, 514, 1849.

Imaliodes pusillus Karsh, Berl. Ent. Zeitschr. **25**: 10, pl. 1, fig. 15, 1881.

This is an easily recognized species because of its expanded prothorax, subquadrate elytra and brownish and orange scaling. For more detailed description and discussion see my "Cryptorrhynchinae of the Austral Islands" (B. P. Bishop Mus., Occ. Papers **12**(17): 4-5, fig. 1, *a*, 1936).

This species is widespread throughout the Pacific, at least from New Caledonia eastward. In southeastern Polynesia I found it most frequently associated with the fallen fruits of *Inocarpus edulis*.

In the collections before me there are the following specimens from Guam: three specimens, Upi Trail, reared from *Cycas* seed, May 5, 1936, Swezey; one, May 11, Usinger; eight, Piti, from fallen fruit of breadfruit, May 22, Swezey; nine specimens with the same data, May 23; three specimens, June 18, seven specimens, on plateau at Talofofo, June 17, reared by Swezey from *gulos* seed; and one, Barrigada, from *Intsia,* July 6, Swezey. The following specimens are from the National Museum material: 54 specimens taken by Oakley from *Ochrocarpus obovalis,* Jan. 14, 1938, no. 523, 38-9037, and one specimen taken in quarantine in San Francisco Aug. 1, 1922 from *Cycas circinalis* from Guam.

Genus **EUSCEPES** Schoenherr, 1844

21. Euscepes postfasciatus (Fairmaire) (pl. 2, *C*).

Cryptorhynchus postfasciatus Fairmaire, Rev. Mag. Zool., 513, 1849.

Cryptorhynchus batatae Waterhouse, Ent. Soc. London, Proc., lxix, 1849 (1850).

Hyperomorpha squamosa Blackburn, Roy. Soc. London, Trans., II, **3**: 182-183, 1885.

Euscepes batatae (Waterhouse) Champion, Biol. Centr. Am. Coleopt. **4**(4): 497, 1905.

Euscepes postfasciatus (Fairmaire) Zimmerman, B. P. Bishop Mus., Occ. Papers **12**(23): 14-16, 1936.

This almost cosmopolitan sweet-potato pest (commonly called the West Indian sweet-potato weevil) is easily recognized by its subparallel-sided, densely squamose elytra which have a common, transverse, pale fascia at the top of the declivity. The pronotum bristles with erect, spatulate setae, borne from rather large, close punctures; the interstices between the punctures are coarsely reticulate.

The following specimens from Guam are before me: three, Piti, from sweet-potato vine, Nov. 17, 1936, Swezey; two were taken by Fullaway but have no specific locality other than "Island Guam."

Genus **ACALLES** Schoenherr, 1826

This genus is almost cosmopolitan in distribution as it now stands, but it is composite and is greatly in need of revision. It has been a dumping ground for many species of dubious generic status.

22. **Acalles samoanus** Marshall, Insects of Samoa 4(5) : 280-281, 1931 (pl. 3, *C*).

This is a widespread species known from Fiji, Tonga, and Samoa and eastward through the Austral, Society, Mangareva, and Marquesas Islands.

As is usual for the species, it varies greatly in size, shape, sculpture and development of the dorsal tubercles in the series from Guam before me. However, there is more extreme variation in the Guam material than I have seen in specimens from other islands, and two extreme, isolated individuals might almost be taken for distinct species. Clean specimens can perhaps be most easily recognized by the conspicuous patch of white squamae at either side of the base of the pronotum in front of the fifth elytral intervals in combination with their tuberculate dorsum and other characters. For a complete description, discussion and illustration, see my "Cryptorrhynchinae of the Austral Islands" (B. P. Bishop Mus., Occ. Papers 12(17) : 5-7, fig. 2, *b*, 1936).

The following specimens from Guam are before me: two at Machanao, June 5, 1936, Usinger; one, Fadian, Sept. 18, Swezey; and two taken by Fullaway without specific locality.

Genus **DAEALUS,** new genus

Body densely squamose above and below; tuberculate or nodulate above. *Head* globular; immersed in prothorax but not entirely concealed from above; eyes large, coarsely faceted, lateral, almost as widely separated below as above. *Rostrum* arcuate, somewhat dorso-ventrally compressed, somewhat shorter than pronotum; antennae inserted beyond middle in both sexes. *Antennae* with scape as long as or longer than funicle excluding club, reaching to eye; funicle 7-segmented, first two funicular segments elongate, first not much longer than second, each about as long as segment 3 plus 4, the other segments successively slightly shorter, submoniliform; club ovate, shorter than the funicle, compact, 4-segmented, basal segment longer than second. *Prothorax* slightly transverse, convex dorsally, laterally and apically above, with a subapical constriction; ocular lobes small, obtuse. *Scutellum* absent. *Elytra* fused, elongate-subcordate, dorsally convex, nine-striate, the ninth stria complete. *Wings* absent. *Legs* rather long and slender; femora not distinctly clavate, not distinctly grooved below for reception of tibiae, not toothed, hind pair reaching past base of fifth ventrite, but not reaching past apex of elytra; tibiae for most part straight and subparallel-sided, carinate or not carinate, uncus well developed; tarsi with first segment much longer than second, second submoniliform and shorter than third, third transverse, lobes broad, fourth segment projecting well beyond apex of third, truncate distally, claws large and lateral. *Sternum* with pectoral canal deep and broad, terminating near middle of mesocoxae, not squamose; mesosternal receptacle open, or at most indistinctly cavernous in female, walls high and well developed, posterior part not thickened and not projecting much below level of metasternum, however; mesosternal side pieces fused, but episternal suture usually distinct; mesocoxae separated by about breadth of a coxa; metasternum at its narrowest point between mid and hind coxae only about one third

as long as breadth of a mesocoxa, only one third to one half as long along median line as first ventrite, metepisternum visible as a subtriangular sclerite at upper edge of junction of metasternum and mesepimeron, metacoxae not quite touching elytra, about twice as widely separated as mesocoxae. *Venter* with first two segments evidently at least partially fused and rigid but with suture between them deep and distinct, 1 about as long as following three together along median line, 2 shorter than 3 plus 4 at sides, 5 longer than 3 plus 4 which are subequal in length.

Genotype: *Daealus tuberosus,* new species.

This genus is erected for the reception of two new Guam weevils with some diffidence, because it belongs to that poorly characterized, inadequately known, difficult assemblage of genera allied to *Acalles.* I have been unable to place the genus in any of the synoptic tables including Pacific or Oriental genera that are known to me. It will fit in none of Lea's extensive keys to the Australian Cryptorhynchinae. In Heller's key to the genera of the Cryptorhynchinae of New Caledonia (in Sarasin and Roux, Nova Caledonia 2(3): 322, 1916), it runs immediately to *Lasiotylodes* Heller, but that genus has no relationship to this one. It will not run to *Acalles* because of its shorter second abdominal segment. It can, perhaps, be said at this time only that the genus is allied to *Acalles.* It is distinct from *Acalles* principally because of the structure of the mesosternal receptacle—the termination of the pectoral canal being near the middle of the mesocoxae—and because the second ventrite is shorter than the two following ventrites at the sides. Among the weevils known to me, the genotype of this genus most closely resembles an undetermined species, from Amboina, which may also represent a new genus and which is distinct from *Daealus* because it possesses a scutellum and has other structural differences; it is also evidently allied to *Tragopus. Daealus* is also unknown to Sir Guy Marshall, who has studied the genotype.

Key to the Species of Daealus

Tibiae not carinate; third elytral interval without distinct, isolated, prominent fasciculate calli ..... 23. **D. tuberosus** Zimmerman.

Tibiae conspicuously carinate; third elytral interval with two distinct, usually prominent fasciculate calli in the basal half, the posterior one larger and at about the middle..... 24. **D. tibialis** Zimmerman.

23. **Daealus tuberosus,** new species (pl. 2, *D*).

Derm reddish brown to black, usually quite shiny where exposed, densely squamose above and below, scaling entirely or almost white or grayish white in old faded specimens but well colored in fresh examples as follows: head pale brown, prothorax basically yellowish white with a brownish-yellow cloud at basal half at sides of disk and one on either side of median line; elytra with a broad sub-V-shaped fascia of yellowish white scales from sides near or distant from base to suture at about middle, pale scaling continued as a vitta down first two intervals to apex, otherwise mostly with brownish yellow scales but with a dark brown or black elongate patch on third interval in front of and behind sub-V-shaped macula, but these dark patches subject to much variation, sometimes front ones wanting and occasionally with more dark scaling toward apex of third interval; scaling on legs and underside rather uniformly yellowish white or brownish yellow.

Head with crown densely squamose, derm mostly concealed by scaling, scales erect or suberect, with numerous, spatulate, erect setae scattered throughout that project slightly above scales; front with similar vestiture to crown, with a distinct elongate interocular fovea that usually begins above a line drawn between tops of eyes and terminates near middle of eyes where distinct median carina of rostrum begins, interocular area fully as broad as base of rostrum. *Rostrum* with ventral edge three fourths as long as pronotum in male, more than three fourths as long in female, antennae inserted slightly beyond apical third in male, at or slightly behind apical third in female, coarsely and deeply sculptured from base almost to antennae, with three coarse, somewhat irregular dorsal carinae, striae between them densely set with erect setae, coarsely sculptured and carinate only within basal half in female. *Antennae* with scape somewhat longer than funicular segments 1-7 plus basal segment of club; funicle with two basal segments equal in length or first slightly longer, 2 slightly shorter than 3 plus 4, 3 almost as long as 4 plus half of 5; 4 slightly longer than 5, 5 to 7 each successively slightly broader; club as long as segments 4 to 7 plus part of three. *Prothorax* more than three fourths as long as broad, broadest somewhat beyond middle, base subtruncate, strongly convex on sides from base to apical third or beyond and there with a distinct, not very deep, but variable, subapical constriction, the constriction continued broadly across dorsum which is strongly convex; disk with median line rather deeply and conspicuously impressed and without tubercles, with numerous, scattered, rounded, prominent, polished tubercles extending through scaling; scales similar to those on elytra, very dense, concealing derm, with numerous erect, spatulate setae scattered throughout. *Elytra* four fifths or five sixths as broad as long, base subtruncate, broadly arcuate on sides from base to about middle and thence rather rapidly narrowed to the apex, longitudinal dorsal contour convex, reaching a summit at about middle and there hardly higher than highest part of pronotum; striae mostly concealed by scaling, much narrower than intervals, their punctures well separated, very small behind basal third and each bearing a decumbent squamiform seta; intervals prominently convex, some of them A-shaped in cross section, especially 3, 5, and 7, interval 1 with a single row of stout, erect, spatulate setae, sometimes setae beginning at a distance from base, without tubercles, 2 with a complete row of prominent tubercles usually interspersed with spatulate setae, 3 usually distinctly more elevated than 2 from base to behind middle, sometimes more strongly elevated at base and just in front of middle, more elevated areas with denser, erect, spatulate setae giving a fasciculate appearance, either entirely without tubercles or with few to many at base, 4 tuberculate, 5 setose, either not tuberculate or with a variable number of tubercles at base, 6-10 tuberculate, tubercles becoming smaller on outer intervals. *Legs* with femora and tibiae densely squamose and setose; tibiae not carinate. *Sternum* densely squamose throughout; mesosternal receptacle obviously open in male, its margins fringed with long hair, hind wall slightly more protuberant in female, narrowly and just perceptibly cavernous and without hair; metasternum only one fourth or less as long between mid and hind coxae as breadth of a mesocoxa, squamose only in female, but squamose and with dense long hair in male. *Venter* with first ventrite tumid and squamose in female, depressed and with disk free from scales and there with long, dense, simple or compound erect hair in male; ventrites 2 to 5 squamose in female, 2 with some long hair and 5 with depressed disk free from scales and hirsute in male. Length, 4-8.0 mm.; breadth, 2-4.0 mm.

Holotype male, Agat, May 31, 1936, Usinger; allotype female, Machanao, June 5, Usinger; and the following paratypes: one, same data as holotype; one same place and date, from *Hernandia,* Swezey; one, Taragüe, May 17, Swezey; one, Agana, May 25, Usinger; two, Machanao, from *Piper,* June 4, Swezey; one, Machanao, June 5, Usinger; one, Sinajana, June 15, Swezey; one, Atao Beach, June 25, Usinger; two, Machanao, June 30, Swezey; three, Orote Peninsula, from *Pipturus,* Sept. 27, Swezey; and one taken by Fullaway. The following paratypes are in the National Museum material: six specimens

taken by Fullaway and labeled only "Island Guam", one of them taken from *Hernandia.*

This species varies greatly in size, color, color pattern, and arrangement and number of the tubercles. Old specimens with their bleached scaling appear at first sight to belong to different species than fresh examples. In spite of this variability, specimens of this species have a distinctive facies that is not likely to be confused.

24. Daealus tibialis, new species (pl. 2, *E*).

Derm reddish brown to black, densely squamose above and below; scaling colored as follows: head brown, usually with a white patch at inner upper corner of eye and a dark area on either side of middle of crown; prothorax basically with brownish yellow and yellowish white scales, with an outstanding black vitta behind middle in front of elytral interval 5; elytra with basic coloration similar to that of prothorax, with discal area between fasciculate calli on interval 3, laterally to fifth intervals usually quite conspicuously paler than surrounding areas, yellowish white, usually with black scales on posterior part of hind callus on interval 3 and a rather large area before and beyond apices of intervals 4 and 7; legs with femora banded with pale and dark scales; underside yellowish white.

Head with derm almost entirely concealed by scaling which is prostrate or slanting, setae erect and very similar in size and shape to squamae; interocular fovea not strongly developed, interocular area coarsely sculptured, with median carina of rostrum continued to level of tops of eyes. *Rostrum* about four fifths as long as pronotum; coarsely, confluently punctate to antennae in male, lateral carinae irregular or indistinct, median carina well developed, less coarsely sculptured in female, but closely punctured. *Antennae* with scape about as long as funicle plus basal segment of club; funicle with segment 1 about as long as 2 plus one fourth of 3, 2 about as long as 3 plus 4, 3 slightly longer than 4, 4 to 7 successively slightly broader; club about as long as five preceding funicular segments. *Prothorax* one fifth to one sixth broader than long, rather evenly expanded on sides to near middle, then strongly rounded to subapical constriction at apical fourth, constriction strongly continued across dorsum and making longitudinal dorsal outline conspicuously sinuous; disk with variable, small to large punctures, median line broadly and conspicuously impressed, with numerous small, low, round, polished tubercles, most numerous on either side of median line, and absent from median canal; scaling similar to that on elytra; setae scattered, but condensed on either side of middle of apex, erect or suberect, spatulate. *Elytra* fully three fourths as broad as long, twice as long as prothorax; base subtruncate, sides arcuate to middle, thence subtriangularly narrowing to the rounded apex; striae with coarse foveiform punctures about as broad as intervals in basal third or half, but small and inconspicuous behind; intervals, excepting 1 and lateral one or two, strongly convex at least in basal half, but not so behind, 1 not tuberculate, usually with a nearly complete row of suberect, spatulate setae, 2 with a complete row of tubercles from base to apex, 3 with a callus at about basal fourth and another more prominent and higher one at about middle, the calli usually distinctly fasciculate, with tubercles from first callus to base, otherwise without tubercles, 4 tuberculate, 5 partially tuberculate, at least near base, 6 to 10 tuberculate, tubercles smaller toward sides and apex of elytra. *Legs* with femora and tibiae densely squamose; femora with numerous, scattered tubercles; tibiae with two strongly developed carinae on either side. *Sternum* densely squamose throughout, mesosternal receptacle hardly cavernous in either sex; metasternum between mid and hind coxae one fourth as broad as a mesocoxa. *Venter* densely squamose, with first ventrite flattened in middle in male, hardly different in female; ventrite 5 with scales mostly replaced by hairs at apex in male. Length, 3-4.0 mm.; breadth, 1.5-2.0 mm.

Holotype male, allotype female, collected at Dededo, May 11, 1936, Usinger; and the following paratypes: one with data identical with that of the

holotype; one, Orote Peninsula, from *Premna gaudichaudii* (*integrifolia*) on label, May 8, Bryan; three, Agana, May 25, Usinger. The following paratypes are from the National Museum material: eight, from *Morinda citrifolia* (*Morinda indica* according to Merrill), Oakley, no. 748; and three taken by Fullaway.

In addition to being smaller than the genotype, the carinate tibiae, form and position of the fasciculate elytral calli, coarser strial punctures, and lack of such distinct sexual characters in the male will readily distinguish this species.

Genus **MICROCRYPTORHYNCHUS** Lea

For a description of this genus, together with discussion and a chart of the distribution of the species, see my "Cryptorhynchinae of Rapa" (B. P. Bishop Mus., Bull. **151**: 1938).

From a zoogeographical viewpoint, the discovery of four new species of *Microcryptorhynchus* on Guam is particularly significant. Heretofore, the most westerly known extension of the genus was along the east coast of Australia and King Island in Bass Straits off the south coast of Victoria and an isolated species collected by Lea on Mount Barker, north of Albany near the southwest tip of western Australia. It seems to me unusual that an isolated species should live in the Mount Barker vicinity, and I should like to have the locality data verified. Although Guam is not nearly so far west as the Mount Barker locality, it marks the most northwesterly extension of the genus thus far recorded. Only four species have been described from the vast area and numerous islands between New Caledonia and Guam, but many species will probably be found there. The description of the four Guam species brings the total number of species to 107 which show an almost continuous distribution from eastern Australia through New Caledonia, Fiji, Samoa and the Austral, Society, Marquesas and Mangareva Islands.

In my other studies of the genus I have called attention to the fact that each island or group of islands usually has its own complex or complexes of species displaying characters peculiar to that island or group. This phenomenon apparently holds true for the Guaman species, because, insofar as I now know, only in Guam are found species that have a sclerotized, conical, spinelike process at the base of the elytra on either side of the scutellum.

Key to the Species of Microcryptorhynchus Found in Guam

1. All the elytral intervals distinctly setose; base of elytra without a sclerotized spine on either side of the scutellum 2
   Only the alternate elytral intervals setose, base of elytra with a conical, sclerotized spine on either side of the scutellum (sometimes partially obscured by incrustation) 3

2(1). Pronotum with no trace of a median carina; elytra conspicuously globose .....25. **M. guamae** Zimmerman.
Pronotum with a partial or almost complete, distinct median carina; elytra more ovate than globose.....26. **M. premnae** Zimmerman.

3(1). Basal spine of elytra situated at the base of the setose third interval.....27. **M. spinifer** Zimmerman.
Basal spine of the elytra situated at the base of the non setose second interval and so small as to be often almost concealed by the incrustation.....28. **M. basipennis** Zimmerman.

25. **Microcryptorhynchus guamae,** new species (pl. 3, *E*).

Derm shiny black when exposed, with antennae and tarsi reddish, covered with a comparatively thin incrustation that gives the derm a dull appearance before abrasion; setae mostly conspicuously white, but usually with some dusky setae.

Head narrowly exposed from above, densely punctate, surface appearing asperate when denuded, with numerous broad, squamiform setae on crown and one or two rows of larger, erect, squamiform setae along either side of front extending from rostrum, inner rows usually incomplete or absent, but row adjacent to inner margins of eyes always well developed. *Rostrum* with four rows of broad squamiform setae and encrusted from base to insertion of antennae, distinctly punctate beyond antennae, three dorsal carinae, except part of median one, usually obscured or concealed in male, female with setae and incrustation at base only, otherwise bare and with broad median carina, which becomes evenly broader from base to antennae, and narrower lateral carina well defined and conspicuous, sulci between them distinct. *Prothorax* almost one third broader than long (3:2.25), strongly rounded on sides from base to subapical constriction at apical fourth, constriction continued distinctly across dorsum; base subtruncate, basal squamose, declivitous area quite simple, very coarsely, densely reticulately punctate, rather closely set with large, erect, usually broad spatulate setae throughout. *Elytra* quite strongly inflated and subglobose, but slightly longer than broad (2.5:2.25), two and one half times longer than prothorax, evenly and strongly rounded on sides, without a subapical constriction, longitudinal dorsal contour strongly convex and rising far above summit of pronotum, and strongly discontinuous with dorsal contour of prothorax; striae coarse, as broad or broader than intervals, punctures very large, coarse and quadrate; intervals convex, each bearing a row of very conspicuous, long, erect, heavy, spatulate or clavate setae. *Legs* with femora and tibiae with rows of long, erect or slanting, spatulate setae and at least tibiae with more or less matted, dense hair; tibial uncus arising from outer apical angle and strongly developed throughout. *Sternum* with mesosternal receptacle deep and cavernous, pectoral canal terminating at or in front of middle of mesocoxae in male, but only slightly before metasternum in female, hind wall of receptacle about twice as broad in male as female, usually only slightly protuberant; metasternum very coarsely and closely punctate, setose, one half to three fourths as long between mid and hind coxae as breadth of a mesocoxa, metacoxae separated by a distance twice that of length of metasternum along median line. *Venter* with first two ventrites coarsely, densely, reticulately punctured, setose, strongly tumid and quite similar in both sexes, intercoxal process arcuate; ventrite 5 coarsely reticulate, indistinctly punctate, bearing scattered setae. Length, 1.5-1.8 mm.; breadth, 0.8-1.25 mm.

Holotype male, allotype female and 16 paratypes collected at Ritidian Point, June 2, 1936, Usinger; one from same place, April 15, Bryan; one, Piti, from *Cestrum diurnum* (*pallidum* on label), May 2, Usinger; four taken by Usinger and one by Bryan, Upi Trail, May 5; one, Piti (in house), May 13, Swezey; two, Machanao (on unknown tree), June 4, Swezey; one, Machanao, June 30; one at Atantano (from rice seedling plot), Sept. 3, one at Merizo, Oct. 2,

Swezey; one without specific locality and among the National Museum material, three from the same lot, Fullaway; four, from *Premna gaudichaudii,* July 23, 1937, Oakley, no. 37-24080.

This species is closely allied to *M. premnae* but it lacks the median pronotal carina found on *M. premnae.* This and *M. premnae* belong to that group of rotund species exemplified by *M. glomus* Marshall from Samoa and *M. vagus* Zimmerman from the Society Islands, but they have setae on all of the elytral intervals instead of on the alternate intervals only.

26. Microcryptorhynchus premnae, new species (pl. 3 *H*).

Derm shiny black when exposed, with antennae and tarsi reddish, covered with a thin to moderately dense gray incrustation; setae mostly white, but with some dark ones on dorsum.

Head narrowly exposed from above, coarsely reticulate, indistinctly punctate, with small round, rather obscure squamae, with one or two rows of broad, erect spatulate setae extending from rostrum along inner margins of eyes and scattered on front above level of eyes. *Rostrum* setose and encrusted only at base in female, the three dorsal carinae well defined to antennae, median one becoming evenly broader distad, minutely punctate and minutely setose beyond antennae, with two rows, sometimes three near the base, of broad, spatulate, erect setae and encrusted from base to antennae in male, carinae obscured except near antennae. *Prothorax* one fifth broader than long, strongly rounded on sides from base to subapical constriction at about apical third, constriction continued shallowly and broadly across dorsum, basal squamose area unmodified; dorsal puncturation very dense, punctures not large, but coarse, surface having an asperate appearance when abraded; with an irregular, variable, complete or vestigial, narrow, bare median carina; closely set with conspicuous, erect, clavate, and spatulate setae. *Elytra* stoutly ovate, over three fifths as broad as long (3.5: 5), almost to distinctly two and one half times as long as prothorax, broadly arcuate on sides from base to apex, without a subapical constriction, longitudinal dorsal outline arcuate before steep declivity, reaching its summit at middle and there not greatly elevated above level of pronotum; strial punctures quadrate, large and coarse, as broad or broader than intervals, their interstices narrower than their lengths; intervals slightly convex, each bearing a row of conspicuous, erect, broad, spatulate setae. *Legs* with femora with scattered, erect, spatulate setae; tibiae with prostrate matted hair and rows of erect spatulate setae, uncus arising from outer apical angle and well developed throughout. *Sternum* with mesosternal receptacle deep and cavernous, terminating at about middle of mesocoxae in male and almost at their apices in female, hind wall twice as thick in male as in female, but slightly protuberant; metasternum coarsely punctate, about half as long between mid and hind coxae as breadth of a mesocoxa; metacoxae separated by a distance slightly more than twice that of length of metasternum along median line. *Venter* with scattered setae, the first two ventrites coarsely and densely punctured, the first flattened and similar in both sexes, intercoxal process subtruncate in middle but rounded at corners; ventrite 5 coarsely reticulate, not distinctly punctured. Length, 1.3-1.75 mm.; breadth, 0.75-0.9 mm.

Holotype male, to be deposited in National Museum, allotype female, in Bishop Museum, 28 paratypes, one broken specimen and one dissected specimen collected from *Premna gaudichaudii,* July 23, 1937, Oakley, no. 37-24080.

This species is very closely allied to *M. guamae* but is narrower and not so strongly inflated, the prothorax is not so transverse, has the subapical constriction less deep and a distinct, although very variable, median carina; the incrustation is grayer; the elytra are not so globose and not so strongly convex dor-

sally; the male genitalia are quite distinct from *M. guamae*. The variable median carina of the prothorax is perhaps the best external character to use in separating this species from *M. guamae*. This species has a distinct facies because of its different proportions of the body that should enable one to segregate specimens of it from a series of the two species without great difficulty, in spite of the great similarity of this and *M. guamae*.

The outstanding differences exhibited in the structure of the male genitalia of these two closely allied species is particularly noteworthy. The external characters of the two species are, for the most part, quite similar, but the male aedeagus is most distinct on each.

27. Microcryptorhynchus spinifer, new species (pl. 3, *F*).

Derm dull to moderately shiny black, with antennae, tarsi and distal ventrite reddish, densely clothed with a thin or thick, hard, amorphous, mudlike incrustation which will soften in water; setae white or grayish white.

Head completely concealed from above by pronotum; finely and densely punctate; with a single row of erect spatulate setae continued from rostrum along inner margins of eyes and converging on crown. *Rostrum* encrusted and with lateral rows of erect spatulate setae continued to, but becoming finer near antennae, with an additional, short incomplete row of finer setae on either side of median line near end of encrusted and setose area in both sexes, incrustation and setae not extending quite so far from base in female. *Prothorax* slightly longer than broad (2.3:2), rounded on sides from base to slightly beyond middle thence conspicuously constricted, constriction continued prominently and deeply across dorsum but true depth usually concealed by incrustation, longitudinal dorsal contour conspicuously sinuate; puncturation coarse, dense, and rough, but individual punctures not large, basal squamose area modified into a sub-hemispherical, almost perpendicular face between basal spines of elytra; disk with long, erect, almost straight, but slightly clavate, spikelike scattered setae and with two rows of similar setae at dorsal apical margin, setae similar to those on elytra and about as long or longer than greatest breadth of a fore tibia. *Elytra* more than half as broad as long (2.5:4.0), twice as long as prothorax, true outlines sometimes obscured by incrustation, ovate, arcuate from base to apex, without a subapical constriction; base with a very conspicuous, conical, sharply pointed, sclerotized spine about as long as setae and inclined at about 45 degrees toward the side and centered at third interval, but base extending to or near second and fourth intervals; striae coarse, broader than intervals, their punctures coarse, deep, subquadrate, close, their interstices narrower than their lengths; intervals convex, only alternate ones bearing rows of very long, conspicuous setae similar to those on pronotum. *Legs* with femora and tibiae bristling with long erect setae, some of those on outer edges of tibiae about as long as breadth of a tibia; tibial uncus well developed throughout. *Sternum* with mesosternal receptacle deep and cavernous, terminating at about middle of mesocoxae in male, and very near hind margins of mesocoxae in female, walls complete but not or but slightly elevated; metasternum between mid and hind coxae slightly shorter than breadth of a mesocoxa, finely punctate, metacoxae separated by about twice median length of metasternum. *Venter* with first two ventrites flattened in both sexes, densely punctate, but punctures not large, intercoxal process slightly arcuate; fifth ventrite coarsely reticulately minutely punctate or evidently impunctate. Length, 1.5 mm.; breadth, 0.7 mm.

Holotype male, allotype female, and two paratypes from Barrigada, June 12, 1936 and two paratypes from Machanao, one June 12, 1936 and two paratypes from Machanao, one June 4, and June 5 (all collected by Usinger).

This species is most closely allied to *M. basipennis*. But it is distinguished from that species by having the basal elytral spines much larger and on the third intervals instead of the second, and by having the dorsal setae longer and more conspicuous. The two species can usually be separated with the unaided eyes because of the dark muddy incrustation on *M. spinifer* and the yellowish or whitish incrustation of *M. basipennis*.

28. **Microcryptorhynchus basipennis,** new species (pl. 3, *D*).

Derm mostly reddish brown, covered with a very thick, dense yellowish or whitish incrustation that usually greatly distorts true outlines of body and sometimes enlarges lateral outline of body to about a fourth broader than actual breadth; setae white or yellowish.

Head completely concealed from above by the pronotum, finely, indistinctly punctate, with a single row of stout, spatulate, erect setae along inner margins of eyes that extends on crown above eyes. *Rostrum* with at most lines of fine punctures; but not distinctly carinate or sulcate, median line, however, sometimes appearing more polished near antennae; with a single row of setae, similar to those along eyes, on either side and occasionally one to a few similar setae on either side of median line just behind antennae, but without a distinct additional row of spatulate setae. *Prothorax,* when denuded of incrustation, distinctly longer than broad (2.5:2), rounded on sides in basal three fifths, thence distinctly constricted, constriction continued deeply and prominently across dorsum at distal two fifths; basal squamose area modified into an almost perpendicular, sub-hemispherical area; with a few erect sharp or narrowly spatulate setae scattered across disk and two or three rows across apex, apical setae usually broader; punctures not large, but coarse, deep and dense, their interstices very narrow, the disk roughened by their density. *Elytra,* when abraded, elongate ovate, with a slight subapical constriction, three fifths as broad as long, twice as long as prothorax, rather evenly convex in longitudinal dorsal outline and not rising far above level of pronotum; striae very coarse, about twice as broad as intervals, their punctures large, subquadrate, their interstices about as broad as intervals; intervals convex, only alternate ones bearing setae, setae erect and distinct, variable, usually slender and sharp, but sometimes narrowly spatulate, rows sometimes more or less incomplete, second interval with a small, conical, sharply pointed, sclerotized spine at base that is shorter than setae and may become obscured by incrustation. *Legs* with femora and tibiae with scattered erect setae; tibial unci well developed. *Sternum* with mesosternal receptacle deep and cavernous, walls but slightly elevated, terminating close to hind margins of mesocoxae in female and but slightly more anteriorly in male; metasternum moderately coarsely punctate, slightly shorter between mid and hind coxae than breadth of a mesocoxa; metacoxa separated by twice median length of metasternum. *Venter* with first two ventrites densely and coarsely punctured, but punctures not very large, intercoxal process but slightly arcuate; ventrite 5 rather indistinctly punctate; setose. Length, 1.6-1.8 mm.; breadth, 0.6-0.8 mm.

Holotype male, allotype female, and five paratypes collected at Agana, from *Pipturus,* May 25, 1936; five paratypes from Ritidian Point, June 2; and two paratypes from Machanao, June 30. All of the specimens were taken by Usinger.

The incrustation on this species is usually very thick and greatly distorts the outlines of the body. Some specimens appear to be quite broad because of the piling up of the incrustation at the sides of the body. The setae are much less regular and less conspicuous than on *M. spinifer*.

Subfamily COSSONINAE

Tribe TRYPETINI

Genus **CYLINDROTRYPETES,** new genus

Body slender, elongate, subcylindrical, finely setose. *Head* subconical, not laterally constricted behind eyes; eyes coarsely faceted, protuberant, as widely separated below as above, separated from prothorax by at least length of an eye, interocular area fully as broad as base of rostrum. *Rostrum* slender, elongate and subcylindrical, three fourths as long as prothorax and about twice as long as head in genotype; antennae inserted just behind middle in both sexes; scrobes distinct, slanting posteriorly, terminating hardly behind fore edges of eyes, upper margin touching anterior edge of eyes, well separated below. *Antennae* very slender; scape clavate, reaching far behind posterior margin of eye but not reaching prothorax, as long as funicle excluding club; funicle 5-segmented, first two segments elongate, second longer than first; club about half as long as funicle. *Prothorax* longer than broad, subcylindrical, with a distinct subapical constriction; base subtruncate. *Scutellum* minute. *Elytra* no wider than prothorax, more than twice as long as broad, subcylindrical, with only eight striae in basal half, outer stria complete. *Wings* atrophied. *Legs* with femora clavate, not toothed; tibiae short, only about half as long as femora and not longer than tarsi, not carinate, without a terminal uncus or tooth; tarsi with the first segment much smaller than 2, 2 and 3 strongly transverse, about one third as long as broad, 3 bilobed, 4 about as long as 2 plus 3 and projecting well beyond apex of 3. *Sternum* with fore coxae inserted at or but slightly in front of middle, intercoxal process narrower than breadth of a coxa; side pieces of mesothorax fused, intercoxal process narrower than a coxa, mesocoxae separated about as far as fore pair; metasternum between mid and hind coxae only slightly shorter than length of first two ventrites behind a coxa, metepisterna concealed, but suture distinct, metacoxae separated by less than breadth of a coxa and hardly more widely separated than mesocoxae. *Venter* with first two ventrites fused, 1 about as long as 2 behind coxae; 2 longer than 3 plus 4, which are subequal and have deeply impressed sutures; 5 as long as 3 plus 4.

Genotype: *Cylindrotrypetes suffusus,* new species.

This is an isolated, aberrant genus evidently not closely allied to any other described genus of the tribe. In addition to the New Zealand genera, whose species show no resemblance to the genotype of this genus, there is but one other Pacific genus in the tribe, *Tyrpetes* Heller 1908 from the Solomons (the Australian *Nyella* Oke, 1931 does not belong to the subfamily). This genus, however, cannot be associated with *Tyrpetes* because of many morphological differences including the absence of the terminal unci of the tibiae and the postmedian insertion of the antennae. The absence of the tibial unci is a peculiar and infrequently found character among the Curculionidae.

29. **Cylindrotrypetes suffusus,** new species (pl. 4, *H*).

Derm usually basically piceous black, coxae, trochanters, three apical ventrites, at least part of rostrum, scape and funicle of antennae, and often base of head yellowish brown; prothorax either almost entirely black or, more usually, with disk yellowish brown either at apex, apical half, apical two thirds or entirely from base to apex; elytra yellowish brown on disk from base to declivity, black along sides and apex; body with only minute setae.

Head with an asperate callus extending upon crown from along inner margin of each eye that gives head appearance of having a transverse, dorsal impression across crown when viewed from side; greatest interocular breadth almost twice as broad as an eye in

dorsal view. *Rostrum* three fourths as long as prothorax in both sexes, gently arcuate longitudinally, distinctly bent to left near apex in both sexes, coarsely reticulate almost to apex and with a fine median carina in male, coarsely reticulate only near base in female, and not or but very feebly, carinate, antennae inserted at slightly beyond basal third in male, slightly in back of basal third in female. *Antennae* with scape sinuous, slightly longer than the five funicular segments, filiform in basal two thirds, thence clavate; first funicular segment somewhat more than two thirds as long as second and about twice as thick at apex, 2 as long as 3 plus 4, which are subequal, 5 slightly shorter than 4, club elongate oval, slightly longer than funicular segments 3-5 inclusive. *Prothorax* one fourth longer than broad, base subtruncate, arcuate on sides from base to near apex and there sharply and narrowly constricted, apical margin somewhat raised and collar-like; coarsely, densely, asperately punctate throughout, the punctures individually rather indistinct because of their density and narrow interstices. *Elytra* fused, two and two thirds times longer than broad, two and one fourth times longer than prothorax, narrower at base than greatest breadth of prothorax and usually at no place broader than prothorax, base subtruncate, humeri obsolete, subparallel-sided and subtubular in about basal three fourths, thence roundly narrowed at apex which is usually slightly produced; striae well developed, closely and coarsely punctate, broader than intervals, with eight striae in basal half and nine in caudal half; intervals very narrow, each bearing a row of microscopical flecklike setae. *Legs* with femora and tibiae coarsely reticulate, minutely setose, femoral clava at least three fourths as long as femora; tibiae with terminal setae but without a trace of teeth or unci; tarsi densely setose, third segment of fore pair two thirds as broad as length of a tibia. *Sternum* with prosternum densely and rather coarsely punctured, concave behind each coxa; mesosternum on same plane as metasternum; metasternum densely punctate as prosternum, metepisternal suture appearing as a narrow band of closely placed transverse lines. *Venter* with first two ventrites densely, but not so coarsely punctate as metasternum; ventrites 2 and 3 minutely and indistinctly punctate, or impunctate; ventrite 5 pilose. Length, 1.25-1.6 mm.; breadth, 0.3-0.4 mm.

Holotype male, Passan, from *Pandanus,* June 15, 1936, Swezey; allotype female, Machanao, June 4, Usinger; 12 paratypes taken on Mt. Alifan from *Asplenium nidus,* May 26, Swezey; two paratypes, Machanao, taken from *Pandanus,* June 4, Swezey; and one taken from *Pandanus* fruit, June 8, 1939, Oakley, no. 2269.

This tiny, subcylindrical species has so many peculiar characters and such a distinctive facies that it cannot be confused with any other Guam weevil. The peculiar, laterally bent rostrum seems almost to be an abnormality, but all of the 17 specimens at hand have it distinctly bent to the left.

Mr. Swezey says that he recalls that individuals of this species ran about rapidly on foliage.

Tribe COSSONINI

Key to the Genera Found in Guam

1. Antennal funicle 5-segmented 2
   Antennal funicle 7-segmented 5
2(1). Third tarsal segment deeply bilobed ..... **Choerorrhinodes.**
   Third tarsal segment not at all bilobed, entire and subtruncate distally 3
3(2). Rostrum long and slender, one and one half to two times as long as the head (in the Guam species); eyes separated from the prothorax by two or three times the length of an eye ..... **Stenotrupis.**
   Rostrum shorter and stouter, shorter or as long as the head but never distinctly longer; eyes separated by less than twice their lengths from the prothorax 4

4(3). Intercoxal process of the prosternum not broader than the breadth of a coxa ..... **Tytthoxydema.**
Intercoxal process of the prosternum about twice as broad as a fore coxa ..... **Rhinanisodes.**
5(1). Eyes ventro-lateral, contiguous with the anterior margin of the prothorax at their lower hind corners ..... **Himatinum.**
Eyes lateral, distant from the fore margin of the prothorax 6
6(5). Rostrum obviously expanded beyond the insertion of the antennae, or the dorso-lateral margins of the rostrum distinctly emarginate behind the antennae or both 7
Rostrum not or but slightly and inconspicuously expanded beyond the insertion of the antennae, the dorso-lateral margins not emarginate behind the antennae 9
7(6). Derm roughly sculptured and dull; posterior part of the scrobe distant from the lower margin of the eye, scape, at rest, lying far below the lower orbital margin ..... **Dryotribodes.**
Derm shiny; upper edge of the posterior part of the scrobe contiguous with the lower margin of the eye; scape at rest, touching the lower orbital margin 8
8(7). Third hind tarsal segment obviously broader than the second; dorso-lateral margins of the rostrum not emarginate behind the antennae ..... **Oxydema.**
Third hind tarsal segment hardly broader than the second; dorso-lateral margins of the rostrum distinctly emarginate behind the antennae ..... **Aphanocorynes.**
9(6). Rostrum not as long from the fore margins of the eyes to the apex of epistome as its basal breadth, shorter than the side of head from the fore edge of eye to prothorax ..... **Macrancylus.**
Rostrum longer from the fore margins of eyes to apex of epistome than its basal breadth, longer than the side of head 10
10(9). Lateral cephalic constriction not continued across the dorsum, the crown not separated from the front by a distinct difference in sculpture, but continuously punctate to base ..... **Eutornus.**
Lateral cephalic constriction continued across the dorsum, the area behind the constriction conspicuously marked off from the front by a difference in sculpture, the crown behind the constriction impunctate ..... **Phloeophagosoma.**

Note: These last three dichotomies are for the separation of the Guam species only, and they may not be applicable to the species of other regions.

Genus **CHOERORRHINODES** Champion, 1914

This genus was erected by Champion (Linn. Soc. London, Trans., Zool. II, **16**:458, 1914) to receive a new species (genotype *C. tenuiculus*) from the Seychelles. It has remained monotypic until now. Three Guam species are described here as new and assigned to the genus. It is with some diffidence, however, that I place all three species in the genus because of their structural differences, some of which may necessitate their removal from the genus when our knowledge of the Cossoninae is more complete and the genera more adequately studied and defined. This extreme discontinuous distribution will, I believe, surely be reduced when collections from intervening areas are studied. I have, unfortunately, not seen a specimen of the genotype which was described from a unique, but Sir Guy Marshall has kindly compared my specimens with it.

KEY TO THE SPECIES OF CHOERORRHINODES OF GUAM

1. Dorsal setae very conspicuous, coarse, golden yellow; head not constricted behind eyes.....32. **C. flavisetosus** Zimmerman.
   Dorsal setae inconspicuous, fine, usually rather minute; head constricted at least at the sides behind eyes..... 2
2. Post-ocular constriction deeply and prominently continued across top of head .....30. **C. constricticeps** Zimmerman.
   Post-ocular constriction feebly impressed on the sides only and not at all continued across dorsum.....31. **C. marshalli** Zimmerman.

30. **Choerorrhinodes constricticeps,** new species (pl. 4, *A*).

Female. Derm rather dull to moderately shiny, reddish brown, piceous to black; setae minute and pale.

Head strongly constricted at less than length of an eye behind eyes, the constriction continued prominently across dorsum, area behind constriction reticulate but impunctate, the lobed area between constriction and eyes coarsely and densely punctate as interocular area; interocular area twice as broad as breadth of an eye when viewed from above, coarsely, densely, subconfluently, continuously punctate with base of rostrum; eyes separated from prothorax by one and one half to two times their length. *Rostrum* almost continuous in longitudinal dorsal outline with interocular area, about three fifths or two thirds as long as pronotum, slightly more than twice as long as broad, slightly and evenly narrowed laterally from base to antennae, thence evenly and slightly expanded to apex, apex about one fourth broader than narrowest post antennal breadth, antennae inserted slightly but distinctly behind middle, apex of scrobe marked by a raised line below hind margin of eye; longitudinal dorsal outline gently arcuate; densely punctate behind antennae, punctures tending to be longitudinally confluent, more finely punctate beyond antennae, coarsely reticulate; setae sparse, minute. *Antennae* with scape reaching hind margin of eye; funicular segment 1 about one fourth broader and twice as long as 2, 2 about as broad as long and longer than 3, 3-5 successively slightly more transverse; club stout, ovate, slightly longer than three preceding segments. *Prothorax* one fifth to almost one third longer than broad; base subtruncate, arcuate on sides from base to near subapical constriction, broadest at or behind middle, subapical constriction prominent, slightly impressed across dorsum which is otherwise almost straight and flat longitudinally; disk flattened, densely and coarsely punctate, punctures subhexagonal, their interstices irregular and much narrower than their diameters; setae minute. *Elytra* two and one half times as long as broad, twice as long as prothorax, base subtruncate, subparallel-sided in basal two thirds, thence narrowed to the bluntly rounded apex; striae deep and coarse; their punctures coarse and close, as broad or broader than intervals, lateral stria terminating at metacoxa, setae minute and inconspicuous; intervals convex, their sides crenulated by strial punctures, each bearing a row of small, fine, decumbent setae, punctate, coarsely reticulate, the ninth costiform above last three ventrites. *Legs* with tibial unci and teeth at inner apical angles well developed; third tarsal segment deeply bilobed. *Sternum* coarsely, densely punctate throughout; intercoxal process of prosternum about as broad as a coxa, distance between coxal cavity and fore margin of prosternum twice that of distance behind coxal cavity; mesocoxae separated by more than breadth of a coxa; metasternum between mid and hind coxae three times as long as breadth of a mesocoxa, metacoxae separated by slightly less than the transverse diameter of a metacoxa. *Venter* with first two segments coarsely and densely punctate as metasternum; ventrites 3 and 4 punctate along base; ventrite 5 shallowly concave, distinctly punctate along basal margin, indistinctly so elsewhere; finely, sparsely setose. Length, 2-2.25 mm.; breadth, 0.5-0.6 mm.

Holotype female collected at Tarague, May 17, 1936 and one female paratype swept from grass at same time and place, Swezey; two paratypes from National Museum material taken from *Ochrosia* by Oakley, Feb. 9, 1938, no. 741; and four taken by Oakley from dead wood, June 29, 1939, no. 2349.

Since the description was written, I have seen another specimen taken from "Chopag nuts" (*Ochrocarpus obovalis*), Feb. 2, 1938, Oakley.

The conspicuously constricted head will serve to distinguish this species from the other Guam members of the genus. It is most closely allied to *Choerorrhinodes marshalli* but it has, in addition to its different cephalic characters, a flattened instead of dorsally convex pronotum upon which the punctures are more angular, irregular, and individually less distinct than on *C. marshalli,* and the setae on the elytral intervals and in the striae are less dense and less conspicuously developed.

31. **Choerorrhinodes marshalli,** new species (pl. 4, *E*).

Derm predominantly dull, coal black, with antennae, apices of tibiae and tarsi reddish; setae white.

Head coarsely reticulate throughout; slightly constricted on sides at a diameter of an eye behind eyes, the constriction not continued across dorsum, area behind constriction, at least in part, punctate; densely, coarsely, reticulately, subconfluently punctate from constriction to rostrum; interocular area slightly depressed, two to almost three times as broad as an eye when viewed from above; eyes quite prominent, separated from prothorax for a distance about equal to twice length of an eye. *Rostrum* subcontinuous in dorsal profile with the interocular area; outline shallowly concavely continued to crown, about three fifths as long as pronotum, twice as long as broad, subparallel-sided from base to antennae, slightly enlarged there, thence subparallel-sided to apex, apical breadth only very slightly greater than narrowest postantennal breadth; coarsely reticulate, coarsely, densely, confluently punctate, finely, longitudinally strigate; antennae inserted at middle in female, slightly behind middle in male, scrobes evanescent behind and without a delimiting carina below base of eye. *Antennae* with scape not reaching much past middle of eye and not extending to hind margin of eye; funicular segment 1 broader than, and about twice as long as 2, 2 triangular in outline, narrow at base, almost as long as 3 plus 4, 3-5 each successively slightly more transverse; club about as long as or longer than the four preceding segments. *Prothorax* only slightly longer than broad, base and apex subtruncate, basolateral angles obtusely rounded in basal fourth, thence almost straight, but slightly arcuately narrowed, to about apical fourth, thence more strongly rounded to feeble subapical constriction, constriction only slightly interrupting dorsal contour which is otherwise distinctly and evenly arcuate longitudinally; coarsely, densely, evenly, reticulately punctate, discal punctures individually distinct, their interstices less than half as broad as their diameters, individually distinctly and coarsely reticulate; setae minute and inconspicuous. *Elytra* more than twice as long as broad (6 : 2.5), and more than twice as long as prothorax in same proportion, base subtruncate, subparallel-sided in basal two thirds, thence rounded to apex and with a slight subapical constriction; striae deep and coarse, their punctures large and coarse, much broader than intervals, their setae normally quite distinct, the lateral stria terminating at metacoxa; intervals narrow and convex, each bearing a row of fine slanting, conspicuous, closely placed setae, ninth interval rather abruptly costiform beyond apex of second ventrite and joined to third at a distance from elytral apex. *Legs* with tibial unci very strongly developed, tooth at inner apical angle minute; third tarsal segment deeply bilobed. *Sternum* coarsely and densely punctate throughout, punctures broader than their interstices; prosternum broadly depressed in middle beyond coxae, intercoxal process slightly narrower than a coxa; metasternum with interstices of punctures shiny, intercoxal process of mesocoxae as broad as a mesocoxa, as long between mid and hind coxae as three times breadth of a mesocoxa; metacoxae separated by two thirds the length of the metasternum between the mid and hind coxae. *Venter* with the first two ventrites tumid in the female, depressed down middle in male, coarsely and densely punctate as the metasternum, interstices shiny; ventrites 3 and 4

coarsely punctate in their basal half; ventrite 5 coarsely and densely punctate throughout, coarsely reticulate, sparsely setose. Length, 1.6-2.0 mm.; breadth, 0.5-0.6 mm.

Holotype male, Orote Point, Aug. 2, 1936, Swezey (bearing label "on red spider on Ipomoea," in error?); allotype female, same place, May 24, Swezey; one paratype with similar data; one paratype, Piti (on hedge), Oct. 22, Swezey; and one paratype, Agana, May 2, Usinger.

In addition to the characters given under *Choerorrhinodes constricticeps* for the separation of this species from that, it should be noted that the antennal scape does not reach to the hind margin of the eye, the scrobes are not delimited behind by a carina below the basal edge of the eye, the crown of the head is at least in part punctate and the rostrum is longitudinally strigate.

It gives me much pleasure to dedicate this species to Sir Guy Marshall as an expression of my gratitude and appreciation for his unfailing kindness and cooperation in aiding me in my studies of difficult groups of Curculionidae.

32. Choerorrhinodes flavisetosus, new species (pl. 4, *F*).

Male: derm dull reddish brown, to black, appendages paler, dorsum piceous; setae conspicuously golden yellow.

Head without a constriction behind eyes, sides evenly arcuate from base to eyes, dorsum strongly convex, coarsely reticulate, almost entirely impunctate and bare from base to a line just back of eyes, thence densely, rather coarsely punctate, the stout golden setae somewhat more condensed along inner margins of eyes and across top of punctate front; interocular area twice as broad as an eye as viewed from above, dorsal outline straightly continuous with that of rostrum; eyes separated from prothorax by only about longitudinal diameter of an eye. Rostrum slightly arcuate below, almost straight, straight above almost to antennae, thence gently arcuate, about three fifths as long as pronotum, hardly narrowed on sides from base to antennae, appearing slightly, rather evenly expanded from base to apex, greatest apical breadth only about one eighth broader than narrowest post-antennal breadth; coarsely reticulate, puncturation mostly similar to that on interocular area, but becoming shallower and less definite distally, with a few scattered golden setae; antennae inserted at middle but appearing more apically inserted because of scrobe being continued past insertion; scrobes deep and well defined to near fore margin of eyes, evanescent behind and without a posterior delimiting carina. *Antennae* with scape stout, reaching to hind margin of eye; first funicular segment about one third broader than 2, about as long as 2 plus 3, 2 longer than 3, 3 less bulky than 4 or 5, 3 to 5 successively larger and more transverse; club stoutly oval, as long as four preceding segments. *Prothorax* as broad as long, broadest at about basal third, strongly rounded on sides, most strongly so in basal third from truncate base to strongly marked subapical constriction, constriction only slightly impressed across otherwise slightly arcuate, somewhat flattened longitudinal dorsal contour; apex slightly, broadly emarginate; coarsely reticulate; disk densely punctate, punctures moderately large, but shallow, their interstices narrower than their diameters; most of punctures bearing coarse, decumbent, medially directed, golden setae. *Elytra* coarsely reticulate, twice as long as broad, somewhat more than twice as long as prothorax; base subtruncate, subparallel-sided to apical third, thence broadly rounded to apex; striae mostly rather shallow and not sharply margined, narrower than intervals, their punctures comparatively shallow and broader than grooves, bearing minute, hardly discernible setae; outer stria terminating at metacoxa; intervals flat or almost so, punctate, punctures bearing coarse, blunt golden setae, setae very conspicuous, slanting, close set in single rows, about as long as breadth of intervals, with ninth interval becoming more costiform above fourth ventrite and joining third. *Legs* with femora and tibiae with scattered, decumbent, golden, fine hairlike setae; tibial unci well developed, so formed that their inner margins arise from a point near inner apical angles of tibiae, their inner margins, at least on fore pair,

making a continuous concave curve that ends in tooth at inner apical angle, teeth at inner apical angles minute; third tarsal segment deeply bilobed, fourth segment beginning at basal third of third segment. *Sternum* with prosternum coarsely and densely punctate, interstices narrower than punctures, subapical constriction deeply impressed across apical fourth, distance between fore margin of coxae and apex more than twice that behind coxae, intercoxal process only one third as broad as a coxa; intercoxal process of mesosternum flat, about two thirds as broad as a coxa; metasternum broadly concavely flattened down middle in male, densely, rather coarsely punctured, interstices narrower to almost as broad as punctures, each puncture bearing a decumbent golden seta, median line striaform, impunctate, distance between mid and hind coxae three times length of a metacoxa at trochanter or slightly more than twice as broad as a mesocoxa, metacoxae separated by a distance equal to twice length of a metacoxa at trochanter. *Venter* with first two ventrites punctate and setose as the metasternum, the first rather deeply and broadly concave in the male; ventrites 3 and 4 finely punctate near fore and hind margins; ventrite 5 densely set with setiferous punctures, convex, but with about apical half semi-circularly impressed and less coarsely punctate. Length, 2.3 mm.; breadth, 0.8 mm.

Holotype male collected at Machanao, June 6, 1936, Usinger.

This species is most distinct from the other species described here because of its conspicuous, golden-yellow setae, less coarsely striated and punctate elytra, non-constricted head, more approximate coxae, different structure of the tibial unci, stouter form and other characters.

When a proper revision of the genera of the Cossoninae is written, or when other revisionary work is done, it might be shown that *Choerorrhinodes* cannot include this aberrant species, and perhaps a new genus may be erected for it. The non-constricted head, and more particularly the more approximate coxae and the structure of the tibial unci are divergent characters. On the other species of *Choerorrhinodes* described here, the tibial uncus arises distinctly from the outer apical angle and its inner margin is far removed from the inner apical angle of the tibia and the tibia is more or less straight from the base of the uncus to the tooth at inner apical angle. On this species, however, the uncus, although originating as an extension of the outer tibial margin, is so broad at the base and so curved that it appears to arise from the entire apex itself, rather than from the outer edge, and its inner margin continues on to the base of the tooth at the inner apical angle of the tibia.

Genus **STENOTRUPIS** Wollaston

Stenotrupis Wollaston, Ent. Soc. London, Trans., 434, 1873.
Dioedimorpha Broun, New Zealand Jour. Sci. 1:489, 1883.

Most of the species of this genus have been described from the Seychelles; others are recorded from Madagascar, Malay Peninsula, New Zealand, New Guinea, New Hebrides, Samoa, Tahiti, Hawaii, and one from Panama. The genus is abundantly represented among the Pacific islands, but few of the species have as yet been collected or described.

Most of the species that I have collected in nature have been attached to tree ferns in the fronds and trunks of which they often live in large colonies; other species, however, have been recorded from various palms.

33. **Stenotrupis tenuis,** new species (pl. 5, *D*).

Female. Derm rather uniform reddish brown, rather shiny, at least in part somewhat translucent.

Head slightly longer than broad, post-ocular constriction distinct, not so deeply impressed across dorsum as on sides and below; smooth and shiny, evidently not punctate behind constriction, minutely punctate beyond constriction, punctures separated by distances equal to or greater than their diameters; eyes subcontinuous in lateral outline with head, when measured from above, separated from the post-ocular constriction by twice the length of an eye, interocular area longitudinally evenly convex, twice as broad as an eye as measured from above. *Rostrum* just perceptibly longer than pronotum (21 : 19), evenly arcuate longitudinally, narrowed on sides from base to about half way to antennae, then almost evenly expanded to antennae, thence slightly and evenly narrowed to about half way between antennae and apex, thence more rapidly enlarged to the apex, greatest apical breadth almost twice that of narrowest breadth between antennae and apex and equal to basal breadth at eyes; minutely punctate, smooth and shiny; antennae inserted at about basal fourth, distance between the insertion and eye twice longitudinal diameter of an eye as measured from side; scrobes evanescent behind. *Antennae* with scape reaching to middle of eye; first funicular segment as long as 2 plus 3, 2 longer than broad, 3 to 5 successively broader; club not as long as four preceding segments. *Prothorax* not quite one fourth longer than broad (1.5 : 1.9), broadest at about basal third, sub-pyriform, without a distinct subapical constriction, longitudinal dorsal outline flat from base to apex; disk minutely punctate, punctures separated by smooth, shiny interstices as broad or broader than punctures. *Elytra* more than three times as long as broad (4.3 : 1.6), slightly more than twice as long as prothorax (4.3 : 1.9), subparallel-sided in about basal three fourths; striae fine and shallow, their punctures close, crenulating sides of intervals and about as broad as intervals; intervals rather shiny, evidently without setae except on declivity and there with numerous, long, erect hairs. *Legs* with tibial unci well developed and with a tooth at front and hind edges of inner apical angles; third tarsal segment not bilobed, hardly broader than second. *Sternum* finely alutaceous, prosternum about three times as long as longitudinal diameter of a coxa in front of coxae and about twice as long as a coxa behind, at most minutely punctate, intercoxal process about four fifths as broad as a coxa; mesocoxae separated by about one and one fourth times breadth of a coxa; metasternum more densely and distinctly punctate at sides than in middle and with short, fine hairlike setae on more densely punctate areas, about four times as long between mid and hind coxae as breadth of a mesocoxa, metacoxae one half as widely separated as mesocoxae. *Venter* tumid, minutely punctate; setae distinct only at sides and on fifth ventrite; sutures arcuate; fifth ventrite densely punctate. Length, 1.5 mm.; breadth, 0.4 mm.

Holotype female taken at Yigo, from rotten stump, Nov. 13, 1936, Swezey.

This small species may be distinguished by the combination of its rather shiny derm, long slender rostrum, the antennae inserted at twice the length of an eye beyond the eyes and the long hairs at the apex of the elytra. It has in the long hairs on the elytra a character in common with the Hawaiian *Stenotrupis pritchardiae* (Perkins) (=*Pentarthrum pritchardiae* Perkins, B. P. Bishop Mus., Bull. 31 : 57, 1926, from Nihoa), but *S. pritchardiae* is a very different insect and not allied to this species. The distance between the eyes and the insertion of the antennae on *S. tenuis* is unusually great, and is not found on any of the other species known to me, most of which have the antennae inserted in the rostrum at no greater distance from the eyes than the length of an eye.

In addition to the holotype of this species, there is another specimen of *Stenotrupis,* which was taken at light at Piti, July 5, 1936 by Swezey; the status of this specimen I cannot determine without additional material. It is much like the holotype, but has some striking differences, some of which might be taken as sexual. However, the specimen is, I believe, also a female, as it has a typical female rostrum and abdomen. The most outstanding difference between the two specimens is that this unnamed example has the antennae inserted at only about the length of an eye in front of the eyes instead of much more distantly. It also has the cephalic constriction deeper than on *S. tenuis* and the area in front of the constriction is more coarsely punctate. Only a larger series containing both sexes will enable me to decide whether this specimen represents a new species or is but a form of *S. tenuis.*

Genus **TYTTHOXYDEMA,** new genus

Body slender, subcylindrical, nitid, minutely setose. *Head* subconical, as broad as long, with a distinct postocular constriction situated well behind eyes interrupting both dorsal and lateral surfaces; eyes moderately large, lateral, not strongly protuberant, as widely separated below as above, separated from prothorax by a distance distinctly greater than length of an eye; interocular area slightly narrower than extreme base of rostrum. *Rostrum* almost as long as head, about half as long as prothorax, slightly arcuate, stout, laterally expanded from base to apex; antennae inserted close to base at less than diameter of an eye in front of eyes; scrobes passing downward along the fore edges of the eyes. *Antennae* with scape reaching to or slightly behind hind margins of eyes, longer than funicle; funicle 5-segmented, first segment longer than any of others, the following successively shorter; club ovate, slightly shorter than funicle, its basal segment setose. *Prothorax* sub-pyriform, longer than broad, subapically constricted, subtruncate at base. *Scutellum* visible, small. *Elytra* slightly broader than base of prothorax at humeri, subparallel-sided, regularly punctate-striate, 10-striate, tenth stria complete. *Wings* fully developed. *Legs* with clavate femora edentate, hind pair not reaching apex of second ventrite; tibiae not much longer than tarsi, compressed and expanded distally, fore pair angulate beyond middle below, strongly uncinate and mucronate; tarsi with second segment about as long as 3, 3 not bilobed, but slightly broader than 2, 4 slender and projecting beyond apex of 3 for a distance greater than length of 2 plus 3. *Sternum* with anterior margins of fore coxae near transverse median axis of prosternum, intercoxal process slightly narrower than breadth of a coxa; mesosternum flat in front of intercoxal process which is slightly broader than breadth of a mesocoxa; metasternum between mid and hind coxae about as long as first two ventrites behind a coxa; metacoxae separated by about transverse diameter of a metacoxa; metepisternum distinct. *Venter* with intercoxal process of first ventrite arcuate; ventrites 1 and 2 fused, 1 about as long as 2 plus 3 at sides, 3 and 4 subequal, together slightly shorter than 2 and about as long as 5.

Genotype: *Tytthoxydema exilis,* new species.

This genus is erected for a puzzling species, which, although having a 5-segmented funicle, should probably be placed in association with *Oxydema, Aphanocorynes,* and their allies. Sir Guy Marshall has described a genus (*Pentoxydema,* 1938) in the same group which also has 5-segmented antennae. It was, however, erected for a large, different type of cossonid. This situation is similar to that of *Dryotribodes,* because *Tytthoxydema* would be placed in a different subtribe from *Oxydema* according to the existing classification.

34. **Tytthoxydema exilis,** new species (pl. 5, *I*).

Derm piceous, moderately shiny; dorsal setae pale, inconspicuous.

Head as long as broad, distinctly constricted on sides behind eyes, constriction only slightly, shallowly and broadly interrupting dorsal outline, but not impressed as a suture across dorsum, longitudinal dorsal outline of crown and front sinuous, constriction, when measured from above, length of an eye behind eyes, three fifths to three fourths length of an eye behind eyes on sides; area behind constriction impunctate or with a few, scattered, minute, hardly discernible punctures, area beyond constriction, and interocular area, densely and evenly punctate, punctures not large, individually distinct and usually separated by interstices about as broad as punctures, punctures bearing minute, specklike setae; interocular area slightly less than three times as broad as an eye as viewed from front; eyes separated by about one and one half times length of an eye from prothorax on sides. *Rostrum,* measured from side, as long as head, two fifths as long as prothorax; emarginate on sides between eyes and antennae, thence rather strongly expanded and rather straight-sided to near apex, broadest apical breadth about one third narrower than narrowest basal breadth in male, less strongly expanded in female; puncturation finer and much less distinct than that of interocular area, dull and coarsely reticulate in male, shiny in female; antennae inserted at about basal fourth at about half the breadth of an eye in front of eyes; scrobes passing rapidly down to lower anterior edge of eyes, but not continued much past fore margins of eyes. *Antennae* with scape reaching slightly, but distinctly behind posterior margin of eye to a point about half way between eye and cephalic constriction; first funicular segment stout, subconical, about as long as 2 plus 3, 2 hardly longer than 3, 3 to 5 moniliform and subequal; club slightly longer than four preceding segments. Prothorax slightly to more than one sixth longer than broad, broadest near basal third, base slightly constricted, thence arcuately narrowing to distinct, well-defined, subapical constriction which hardly interrupts the almost straight longitudinal dorsal contour; dorsal puncturation rather similar to that on front of head, punctures rather small, dense, even, individually distinct, separated by interstices equal to about breadths of punctures, and bearing specklike setae. *Elytra* somewhat more than twice as long as broad (6:2.25), more than twice as long as prothorax in the same proportions; striae well marked but not coarse, narrower than intervals, their punctures rounded or quadrate, coarser toward base and there often as broad or broader than intervals, each puncture bearing a flecklike seta, tenth stria approximated by ninth above metacoxa but evidently continued to apex; intervals flat or but slightly convex, at most very minutely punctate, and bearing hardly discernible setae, the ninth interval hardly swollen at its junction with third interval, hardly curved upward at apex and there about twice breadth of third interval from apex. *Legs* with tibiae rather evenly expanded from base to apex, base of hind pair about half as broad as apex, unci long, slender, well developed, tooth at inner apical angle well developed, slender and sharp; tarsi with third segment slightly broader than second, truncate apically below, not bilobed, fourth segment almost as long as three preceding segments together. *Sternum* with prosternum broadly impressed in middle in front of coxae, not quite twice as long in front of coxae as behind coxae, intercoxal process slightly narrower than breadth of a coxa, densely punctate, more coarsely so in front of coxae, punctures not tending to be laterally confluent; mesosternum on same plane as metasternum, intercoxal process punctate, not quite twice as broad as a mesocoxa; metasternum densely punctate, punctures rather similar to those on pronotum, but slightly larger and individually more distinct, distance between mid and hind coxae three times as long as breadth of a mesocoxa, metacoxae separated by slightly more than breadth of a mesocoxa. *Venter* with first two ventrites with similar or somewhat less dense puncturation than metasternum, first impressed down middle in male, tumid in female; ventrites 2 and 3 with a row of punctures at their bases only; ventrite 5 transversely impressed before apex, finely punctate, coarsely reticulate, setose behind. Length, 1.75-2.25 mm.; breadth, 0.5-0.6 mm.

Holotype male in National Museum, allotype female in Bishop Museum, 14 paratypes and two broken specimens collected from under bark of a dead tree, Sept. 1937, Oakley, nos. 143 and 37-2615.

Genus **RHINANISODES,** new genus

Body subcylindrical, subdepressed, nitid, minutely setose. *Head* subconical, about as long as broad, with a postocular constriction interrupting both dorsal and lateral surfaces well behind eyes; eyes moderately large, but not protuberant, about as widely separated below as above, separated from prothorax by a distance about equal to greatest diameter of an eye; interocular area approximately as broad as extreme base of rostrum. *Rostrum* as long as head, half as long as prothorax, slightly arcuate, subcylindrical, but slightly expanded laterally from base to apex; antennae inserted close to base at less than greatest diameter of an eye in front of eyes; scrobes passing downward along fore edges of eyes. *Antennae* with scape passing distinctly behind hind margins of eyes when at rest, about as long as funicle plus club; funicle 5-segmented, the two basal segments longer than any of the following three which are transverse; club ovate, first segment pilose. *Prothorax* sub-pyriform, about as broad as long, subapically and subbasically constricted; base subtruncate. *Scutellum* visible, distinct. *Elytra* with angulate humeri slightly but distinctly broader than base of prothorax, subparallel-sided, regularly punctate-striate, 10-striate, tenth stria complete. *Wings* evidently fully developed. *Legs* with femora strongly clavate, edentate; tibiae compressed, expanded distally, fore pair not distinctly angulate before apex below, strongly uncinate and mucronate; tarsi with second segment about as long as, but slightly narrower than third which is not bilobed, fourth segment extending beyond third for a distance greater than length of second and third segments combined. *Sternum* with distance between anterior margins of fore coxae and apex of prosternum about twice as long as corresponding area behind coxae, intercoxal process about twice as broad as a fore coxa; intercoxal process of mesosternum broad and flat, as broad as intercoxal process of prosternum and about twice as broad as a mesocoxa; metasternum between mid and hind coxae almost as long as first two ventrites behind a coxa, metacoxae separated as widely as fore coxae or breadth of a metacoxa; metepisterna narrow. *Venter* with intercoxal process of first ventrite subtruncate, first two ventrites fused, first almost as long as 2, 3, and 4 together along the median line or as long as 2 plus 3 at sides; 3 and 4 subequal in length and together almost as long as 2 or 5.

Genotype: *Rhinanisodes planicollis,* new species.

This genus has been erected for another puzzling and difficult species only after considerable thought and comparative work, and then with some diffidence. The genotype appears at first sight to belong to the New Zealand genus *Rhinanisus* Broun, 1883, but it cannot be assigned to that genus if the characters used by other specialists are to be considered generically valid, for the coxae are widely separated and the scape of the antenna surpasses the hind margin of the eye. *Rhinanisodes* is also closely allied to the New Zealand *Macroscytalus* Broun, but that genus has a shorter antennal scape and longer club, as well as other differences. The genotype of *Rhinanisodes* closely resembles *Macroscytalus remotus* Sharp. On *Rhinanisus* the coxae are narrowly separated, and the scape reaches only to the fore edge of the eye. *Rhinanisodes* seems to be intermediate between *Rhinanisus* and *Tytthoxydema,* and I at first considered that it might be placed in *Tytthoxydema.* However, the fore coxae are less widely separated than the breadth of a fore coxa on

Tytthoxydema, whereas on *Rhinanisodes* they are twice as widely separated, and the other coxae are as widely separated. On *Tytthoxydema* the eyes are much farther from the anterior margin of the prothorax than the greatest diameter of an eye, but on *Rhinanisodes,* the eyes are placed closer to the prothorax. In addition to the New Zealand species of *Rhinanisus,* Heller recorded (1916) two undescribed species from New Caledonia, and in 1938 Hustache described one from Argentina. The Argentine insect should be carefully restudied to ascertain its correct generic position.

35. Rhinanisodes planicollis, new species (pl. 5, *G*).

Male: derm black, moderately shiny, appendages diluted with red, setae pale, inconspicuous.

Head not quite as long as its basal breadth, distinctly constricted on sides behind eyes, constriction feebly impressed across dorsum and only slightly interrupting continuous and otherwise evenly convex longitudinal dorsal contour of crown and front, when measured from above, the constriction length of an eye behind eyes as measured from above and only half length of an eye behind eyes as measured from side; area behind constriction minutely punctate, area beyond constriction and interocular area densely punctate, punctures small, their interstices narrow, some tending to be longitudinally confluent; interocular area twice as broad as breadth of an eye measured from above, usually slightly depressed; eyes separated from prothorax by length of an eye. *Rostrum* slightly arcuate, as long as head, not quite half as long as prothorax, evenly expanded to antennae, thence slightly concavely expanded to apex, greatest apical breadth only about one sixth greater than narrowest post-antennal breadth; puncturation similar to that on interocular area, but finer beyond antennae, punctures usually distinctly longitudinally confluent behind antennae; antennae inserted slightly behind middle, distance between insertion and eye three fourths or about as long as length of an eye; scrobes narrow, their upper margins touching lower front edges of eyes, but scrobe hardly continued past fore margin of eye. *Antennae* with scape reaching well past hind margin of eye to cephalic constriction; first funicular segment stouter than 2 and about as long as 2 plus 3, 2 about as long as 3 plus 4, 3 to 5 successively more transverse, 5 about one fourth broader than 3; club as long as four preceding segments. *Prothorax* pyriform, distinctly longer than broad (2.5:2.2), broadest at about basal third, base truncate, strongly rounded on sides, rapidly narrowed beyond middle of apex, subapical constriction not very deeply impressed, as viewed from above, apex only slightly more than half as broad as greatest breadth of pronotum, disk distinctly depressed, hardly arcuate longitudinally, subapical constriction shallowly, but usually rather distinctly impressed across dorsum; puncturation dense throughout, punctures moderate in size, their interstices narrower or about as broad as their diameters. *Elytra* somewhat more than twice as long as broad (5:2.25), twice as long as prothorax, subparallel-sided in basal two fifths, thence arcuate to broadly rounded apex; striae well defined, slightly narrower than intervals on disk, their punctures broader than grooves and crenulating sides of intervals, tenth stria approximated by ninth above metacoxa, but continued narrowly to apex; intervals slightly convex, each set with a row of minute punctures bearing minute, hardly discernible, flecklike setae, ninth interval costiform beyond second ventrite and there almost straight and not curved upward, joining third interval at less than breadth of interval from apex. *Legs* with tibiae laterally compressed and expanded from base to apex, unci strongly developed and with a well-developed tooth at inner apical angle; tarsi with third segment slightly broader than second, truncate distally below and not at all lobed, fourth segment slender and about as long as preceding segments together. *Sternum* with prosternum almost twice as long in front of coxae as behind coxae, intercoxal process about twice as broad as breadth of a coxa; densely punctate, punctures laterally confluent in front of coxae; mesosternum on same plane as metasternum, intercoxal process twice as broad as

a coxa; metasternum densely punctate, interstices usually narrower than their diameter, about three times as long between mid and hind coxae as breadth of a mesocoxa; metacoxae separated by twice breadth of a mesocoxa. *Venter* with first two ventrites rather densely set with small punctures, first broadly impressed in male; ventrites 3 and 4 coarsely punctate in their basal halves; ventrite 5 densely minutely punctate, finely setose. Length, 1.7-1.8 mm.; breadth, 0.5 mm.

Holotype male and one male paratype taken at Yigo, from "dead small leaf *Ficus*", Oct. 18, 1936, Swezey; and one male paratype, Mt. Alifan, found under dead bark of breadfruit, June 21, Usinger.

Genus **HIMATINUM** Cockerell

Himatinum Cockerell, Ent. News **17**: 243, 1906.

Himatium Wollaston (homonym, not Clark, 1860), Ent. Soc. London, Trans., 436, 1873.

This genus contains 14 species recorded from Africa, Madagascar, the Seychelles, India, Java, and one each in North and Central America. The North American *Himatinum errans* LeConte is said to be an inquiline in the galleries of the scolytid *Ips grandicollis* (Eichoff) under the bark of yellow pine.

In addition to two Javanese species, the following new species is the only one thus far recorded from a Pacific island.

36. **Himatinum bisetosum,** new species (pl. 4, *G*).

Derm coarsely reticulate, dull reddish brown to piceous black; setae conspicuous, white or yellowish white.

Head without a postocular constriction, only one third as long on sides from prothorax to fore margins of eyes as basal breadth; eyes oval, about four sevenths as broad as high, obliquely placed, their hind margins touching prothorax, separated by not quite their heights below (6:7), their dorsal edges reaching to about half way between upper margin of scrobe and top of rostrum; top of head meeting rostrum above top of eye, separation well marked and angulate; crown coarsely reticulate, but shallowly and indistinctly punctate; sparsely clothed with fine, prostrate, anteriorly directed setae. *Rostrum* almost straight, but slightly arcuate in apical fourth, subcylindrical, four fifths as long as prothorax in female, two thirds as long in male, about as high as broad at antennae, subparallel-sided, slightly expanded at antennae, hardly expanded toward apex; conspicuously, closely, longitudinally strigulated; setae arising from striae, erect, clavate, coarser than those on crown; antennae inserted at slightly beyond basal fourth, dorsal margin of scrobe straight and touching dorsal fourth of eye, lower margin directed toward lower hind edge of eye, but not reaching eye. *Antennae* with scape shorter than funicle exclusive of club, touching front edge of eye; first funicular segment about one third longer than broad, triangular, as long as 2 plus 3 plus 4, 2 broader than long, 2 to 7 successively slightly broader; club not much broader than 7, as long as 3 to 7. *Prothorax* longer than broad (3:2.5), base and apex slightly convex, broadest between the basal third and middle, arcuately narrowing from base to feeble subapical constriction, constriction not or hardly marked across dorsum which is almost straight and flat in longitudinal dorsal contour; disk flattened, densely, shallowly punctate, punctures subconfluent and individually indistinct, interstices much narrower than their diameters; setae of two types, one type slender, more or less hairlike, decumbent and directed medially, the other sub-

clavate, erect or suberect, middle of the apex not setose. *Elytra* slightly more than twice as long as broad and slightly more than twice as long as prothorax, base subtruncate, but broadly and shallowly emarginate to scutellum, subparallel-sided to behind middle, thence broadly rounded to apex, without any irregularities; striae about as broad as intervals on disk, their punctures close, subquadrate, without evident setae, outer stria terminating above metacoxa or vaguely continued somewhat farther caudad; intervals flat or slightly convex, none conspicuously elevated, 9 evidently reaching 1 behind, 10 obliterated or obscure behind metacoxa, each interval bearing a row of two types of setae, one type erect and subspatulate, the other type decumbent, narrow and sharp, 2, 4, 5, and 7 sometimes with fewer erect setae than the others. *Legs* with numerous setae of two types, one finer and prostrate, the other coarser and erect; tibiae compressed, unci large and stout, evidently not mucronate; third tarsal segment as long as and about one third broader than 2, subtruncate at apex. *Sternum* densely, rather coarsely but shallowly punctate, punctures bearing decumbent or prostrate, mostly fine setae; prosternum three times as long before as behind coxae, intercoxal process slightly broader than a coxa; mesosternum on a continuous plane with metasternum, densely punctate, intercoxal process slightly broader than a coxa; metasternum twice as long between mid and hind coxae as breadth of intercoxal process of mesosternum, metacoxae separated by slightly more than mesocoxae. *Venter* with first two ventrites broadly depressed down middle in male, more tumid in female, puncturation and vestiture similar to that of the metasternum; ventrites 3 and 4 each with a row of coarse punctures at their bases and a row of fine punctures at their apices; ventrite 5 densely set with setiferous punctures. Length, 2.1-2.5 mm.; breadth, 0.70-0.75 mm.

Holotype male, allotype female, and one male paratype collected at Taragüe, May 17, 1936, Usinger.

The peculiarly placed eyes together with the vestiture will readily separate this species from all of the other Guam Cossoninae. It greatly resembles the North American *Himatinum errans* (LeConte) but the rostrum is longer and the cephalic, leg and rostral vestiture is shorter and less dense.

Genus **DRYOTRIBODES,** new genus

Body comparatively slender, derm coarsely sculptured, finely and sparsely setose. *Head* subconical, not quite as long as broad, with crown separated from front by a distinct dorsal impression which may or may not continue laterally as a conspicuous postocular constriction; eyes coarsely faceted, slightly to moderately protuberant, somewhat more widely separated below than above, separated from prothorax by more than length of an eye, interocular area narrower than base of rostrum. *Rostrum,* beyond eyes, distinctly longer than head, about two thirds as long as prothorax, at least twice as long as basal breadth of rostrum, subcylindrical and but slightly arcuate behind antennae, expanded, somewhat compressed and more strongly arcuate beyond antennae; antennae inserted at or slightly beyond middle and distinctly more than length of an eye in front of eyes; scrobes passing rapidly downward well below eyes. *Antennae* with scape reaching to or distinctly beyond hind margin of eyes, but directed well below lower margins of eyes when at rest, longer than funicle excluding club; funicle 7-segmented, first or first and second segments longer than any of the other segments which become successively more transverse; club elliptical, shorter than preceding part of funicle, its basal segment densely setose. *Prothorax* slightly longer than broad, subtubular, constricted before apex, subtruncate at base. *Scutellum* not visible. *Elytra* only slightly broader at base than base of prothorax, evidently nine- or ten-striate, some striae incomplete and irregular, usually some intervals cariniform. *Wings* evidently non-functional. *Legs* with femora moderately clavate, edentate, hind pair reaching almost to apex of second ventrite; tibiae not much

longer than tarsi, comparatively slender, unci and mucrones well developed; tarsi with second segment about as long as broad, third broader than second, entire, emarginate, or bilobed, 4 extending beyond 3 for a distance distinctly greater than length of 3. *Sternum* with fore coxae nearer hind margin than to fore margin of prosternum, intercoxal process distinctly narrower than breadth of a coxa; intercoxal process of mesosternum narrower or as broad as breadth of a mesocoxa; metasternum about as long between mid and hind coxae as length of first ventrite, metepisterna mostly concealed, at most narrowly exposed behind, metacoxae separated by more than longitudinal diameter of a coxa and narrowly separated from elytra, intercoxal process subtruncate. *Venter* with first two ventrites fused, 3 and 4 subequal, together shorter than either 2 or 5.

Genotype: *Dryotribodes obscurus,* new species.

This genus is closely allied to *Dryotribus* Horn, 1873, but it may be easily separated from that genus because of its 7-segmented funicle. The only major difference between *Dryotribodes* and *Dryotribus* is this antennal character. However, this difference is sufficient to place the two genera in two different subtribes, according to existing schemes of classification. The two genera obviously have a common ancestral relationship and their separation into different subtribes would be incorrect. The division of the Cossonini into major groups based on the number of segments in the funicle is a convenient one, but it is unnatural, because such closely allied genera as these are placed far from each other and their true relationships are obscure.

Sir Guy Marshall has kindly examined the genotype of this new genus and compared it with the British Museum material. He writes, "Among the 7-jointed genera it comes closest to *Pholidophorus* Woll. from Japan, but this is a winged genus with projecting shoulders . . ."

All of the species of *Dryotribodes* greatly resemble *Dryotribus* and one would place them in *Dryotribus* without hesitation if the antennae were not examined.

On the genotype, the third tarsal segments are deeply and unquestionably bilobed, but on *D. angularis* they are emarginate and on *D. denticulatus* they are almost entire and only slightly emarginate. This difference in the third tarsal segment is often of major importance, but here it breaks down to a specific character. On both D. *obscurus* and *D. angularis* the postocular constriction is conspicuously marked on the sides of the head, but on *D. denticulatus* the constriction is not indented on the sides and makes only the dorsum emarginate. On *D. angularis* the constriction is deeply and very sharply marked dorsally, laterally, and ventrally; *D. obscurus* is intermediate between this and *D. denticulatus.* On *D. angularis* the intercoxal process of the mesosternum is distinctly narrower than the breadth of a mesocoxa; on *D. denticulatus* it is about as broad as a coxa and on *D. obscurus* it is slightly broader (10:9). On *D. obscurus* and *D. angularis* the antennal scape is enlarged gradually from the base to the apex and has no distinct club. On *D. denticulatus,* however, the scape has a slender stalk and a distinct club. On *D. angu-*

laris the scape reaches the hind margin of the eye, on *D. obscurus* it extends behind the eye to the cephalic constriction, and on *D. denticulatus* it reaches past the cephalic constriction almost to the prothorax.

The discovery of representatives of this new genus at such widely separated localities as Guam and the Marquesas, over 5,000 miles to the southeast at the opposite sides of Oceania, is an example of extreme discontinuity of distribution. This discontinuity is surely not actual, however, because our knowledge of the absolute distribution of the Curculionidae is so incomplete at this early stage in the entomological exploration of the Pacific as to be misleading. Other species will probably be described from the intervening islands. Unfortunately, I do not now have access to the extensive collections of Cossoninae made by me in southeastern Polynesia in 1934. There may be other species in that collection.

Key to the Species of Dryotribodes

1. None of the discal elytral intervals conspicuously elevated more than the others, the fourth entire and as prominent as the others; third tarsal segment deeply bilobed; Guam.....37. **D. obscurus** Zimmerman.
   At least the third and fifth elytral intervals elevated and more prominent than the others, fourth at least partially obscured, or incomplete and distinctly less prominent than the others; third tarsal segment not bilobed; Guam.....2
2. Antennal scape reaching only to the hind margin of eye, not extending beyond the cephalic constriction; cephalic constriction deeply and sharply marked entirely around the head; prothorax with a distinct subbasal constriction; second and third elytral intervals equally elevated on the declivity; Guam.....
   .....38. **D. angularis** Zimmerman.
   Antennal scape reaching past the cephalic constriction; cephalic constriction poorly developed and not at all sharply and deeply impressed, prothorax without a subbasal constriction; second interval not elevated; the sides of the elytra appearing conspicuously denticulate from above; Marquesas
   .....**D. denticulatus** Zimmerman.

37. **Dryotribodes obscurus,** new species (pl. 5, *A*).

Female: derm coarsely reticulate, dull black, antennae and tarsi diluted with red; setae pale; with a thin greasy incrustation.

Head as broad across eyes as length from pronotum to fore margins of eyes; shallowly constricted at about half the length of an eye behind eyes as measured from above, constriction only shallowly impressed across dorsum; almost impunctate behind constriction, but with a few microscopic punctures, coarsely, densely, subconfluently punctate beyond constriction, puncturation continuous with that of rostrum; eyes prominent, projecting for about half their breadths beyond lateral margins of head, subhemispherical; interocular area twice as broad as an eye as measured from above. *Rostrum* with longitudinal dorsal contour continuously and evenly arcuate with interocular area, five sevenths as long from fore margins of eyes to apex as prothorax and twice as long as basal breadth, subparallel-sided, but just perceptibly narrowed from base to antennae, thence expanded to apex, greatest apical breadth bearing the ratio 1.4 to 1.2 to the narrowest post antennal breadth; very densely and coarsely punctate throughout, punctures tending to be in part subconfluent, their interstices much narrower than their breadths and making surface rough; antennae inserted at about middle at twice the length of an eye from fore edge of an eye. *Antennae* with scape stout, reaching to, but not past cephalic constriction; first

funicular segment about one third longer than broad, as long as 2 plus 3, 2 longer than 3, 3 to 7 transverse, successively very slightly broader; club as long as the five preceding segments. *Prothorax* longer than broad (2.0: 1.8), base truncate, apex slightly concave, slightly constricted on sides at base, thence evenly arcuate to well-marked subapical constriction; constriction not distinctly interrupting evenly arcuate longitudinal dorsal outline, broadest at about middle; puncturation coarse and dense, interstices coarsely reticulate, about half as broad as punctures on disk, discal punctures as broad as second funicular segment; setae decumbent, hardly discernible from above, but distinct when viewed from sides. *Elytra* coarsely reticulate, about twice as long as broad, two and one fourth times as long as prothorax, broadest behind middle, slightly arcuate near base, thence subparallel-sided, but evidently slightly expanded to apical third, thence constricted at apical fourth; striae coarse and deep, broader than intervals, their punctures large, coarse, subquadrate, not distinctly setose; intervals regular on disk, convex, more so behind, each bearing a row of distinct, decurved setae, sixth interval giving rise to three intervals above metacoxa, seventh interval, as counted at base, ninth as counted behind middle, prominently costiform behind third ventrite, joining third and reaching second at apex, but not interrupting lateral elytral outline. *Legs* with femora coarsely and densely punctured; tibial unci and tooth at inner apical angle well developed; third tarsal segment one fourth broader than second, deeply bilobed. *Sternum* with prosternum coarsely, deeply and densely punctured, about two and one half times as long before coxal cavities as behind, intercoxal process slightly narrower than breadth of a coxa; mesosternum coarsely punctate and slightly broader between mesocoxae than breadth of a coxa, intercoxal process on same plane as metasternum; metasternum coarsely, deeply, closely punctured, not quite twice as long between mid and hind coxae as breadth of a mesocoxa, metacoxae separated for about length of metasternum between mid and hind coxae. *Venter* with first two ventrites tumid, but slightly depressed medially, puncturation coarse, deep, dense, and similar to that of metasternum; ventrites 3 and 4 each with a complete row of coarse, closely set punctures; ventrite 5 densely set with coarse punctures similar in size to those on first two ventrites. Length, 3.0 mm.; breadth, 1.1 mm.

Holotype female taken by Swezey from a rotten stem of *Barleria* at Piti, Sept. 26, 1936.

38. **Dryotribodes angularis,** new species (pl. 5, *B*).

Male: derm black with a thin greasy incrustation, denuded areas moderately shiny, appendages diluted with red.

Head narrower across eyes than length from pronotum to fore margins of eyes, sharply and deeply constricted on sides at about three fourths length of an eye behind eyes as measured from above, constriction continued deeply and angulately across dorsum; alutaceous but moderately shiny and impunctate behind constriction, very coarsely, densely, continuously punctate with rostrum beyond constriction; eyes not projecting much beyond lateral margins of head; interocular area hardly broader than breadth of an eye as measured from above. *Rostrum* continuous in longitudinal dorsal contour with front of head and almost straight in basal half, thence rather strongly arcuate to apex, four times as long as an eye from fore margins of eyes to apex, two thirds as long as prothorax, twice as long as its apical breadth, more than twice as long as its basal breadth, subparallel-sided, but very shallowly, just perceptibly concave from base to antennae, thence expanded and subparallel-sided to apex, the greatest apical breadth about one fifth broader than the narrowest post antennal breadth; very coarsely, densely, subreticulately, subconfluently punctured throughout; antennae inserted at slightly beyond middle at hardly more than twice length of an eye from eyes. *Antennae* with scape reaching hind margin of eye, and not extending to cephalic constriction; first funicular segment about one fourth longer than broad, about as long as 2 plus 3, 2 about as broad as long, slightly longer than 3, 3 to 7 successively broader, 7 almost twice as broad as 2; club slightly longer than five preceding segments. *Prothorax* distinctly longer than broad (3.2: 2.5), broadest at and

beyond middle, base and apex subtruncate, subequally, prominently, and angulately constricted in front of base and behind apex, subparallel-sided between these constrictions, apex subtubulate beyond constriction, subapical constriction shallowly and broadly impressed across otherwise evenly arcuate dorsum; very coarsely and densely punctured, punctures much broader than their intervals, which when denuded, are shiny; setae inconspicuous. *Elytra* twice as long as broad, twice as long as prothorax, broadest at middle, arcuate on sides from base to apical fifth and there constricted, apex appearing emarginate on either side at second interval because of elevated ninth interval; striae deep and coarse, obviously broader than intervals, their punctures large, deep, coarse and mostly subquadrate, outer stria, the eighth connected across base conspicuous and distinct throughout its length to apex; intervals convex, moderately shiny where denuded, 2 and 3 appearing most prominent and somewhat more elevated than 1, 4 fragmented and almost obliterated by strial punctures, 6 not reaching much nearer base than metacoxa, the others not prominent near base, 8 represented by a trace above second ventrite only, 9 strongly elevated above fifth ventrite into a conspicuous, asperate, posterior callosity that reaches second interval at its apex and is separated from apical margin by outside stria; setae minute and inconspicuous. *Legs* with femora coarsely punctate; tibiae with unci and teeth at inner apical angles well developed; third tarsal segment shortly bilobed, more emarginate than bilobed, one third broader than second. *Sternum* with prosternum coarsely and densely punctured throughout, twice as long in front of as behind coxae, intercoxal process only one third as broad as a coxa; mesosternal intercoxal process slanting upward in front, impunctate, about three fourths as broad as a coxa; metasternum with large, coarse, deep, close-set punctures, almost twice as long between mid and hind coxae as breadth of a mesocoxa, metacoxae separated by about twice breadth of intercoxal process of mesosternum. *Venter* with first two ventrites broadly concave, puncturation similar to that of metasternum but in part less coarse and deep; ventrites 3 and 4 with their posterior edges slightly crenulated with small punctures, otherwise impunctate; ventrite 5 coarsely and densely punctate, but impunctate at base and apex. Length, 2.4 mm.; breadth, 0.75 mm.

Holotype male collected at Yona, from dead leaves, May 29, 1936, Bryan.

In addition to the differential characters given in the key, this species differs from *Dryotribodes obscurus* by having the cephalic constriction deeper and more conspicuous, the prothorax more deeply constricted at base and apex, the ninth elytral interval much more strongly elevated behind thus making the apex of the elytra emarginate on either side, the fore and mid coxae are less widely separated and the third and fourth ventrites are not coarsely punctate across their disks.

Dryotribodes denticulatus, new species (pl. 5, *C*).

Female: derm reticulate, dull but somewhat shiny on more elevated areas, dull black, diluted with red, antennae and legs reddish; setae pale; with a thin, inconspicuous, partial incrustation.

Head conspicuously narrowed on sides from base to eyes, as broad across eyes as length from pronotum to fore edge of an eye; the postocular constriction not impressed on sides, but distinct across dorsum, constriction about the length of an eye behind eyes as measured from above; with only a few scattered punctures on crown behind constriction; coarsely densely, longitudinally confluently punctate beyond constriction, puncturation continuous with that of rostrum; eyes distinctly interrupting lateral contours of head, but not strongly protuberant, twice as widely separated above as breadth of an eye as measured from above, interocular area narrowing posteriorly. *Rostrum* evenly arcuate from postocular constriction to apex, about twice as long as head and five sevenths as long as prothorax, three times as long as its breadth at extreme base, gradually and slightly expanded from base to antennae, sides slightly concave, thence abruptly expanded, sides

thence shallowly concave to apex, apical breadth equal to that at antennae and almost one fourth wider than extreme base; very coarsely and densely, subconfluently and confluently punctate from base to half way between antennae and apex, thence polished and with small, shallow punctures to apex; antennae inserted at middle at about two and one half times longitudinal diameter of an eye from eyes; scrobes passing downward at a distance from eyes; their dorsal margins obsolete behind, scrobe itself evanescent behind. *Antennae* with scape long, reaching more than half way between hind margin of eyes and prothorax, to behind postocular constriction, rather abruptly clavate, almost as long as funicle plus club; funicle with segments 1 and 2 subequal in length, 2 not quite as long as 3 plus 4, 4 to 7 subquadrate, each successively very slightly broader, each with a whorl of long setae; club ovate, as long as preceding five segments, densely, evenly, finely setose throughout. *Prothorax* longer than broad (3.5: 3), base subtruncate, without a distinct subbasal constriction, evenly arcuate, on sides from base to subapical constriction, longitudinal dorsal outline almost evenly convex from base to apex; coarsely and densely punctate throughout, punctures large, broader than interstices, reticulately placed, and bearing fine, hairlike, anteriorly inclined setae. Elytra twice as broad as long, somewhat more than twice as long as prothorax (4: 1.7), broadest at apical third, arcuate on sides from base to about caudal fourth, but slightly interrupted at about basal third where ninth interval joins seventh, thence constricted, lateral outline made by seventh interval, outline thence continued and bluntly rounded by outer interval; striae about as broad as intervals, their punctures coarse; first two intervals plain, first with a few granules near apex, interval 3 elevated from base to apex and bearing a row of granules in caudal third and a few near base, 4 plain, not reaching past caudal fourth, 5 elevated from a distance about equal to space between it and third interval and terminating well before apex of 7, and bearing granules on elevated part, 4 and 5 not distinct individually at base, 6 more or less partially obliterated by punctures of adjoining intervals, 7 elevated, most strongly so behind point where it is joined by 9 and bearing a row of well-developed teethlike granules or tubercles that give sides of elytra their distinctive denticulate appearance when viewed from above, joining 4 or 3 well within caudal fourth, 8 slightly elevated, beginning in front of middle and terminating at about caudal fourth, 9 elevated and arising from 7 at about basal fourth, enclosing 8 and continued to apex to join 3, 10 obliterated by punctures of adjoining striae; each interval bearing a series of stiff, hairlike, posteriorly inclined, golden setae, most distinct on elevated intervals from whose tubercles they arise. *Legs* with femora and tibiae coarsely sculptured, with inclined, hairlike setae arising from punctures; tibial unci and mucrones well developed; tarsi with third segment one third broader than second, as broad as long, entire, very slightly emarginate at apex, not at all bilobed. *Sternum* with prosternum shallowly concave down middle behind apex, antecoxal area twice as long as postcoxal area, intercoxal process half as broad as a coxa; intercoxal process of mesosternum about as broad as a coxa; metasternum between mid and hind coxae slightly shorter than length of first ventrite behind a coxa, coarsely and densely punctured. *Venter* with intercoxal process of first ventrite broad and subtruncate, broader than transverse diameter of a coxa; first two ventrites coarsely and densely punctured throughout, with fine setae arising from hind edges of punctures; ventrites 2 and 3 each with a row of small punctures; ventrite 5 coarsely punctate and setose except for a transverse, impunctate basal band. Length, 2.75 mm.; breadth, 1.0 mm.

Marquesas Islands. Holotype female, Uapou Island, from a dead *Cyathea* frond, Nov. 28, 1931, LeBronnec.

This species is the most divergent of the three described because of its poorly defined cephalic constriction and long, clavate antennal scape. The denticulation on the seventh interval along the sides and the outer interval near the apex are distinct and give the sides of the elytra a characteristic appearance.

Genus **OXYDEMA** Wollaston

Oxydema Wollaston, Ent. Soc. London, Trans., 487-488, 1873.

Pseudolus Sharp, Roy. Dublin Soc., Trans. II, 3 : 190, 1885. Synonym by Zimmerman, B. P. Bishop Mus., Occ. Papers **15** (25) : 286, 1940.

This genus includes seven species which, with the exception of the widespread *O. fusiforme,* are all confined to the Pacific from Sumatra eastward. Champion (Linn. Soc. London, Trans. II, **16**: 484, 1914) says that *O. elongatum* Pascoe (Mus. civ. nat. stor. Genova, Ann. II, 2 : 321, 1885) may be a synonym of *O. fusiforme* Wollaston.

Key to the Species of Oxydema of Guam

1. Elytral striae deeply, coarsely, and conspicuously grooved from base to apex throughout; intervals with small but comparatively coarse and conspicuous punctures, transversely sculptured and not appearing smooth..... .....40. **O. fusiforme** Wollaston.
2. Elytral striae not or but shallowly impressed between the punctures on the disk, never conspicuously and deeply grooved throughout; intervals with microscopic punctures only and appearing smooth and polished..... .....41. **O. longulum** (Boheman).

39. Oxydema fusiforme Wollaston (pl. 4, *B*).

Oxydema fusiformis Wollaston, Ent. Soc. London, Trans., 632, 1873.

Oxydema fusiforme Wollaston, Champion, Linn. Soc. London, Trans. II, **16**: 484, 1914.

Pseudolus hospes Perkins, Fauna Haw. 2 : 149, 1900.

This species is recorded from the Seychelles and Ceylon, and it has a wide distribution in the Pacific. It is probably found on most of the islands of Polynesia. Its dissemination has been accomplished mostly by the aid of commerce.

The following specimens are in the Guam collections before me: one labeled "Island of Guam", no. "1373", Fullaway; and 20 specimens taken from diseased papaya stalk, June 24, 1937, Oakley, no. 841.

40. Oxydema longulum (Boheman), Zimmerman, B. P. Bishop Mus., Occ. Papers **15**(25) : 287, 1940 (pl. 4, *C*).

Rhyncolus longulus Boheman, Eugenies Resa, 149, 1859.

Pseudolus longulus (Boheman) Sharp, Roy. Dub. Soc., Trans. II, 3 : 190, pl. 5, fig. 33, 1855.

This species is widely spread in eastern Oceania but has not heretofore been recorded from so far west as Guam. One specimen, Yigo, from a seed cluster of a palm (*Coccothrinax*?), Nov. 13, 1936, Swezey.

This species can be separated from *O. fusiforme* with the unaided eye because of its usually stouter form and smoother appearance. *O. fusiforme*

is more slender and its deeply grooved elytra and sculptured elytral intervals give it a distinctive appearance.

Genus **APHANOCORYNES** Wollaston, 1873

Aphanocorynes Wollaston, Ent. Soc. London, Trans., 489, 595, 1873.

This genus contains two Australian, one Lord Howe Island, and two Samoan species. One of the Samoan species is widespread, but it has been recorded only from Samoa. It is:

41. **Aphanocorynes humeralis** Marshall, Insects of Samoa 4(5) : 334, fig. 27, 1931 (pl. 4, *D*).

One specimen of what I believe to be this species was collected from pigeon peas at Barrigada, June 24, 1936, by Swezey. The following specimens are in the Bishop Museum collections: five, Fanning Island, Dec. 2, 1924, S. C. Ball; one, Palmyra Island, June 13, C. M. Cooke, Jr.; one, Washington Island, Aug. 18, 1924, L. A. Whitney; and one, Aunuu Islet, Tutuila, Samoa, Feb. 1930, Fullaway. The species has heretofore been reported from only Upolu and Tutuila, Samoa.

This series of specimens appears to me to show intergradations of certain characters between *Aphanocorynes humeralis* Marshall and *A. savaiiensis* Marshall. *A. savaiiensis* was described from a unique, and I have not seen it.

Species Indeterminable

There is one badly mashed specimen among the National Museum material which appears at first glance to be without question a *Stenotrupis*. However, the antennal funicle has seven segments and the scrobes are different from those of *Stenotrupis*. The specimen bears the labels "Alameda Cal., R. G. Oakley, III-4-38 Guam 451" and "with Hawaii Clipper 38-9036." It is too badly damaged for description.

Genus **EUTORNUS** Wollaston, 1873

Eutornus, Ent. Soc. London, Trans., 492, 578, 1873.

This genus contains about 20 species distributed from Burma through the Philippines to Papua and is well represented in New Zealand. No species has been reported from Australia, and the new species described herein is the first described from Micronesia.

42. **Eutornus nigriceps,** new species (pl. 5, *H*).

Derm rather shiny above, reddish brown with head and rostrum mostly black, rostrum more diluted with red, apex of prothorax dark, elytra clouded with black in caudal fourth.

Head one fourth broader across eyes than the length of median line from pronotum to anterior margins of eyes; minutely punctate, punctures separated by interstices as broad or much broader than their diameters and each puncture bearing a minute, specklike seta; with a feeble, elongate interocular impression; slightly and inconspicuously constricted on sides at about half the length of an eye behind eyes, constriction not impressed across dorsum, longitudinal dorsal contour evenly and continuously arcuate with front and rostrum; interocular area three times the breadth of an eye as measured from above. *Rostrum* as long from front of eyes to apex as head from prothorax to front of eyes, less than half as long as pronotum, hardly longer than its basal breadth; sides almost straight and subparallel, but slightly broader beyond antennae than before; puncturation similar to that on head, but somewhat denser; epistome conspicuously emarginate and bidentate apically; inner lobe of gena projecting into a sharp point; antennae inserted at basal third at almost length of an eye in front of eyes; lower edge of scrobe reaching venter of rostrum on line with fore edge of eye, upper edge touching eye. *Antennae* with scape rather strongly bent upward at about middle to curve around lower edge of eye, one third broader beyond middle than at base, reaching to slightly in back of eye to cephalic constriction; funicle with first segment about as long as 2 plus 3 plus 4, hatchet shaped, 2 to 7 subequal in length, but each successively slightly broader; club compressed, as broad as long, about as long as six preceding segments. *Prothorax* not quite one fourth longer than broad (3.8: 3.2), base slightly sinuous, apex shallowly concave in middle, roundly expanded on sides from base to basal fourth, broadest at basal fourth, thence very slightly arcuately, almost straightly narrowed to strongly impressed subapical constriction at length of an antennal club from apex, apical part collar-like, constriction narrowly and slightly impressed across otherwise evenly and slightly longitudinally arcuate dorsal contour; derm shiny, punctures small, separated by interstices as broad or slightly broader than their diameters, their setae minute and specklike. *Elytra* two and one fourth times as long as broad, slightly more than two and one half times as long as prothorax; base emarginate at scutellum; subparallel-sided to apical fourth, thence broadly rounded to apex, without an obvious subapical constriction, apices conjointly emarginate; striae distinctly narrower than intervals, their punctures broader than grooves, comparatively shallow, lateral stria distinct and complete throughout; intervals flat or but slightly convex, each with a row of small punctures bearing microscopical setae, 1 one third narrower than 2 at middle, 9 becoming narrowly elevated and rather sharply cariniform above first ventrite, broader and costiform beyond third ventrite, joining 3 at about breadth of 2 from apex. *Legs* with femora stout, fore pair about half as broad as long, minutely punctate; tibiae strongly uncinate and mucronate, fore pair angulate on lower edge at slightly beyond middle, posterior face produced into a distinct conspicuous tooth at apical third; tarsi with third segment about one fourth broader than second, shallowly concave at the apex, claws slender, only slightly divergent. *Sternum* with prosternum broadly depressed down middle, closely set with small shallow punctures, three times as long before as behind coxae, intercoxal process slightly narrower than breadth of a coxa; mesosternum on same plane as metasternum, punctures shallow and separated by about their diameters, one fifth broader between coxae than breadth of a coxa; metasternum shallowly impressed on sides; punctures similar to or somewhat larger and deeper than those of mesosternum, two and one half times as long, between mid and hind coxae as breadth of intercoxal process of mesosternum, metacoxae separated about as widely as mesocoxae. *Venter* with first two ventrites with small punctures separated by one and one half or more times their diameters; ventrites 3 and 4 with their bases crenulated with punctures, their disks with a few minute punctures; ventrite 5 with coarser and denser punctures. Length, 3.1 mm.; breadth, 0.95 mm.

Holotype, evidently a female, Piti, from a rotten bamboo stump, Aug. 19, 1936, Swezey. (Since this was written I have seen another specimen collected at Piti by Oakley; it is 4.5 mm. in length.)

Sir Guy Marshall kindly compared this species with the British Museum material and says that it is closely allied to but much smaller than *E. ferrugineus* Wollaston, 1873 from the Papuan area. It cannot be confused with the three Philippine species described by Heller in 1913, because of its size, coloration, structure of rostrum, antennal scape and other characters. The tooth on the posterior face of the fore tibiae above the articulation of the tarsus is peculiar.

Genus **MACRANCYLUS** LeConte

Macrancylus LeConte, Am. Phil. Soc., Proc. **14**: 338, 1876.
Haloxenus Perkins, Fauna Haw. **2**: 148, 1900. Synonymy by Champion, Ent. Mo. Mag. II, **20**: 123, 1909.

This genus was described as American by LeConte, but I have shown in my "Synopsis of the Genera of Hawaiian Cossoninae . . ." [B. P. Bishop Mus., Occ. Papers **15**(25): 285, 1940] that the genus belongs to the Pacific fauna and that the genotype of *Haloxenus* is a synonym of the genotype of *Macrancylus*. In other words, the genotype of *Macrancylus* is a Pacific insect that has been imported into America. The genus has remained monotypic until now, but the discovery of a new species on Guam indicates that there are more species to be found in the Pacific. [Since this was written, I have described a third species from Samoa (B. P. Bishop Mus., Occ. Papers **16**(7): 172-173, 1941)].

43. **Macrancylus niger,** new species (pl. 5, *F*).

Male: derm black, shiny, polished, appendages diluted with red; setae minute, pale, and inconspicuous.

Head as broad across eyes as length of head from pronotum to anterior edges of eyes, conspicuously constricted on sides at or slightly more than the length of an eye, as measured from above, behind eyes, constriction continued broadly across dorsum; area behind constriction almost impunctate, with a few small punctures near constriction only, puncturation beyond constriction continuous with that of rostrum, punctures small and separated by interstices as broad or broader than their diameters; eyes not prominent, extending laterally only one sixth of length of an eye; interocular area almost three times as broad as length of an eye as measured from above, with only an inconspicuous, subobsolete median impression, longitudinal dorsal contour continuous with that of rostrum. *Rostrum* as long beyond eyes as side of head from prothorax to fore edges of eyes, almost one half as long as prothorax, somewhat more than twice as long as an eye, about as long as basal breadth of rostrum, lateral outlines almost straightly narrowing from hind margins of eyes to apex, narrowest apical breadth bearing a ratio of 13 to 15 with basal breadth; puncturation similar to and continuous with that of front, but becoming finer distally; upper margin of scrobe touching lower margin of eye, lower margin extending back at least as far as middle of eye; antennae inserted at about half length of an eye in front of eyes. *Antennae* with scape reaching behind eye to cephalic constriction, arcuate; first funicular segment somewhat longer than broad, somewhat longer than 2 plus 3, 2 to 7 transverse and each successively somewhat broader; club compressed, five sixths as broad as long, longer than preceding six segments. *Prothorax* longer than broad (3.5: 2.8), base and apex subtruncate, rounded on sides in basal fourth, broadest in basal third thence slightly arcuately narrowing to rather shallow subapical constriction, constriction broadly and shallowly interrupting otherwise evenly, flatly arcuate longitudinal dorsal outline;

discal punctures about two or three times as large as those on head, separated by not more than their diameters. *Elytra* slightly more than two and one third times as long as broad, somewhat more than twice as long as prothorax, subparallel-sided to beyond basal two thirds, outline thence slightly sinuously rounded to apex but not distinctly constricted; striae narrow, deep, well defined, slightly narrower than intervals, their punctures close, well defined, bearing microscopic setae, outer stria narrowed above metacoxa and almost impunctate above first two ventrites; intervals convex, each with a row of minute punctures bearing microscopical setae, first interval widening at apex, and there the right one distinctly broader than the left, and about twice as broad as 2, 1 narrower than 2 on disk, 3 slightly more elevated on declivity than the others, 8 beginning at about posterior fourth of metasternum, 9 costiform behind second ventrite, fused with third and thence joining second at elytral apex. *Legs* with femora sparsely punctate; tibiae strongly uncinate and mucronate, a mucro about half as long as an uncus, fore pair angulate at middle of lower edge; third tarsal segment hardly broader than second, entire or but slightly emarginate distally, second segment about as long as third; claws strongly divergent. *Sternum* with prosternum closely punctate throughout, three times as long in front of as behind coxae, intercoxal process about five sevenths as broad as distance between coxa and hind margin of prosternum; mesosternum on same plane as metasternum, closely punctate, intercoxal process one fourth broader than a mesocoxa; metasternum closely punctate throughout, punctures separated by interstices as broad or broader than punctures on the disk but narrower than punctures on sides, median line sulcate from in front of middle to apex, not quite four times as long between mid and hind coxae as length of a mesocoxa, suture at mesosternum almost obliterated, metacoxae separated by breadth of a mesocoxa. *Venter* with first two ventrites shallowly impressed down middle, ventrite 1 with larger and more numerous punctures than 2, 2 mostly sparsely and minutely punctate, 3 and 4 with a row of coarser punctures at their bases and a few smaller scattered punctures; 5 impressed in distal half, with dense punctures similar to those on 1. Length, 2.75 mm.; breadth, 0.75 mm.

Holotype male, Talofofo, May 7, 1936, Usinger.

This species differs from *Macrancylus linearis* LeConte in being larger and shiny black instead of reddish brown or piceous, by having the prothorax evenly arcuate on the sides instead of sinuous, the head longer behind the eyes with the cephalic constriction deeper, more conspicuous, distinctly impressed across the dorsum and farther behind the eyes, and the prosternum is three times as long in front of as in back of the fore coxae instead of only twice as long.

Genus **PHLOEOPHAGOSOMA** Wollaston, 1873

Phloeophagosoma Ent. Soc. London, Trans., 23, 1873.

This genus, including *Amophorhynchus* Wollaston, 1873, which is considered a subgenus, contains 26 species described from Madagascar, the Seychelles, India, Japan, the Philippines, Java, Borneo, New Guinea, other islands of the Indo- and Austro-Malayan subregions, Australia, New Zealand, Samoa, and Hawaii. The following new species is the first recorded from Micronesia.

44. **Phloeophagosoma sulcirostre**, new species (pl. 5, *E*).

Male: derm shiny, almost entirely reddish brown excepting black eyes; setae minute, inconspicuous.

Head about as long from pronotum to front of eyes as basal breadth, with a distinct, narrow constriction four fifths the length of an eye behind eyes as measured from above, constriction not impressed across dorsum; area behind constriction shiny, impunctate, area beyond constriction and interocular area rather coarsely, densely, subconfluently punctate, interstices narrower than punctures; interocular area not quite four times as broad as breadth of an eye as measured from above, with a shallow, obscure median fovea between hind margins of eyes; eyes very slightly more convex than sides of head, five sevenths as long as high. *Rostrum* forming a continuous curve with front of head, three fifths as long from front of eyes to apex as length of prothorax, three times as long as an eye, almost twice as long as its basal breadth, subparallel-sided from base to apex but outline made slightly sinuous by a slight expansion at antennae, apex distinctly emarginate in middle; antennae inserted at basal third at a length of an eye from eyes; scrobes extending to middle, their upper margins ill defined, but evidently directed to lower margin of eyes, lower edges of scrobes well marked, terminating below about middle of eyes and there the breadth of apex of scape from eyes; with a fine groove running from top of scrobe above antennal insertion; puncturation dense, continuous with that of front, becoming distinctly finer distally. *Antennae* with scape extending behind eye to cephalic constriction; first funicular segment hardly longer than broad, as long as 2 plus 3, 2 subquadrate, 3 to 7 successively slightly more transverse; club as long as preceding five segments. *Prothorax* slightly longer than broad (2.7:2.5), base and apex subtruncate, broadest at basal third, thence arcuately narrowing to narrow subapical constriction, constriction evidently not interrupting almost straight longitudinal dorsal outline; densely and evenly punctured throughout, punctures medium large, separated by less than their diameters, without any impunctate areas; setae minute, hardly discernible. *Elytra* somewhat more than twice as long as broad, somewhat more than twice as long and slightly broader than prothorax, very slightly and gradually narrowed to apical third, thence more rapidly narrowed, thence broadly rounded at apex; striae distinct and well impressed, tenth complete, punctures crenulating sides of intervals, about as broad as intervals on disk, closely placed; intervals convex, each bearing a row of minute punctures giving rise to microscopical setae, 7 beginning above metacoxa, 9 costiform from above third ventrite to its apex joining 1 at apex. *Legs* with femoral setae minute; tibiae strongly uncinate and mucronate, a mucro about half as long as inner edge of an uncus; third hind tarsal segment entire, slightly broader than 2, slightly broader than long, third fore tarsal segment about twice as broad as 2. *Sternum* with prosternum densely, comparatively coarsely punctate, interstices narrower than punctures, broadly depressed down middle, more than twice as long in front of than behind coxae (11:4), intercoxal process five sevenths as broad as a coxa; mesosternum densely punctate, on same plane as metasternum, intercoxal process as broad as a coxa; metasternum broadly depressed down middle, coarsely and densely punctate throughout except between metacoxae, interstices narrower than punctures, twice as long between mid and hind coxae as intercoxal process of mesosternum, metacoxae as widely separated as mesocoxae. *Venter* with first ventrite broadly concave down middle, ventrites 1 and 2 less densely and coarsely punctate than metasternum; ventrites 3 and 4 with a basal row of coarse punctures and a row of small discal punctures; ventrite 5 densely set with small punctures. Length, 2.2 mm.; breadth, 0.65 mm.

Holotype male collected by Fullaway and bearing the number "1174" and without specific locality other than "Island of Guam."

This species is closely allied to *Phloeophagosoma carinirostre* Marshall (1931), from Samoa, but it differs from that species in being reddish brown instead of black in color, and the cephalic and rostral puncturation is denser and coarser and the upper margin of the scrobe is not distinctly defined as a carina to the eye as on *P. carinirostre.*

SUBFAMILY RHYNCHOPHORINAE

All the members of this subfamily found in Guam are adventitious, widespread species of economic importance.

TRIBE RHYNCHOPHORINI

Genus **RHABDOCNEMIS** Faust, 1894

45. **Rhabdocnemis obscura** (Boisduval) (pl. 7, *A*; misspelled *obscurus* on plate).

Calandra obscura Boisduval, Voy. Astrolabe, Ent. 2: 448, 1835.

Sphenophorus insularis Boheman, Eugenies Resa, Ins., 148, 1859.

Sphenophorus nudicollis Kirsh, Mus. Dresden, Mitt. 2: 156, 1877.

Sphenophorus promissus Pascoe, Mus. civ. stor. nat. Genova, Ann. II, 2: 300, 1885.

Sphenophorus tincturatus Pascoe, Mus. civ. stor. nat. Genova, Ann. II, 2: 301, 1885.

Sphenophorus beccarii Pascoe, Mus. civ. stor. nat. Genova, Ann. II, 2: 301, 1885.

Sphenophorus interruptocostatus Schaufuss, Horae Soc. Ent. Ross. 19: 204, 1885.

This is the common sugar-cane pest so widespread in the Pacific. Mr. Swezey took the following specimens: six, Piti, from sugar cane, Oct. 16, 1936; four, Agana, from royal palm, Oct. 3; and seven, Talofofo, from betel nut palm, June 17.

Genus **COSMOPOLITES** Chevrolat, 1885

46. **Cosmopolites sordidus** (Germar) (pl. 6, *G*).

Calandra sordida Germar, Ins. Spec. Nov., 299, 1824.

Sphenophorus striatus Fahraeus, in Schoenherr's Gen. Spec. Curc. 8(2): 251, 1845.

Sphenophorus cribricollis Walker, Ann. Mag. Nat. Hist. III, 4: 218, 1859.

This tropicopolitan pest of bananas is represented in the collection by numerous specimens taken at Dededo, Yona, Yigo, Mt. Alifan, and Barrigada from bananas in May, June, Aug. and Nov., by Swezey and Usinger.

Genus **POLYTUS** Faust, 1894

47. **Polytus mellerborgi** (Boheman) (pl. 6, *I*).

Sitophilus mellerborgi Boheman, in Schoenherr's Gen. Spec. Curc. 4(2): 976, 1837.

Calandra remota Sharp, Roy. Dublin Soc., Trans. III, 3: 183, 254, 1885.

Polytus mellenborgi (Boheman) Faust, Mus. civ. stor. nat. Genova, Ann., 34: 353, 1894.

Sphenophorus musaecola Fairmaire, Soc. Ent. Belg., Ann. 42: 489, 1898.

Calandra mexicana Champion, Biol. Centr. Am. Coleopt. 4(7): 170, pl. 8, fig. 11, 1910.

This almost tropicopolitan species feeds in the corms of bananas. Specimens were taken at Dededo, from bananas, Yigo, Yona, and Mt. Alifan in May, Sept., and Nov., Swezey.

Genus **CALANDRA,** of authors

48. **Calandra oryzae** (Linnaeus).

Curculio oryzae Linnaeus, Amoen. Acad. 6: 396, 1763.

Curculio frugilegus De Geer, Mem. Ins. 5: 273, 1781.

Curculio granarius Stroem (not Linnaeus), Danske Vid. Selsk. Skrift. 2: 256, 1783.

Sitophilus oryzae (Linnaeus) Gyllenhal, in Schoenherr's Gen. Spec. Curc. 4: 981, 1837.

Cossonus quadrimaculatus Walker, Ann. Mag. Nat. Hist. III, 4: 219, 1859.

Sphenophorus quadriguttatus Montrouzier, Soc. Ent. France, Ann. III, 8: 910, 1860.

Most of the Guam specimens in the collection belong to the large variety, *zea-mais* (Motschulsky) and were taken at Agat, Piti, and Merizo; one was swept from grass and two were taken from corn.

I understand that formal application is to be made to the International Congress of Nomenclature to stabilize the long used name *Calandra* in place of *Sitophilus* Schoenherr.

Genus **DIOCALANDRA** Faust, 1894

49. **Diocalandra frumenti** (Fabricius) (pl. 6, *H*).

Calandra frumenti Fabricius, Syst. Eleuth. 2: 438, 1801.

Sitophilus stigmaticollis Gyllenhal, in Schoenherr's Gen. Spec. Curc. 4(2): 972, 1837.

Sitophilus subsignatus Boheman, in Schoenherr's Gen. Spec. Curc. 4(2): 973, 1837.

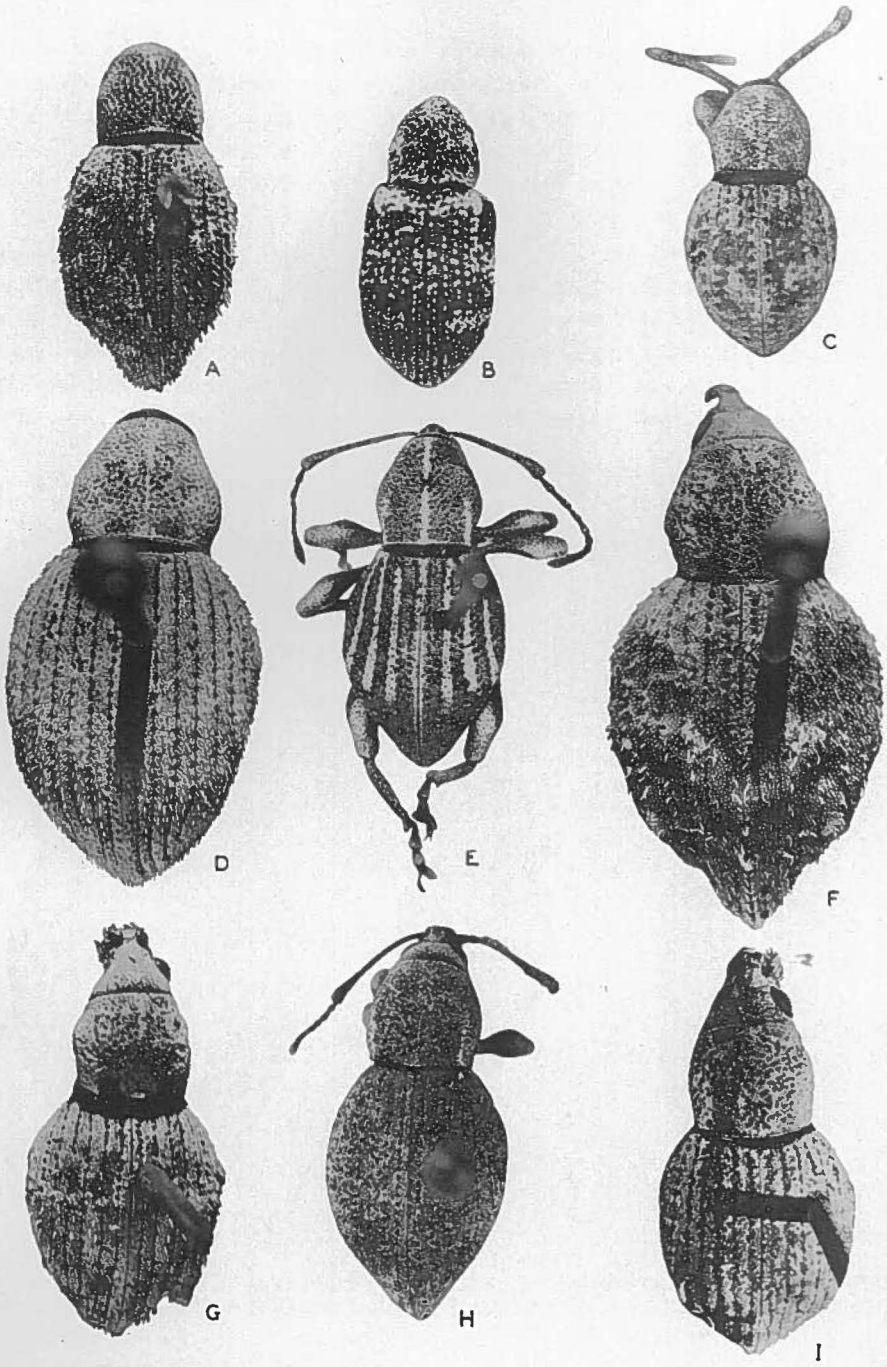
Sphenophorus cruciger Motschulsky, Etud. Ent. 7: 69, 1858.

Calandra punctigera Pascoe, Mus. civ. stor. nat. Genova, Ann. II, 2: 305, 1885.

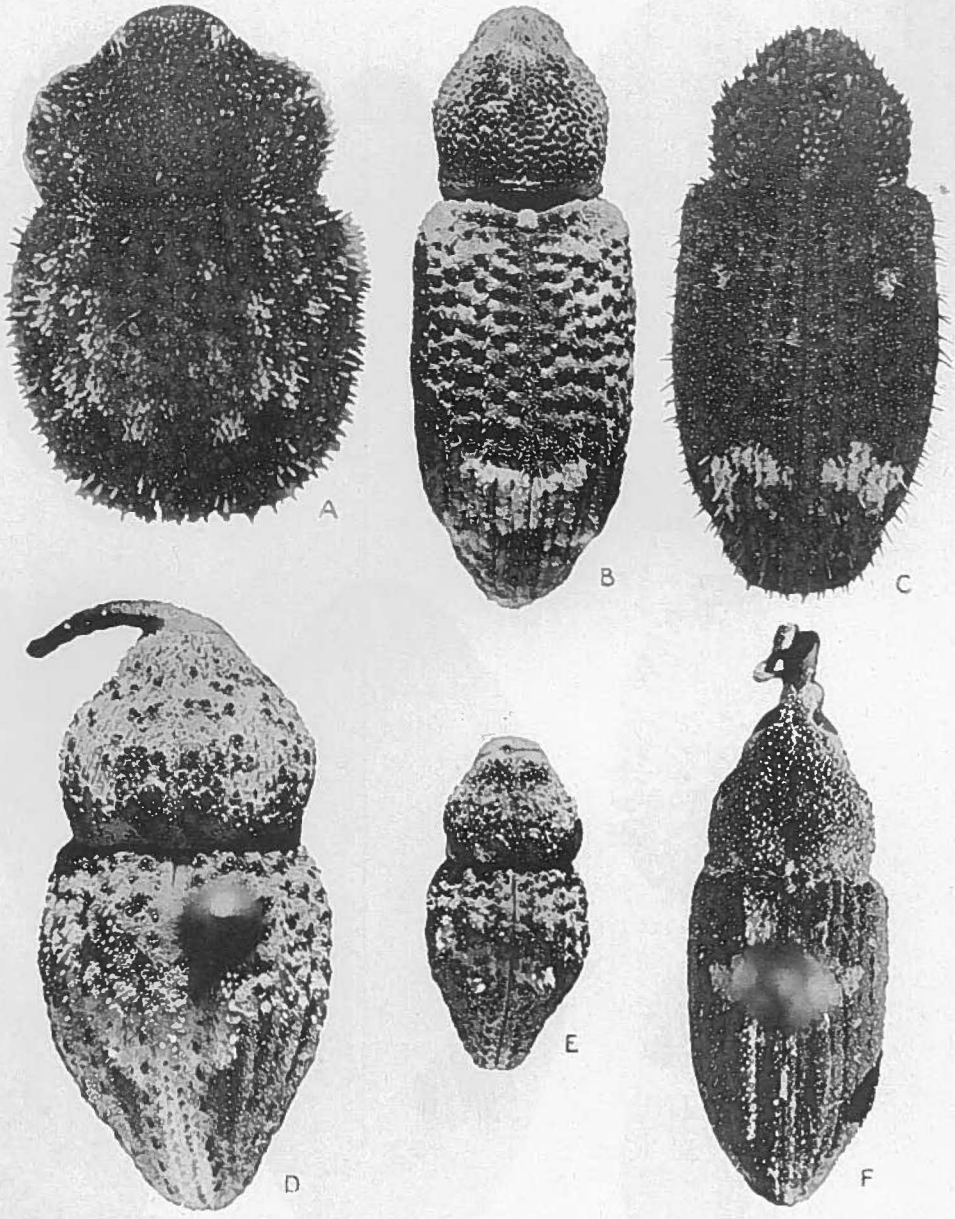
Calandra sechellarum Kolbe, Zool. Mus. Berlin, Mitt. 5: 46, 1910.

This coconut insect has a wide distribution from Tanganyika, East Africa to Samoa in Polynesia. The Guam specimens before me were collected by Bryan, Swezey and Usinger from coconuts in Inarajan in May and Yigo in November, and Swezey took one specimen from a royal palm at Agana, Oct. 3. The National Museum material contains 21 specimens taken Sept. 7, 1938, "in coconut branch with wind injury" by Oakley.

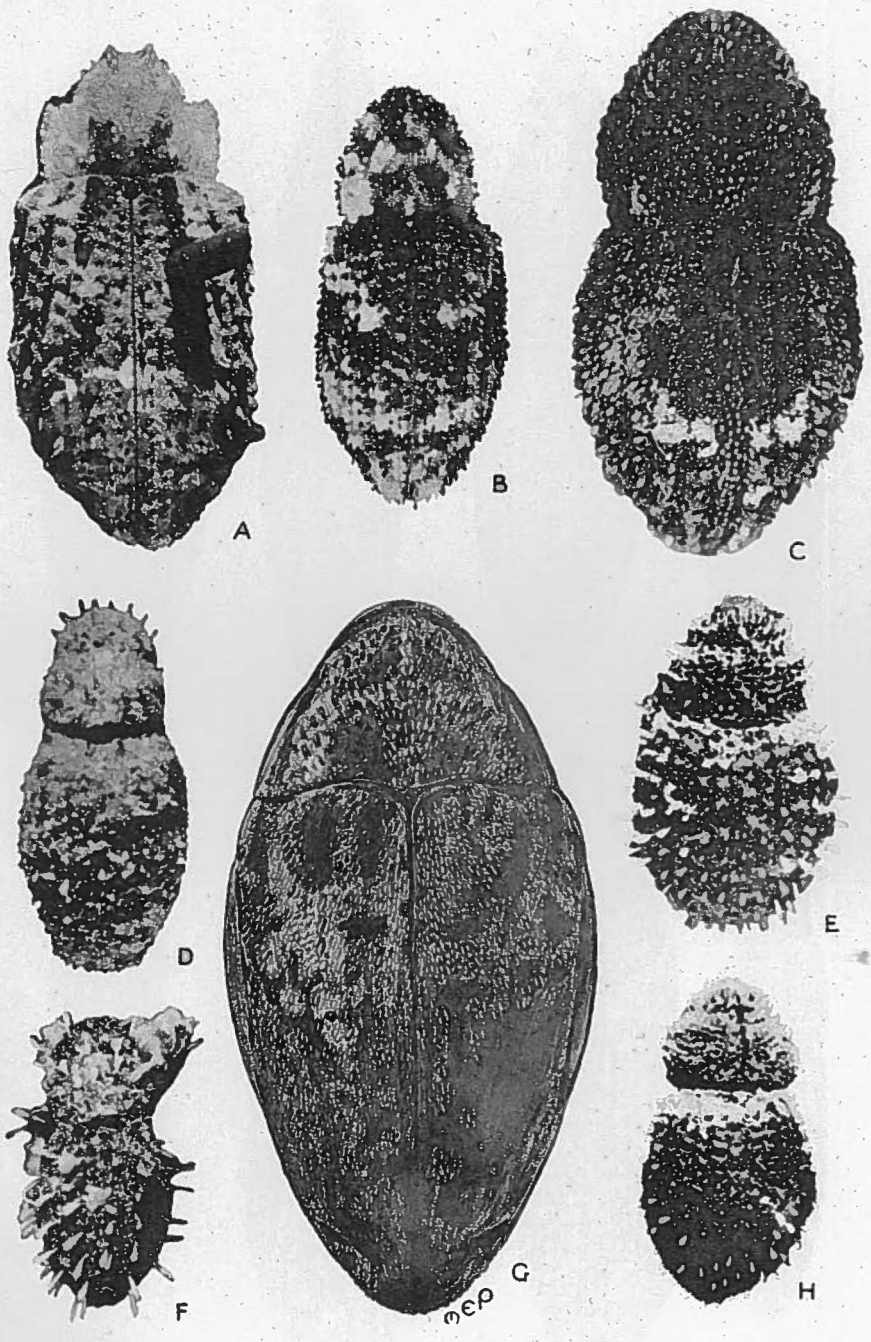
This species has been recorded from Guam as *Diocalandra taitensis* (Guérin-Méneville), because of confusion in the identification of the species. *D. taitensis* is a redder species with much less black coloring, it has a broader, flatter, differently shaped prothorax on which the interstices are very coarsely reticulate and make the surface dull. On *D. frumenti* the interstices on the pronotum are finely reticulate and the surface has a moderately shiny appearance.



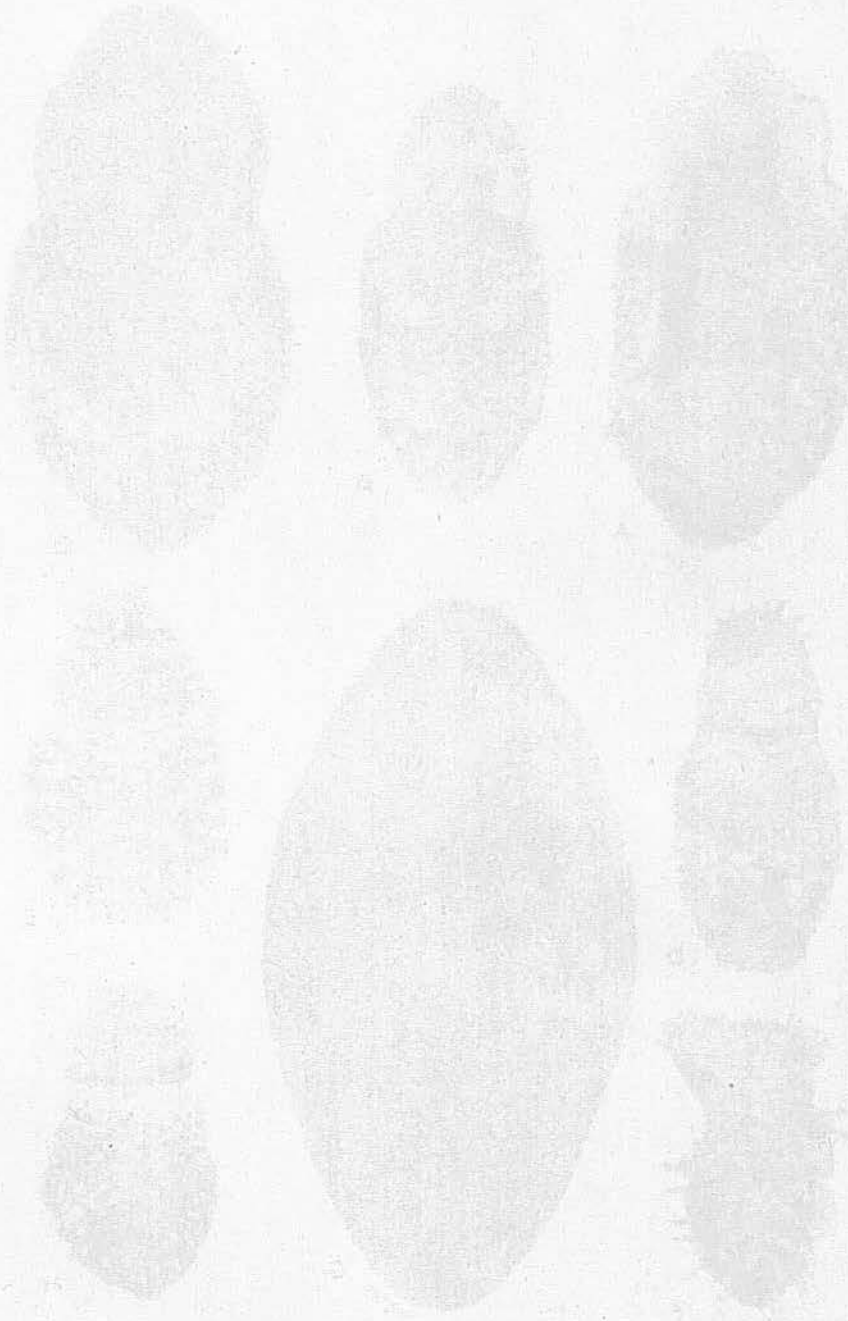
BRACHYDERINAE AND OTIORHYNCHINAE. A, *TRIGONOPS IMPURA;* B, *VITICIS GUAMAE;* C, *TRIGONOPS INCRINITA;* D, *T. HIRSUTA;* E, *T. INAEQUALIS,* HOLOTYPE MALE; F, *T. INUSITATA;* G, *T. VULGARIS;* H, *T. INAEQUALIS,* FEMALE; I, *T. CONVEXA.* (PHOTOGRAPHS BY W. TWIGG-SMITH.)

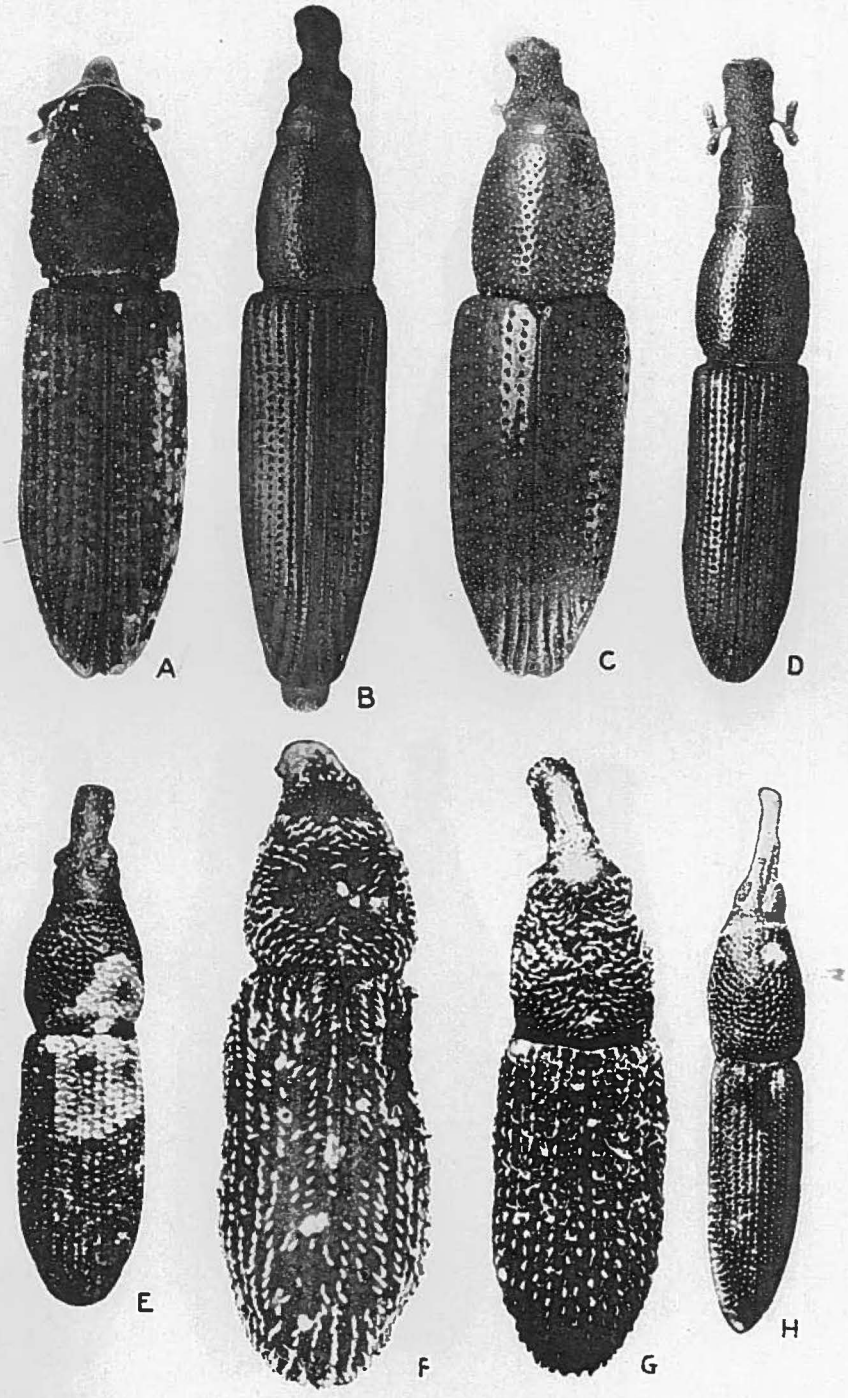


CRYPTORHYNCHINAE. A, *ANABALLUS AMPLICOLLIS;* B, *CAMPTORHINUS DORSALIS;* C, *EUSCEPES POSTFASCIATUS;* D, *DEALUS TUBEROSUS;* E, *D. TIBIALIS;* F, *OREDA MACULATA.* (PHOTOGRAPHS BY W. TWIGG-SMITH.)

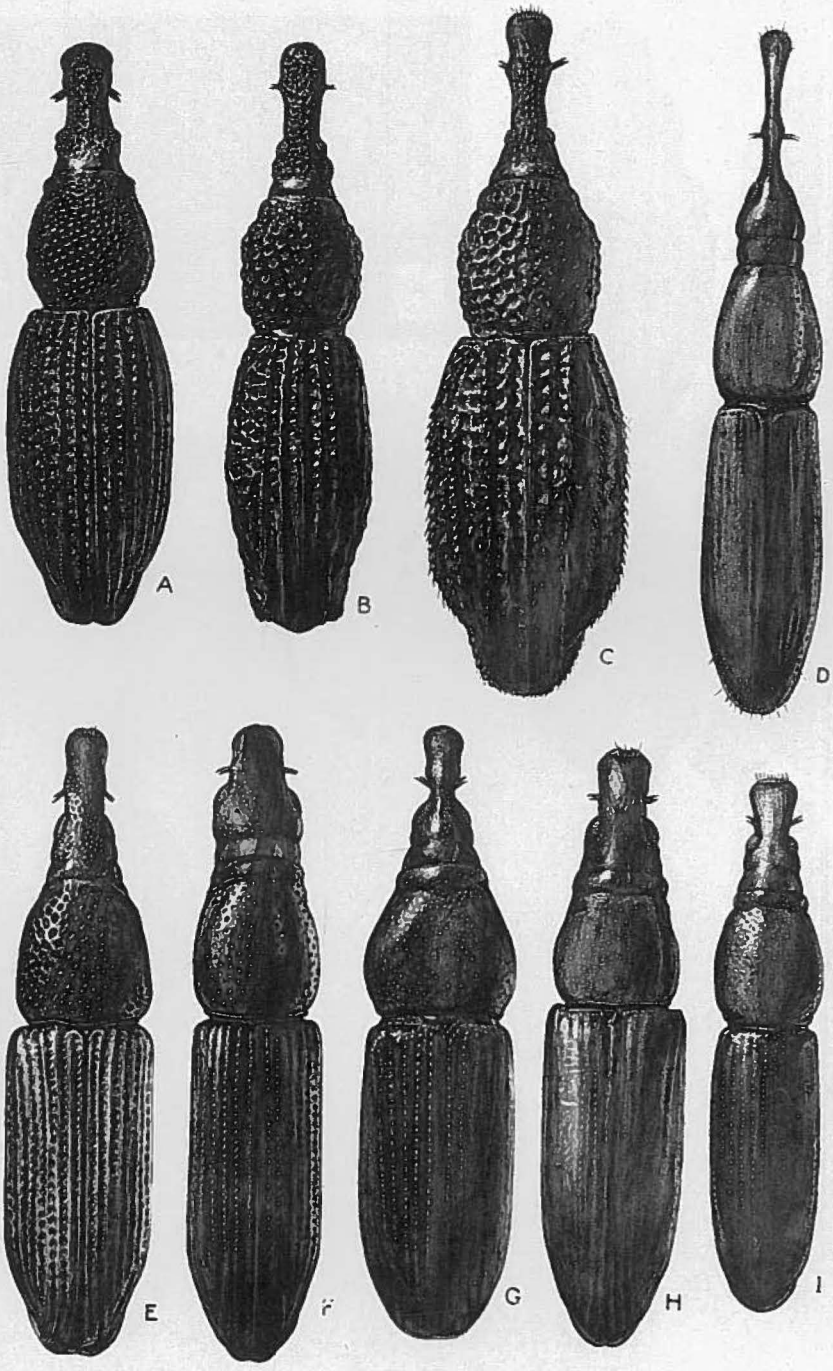


CRYPTORHYNCHINAE. **A**, *DERETIOSUS FICAE*; **B**, *MENECTETORUS SETULOSUS*; **C**, *ACALLES SAMOANUS*; **D**, *MICROCRYPTORHYNCHUS BASIPENNIS*; **E**, *M. GUAMAE*; **F**, *M. SPINIFER*; **G**, *NEOAMPAGIA IMITATOR*; **H**, *MICROCRYPTORHYNCHUS PREMNAE*. (PHOTOGRAPHS BY TWIGG-SMITH, WASH DRAWING (*G*) BY M. E. POOR.)

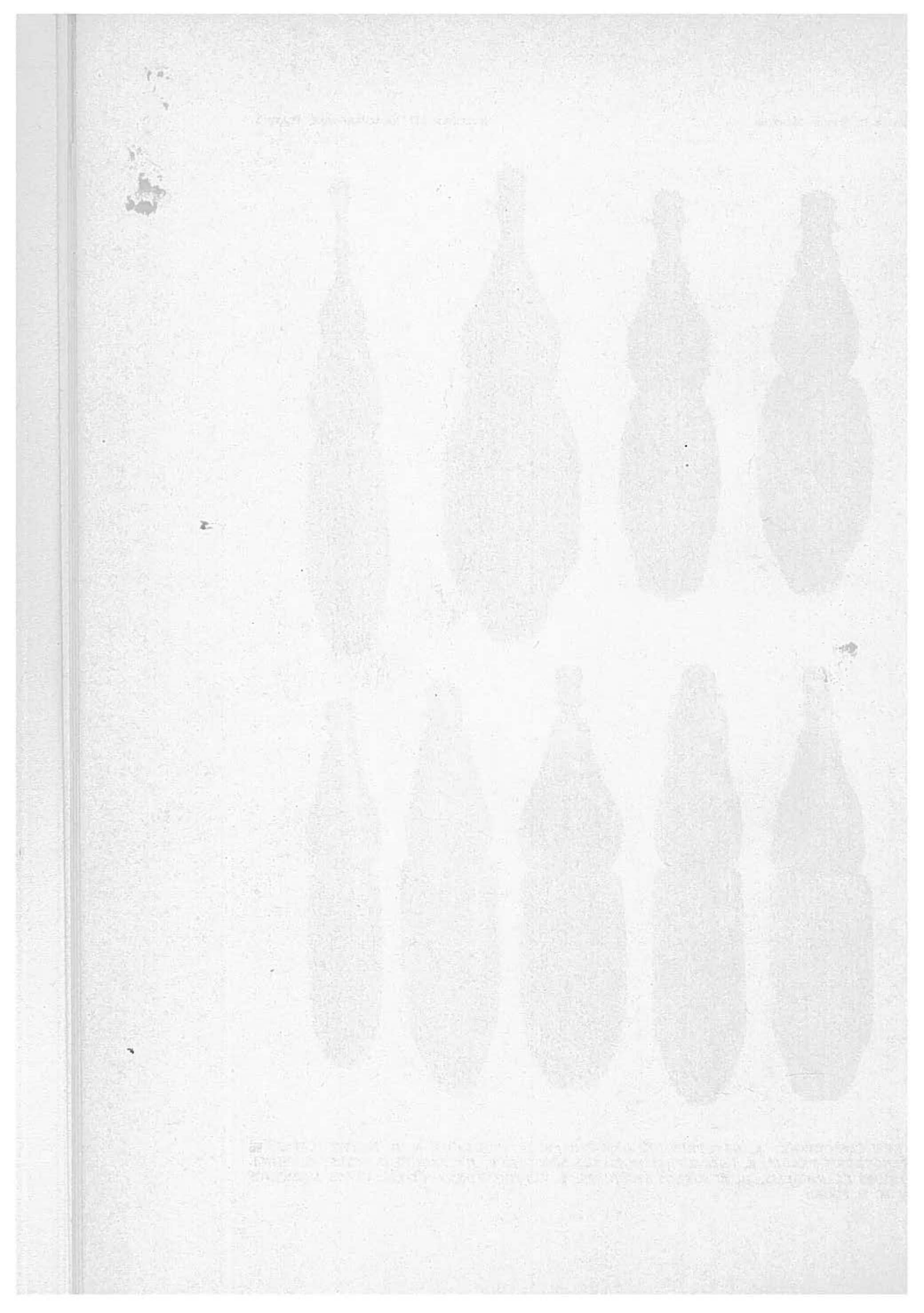


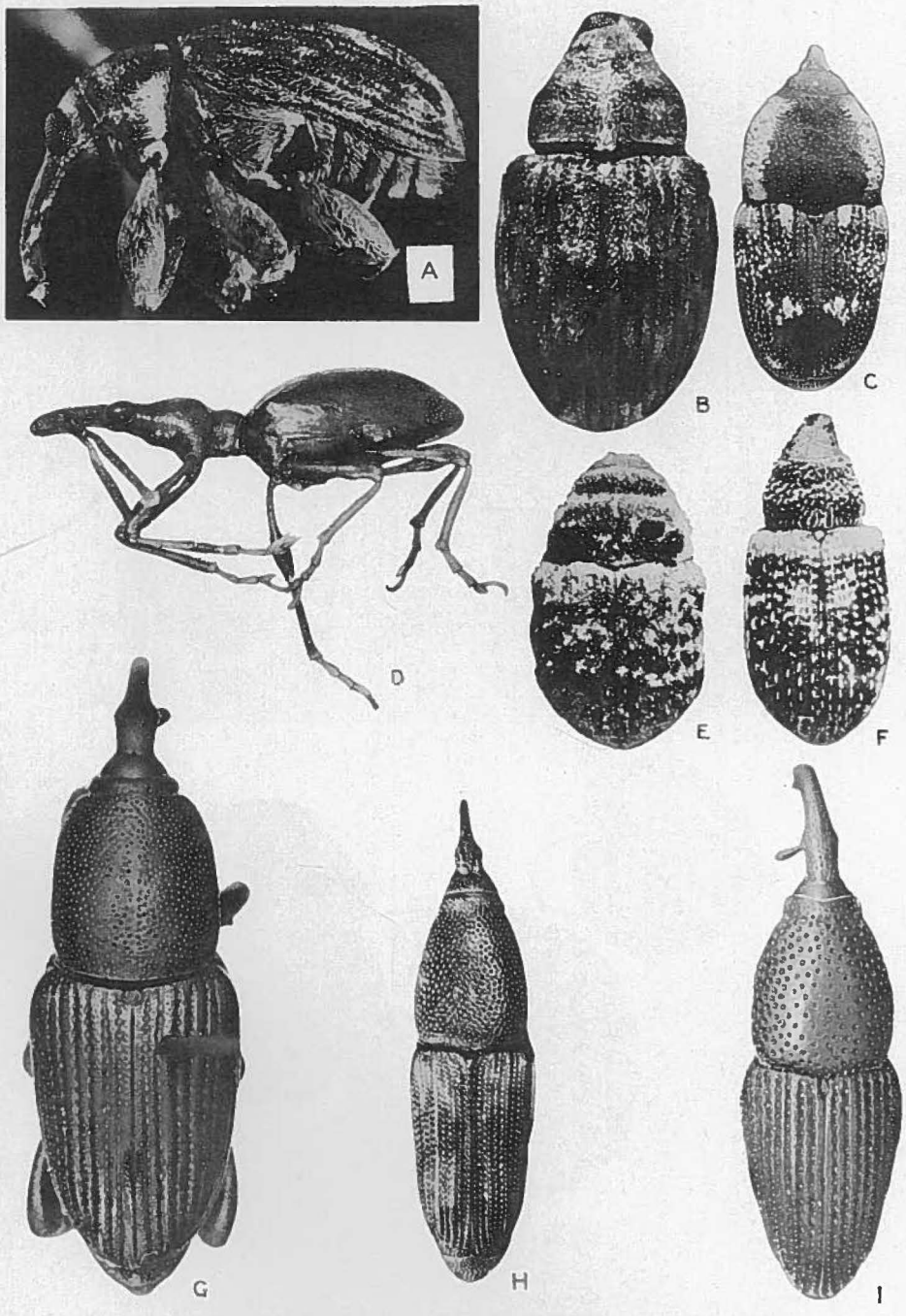


GUAM COSSONINAE. **A**, *CHOERORRHINODES CONSTRICTICEPS*; **B**, *OXYDEMA FUSIFORME*; **C**, *O. LONGULUM*; **D**, *APHANOCORYNES HUMERALIS*; **E**, *CHOERORRHINODES MARSHALLI*; **F**, *C. FLAVISETOSUS*; **G**, *HIMATINUM BISETOSUM*; **H**, *CYLINDROTRYPETES SUFFUSUS*. (PHOTOGRAPHS BY W. TWIGG-SMITH.)

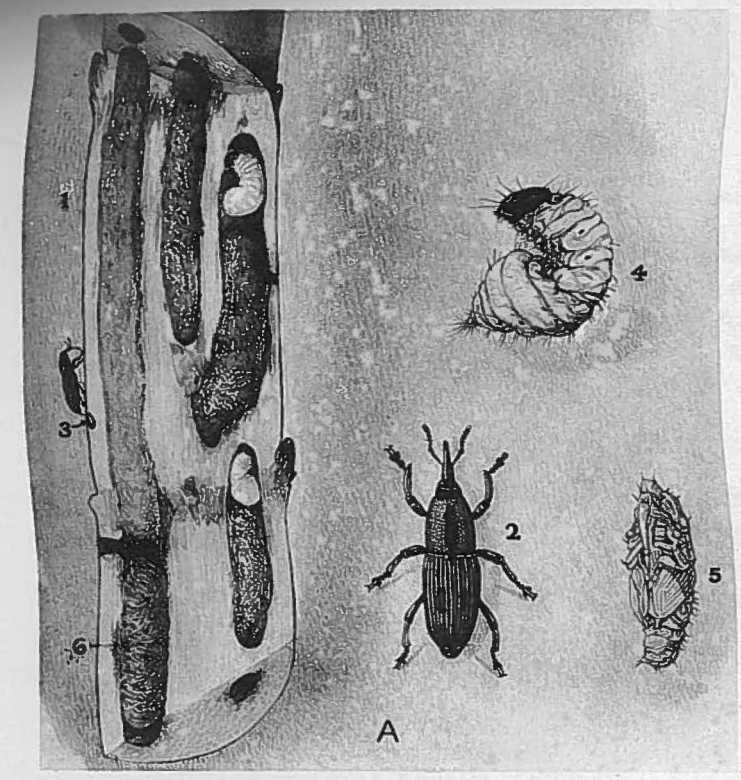


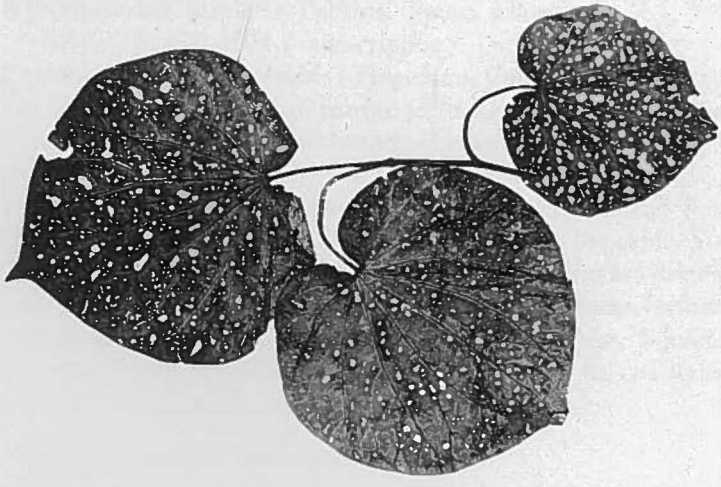
NEW COSSONINAE. **A**, *DRYOTRIBODES OBSCURUS*; **B**, *D. ANGULARIS*; **C**, *D. DENTICULATUS*; **D**, *STENOTRUPIS TENUIS*; **E**, *PHLOEOPHAGOSOMA SULCIROSTRE*; **F**, *MACRANCYLUS NIGER*; **G**, *RHINANISODES PLANICOLLIS*; **H**, *EUTORNUS NIGRICEPS*; **I**, *TYTTHOXYDEMA EXILIS*. (WASH DRAWINGS BY M. E. POOR.)





GUAM CURCULIONIDAE. **A**, SIDE VIEW AND **B**, DORSAL VIEW OF *USINGERIUS MACULATUS*; **C**, *ATHESAPEUTA ULVAE*; **D**, *CYLAS FORMICARIUS*; **E**, *SWEZEYELLA MUSCOSA*; **F**, *AMBLYCNEMIS DENTIPES*; **G**, *COSMOPOLITES SORDIDUS*; **H**, *DIOCALANDRA FRUMENTI*; **I**, *POLYTUS MELLERBORGI*. (PHOTOGRAPHS BY W. TWIGG-SMITH.)





A. ILLUSTRATIONS OF "LIFE HISTORY OF THE NEW GUINEA SUGARCANE WEEVIL," *RHABDOCNEMIS OBSCURUS:* 1, SUGAR CANE SHOWING DAMAGE; 2, ADULT; 3, EGG IN RIND OF CANE; 4, LARVA; 5, PUPA; 6, COCOON. (FROM A PAINTING BY W. R. R. POTTER, AFTER MUIR AND SWEZEY, HAWAIIAN SUGAR PLANTERS' ASSOCIATION, ENT. BULL. 13, 1916.) B, WORK OF *TRIGONOPS* ON LEAVES OF *PIPER GUAHAMENSE.*

BARKBEETLES OF GUAM

By KARL E. SCHEDL
HANN-MÜNDEN, WOORTHWEG, GERMANY
(66. Contribution of the Taxonomy and Morphology of the Scolytoidea)

Sir Guy Marshall, Director of the Imperial Institute of Entomology in London, kindly forwarded to me several small lots of beetles from Guam, collected with two exceptions by O. H. Swezey in 1936. I give the list of localities and food plants below, and the description of one new species and some revisional notes.

FAMILY PLATYPODIDAE

1. **Platypus solidus** Walker, Ann. Mag. Nat. Hist. III, 2 : 286, 1858.
Platypi oxyuri solidus Walker, Coleopt. Catalog. Strohmeyer 26(44) : 17, 1912.

Machanao, June 4, under bark; Barrigada, July 22, under bark of *Intsia bijuga;* Fadian, Aug. 19, ex bark of dead *Annona* tree.

Occurs in Ceylon, India, and Sunda Islands.

FAMILY IPIDAE

2. **Stephanoderes (Hypothenemus) insularis** (Perkins).
Hypothenemus insularis Perkins, Fauna Hawaii. 2 : 181, 1900. Schedl, Stylops 3 : 178, 1934 (redescription).
Cryphalus insularis (Perkins) Hagedorn, Coleopt. Cat. 26(4) : 43, 1910.

Piti Sept. 16, under bark of banyan; Piti, Oct. 7, 9, abundant in dead twigs of orange; Piti, Oct. 27, in dead branch of breadfruit.

Occurs in the Hawaiian islands.

I have examined the antennae of this species again and found that the funicle is 5-jointed and therefore it has to be placed in the genus *Stephanoderes* Eichhoff. Two specimens of the large series from Guam are decidedly smaller, 0.7 mm. long, more oval in outline, the declivity commences farther behind and is more gradually convex. The antennal funicle is also 5-jointed, the club more strongly egg-shaped in outline (as far as can be concluded from one mount). These specimens are probably males.

3. **Cryphalus swezeyi,** new species.

Female: brown, base of the pronotum and elytra usually paler. Well marked by the secondary sexual characters and the vestiture of the elytra. *Front* feebly and uniformly convex, subshining, minutely punctulate and finely rugosely punctured. *Pronotum* wider than long (44 : 35), widest at base, sides gradually constricted in an arcuate curve from the base to the base to the moderate narrowly rounded apex, apical margin with 6 low and remotely placed asperities; summit in the basal third anteriorly obliquely convex with

small remotely placed asperities, the wide interspaces finely punctulate, the basal portion finely punctulate and with minute pale scales. Pubescence dark, erect, moderately long. Scutellum small. Elytra feebly wider and 1.5 times as long as the pronotum, sides feebly arcuate, subparallel on little less than the basal half, declivity uniformly convex, very feebly flattened below; disk densely punctulate, striae feebly developed, on the declivity the interspaces become narrower, feebly elevated, the striae impressed, the strial punctures larger; the pubescence consists of two kinds of hairs, each interspace bears a row of long dark hairs accompanied on each side by a line of minute scales. Length, 1.5-1.6 mm.; not quite twice as long as wide.

Male: front with a well-developed median carina above, apparently to stridulate, the pronotum at the sides more strongly constricted, apex extended, apical asperities larger, the convexity more oblique. Elytra stouter, the declivity more strongly convex, commencing farther in front, the interspaces wider.

Dededo, May 11, ex *Piper guahamense;* Yigo, Oct. 18, ex dead small-leaved *Ficus*. Specimens from the following localities are smaller, 1.46-1.50 mm. but seem to belong to the same species: Ritidian, April 15, ex ferns, Bryan; Mt. Alifan, May 21, ex dead breadfruit; Piti, May 22, under bark of breadfruit.

Types in the British Museum and in my collection; paratypes in collection of Experiment Station, Hawaiian Sugar Planters' Association, Honolulu.

4. **Cosmoderes birmanus** (Eichhoff).

Triarmocerus birmanus Eichhoff, Ratio Tom., Mem. Liege 3: 486, 1878. Hagedorn, Coleopt. Catalog. 26(4): 46, 1910.

Piti, Aug. 18, ex *Lucaena glauca;* Sept. 16, under bark of banyan.

Occurs in Burma. The two specimens have exactly the same general shape, proportions and antennal characters as the type of *Cosmoderes birmanus* (Eichhoff) before me, but differ in the smaller size (1.6 mm. long), darker color, reddish declivital pubescence and somewhat steeper declivity which commences more abruptly than in the type. Probably the specimens represent the other sex.

5. **Coccotrypes carpophagus** (Hornung).

Bostrichus carpophagus Hornung, Stett. Ent. Zeitung 3: 116, 1842.

Coccotrypes carpophagus (Hornung) Eggers, Wien. Ent. Zeitung, 46: 52, 1929.

Piti, Oct. 10, at light, one specimen; Piti, Oct. 29, in house, one specimen.

Occurs in Ceylon, Australia, and Indo-Malaya.

6. **Xyleborus testaceus** (Walker).

Bostrichus testaceus Walker, Ann. Mag. Nat. Hist. III, 3: 260, 1859.

Xyleborus testaceus (Walker) Hagedorn, Coleopt. Catalog. 26(4): 112, 1910.

Piti, May 31, June 6; Machanao, June 4, ex breadfruit stump; Piti, Aug. 18, ex dead *Leucaena glauca;* Yigo, Oct. 18, ex dead small-leaved *Ficus*.

Occurs in Ceylon; an abundant species in Guam.

7. **Xyleborus similis** Ferrari, Borkenk., 24, 1867.
   Xyleborus confusus Eichhoff, Hagedorn, Coleopt. Catalog. **26**(4) : 100, 1910.

Machanao, June 4, ex breadfruit stump; Piti, Oct. 7, ex *Heritiera littoralis;* Fadian, Aug. 19, ex bark of dead *Annona* tree; Yigo, Oct. 18, ex dead small-leaved *Ficus.* Abundant in Guam.

8. **Xyleborus confusus** Eichhoff, Berlin Ent. Zeitschr. **11** : 401, 1867. Hagedorn, Coleopt. Catalog. **26**(4) : 100, 1910.

Machanao, June 4, ex breadfruit stump; Mt. Alifan, June 27, ex unidentified tree (*gulos*), Usinger; Yigo, Oct. 18, ex dead small-leaved *Ficus.*

Occurs in Africa, Madagascar, Hawaii, and South America.

MISCELLANEOUS FAMILIES OF GUAM COLEOPTERA

By O. H. Swezey
Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

INTRODUCTION

The species included in this paper were determined by O. H. Swezey, unless otherwise stated. A number of specialists in Coleoptera have assisted in determinations, and some workers (particularly if there were new species to be described) submitted papers. Those who have contributed include: Max Bernhauer, K. G. Blair, E. B. Britton, G. E. Bryant, Karl E. Schedl, J. Balfour-Browne, E. A. Chapin, H. S. Barber, W. S. Fisher, L. L. Buchanan, J. Linsley Gressitt, and E. C. Zimmerman. Credit is given each contributor in appropriate places in the text. Reports on a few families sent to the British Museum for determination, which have not been turned in, include Monotomidae, Mycetophagidae, Cryptophagidae, some of the Cucujidae, Corylophidae, Erotylidae, and Histeridae.

So far as possible, records are included from material collected in Guam by D. T. Fullaway in 1911. These records were obtained from literature and from partially worked material in the U. S. National Museum, Washington, D.C., and in Bernice P. Bishop Museum, Honolulu.

Family CARABIDAE

Only a very few specimens of this family of beetles were collected in Guam in 1936.

1. **Chlaenius flaviguttatus** var. **guttatus** Eschscholtz.
   Chlaenius flaviguttatus Macleay, Annulosa Jav., 15, 1825.
   Chlaenius guttatus Eschscholtz, Zool. Atlas (5): 26, pl. 25, fig. 8, 1833.
   Lissauchenius biguttatus Montrouzier, Soc. Ent. France, Ann. III, 8: 237, 1860.
   Chlaenius flaviguttatus var. *guttatus* Eschscholtz, Andrews, Ins. Samoa 4 (1): 3, 1927.

   Piti, Sept. 28, under old coconut husk in cow pasture, Swezey, two specimens; Piti, Nov. 10, on lawn, Swezey, one specimen. (Compared with specimens in Baker Philippine collection at U. S. National Museum.)

   This beetle was collected by Fullaway in 1911, and recorded as *Chlaenius biguttatus*. It occurs also in New Guinea, New Caledonia, and Samoa.

2. **Colpodes,** new species (?).

   Piti, April 30, on leaves of *Hibiscus tiliaceus,* Swezey; Piti, July 22, Aug. 19, at light, Swezey.

Four specimens of this shiny black species were obtained. The specimens were sent to the British Museum for determination and listed as *"Colpodes* sp. n.?", but none have been returned.

3. **Endynomena pradieri** (Fairmaire).
Plochionus pradieri Fairmaire, Rev. Mag. Zool. II, 1: 34, 1849.
Endynomena pradieri (Fairmaire) Andrews, Ins. Samoa 4(1): 12, fig. 9, 1927.
Machanao, June 30, Usinger, one specimen.

4. **Tachys** species.
One specimen of this tiny carabid was collected at Machanao, May 17, Usinger. It was determined as *Tachys* sp. by E. B. Britton, but was lost off the pin point on the return trip from the British Museum.

5. **Lesticus** species.
Machanao, June 30, Usinger, remains of one specimen (prothorax and elytra). Determined by E. B. Britton.

Family DYTISCIDAE

1. **Cybister tripunctatus hamatus** (Montrouzier).
Dytiscus tripunctatus Olivier, Entomologie 3(40): 14, pl. 3, fig. 24, 1795.
Dytiscus tripunctatus var. *hamatus* Montrouzier, Soc. Agr. Lyon, Ann. 7: 9, 1857.
Cybister tripunctatus var. *hamatus* (Montrouzier) Zimmermann, Coleopt. Catalog. (71): 266, 1920.
Upi Trail, May 5, in concrete reservoir, Usinger, one specimen; Inarajan, May 14, in rice field, Usinger, one specimen; Piti, Aug. 9, in pail of rain water, Swezey, one specimen; Fullaway, 1911. (Determined by J. Balfour-Browne. One specimen retained at British Museum.)
The variety *hamatus* was described from Woodlark Island.

2. **Eretes sticticus** (Linnaeus).
Dytiscus sticticus Linnaeus, Syst. Nat. 1(2): 666, 1767.
Eretes sticticus (Linnaeus) Schultze, Philip. Jour. Sci. **11,** D: 15, 1916.
Piti, May 23, Usinger; Agana Swamp, June 26, Usinger; five specimens. (Determined by L. L. Buchanan, U. S. National Museum.)
E. sticticus is a widely distributed species.

3. **Rhantus pulverosus** Stephens, Illus. Brit. Ent. 2: 69, pl. 12, fig. 2, 1828. Zimmermann, Coleopt. Catalog. (71): 204, 1920.
Rhantus punctatus Fourcroy, Regimbart, Soc. Ent. France, Ann. 68: 306, 1899.

Upi Trail, May 5, in concrete reservoir, Usinger, one specimen. (Compared with specimens in Baker Philippine collection in U. S. National Museum.)

A widely distributed species in Europe, North Africa, Asia, Sunda Islands, and Australia.

4. **Bidessus gentilis** Sharp, Ent. Soc. London, Trans., 344, 1890. Zimmermann, Coleopt. Catalog. (71) : 53, 1920.

Agana Swamp, May 4, Usinger, five specimens. (Determined by J. Balfour-Browne. One specimen retained for the British Museum.)

Described from Ceylon. Collected on only one occasion in Guam.

Family STAPHYLINIDAE

The determinations are by Max Bernhauer, the references and records by O. H. Swezey.

Subfamily OXYTELINAE

1. **Lispinus foveatus** Fauvel, Mus. civ. stor. nat. Genova, Ann. 12 : 204, 1878.

Inarajan, May 14, Swezey, two specimens.

Described from New Guinea.

2. **Espeson crenicollis** Fauvel, Mus. civ. stor. nat. Genova, Ann. 12 : 196, pl. 1, fig. 16, 1878.

Agana, May 4, ex rotten *Pandanus* trunk, Swezey, Usinger; Piti, June 3, Usinger; 13 specimens.

Described from Key Island and Gilolo.

3. **Phloeonomus hebridensis** Bernhauer, Stylops 3 : 18, 1934.

Upi Trail, May 5, ex fig on ground, Swezey; Santa Rosa, May 19, Swezey; Piti, May 22, ex rotten breadfruit on ground; Nov. 7, ex rotten bean pod, Swezey; Barrigada, June 14, in trash under banyan tree, Usinger, July 6, Swezey; Mt. Alifan, June 27, in *Pandanus* fruit on ground, Swezey; Dededo, Aug. 11, on wild papaya, Swezey; Asan, Aug. 22, in rotten breadfruit on ground, Swezey; 33 specimens.

Described from New Hebrides. Commonly found in Guam preying on scavenger insects in rotten fruits on the ground.

4. **Phloeonomus singularis** (Kraatz), variety (?).

Phloeonomus singulare Kraatz, Arch. Naturgesch. 25(1) : 181, 1859.

Phloeonomus singulare (Kraatz) Bernhauer and Schubert, Coleopt. Catalog. (19) : 59, 1910.

Machanao, June 4, from *Pandanus,* Swezey.

The species was described from Ceylon. The single specimen I collected in Guam is labelled by Bernhauer "var.?".

5. **Trogophloeus exiguus** Erichson, Käf. Mark Brandenb., 604, 1839. Bernhauer and Schubert, Coleopt. Catalog. (29) : 105, 1911.
Umatac, May 28, Usinger, one specimen. A cosmopolitan species.

SUBFAMILY PAEDERINAE

6. **Astenus horni** (Bernhauer), as now determined.
Actobius horni Bernhauer, Arch. Naturg., Abt. A, 88: 231, 1922. Scheerpeltz, Coleopt. Catalog. (129) : 1329, 1933.
Piti, May 2, July 24, Aug. 24, Sept. 17, on weeds in cane field, Swezey, eight specimens.

7. **Dibelonetes formosae** Bernhauer, Arch. Naturg. Abt. A, 88:228, 1922. Scheerpeltz, Coleopt. Catalog. (129) : 1229, 1933.
Piti, July 3, at light, Swezey, one specimen. Described from Formosa.

8. **Stilicopsis setigera** (Sharp).
Acanthoglossa (?) *setigera* Sharp, Ent. Soc. London, Trans., 67, 1874.
Stilicopsis setigera (Sharp) Bernhauer and Schubert, Coleopt. Catalog. (40) : 220, 1912.
Asan, Aug. 22, in rotten breadfruit on ground, Swezey, two specimens. Described from Japan.

SUBFAMILY STAPHYLININAE

9. **Leptacinus flavipennis** Kraatz, as now determined.
Leptacinus parumpunctatus var. *flavipennis* Kraatz, Scheerpeltz, Coleopt. Catalog. (129) : 1303, 1933.
Piti, Sept. 21, ex cow dung, Swezey, one specimen.

10. **Philonthus discoideus** Gravenhorst, Col. Micr. Brunsv., 38, 1802. Bernhauer and Schubert, Coleopt. Catalog. (57) : 335, 1914.
Piti, April 27, Bryan, July 27, Swezey, two specimens. A cosmopolitan species.

11. **Philonthus quisquiliarius** (Gyllenhall).
(?) *quisquiliarius* Gyllenhall, Ins. Suec. 2 : 335, 1810.
Philonthus quisquiliarius (Gyllenhall) Erichson, Käf. Mark. Brandenb. 1 : 469, 1839. Bernhauer and Schubert, Coleopt. Catalog. (57) : 352, 1914.
Piti, May 14, at light, July 27, Swezey, two specimens. A cosmopolitan species.

SUBFAMILY ALEOCHARINAE

12. **Oligota flavicornis** Lacordaire, Faun. Ent. Paris 1 : 521, 1835. Bernhauer and Scheerpeltz, Coleopt. Catalog. (82) : 512, 1926.

Orote Point, July 19, Aug. 2, predacious on leaf mites on *Ipomoea* vines, Swezey, 13 specimens. A European species.

13. **Gyrophaena moluccensis** Fauvel, Mus. civ. stor. nat. Genova, Ann. **12**: 291, 1878. Bernhauer and Scheerpeltz, Coleopt. Catalog. (82) : 532, 1926.

Yona, May 12, 10 specimens; Mt. Alifan, May 21, one specimen; all from fungus, Usinger.

Described from Moluccas.

14. **Gyrophaena variolosa** Fauvel, Mus. civ. stor. nat. Genova, Ann. **12** : 292, 1878. Bernhauer and Scheerpeltz, Coleopt. Catalog. (82) : 535, 1926.

Mt. Alifan, May 21, in fungus, Usinger.

Described from New Guinea and Key Island. Six specimens collected in Guam.

15. **Homalota cribrum** (Fauvel), as now determined.

Thectura cribrum Fauvel, Mus. civ. stor. nat. Genova, Ann. 12 : 597, 1878.

Anomognathus cribrum (Fauvel) Bernhauer and Scheerpeltz, Coleopt. Catalog. (82) : 254, 1926.

Piti, May 22, ex rotten breadfruit, Aug. 19, ex rotten bamboo sprouts, Swezey; Mt. Alifan, May 26, ex rotten papaya trunk, Usinger, June 27, ex rotten *Pandanus* fruit, Swezey; Dededo, Aug. 11, ex wild papaya, Swezey; Asan, Aug. 22, ex rotten breadfruit on ground, Swezey; 36 specimens.

Described from New Guinea, very abundant in Guam.

16. **Thamiaraea insigniventris** Fauvel, Mus. civ. stor. nat. Genova, Ann. **12**: 299, pl. 2, fig. 36, 1878. Bernhauer and Scheerpeltz, Coleopt. Catalog. (82) : 682, 1926.

Asan, Aug. 22; Piti, Sept. 20, all from rotten breadfruit on the ground, Swezey, 17 specimens.

Described from New Guinea and Celebes.

Family TEMNOCHILIDAE

1. **Tenebroides mauritanicus** (Linnaeus).

Trogosita mauritanica Linnaeus, Syst. Nat., 10th ed., 1 : 417, 1758.

Tenebroides mauritanicus (Linnaeus) Leveillé, Coleopt. Catalog. (11) : 17, 1910.

Piti, Aug. 27, in oat bin at stable of Root Agricultural School, Swezey, one specimen of this cosmopolitan insect.

2. **Melambia cordicollis** Reitter, Verh. Nat. Ver. Brünn **14**: 25, pl. 1, fig. 16 a, 1876.

Libugon Farm, Nov. 10, under loose bark of dead orange tree, Swezey, four specimens.

Described from the Philippines. Guam specimens determined by E. A. Chapin, U. S. National Museum.

FAMILY NITIDULIDAE

1. **Urophorus humeralis** (Fabricius).
   Nitidula humeralis Fabricius, Ent. Syst., suppl., 74, 1798.
   Carpophilus humeralis (Fabricius) Fairmaire, Soc. Ent. France, Ann. IV, 9: 199, 1869. Grouvelle, Coleopt. Catalog. (56): 88, 1913.
   Urophorus humeralis (Fabricius) Grouvelle, Col. Reg. Ind., 330, 336, 1908.
   Piti, June 7, on sugar cane infested with *Pseudococcus boninsis,* Sept. 20, in rotten breadfruit, Nov. 7, in rotten cucumbers, Swezey.
   A cosmopolitan species. Not found particularly abundant in Guam. Determined by E. A. Chapin, U. S. National Museum.

2. **Carpophilus vittiger** Murray, Monogr., 373, 1864. Grouvelle, Coleopt. Catalog. (56): 85, 1913.
   Umatac, March 28, on beach shrubs, Bryan, May 28, Usinger; Piti, April 30, Swezey, May 2, in pods of *Pithecolobium dulce,* Usinger, May 22, in rotten breadfruit, Swezey, June 7, on sugar cane infested with *Pseudococcus boninsis,* Swezey, Sept. 20, in rotten breadfruit, Swezey; Dededo, May 11, under bark of dead *Pandanus,* Usinger; Agat, May 26, in ear of corn infested with corn earworm, Swezey; Machanao, June 4, under bark, Swezey; Merizo, June 11, on corn, Swezey; Asan, Aug. 22, in rotten breadfruit, Swezey; Yigo, Nov. 8, 13, on corn, among dead papaya leaves and in seed cluster of an ornamental palm, Swezey.
   A cosmopolitan species which was very abundant in rotten fruits in Guam. Determined by G. E. Bryant, British Museum.

3. **Haptoncus luteolus** (Erichson).
   Epuraea luteola Erichson, Germ. Zeitschr. 4: 272, 1843. Horn, Am. Ent. Soc., Trans. 7: 301, 1879.
   Haptoncus luteolus (Erichson) Grouvelle, Coleopt. Catalog. (56): 96, 1913.
   Mt. Alifan, May 26, Usinger, June 27, abundant in rotten *Pandanus* fruit on ground, Swezey; Piti, June 7, on sugar cane infested with *Pseudococcus boninsis,* Aug. 3, under stone, Sept. 20, in rotten breadfruit on ground, Oct. 23, in rotten sugar cane, Swezey. Fullaway, 1911.
   Another widely distributed species in the tropics, and abundant in Guam.

4. **Haptoncus ocularis** (Fairmaire).
   Epuraea ocularis Fairmaire, Rev. Mag. Zool. II, 1: 363, 1849.
   Haptoncus ocularis (Fairmaire) Grouvelle, Coleopt. Catalog. (56): 97, 1913.

Dededo, Aug. 11, ex wild papaya, Swezey; Fadian, Aug. 19, ex rotten seed of *Ochrocarpus obovalis,* Swezey; Asan, Aug. 22, in rotten breadfruit, Swezey.

Distributed in Asia and the East Indies. Not abundantly collected in Guam. Determined by G. E. Bryant, British Museum.

5. **Haptoncus** species.

Umatac, March 28, on beach shrubs, Bryan; Piti, May 30, Swezey; Merizo, June 11, on corn, Swezey; Piti, Sept. 21, on flowers of *Leucaena glauca,* Swezey. Five specimens of an undetermined species.

Family CUCUJIDAE

1. **Cryptamorpha desjardinsi** (Guèrin).

Psammoecus desjardinsi Guèrin, Ic. Regn. An. Ins., 196, 1829.

Cryptamorpha desjardinsi (Guèrin) Sharp, Fauna Hawaii. 3(4) : 428, 1908.

Piti, July 27, on sugar cane, Swezey, one specimen of this cosmopolitan species.

2. **Psammoecus insularis** (Sharp).

Telephanus insularis Sharp, Roy. Dublin Soc., Trans. 3 : 143, 1885.

Psammoecus insularis (Sharp), Fauna Hawaii. 3(4) : 428, 1908.

Agana, May 15, Usinger; Machanao, June 5, among dead leaves of a fallen tree, Usinger; Piti, July 21, on pumpkin vine, Sept. 26, Oct. 27, in house, Swezey; nine specimens. Fullaway, 1911.

Described from the Hawaiian islands.

3. **Oryzaephilus surinamensis** (Linnaeus).

Dermestes surinamensis Linnaeus, Syst. Nat., ed. 10, 357, 1758.

Silvanus surinamensis (Linnaeus) Sharp, Fauna Hawaii. 3(4) : 428, 1908.

Oryzaephilus surinamensis (Linnaeus) Hetschko, Coleopt. Catalog. (109) : 68, 1930.

Piti, April 30, May 26, in Grapenuts, July 5, Nov. 9, in house, Swezey; Inarajan, May 14, Swezey; Yigo, Nov. 8, on corn, Swezey.

This cosmopolitan species was found in the house, usually in food packages.

4. **Inopeplus metallescens** Fairmaire, Soc. Ent. France, Ann. VI, 1 : 254, 1881. Arrow, Insects of Samoa 4(1) : 43, 1927.

We found this species abundant in Guam, under bark, especially at Machanao, June 4, where there was quite a clearing of felled trees which had attracted a good many insects, and in which many of the logs had loosened bark. About 50 specimens were collected by Swezey and Usinger. Also collected at Barrigada, July 6, 22, under bark of *Intsia bijuga,* Swezey. E. C. Zimmerman's determination. This species was described from Fiji. It also occurs in Tonga and Samoa.

Besides these species, there were about half a dozen species of cucujids among miscellaneous Coleoptera sent for determination to the British Museum, and some of which yet remain to be reported on.

FAMILY LATHRIDIIDAE

Metophthalmus albofasciatus Reitter, Deutsche Ent. Zeitschrift, 23, 1891. Hetschko, Coleopt. Catalog. (85) : 19, 1926.

Machanao, June 30, sweeping dead twigs and leaves of a felled tree, Swezey, two specimens. Determined by G. E. Bryant, British Museum.

A minute pretty species described from Japan.

FAMILY COLYDIIDAE

1. **Colobicus parilis** Pascoe, Jour. Ent. 1 : 202, 1860. Scott, Fauna Hawaii. 3 : 430, 1908.

Machanao, June 4, under bark, Swezey; Barrigada, July 6, ex *Intsia bijuga,* Swezey; Yigo, Oct. 18, ex dead branch of small-leaved *Ficus,* Swezey.

Widely distributed in East Indies, Moluccas, Borneo, Philippines, Assam, Hongkong, Hawaii, North Australia.

2. **Bitoma siccana** (Pascoe).

Xuthia siccana Pascoe, Jour. Ent. 2 : 128, pl. 8, fig. 1, 1863.

Bitoma siccana (Pascoe) Arrow, Ann. Mag. Nat. Hist. VIII, 4 : 193, 1909. Ins. Samoa 4(1) : 48, 1927.

Agat, May 31, under bark, Usinger; Machanao, June 4, under bark, Swezey; Fadian, Aug. 19, under bark of dead *Annona reticulata,* Swezey.

A widely distributed species, known in Samoa, New Caledonia, Christmas Island, Moluccas, Philippines, Macassar, Sumatra, Malay Peninsula, India, Seychelles. We found a few in Guam in 1936.

3. **Neotrichus latiusculus** (Fairmaire).

Ditoma latiusculus Fairmaire, Soc. Ent. France, Ann. VI, 1 : 255, 1881.

Neotrichus latiusculus (Fairmaire) Arrow, Ann. Mag. Nat. Hist. VIII, 4 : 193, 1909. Arrow, Ins. Samoa 4(1) : 48, 1927.

Upi Trail, May 5, under bark of *Hibiscus tiliaceus,* Swezey; Mt. Alifan, May 26, in rotten log, Swezey; Barrigada, June 12, in rotten log; July 6, under bark, Swezey; Piti, Oct. 9, in dead orange twigs, Swezey; Libugon Farm, Nov. 10, under bark of dead orange tree, Swezey.

FAMILY ORTHOPERIDAE

Species ?

One small black beetle collected at Agana, May 25 on *Pithecolobium,* Usinger, was determined by E. A. Chapin of the U. S. National Museum as belonging to this family.

Ocholissa humeralis (Fairmaire).

Rhizophagus humeralis Fairmaire, Rev. Mag. Zool. 2 : 55, 1850.

Ocholissa humeralis (Fairmaire) Grouvelle, Soc. Ent. France, Ann. 62 : 385, 1893. Arrow, Ins. Samoa 4(1) : 52, 1927.

A widely distributed species, black with a red spot on humeri of elytra. Occurs in Samoa, Tahiti, Moluccas, Java, Borneo, Ceylon, and Madagascar. We found it common in Guam, under bark of felled trees, in 1936.

FAMILY ENDOMYCHIDAE

Trochoideus desjardinsii Guèrin, Rev. Zool., 22, 1838. Coquerel, Soc. Ent. France, Ann. III, 7 : 256, pl. 6, fig. 2, 1859.

Yona, April 29, among dead leaves, Bryan; Mt. Tenjo, May 3, in dead rachis of *Angiopteris evecta,* Swezey; Dededo, May 11, in rotten log, Swezey; Tarague, May 17, under coconut husk on ground, Swezey; Mt. Alifan, May 26, in log, Usinger; Agat, May 31, under bark, Usinger; Yigo, Oct. 21, in rotten banana stem, Nov. 13, among dead papaya leaves, Swezey; Fullaway, 1911.

This peculiar beetle occurs in South Asia, Mauritius, Madagascar, Reunion, New Guinea, Philippines. We found it common in Guam and widely distributed.

FAMILY COCCINELLIDAE

The ladybeetles now occurring in Guam have apparently all been purposely introduced, though I have not found records of introduction for all of them. The following were collected in 1936.

1. **Harmonia arcuata** (Fabricius).

Coccinella arcuata Fabricius, Mant. Ins. 1 : 55, 21, 1787. Crotch, Revision Coccinellidae, 110, 1874.

Harmonia octomaculata var. *arcuata* (Fabricius) Schultze, Philip. Jour. Sci. **11,** D : 35, 1916.

Harmonia arcuata (Fabricius) Timberlake Ms.

Yigo, April 13, Bryan; Inarajan, June 8, in rice field, Swezey, Usinger; Merizo, June 11, in corn field, Swezey; Barrigada, June 24, in corn field, Swezey; Dededo, Aug. 11, Swezey; Piti, Aug. 14, Oct. 1, Nov. 4, in corn field, Swezey; Merizo, Oct. 2, in rice field, Swezey; Yona, Nov. 18, on corn, Swezey.

This large, spotted ladybeetle was found already present in Guam, by Fullaway, in 1911. There is no record of when it was introduced. It has a wide distribution: China, Philippines, Singapore, Java, Cape York, New Caledonia, Cape of Good Hope, Queensland, Fiji. It feeds on plant lice and is a very effective enemy of the corn aphis. It is often present in large numbers in corn fields infested with aphis. It is also found abundant in rice fields where it is reputed to feed on leafhoppers.

2. **Coccinella transversalis** Fabricius, Spec. Ins., 97, 1781; Timberlake, Ms.
Coccinella repanda Thunberg, Nov. Insect. Spec. **1**: 18, fig. 25, 1781.
Crotch, Rev. Coccinellidae, 117, 1874.

Merizo, April 24, Bryan; Mt. Tenjo, May 3, Swezey; Piti, May 26, Usinger; Inarajan, Sept. 30, Swezey.

This is a smaller species than *Harmonia arcuata,* and not so abundant in Guam. It was recorded under the name *Coccinella repanda* by Fullaway in 1911. It feeds on plant lice. We collected it in only a few places. This ladybeetle has a wide distribution from China, India, Singapore, Java to New Caledonia, Queensland, New South Wales, and Tasmania. It is not known when it first appeared in Guam. Our specimens were determined by P. H. Timberlake.

3. **Coelophora inaequalis** (Fabricius).
Coccinella inaequalis Fabricius, Syst. Ent., 80, 1775.
Coelophora inaequalis (Fabricius) Mulsant, Spec. Coleopt., 404, 1851.
Crotch, Rev. Coccinellidae, 153, 1874.

Umatac, March 28, Bryan; Magua, Mar. 31, Bryan; Orote Pen., April 9, Bryan; Piti, April 30, May 1, Oct. 2, 10, Nov. 7, Usinger, Swezey; Upi Trail, May 5, Swezey; Inarajan, May 6, June 8, Sept. 30, Swezey, Usinger; Dededo, May 11, Usinger; Yona, May 12, Usinger; Agana, May 15, Swezey; Umatac, May 28, Swezey; Merizo, June 11, Swezey; Barrigada, June 14, 24, Swezey; Sinajana, June 15, Swezey; Talofofo, June 17, Nov. 18, Swezey; Mt. Alifan, June 19, Swezey; Machanao, June 30, Swezey; Fadian, Aug. 19, Swezey.

This nine-spotted ladybeetle has a very wide distribution from Japan and the Philippines through Malaysia to New Caledonia and Queensland. It is now recorded in Guam for the first time where it had no doubt been purposely introduced, but without being recorded. It feeds on plant lice. We found it common in corn fields and in rice fields, where it may have been feeding somewhat on young leafhoppers.

4. **Anisolemnia mulsanti** (Montrouzier).
Daulis mulsanti Montrouzier, Soc. Ent. France, Ann. IV, **1**: 304, 1861.
Coelophora mulsanti (Montrouzier) Crotch, Rev. Coccinellidae, 152, 1874.
Anisolemnia mulsanti (Montrouzier) Timberlake Ms.

Talofofo, April 11, Bryan; Merizo, June 11, Oct. 20, Usinger, Swezey; Sinajana, June 15, Swezey.

This is a rare ladybeetle in Guam. It was recorded by Fullaway in 1911. It was described from Woodlark Island, and is known in Australia. Guam specimens determined by P. H. Timberlake.

5. **Cryptolaemus montrouzieri** Mulsant, Opusc. Ent. 3: 140, 1853.

Tiyan, April 2, Bryan; Orote Pen., April 8, Bryan; Upi Trail, May 5,

Swezey; Inarajan, May 6, Usinger; Tumon, May 30, Swezey; Barrigada, June 14, Swezey; Mt. Alifan, June 19, Swezey; Dededo, Aug. 11, Swezey.

This Australian ladybeetle was introduced into Guam from Honolulu in 1926. It feeds on mealybugs and *Pulvinaria.*

6. **Azya luteipes** Mulsant, Spec. Coleopt. Trim. Sécuripalp., 928, 1850. Crotch, Rev. Coccinellidae, 279, 1874.

Agana, June 2, Swezey; Sumay Road, June 2, Swezey; Orote Pen., Sept. 1, 27, Swezey; Merizo, Oct. 20, Swezey.

This tropical American ladybeetle was probably introduced into Guam from Honolulu at the same time as *Cryptolaemus montrouzieri,* but there is no record of it. We found it occasionally in 1936. It feeds on soft scales.

7. **Rodolia cardinalis** (Mulsant).

Vedalia cardinalis Mulsant, Spec. Coleopt. Trim. Sécuripalp., 906, 1850.

Novius cardinalis (Mulsant) Crotch, Rev. Coccinellidae, 283, 1874.

Rodolia cardinalis (Mulsant) Essig, Insects of Western North America, 415, 1926.

Taragüe Beach, May 17, on *Sophora tomentosa,* Swezey, one specimen.

This Australian ladybeetle was introduced into Guam from Honolulu in 1926 to combat the cottony cushion scale. In 1936 both were scarce, and only one specimen of the ladybeetle was obtained.

8. **Sticholotis punctatus** Crotch, Rev. Coccinellidae, 201, 1874.

Agana, May 25, Swezey, one specimen.

This is a small Japanese ladybeetle, not previously recorded in Guam. It is not known whether it was purposely introduced.

9. **Telsimia nitida** Chapin, Biol. Soc. Washington, Proc. 39:131, 1926.

Piti, May 2, Sept. 17, Oct. 25, 29, Swezey; Upi Trail, May 5, Swezey; Inarajan, May 7, Swezey, Bryan; Mt. Alifan, May 21, Swezey; Agana, May 25, 30, Usinger, Swezey; Tumon, May 30, Swezey; Sinajana, June 8, 15, Swezey; Ypan, June 8, Usinger; Barrigada, June 12, July 6, Usinger, Swezey.

This tiny black ladybeetle was described from specimens collected in Guam in 1911 by Fullaway, and later by Edwards, Evans and Vandenberg. When *Aspidiotus destructor* was noted as injurious to coconut leaves in 1923, this ladybeetle was found associated with the scale. It was determined by Schultze as *Cryptogonus orbiculus* var. *nigripennis.* Later, Bryant of the British Museum gave the name as *Cryptogonus nigripennis* Weise. These names were used in reports of the Guam Agricultural Experiment Station. In 1927 it was reported to have effected complete control of the coconut scale in Guam. This control has continued, for in 1936 we found only scattered small infestations of the scale, and always the ladybeetles were present.

In November, the ladybeetles were found at Piti on bamboo infested with a different kind of scale, in sufficient numbers so that they were collected for shipment by Clipper plane to Honolulu. These were liberated on infestations of *Pinnaspis buxi* on *Monstera* at the Foster Park, and on coconut at Hanalei, Kauai. In both places they became well established. In about a year they became numerous enough at Hanalei so as to be collected for distribution. Determined by E. A. Chapin, U. S. National Museum.

10. Nephus species.

Umatac, March 28, May 14, 28, Bryan, Swezey; Orote Pen., April 8, May 24, Bryan, Swezey; Piti, April 30, May 2, Usinger; Mt. Tenjo, May 3, Swezey; Agana, May 15, 30, Usinger, Swezey; Taragüe, May 17, Usinger; Agat, May 31, Usinger; Machanao, June 4, Usinger; Sinajana, June 8, Usinger; Barrigada, June 14, Swezey; Mt. Alifan, June 19, Swezey; Fadian, Aug. 19, Swezey; Piti, Sept. 21, Nov. 6, Swezey; Agat, Oct. 17, Swezey; Tumon, Nov. 13, Swezey.

This is a small black ladybeetle with two reddish spots on the elytra. It occurs also in Hawaii where it was introduced from the Philippines. We found it in many places, and apparently it was responsible for the scarcity of the mealybug *Ferrisia virgata,* as it was found associated with it as well as with other mealybugs.

11. Pullus species.

Machanao, June 2, 30, Swezey, two specimens.

A small black species. Determined by E. A. Chapin, U. S. National Museum.

12. Stethorus species.

Piti, May 2, on mango, Swezey; Upi Trail, May 5, Swezey; Tumon, May 30, on *Barringtonia,* Swezey; Barrigada, June 12, Usinger, July 6, on *Morinda,* Swezey.

A still smaller black species which was collected at several places. Determined by E. A. Chapin.

Lindorus lophanthae (Blaisdell).

Two attempts to introduce this ladybeetle into Guam in 1925 and 1926 apparently failed to establish it, for we saw nothing of it in 1936.

Family Dermestidae

Apsectus species.

Merizo, June 11, Swezey, two specimens of this small black dermestid. Determined by E. A. Chapin.

FAMILY HYDROPHILIDAE

1. **Dactylosternum abdominale** (Fabricius).
   Sphaeridium abdominale Fabricius, Ent. Syst., 1, 79, 1792.
   Dactylosternum abdominale (Fabricius) Sharp, Fauna Haw. 3(5) : 579, 1908. d'Orchymont, Ins. Samoa 4(1) : 30, 1927.

Dededo, May 19, in rotten banana stem, Usinger, Sept. 7, in rotten banana stem, Swezey; Asan, Aug. 22, in rotten breadfruit on ground, Swezey; Piti, Sept. 20, in rotten breadfruit, Swezey; Agana, Oct. 3, in royal palm top where infested by *Rhabdocnemis obscura,* Swezey; Yigo, Nov. 13, in rotten banana stem, Swezey.

A widely distributed species, throughout the tropics. Occurs in Hawaii and Samoa. Determined by L. L. Buchanan, U. S. National Museum.

2. **Enochrus rubrocinctus** (Regimbart).
   Philydrus rubrocinctus Regimbart, Soc. Ent. France, Ann. 72 : 56, 1903.
   Enochrus rubrocinctus (Regimbart) Knisch, Coleopt. Catalog. (79) : 214, 1924.

Agana, May 4, at light, Bryan; Agana Swamp, May 4, Usinger; Machanao, May 17, Usinger; Piti, Aug. 20, at light, Sept. 7, at light, Swezey.

Described from India, Cochin China, Burma, Sumatra. Determined by L. L. Buchanan. (Guam specimens compared with Baker Philippine collection at U. S. National Museum.)

3. **Noteropagus obscurus** d'Orchymont, Soc. Ent. France, Ann. 88 : 135, 1919. Knisch, Coleopt. Catalog. (79) : 155, 1924.

Ritidian Pt., April 16, Bryan, one specimen; Mt. Alifan, May 26, in papaya log, Usinger, one specimen; Yigo, Nov. 13, in rotten banana stem, Swezey, three specimens.

A tiny black species, described from Borneo and Timor. One specimen retained by Buchanan, U. S. National Museum, and one specimen from Yigo at British Museum. Determined by J. Balfour-Browne.

FAMILY BOSTRYCHIDAE

1. **Xylothrips religiosus** (Boisduval).
   Xylopertha religiosa Boisduval, Voy. Astrolabe, 460, 1835.
   Xylothrips religiosus (Boisduval) Lesne, Soc. Ent. France, Ann. 69 : 624, figs. 473, 475-477, 1900.
   Machanao, June 4, under bark, Swezey, one specimen.
   Generally distributed in the Pacific islands.

2. **Xylopsocus capucinus** (Fabricius).
   Bostrichus capucinus Fabricius, Spec. Ins. 1 : 62, 1781.

Xylopsocus capucinus (Fabricius) Lesne, Soc. Ent. France, Ann. 69: 631, figs. 478, 481, 482, 1900.

Ritidian Pt., April 15, swept from ferns, Bryan, one specimen. Fullaway, 1911.

Distributed in Indo-Malaya, Philippines, Madagascar, Africa, tropical America. Determined by W. S. Fisher, U. S. National Museum.

3. **Dinoderus minutus** (Fabricius).

Bostrichus minutus Fabricius, Syst. Ent., 54, 1775.

Dinoderus minutus (Fabricius) Lesne, Soc. Ent. France, Ann. 66: 323, 329, figs. 12, 17, 18, 20, 23, 24, 27, 1897.

This cosmopolitan beetle was found infesting the bamboo shades on the porch of our residence at Piti, collected June 1, Swezey. Specimens determined by W. S. Fisher, U. S. National Museum.

Family ANOBIIDAE

1. **Lasioderma serricorne** (Fabricius).

Ptinus serricorne Fabricius, Ent. Syst. 1: 241, 1792.

Lasioderma serricorne (Fabricius) Bandi, Berlin Ent. Zeitschrift 17: 333, 1874. Pic, Coleopt. Catalog. (48): 57, 1912.

The cosmopolitan cigarette beetle was taken but once, a single specimen at Piti in the house, June 15, Swezey.

Family CLERIDAE

1. **Necrobia rufipes** (De Geer).

Clerus rufipes De Geer, Mem. Ins. 5: 165, 1775.

Necrobia rufipes (De Geer) Howard and Marlatt, U. S. Dept. Agric., Bur. Ent. Bull. 4, new ser.: 105, fig. 49, 1902.

Piti, April 30, Swezey; Tarague, May 17, Swezey; Piti, June 1, Sept. 9, 21, 26, in house, Sept. 30, Oct. 10, at light, Swezey. Fullaway, 1911.

This cosmopolitan beetle was present in great numbers in warehouse where copra was stored at Piti.

2. **Tillus notatus** Klug, Mon. Cleridae, 276, 1842. Schenkling, Coleopt. Catalog. (23): 12, 1910.

Tillus bipartitus Blanchard, Voy. Pôle Sud. 4: 59, pl. 4, fig. 13, 1853.

Piti, Nov. 15, swept from bamboo, Swezey, one specimen. Fullaway, 1911.

This species was described from the East Indies, and also occurs in Sumatra, Philippines and Japan. The species *bipartitus* was described from Guam, but has been synonymized with *notatus*. Determined by E. A. Chapin, U. S. National Museum.

FAMILY BUPRESTIDAE

Determined by W. S. Fisher, U. S. National Museum.

1. **Cyphogastra auripennis** Saunders, Ent. Soc. London, Trans., 432, pl. 22, fig. 2, 1867. Obenberger, Coleopt. Catalog. (84) : 116, 1926.

Mt. Lamlam, altitude 1,334 ft., April 21, dead on summit, Bryan; Sumay, May 9, Bryan; Piti, June 23, on *Antigonon leptopus* vine on trellis, Swezey. Three specimens.

This large green species was described from Guam. In the Junk Catalogue it is ascribed only to the Carolines.

2. **Chrysodema ventralis** Waterhouse, Ann. Mag. Nat. Hist., V, **15**: 381, 1885. Obenberger, Coleopt. Catalog. (84) : 135, 1926.

Dededo, Aug. 11, on corn leaf, Swezey; Piti, Aug. 13, 24, Sept. 21, Oct. 12, 25, 27, Nov. 6, Swezey.

Described from Guam, Ladrone Islands and not recorded elsewhere. This somewhat smaller bright green species was more abundant. One or two specimens were swept from *Glochidion marianum* trees on several occasions at Piti.

3. **Chrysobothris costata** Kerremans, Soc. Ent. Belgique, Ann. **39**: 213, 1895. Obenberger, Coleopt. Catalog. (132) : 600, 1934.

Dandan, July 17, on *Citrus,* Swezey; Barrigada, July 6, 22, on *Intsia bijuga,* Swezey; Machanao, Aug. 6, Swezey.

Described from Marianas Islands, and not recorded elsewhere. This abundant green species is smaller and duller. The larvae were found very abundant under bark of remaining top of an *Intsia bijuga* tree which had been cut off at Barrigada for timber. From portion of branch, taken home July 22, 10 adults issued between August 3 and October 1.

4. **Agrilus occipitalis** (Eschscholtz).

Buprestis occipitalis Eschscholtz, Entomogr., 79, 1822.

Agrilus occipitalis (Eschscholtz) Obenberger, Coleopt. Catalog. (152) : 1094, 1936.

Yona, March 28, on tangerine trunk, Bryan; Inarajan, May 7, on lime tree, Bryan; Barrigada, June 14, on *Citrus,* Usinger; Machanao, Aug. 6, Swezey; Agana, Aug. 7, on *Citrus,* Swezey; Piti, Oct. 2, Nov. 6, beaten from *Citrus,* Swezey. Fullaway, 1911.

Described from the Philippines, also recorded from China and Turkestan. This small black species was common on dead branches of *Citrus.*

5. **Buprestis aurulenta** Linnaeus, Syst. Nat., 12th ed., 661, 1767. Obenberger, Coleopt. Catalog. (111) : 407, 1930.

One specimen of this American species was obtained in our residence at Piti, July 9. It had apparently issued from a porch floor board as there was an exit hole which appeared fairly fresh. Two other similar holes had an older

appearance. The boards were of Douglas fir which had been shipped from the Puget Sound region. The house was constructed prior to 1915. It does not seem probable that the larva of this beetle could have existed for that length of time before maturing.

Family TENEBRIONIDAE

Those species marked with an asterisk were identified by comparison with specimens from the Philippines in the U. S. National Museum.

1. **Gonocephalum seriatum** (Boisduval).

Opatrum seriatum Boisduval, Voy. Astrolabe 2: 252, 1835.

Gonocephalum seriatum (Boisduval) Gebien, Nov. Guinea 13(3): 234, 1920. Coleopt. Catalog. (22): 326, 1910.

Umatac, May 14, Usinger; Piti, May 30, under cow dung, Swezey; Piti, Aug. 3, under stones, Swezey; Piti, Sept. 17, under stone, Swezey; Orote, July 19, Swezey. Fullaway, 1911.

This widely distributed species, common in Hawaii and Guam, was described from Marshall Islands and occurs also in New Guinea.

2. **Bradymerus acuticostis** Gebien (?), Philip. Jour. Sci. 26: 563, 1925.

Yona, April 27, among dead leaves, Bryan; Agana, May 4, in rotten *Pandanus* log, Swezey; Piti, May 30, under cow dung, Swezey; Piti, Aug. 4, Sept. 16, under rotten board, Swezey; Piti, Sept. 15, in dead stem of *Barleria cristata,* Swezey; Piti, Oct. 27, in rotten bamboo stumps, Swezey.

Described from the Philippines. I have found no other record. Very abundant in Guam under rotten boards, etc. The Guam material appears to agree more nearly with this species than with the more abundant Philippine species, *B. clathratus* Schaufuss.

*3. **Alphitobius laevigatus** (Fabricius).

Opatrum laevigatum Fabricius, Spec. Ins. 1: 90, 1781.

Alphitobius laevigatus (Fabricius) Gebien, Nov. Guinea 13(3): 277, 1920.

Alphitobius laevigatus (Fabricius) Blair, Ins. Samoa 4(2): 77, 1928.

Helops piceus Olivier, Encycl. Méth. 7: 50, 1792.

Piti, June 3, 12, July 5, Sept. 1, 18, 30, Oct. 19, at light, Swezey; Aug. 27, in oat bin, Swezey; Aug. 31, Sept. 27, Nov. 22, in house, Swezey; June 8, 15, July 27, 30, Aug. 1, without data, Swezey.

A widely distributed species, occurring in Hawaii.

*4. **Eutochia lateralis** (Boheman).

Heterophaga lateralis Boheman, Eugenies Resa, 94, 1858.

Eutochia lateralis (Boheman) Gebien, Coleopt. Catalog. (28): 408, 1911.

Piti, July 27, Oct. 23, in rotten sugar cane, Swezey; Piti, Sept. 28, Oct. 6, under coconut husk and stones in pasture, Swezey; Talofofo, Nov. 18, in dead corn stalk, Swezey.

A common widely distributed species, described from Hongkong. Occurs in Hawaii and the Philippines.

*5. **Uloma rufilabris** Fairmaire, Notes Leyden Mus. 4: 226, 1882. Gebien, Coleopt. Catalog. (28): 404, 1911. Schultze, Philip. Jour. Sci. **11**, D: 69, 1916.

Sinajana, June 15, Swezey; Piti, June 10, Sept. 21, under cow dung, Swezey; Piti, Oct. 19, at light, Swezey; four specimens.

*6. **Uloma picicornis** Fairmaire, Notes Leyden Mus. 4:224, 1882. Gebien, Coleopt. Catalog. (28): 403, 1911.

Piti, Oct. 27, ten specimens in rotten bamboo stubs, Swezey.

This species and *Uloma rufilabris* Fairmaire were described from Sumatra.

7. **Scotochares insularis** Boheman, Eugenies Resa, Ins. Col., 95, pl. 1, fig. 6, 1858.

Inarajan, June 25, in old cotton boll, Swezey, one specimen.

Described from Guam.

8. **Tribolium ferrugineum** (Fabricius).

Trogosita ferruginea Fabricius, Mant. Ins. **1**: 212, 1787.

Tribolium ferrugineum (Fabricius) Gebien, Coleopt. Catalog. (28): 394, 1911.

Piti, July 30, Aug. 9, Nov. 9, in house, Swezey; Piti, Oct. 29, in package of food, Swezey. A cosmopolitan species.

9. **Palorus ratzeburgi** (Wissmann).

Hypophloeus Ratzeburgii Wissmann, Stett. Ent. Zeitung **9** :77, 1848.

Palorus Ratzeburgi (Wissmann) Gebien, Coleopt. Catalog. (28): 397, 1911.

Barrigada, July 22, under bark of *Intsia bijuga* log, Swezey. A widely distributed species.

10. **Derosphaerus rotundicollis** (Castelnau).

Upis rotundicollis Castelnau, Hist. Nat. 2: 213, 1840.

Derosphaerus rotundicollis (Castelnau) Gebien, Coleopt. Catalog. (28): 449, 1911; Nova Guinea **13**(3): 305, 1920.

Ritidian Pt., April 15, on *Hernandia* blossoms, Bryan; Mt. Alifan, May 26, in rotten log, Swezey; Piti, June 12, at light, Swezey; Machanao, June 30, under bark of *Elaeocarpus joga* log, Swezey; Libugon Farm, Nov. 10, under bark of dead orange tree, Swezey. Seven specimens, found at widely distributed places.

Described from the Philippines, also recorded from Formosa and Saipan, Marianas Islands.

11. **Xyloborus nudus** (Gebien) ?

Cherostus nudus Gebien, Sarawak Mus. Jour. 2: 14, 1914.

Xyloborus nudus (teste Barber).

Talofofo plateau, June 17, in rotten *Areca* palm trunk, Usinger, one specimen. Described from Borneo. Determined by H. S. Barber, U. S. National Museum.

Family OEDEMERIDAE

Sessinia livida (Fabricius).

Lagria livida Fabricius, Syst. Ent., 14, 1775.

Sessinia livida (Fabricius) Blair, Insects of Samoa, 4(2): 93, 1928.

Piti, June 8, 13, at light, Swezey, two specimens. Fullaway, 1911.

This light brown species was described from Tahiti. It occurs also in Samoa, Tonga, Fiji and Ellice Islands. Determination was verified by H. S. Barber.

Family LUCANIDAE

1. **Figulus integricollis** Thomson, Ent. Soc. France, Ann. IV, 2: 431, 1862.

Mt. Tenjo, May 3, in *Areca* palm, Swezey; Agana, May 4, in *Pandanus,* Swezey; Dededo, May 11, in *Pandanus,* Usinger; Yona, May 12, in sugar cane, Swezey; Mt. Alifan, May 26, Usinger; Machanao, June 2, miscellaneous sweeping, June 30, under bark, Swezey; Barrigada, June 12, rotten log, July 6, in *Intsia bijuga,* July 22, in breadfruit, Swezey; Piti, June 18, in breadfruit, Oct. 27, in bamboo stubs, Swezey; Fadian, Sept. 18, in rotten log, Swezey; Yigo, Oct. 21, in petiole of dead coconut leaf, Swezey. Fullaway, 1911.

Described from the Marianas Islands and not recorded elsewhere. We found it quite common, the larvae feeding in rotten logs.

2. **Figulus lilliputanus** Westwood, Ent. Soc. London, Trans., 219, pl. 12, fig. 5, 1855. Van Roon, Coleopt. Catalog. (8): 52, 1910.

Agana Swamp, May 4, in rotten *Pandanus* trunk, Swezey; Yigo, Oct. 18, in rotten breadfruit trunk, Swezey. Three specimens.

This very small species was described from Australia. Our Guam specimens were taken in similar locations to *F. integricollis* Thomson. Determined by E. C. Zimmerman, Honolulu.

Family SCARABAEIDAE

1. **Ataenius gracilis** (Melsheimer).

Oxyomus gracilis Melsheimer, Phila. Nat. Sci. Acad., Proc. 2: 137, 1844.

Ataenius gracilis (Melsheimer) Horn, Am. Ent. Soc., Trans. 3 : 286, 1871.

Yona, April 29, among dead leaves, Bryan; Inarajan, June 8, in rice field, Usinger; Piti, Sept. 21, in cow dung, Swezey.

This species is widely distributed in North and South America. Determined by E. A. Chapin, U. S. National Museum.

2. **Ataenius cognatus** (Le Conte).

Euparia cognata Le Conte, Phila. Nat. Sci. Acad., Proc., 65, 1858.

Ataenius cognatus (Le Conte) Gemminger and Harold, Coleopt. Catalog. (4) : 1066, 1869.

Piti, July 27, Sept. 14, in corn field, Sept. 21, in cow dung, Swezey.

Dr. Chapin says that it may not be this species, as several species are involved in what has been called *cognatus*. Only a few specimens were collected in Guam.

3. **Aphodius lividus** (Olivier).

Scarabaeus lividus Olivier, Ent. 1 : 86, pl. 26, fig. 222, 1789.

Aphodius lividus (Olivier) Gemminger and Harold, Coleopt. Catalog. (4) : 1051, 1869.

Piti, May 30, in cow dung, June 24, in rotten breadfruit, July 27, Sept. 21, in cow dung, Swezey. Fullaway, 1911.

This cosmopolitan species was collected a few times in Guam.

4. **Anomala sulcatula** Burmeister, Handb. Ent., 4(1) : 261, 1844. Schultze, Philip. Jour. Sci. 11, D : 172, 1916.

Agana, April 19, 23, Bryan; Tarague, May 17, Swezey; Agat, May 21, on corn leaf, Swezey; Machanao, June 30, ex rotten breadfruit trunk, Swezey, Usinger; Piti, June 15, Usinger; Piti, June 12, 15, July 9, 12, 13, 19, Aug. 10, 27, Oct. 5, 6, Nov. 25, all at light, Swezey; Piti, Oct. 31, on bamboo, Swezey; Sumay, Nov. 28, about a dozen on screen door at Pan-American Airways mess hall, Swezey; grubs found at corn roots, a little north of Dededo, Nov. 25, Swezey.

A Philippine species which is now quite common in Guam. It is nocturnal, yet may be found on its food plants in the daytime. The grubs do some damage to corn roots, and are also found in other situations. Most of our adults were collected as they came to light. Determined by F. X. Williams, Experiment Station, Hawaiian Sugar Planters' Association, Honolulu.

5. **Holotrichia mindanaoana** Brenske, Berlin Ent. Zeitschr. 38 : 358, 1893. Schultze, Philip. Jour. Sci. 11, D : 179, 1916.

Agana, April 16, 19, May 4, at light, Bryan; Piti, May 30, June 8, 12, July 12, at light, Swezey; Piti, May 9, at light, Usinger. Grubs were found at corn roots at Dededo, Nov. 25, Swezey.

Another Philippine species considerably larger than *Anomala sulcatula* Burmeister. It is probably the species whose grubs were found at pineapple roots by Fullaway in 1911, and mentioned as *Lachnosterna* species by Vandenberg in the 1930 report of the Guam Agricultural Experiment Station. At present they are injurious to corn roots in some places. The beetles are nocturnal, and feed sometimes destructively on banana leaves. Determined by F. X. Williams.

FAMILY CERAMBYCIDAE

1. **Dihammus marianarum** (Aurivillius).

Monochamus (*Haplohammus*) *Marianarum* Aurivillius, Deutsche Ent. Zeitschrift, 216, 1908.

Dihammus Marianarum (Aurivillius) Coleopt. Catalog. (73) : 98, 1922.

Agfayan, March 28, Bryan; Orote Pen., April 9, Bryan; Merizo, April 24, Bryan; Upi Trail, May 5, Usinger; Machanao, June 2, Swezey; Piti, May 2, on *Pithecolobium,* Usinger; Dededo, May 11, Usinger; Talofofo, June 11, Usinger; Barrigada, June 12, on *Citrus,* June 14, on *Ficus,* June 24, Usinger; Dededo, Sept. 7, reared from *Hibiscus tiliaceus,* Swezey; Piti, Sept. 22, Oct. 3, Swezey; Yigo, Oct. 18, reared from dead *Ficus,* Swezey; Piti, Nov. 16, at light, Swezey.

This is the largest cerambycid in Guam. It was previously collected by Fullaway in 1911, and determined by Schultze as *Dihammus fistulator* Germar, a species having a wide range from Malay Peninsula and the Philippines to Australia and Samoa. The specimens identified by Schultze, however, have the lateral shining bare spots of the abdomen, the same as our 1936 specimens, which is a character by which Aurivillius distinguishes *marianarum* from other closely related species.

The work of the larvae of this beetle is very conspicuous in dead branches of the breadfruit tree. It also works similarly in *Pithecolobium, Ficus,* and *Hibiscus tiliaceus,* and any felled tree. Before getting too old and dried up, the leftover tree tops where logs had been cut were especially likely to have larvae working in them. At Yigo, November 13, larvae were found in living cacao trees. When working in or beneath the inner bark, they had a tendency to go spirally around a branch, which either crippled or killed it. One larva retained for rearing by A. I. Cruz matured February 19, 1937.

2. **Ceresium unicolor** (Fabricius).

Saperda unicolor Fabricius, Mant. Ins. **1**: 147, 1787.

Ceresium unicolor (Fabricius) Aurivillius, Insects of Samoa 4(2) : 138, 1928. Blair, B. P. Bishop Mus., Bull **114**: 274, 1935.

Piti, June 10, 15, July 9, 12, 19, 22, 23, 24, Sept. 14, 22, Oct. 12, 19, Nov. 25, Swezey; Mt. Alifan, June 27, Usinger; Barrigada, July 22, reared from

Intsia bijuga, Swezey; Fadian, Sept. 18, Swezey; Sumay, Sept. 28, Swezey; Merizo, Oct. 2, Swezey. Fullaway, 1911.

This species is widely distributed in the Pacific. In Hawaii it has been known as *Ceresium simplex.* We found it very abundant in 1936, breeding in dead branches or fallen trees of several kinds. The beetles often came to light.

3. **Gelonaetha hirta** (Fairmaire).

Stromatium hirtum Fairmaire, Rev. Mag. Zool. II, 2: 60, 1850.

Astrimus hirtus (Fairmaire) Sharp, Fauna Hawaii. 2(3): 96, 1900.

Gelonaetha hirta (Fairmaire) Gahan, Fauna Brit. India, Coleopt. 1: 155, fig. 62, 1906. Aurivillius, Coleopt. Catalog. (39): 126, 1912.

Machanao, June 4, Swezey; Piti, June 8, Swezey; Piti, Sept. 7, at light, Swezey. Three specimens.

This beetle is known in India, Philippines and Tahiti. It is now recorded from Guam for the first time.

4. **Chlorophorus annularis** (Fabricius).

Callidium annularis Fabricius, Mant. Ins. 1: 156, 1787.

Chlorophorus annularis (Fabricius) Chevrolat, Soc. Roy. Sci. Liege, Mem. 18: 290, 1863. Aurivillius, Coleopt. Catalog. (39): 402, 1912. Schultze, Philip. Jour. Sci. **11,** D: 107, 1916.

Merizo, April 24, Bryan; Barrigada, Aug. 28, attracted to corn tassels, Swezey. Fullaway, 1911.

The bamboo borer occurs in India, Burma, Siam, China, Japan, through the Malay Archipelago to New Guinea. It has been known in Hawaii since 1905, doubtless introduced in bamboo furniture or other articles.

5. **Prosoplus bankii** (Fabricius).

Lamia bankii Fabricius, Syst. Ent., 176, 1775.

Prosoplus bankii (Fabricius) Sharp, Fauna Hawaii. 2 (3): 114, 1900. Schultze, Philip. Jour. Sci. **11,** D: 115, 1916.

Piti, April 28, Bryan; Piti, April 30, from *Hibiscus tiliaceus,* Usinger; Piti, May 15, Usinger; Merizo, June 11, on corn, Swezey; Piti, June 15, Swezey; Fonte Valley, Aug. 7, on weeds, Swezey; Dededo, Aug. 11, on corn, Swezey; Piti, Aug. 13, 19, at light, Oct. 27, Swezey; Yigo, Nov. 8, attracted to corn tassels, Nov. 13, on seed cluster of palm, *Coccothrinax* species, Swezey. Fullaway, 1911.

This species has a wide distribution from Java, Borneo, and Philippines through the Malay Archipelago to Northern Australia, also Hawaii. Although we did not rear this common longicorn, it doubtless breeds in dead stems of many kinds of plants in Guam as it does in Hawaii.

6. **Prosoplus marianarum** Aurivillius, Deutsche Ent. Zeitschr., 222, 1908; Coleopt. Catalog. (73): 263, 1922.

Machanao, June 5; beach near Atao, June 25; Ritidian Pt., June 30, Usinger, three specimens. No data as to habits.

This species was described from the Marianas Islands and has not been recorded elsewhere. We found it only rarely.

Family CHRYSOMELIDAE

1. **Phytorus lineolatus** Weise (?), Philip. Jour. Sci. 8, D: 220, 1913.

Talofofo, March 28, April 1, on mango, Bryan; Tumon, April 2, Bryan; Tiyan, April 2, on mango, Bryan; Ritidian Pt., April 15, on ferns, Bryan; Yona, April 29, Bryan; Piti, April 30, on *Hibiscus tiliaceus,* Swezey, Usinger, July 26, at light, Swezey, Sept. 26, on mango, Swezey, Oct. 6, at light, Swezey, Nov. 29, on bamboo, Swezey; Agana, May 4, on mango, May 25, on *Pithecolobium dulce,* Swezey; Upi Trail, May 5, Bryan; Dededo, May 11, on *Cycas,* Usinger, on *Ochrosia,* Swezey; Inarajan, May 7, on coconut, June 8, on mango, July 25, on *Barringtonia racemosa,* Swezey; Umatac, May 28, on mango and *Thespesia populnea,* Swezey; Agat, May 31, on *Hernandia peltata,* Swezey; Merizo, June 11, on grape and mango, Swezey, Usinger; Sinajana, June 15, Swezey; Mt. Alifan, June 17, on *Macaranga,* Swezey; Dandan, July 17, on *Glochidion* and *Citrus,* Swezey; Orote Pen., on mango and *Mallotus,* Swezey; Yigo, Oct. 21, on small-leaved *Ficus,* Nov. 13, on *Terminalia catappa,* Swezey; Tumon, Nov. 13, on mango, Swezey; Yona, Nov. 18, on corn, Swezey.

Determined by H. S. Barber by comparison with specimens in the Baker Philippine collection determined by Weise and marked with a (?). Guam specimens have previously been determined as *P. pinguis* and *P. puncticollis,* but do not have the strong spine of front femora as in *pinguis,* nor the distinct puncturation of thorax as in *puncticollis.* An abundant chrysomelid, which sometimes defoliates mango trees. Many other kinds of trees are also fed on by this beetle. The larvae are unknown and nothing has been learned of the life history of the species. The species was described from the Philippines.

2. **Aphthona** species near **bicolorata** Jacoby.

Piti, May 26, June 2, on *Euphorbia hirta,* Usinger; Umatac, May 28, Usinger; Sumay, Aug. 17, on *Euphorbia atoto,* Swezey.

A small species collected only a few times on *Euphorbia.* Determined by G. E. Bryant, British Museum.

STREPSIPTERA

STYLOPIDAE OF GUAM

By O. H. Swezey

Family STYLOPIDAE

? **Elenchoides perkinsi** Pierce, U. S. National Museum, Bull. **66**: 167, pl. 15, fig. 6, 1909.

Elenchus tenuicornis Kirby, Perkins, Hawaii. Sugar Plant. Assoc. Ent. Bull. **1** (3): 106, 1906. Muir, Hawaii. Sugar. Plant. Assoc. Ent. Bull. **2**: 6, 1906.

Three specimens of the delphacid leafhopper *Sogata eupompe* (Kirkaldy) from Inarajan and one from Agat were found to have been parasitized by a stylopid. This may possibly be *Elenchoides perkinsi,* a species recorded as abundant on several species of delphacids in Queensland and Fiji under the name *Elenchus tenuicornis* Kirby, a misidentification according to Pierce who names it as above.

HYMENOPTERA

FORMICIDAE OF GUAM

By O. H. Swezey
Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

The ants collected in Guam by D. T. Fullaway in 1911 were identified by W. M. Wheeler and published in the Journal of the New York Entomological Society (20: 44-48, 1912). There were 21 forms listed. Some of the records were on single specimens, and a few others were recorded on a meager amount of material.

Our collections made in 1936 included all but two of the forms listed by Wheeler, most of them in quite large quantities. We also collected 10 species not previously recorded. Only a single specimen of *Strumigenys godeffroyi* was found, and of a few others, only about a dozen specimens were obtained, collected in only one or two localities. For the majority, however, much material was collected from numerous localities, indicating that these species were widely distributed to all parts of the island.

Several of the species collected in houses were troublesome pests. Of the six species, three of them were numerous: *Anoplolepis longipes,* a longlegged yellow ant which was continually racing around the floors; *Monomorium pharaonis,* a tiny yellow ant; *Monomorium floricola,* a tiny black ant which was a nuisance with insect vials and tins, often getting in and destroying living material. Nine species were obtained one afternoon in a garden, and at one time, six species were obtained from bamboo stumps. Five species were usually to be found in cane fields; two of them (*Solenopsis geminata rufa* and *Tetramorium guineense*) were associated with an aleurodid and mealybugs.

Nine of the species, or nearly half, occur in the Hawaiian islands (marked with an asterisk). The others are mostly species which are widely distributed among the islands of the Pacific and the Philippines, even extending to India. Although fewer species of ants were found in Guam than those recorded for Hawaii, ants seemed much more numerous in Guam because of the abundance of several of the species. Being chiefly insect feeders, they must take an enormous toll of the usual insect life and be an important factor in checking some of the pests.

Subfamily PONERINAE

*1. **Cerapachys (Syscia) silvestrii** Wheeler, Lab. Zool. Agrar., Portici, Boll. 3: 269, 1909; B. P. Bishop Mus., Occ. Papers 10(21): 9, 1934, and 11(11): 8, 1935.

Piti, in house, July, Swezey; in garden, Sept. 20, Swezey; Yigo, Oct. 18, Swezey.

This ant was described from Hilo, Hawaii, and has also been collected in Honolulu. It is now recorded outside of the Hawaiian islands for the first time. It was not previously collected in Guam.

2. **Ponera punctatissima** subspecies **schauinslandi** Emery, Zool. Jahrb. Abt. Syst. **12**: 438, 1899. Wheeler, New York Ent. Soc., Jour. **20**: 44, 1912; B. P. Bishop Mus., Occ. Papers **11**(11): 13, 1935.

Agana Swamp, May 4, in rotten *Pandanus* log, Swezey, Usinger; Piti, in house, Aug. 9, at base of sedges, Aug. 24, swept from sedges, Sept. 21, Swezey.

This subspecies was described from Laysan Island. Previously collected in Guam by Fullaway in 1911.

3. **Odontomachus haematoda** (Linnaeus).

Formica haematoda Linnaeus, Syst. Nat., 10th ed. **1**: 582, 1758.

Odontomachus haematodes (Linnaeus) Bingham, Fauna Brit. India, Hymenopt. **2**: 47, 1903.

Odontomachus haematoda (Linnaeus) Wheeler, New York Ent. Soc., Jour. **20**: 45, 1912; B. P. Bishop Mus., Occ. Papers **11**(11): 15, 1935.

Yona, Mar. 28, Bryan; Nov. 18, Swezey; Ritidian Pt., April 16, Bryan; Upi Trail, May 5, Swezey; Machanao, June 2, Swezey; Piti, July, Oct. 11, Swezey; Dededo, Aug. 11, Swezey; Tarague, May 17, Swezey; Barrigada, Aug. 28, Swezey.

This tropicopolitan ant has a wide distribution, occurring in tropics of America, Africa, Asia, and the various groups of islands in the Pacific. Previously collected in Guam by Fullaway in 1911. It is a large black species with long mandibles. One winged male was collected in house, but we collected most of the others among leaves and trash on the ground in the forest areas. Once a colony was found at the base of a rotten banana stem.

Subfamily Myrmicinae

4. **Cremastogaster biroi** Mayr, Termész. Füzetek. **20**: 428, 1897. Wheeler, New York Ent. Soc., Jour. **20**: 45, 1912.

Crematogaster (*Orthocrema*) *biroi* Mayr, Wheeler, B. P. Bishop Mus., Occ. Papers **11**(11): 21, 1935.

Ritidian Pt., April 15, Bryan; Dededo, May 11, under bark or in rotten log, Swezey; Machanao, June 5, Usinger; Yigo, Nov. 13, Swezey.

This small, pale ant occurs in India and Ceylon. It was first collected in Guam in 1911 by Fullaway.

5. **Strumigenys godeffroyi** Mayr, Sitzungsb. k. Akad. Wiss. Wien **53**(1): 516, 1866. Wheeler, B. P. Bishop Mus., Occ. Papers **11**(11): 32, 1935.

Tarague Beach, May 17, Swezey.

This small ant is distributed widely in the Pacific, from Tahiti to the Solomon Islands. It is now recorded from Guam for the first time. A single specimen was found in a decaying coconut husk beneath a coconut tree.

*6. **Monomorium pharaonis** (Linnaeus).

Formica pharaonis Linnaeus, Syst. Nat. 10th ed. **1**: 580, 1758.

Monomorium pharaonis (Linnaeus) Bingham, Fauna Brit. India, Hymenopt. 2: 202, 1903. Wheeler, B. P. Bishop Mus., Occ. Papers **11** (11): 24, 1935.

Piti, May 8, July 24-30, abundant in house, Swezey; Barrigada, July 22, 1 winged male, Swezey.

This little yellow cosmopolitan ant was not previously recorded from Guam.

*7. **Monomorium (Parholcomyrmex) destructor** (Jerdon).

Atta destructor Jerdon, Madras Lit. Sci., Jour. **17**: 105, 1851.

Monomorium destructor (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2: 209, 1903. Wheeler, New York Ent. Soc., Jour. **20**: 45, 1912.

Monomorium (*Parholcomyrmex*) *destructor* (Jerdon) Wheeler, B. P. Bishop Mus., Occ. Papers **11**(11): 25, 1935.

Tiyan, April 2, Bryan; Orote Peninsula, April 9, Bryan; Piti Hills, May 1, Usinger; Piti, July, Swezey; Fadian, Aug. 19, Swezey.

A yellowish-brown, pantropical ant with dark abdomen. Collected by Fullaway in 1911.

*8. **Monomorium floricola** (Jerdon).

Atta floricola Jerdon, Madras Lit. Sci., Jour. **17**: 107, 1851.

Monomorium floricola (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2: 211, 1903. Wheeler, New York Ent. Soc., Jour. **20**: 45, 1912; B. P. Bishop Mus., Occ. Papers **11**(11): 23, 1935.

Ritidian Pt., April 15, Bryan; Upi Trail, May 5, Bryan, Swezey; Umatac, May 28, Swezey; Barrigada, June 14, Swezey; Machanao, June 2, 4, 30, Swezey; Piti, July, Aug. 8, Oct. 5, 9, 27, Swezey; Orote Peninsula, Sept. 27, Swezey.

A tiny, black, pantropical ant. Collected by Fullaway in 1911. A bad house pest, sometimes destroying insect specimens by gaining access to tins and vials.

9. **Monomorium minutum** Mayr, Zool.-bot. Ges. Wien, Verh. **5**: 453, 1855. Wheeler, B. P. Bishop Mus., Occ. Papers **11**(11): 23, 1935.

Piti, Aug. 4, Sept. 26, Nov. 3, swept from lawn grass and found in garden, Swezey; Fadian, Aug. 19, Swezey.

Another very small black ant, having several varieties distributed to various Pacific island groups. Not previously recorded from Guam.

10. Cardiocondyla emeryi Forel [?], München ent. Ver., Mitt. **5**(1) : 5, 1881. Wheeler, New York Ent. Soc., Jour. **20** : 45, 1913; B. P. Bishop Mus., Occ. Papers **11**(11) : 20, 1935.

Piti, Nov. 3, swept from lawn grass; Piti Hills, May 1, Usinger; Santa Rosa Peak, May 19, Swezey; Barrigada, July 6, Swezey; Fadian, Aug. 19, Swezey; Piti, in dead bamboo, Oct. 27, Swezey.

This small ant was collected in Guam by Fullaway in 1911. We collected what may be this insect in different localities, but the identification is not positive. This ant is known from the West Indies, Palestine, Madagascar, India, and Tahiti.

11. Cardiocondyla wroughtoni (Forel) ?

Emeriya wroughtoni Forel, Soc. Ent. Belg., Ann. **34** : cxi, 1890.

Cardiocondyla wroughtoni (Forel) Bingham, Fauna Brit. India, Hymenopt. **2** : 287, fig. 86, 1903.

Piti, in garden, Sept. 20; Oct. 7, in dead orange twigs, Swezey.

This is paler than the preceding species, if I have them rightly placed. It occurs in India; not previously collected in Guam.

***12. Solenopsis geminata** subspecies **rufa** (Jerdon).

Atta geminata Fabricius, Syst. Piezatorum, 423, 1804.

Atta rufa Jerdon, Madras Lit. Sci., Jour. **17** : 106, 1851.

Solenopsis geminata variety *rufa* (Jerdon) Bingham, Fauna Brit. India, Hymenopt. **2** : 158, 1903. Wheeler, New York Ent. Soc., Jour. **20** : 45, 1912; B. P. Bishop Mus., Occ. Papers **11**(11) : 26, 1935.

Agana, at light, April 27, Bryan, May 4, Usinger; Barrigada, nest in passion fruit, June 14, Swezey; Piti, with mealybugs on cane, July 24, 27, Oct. 23, nest under bark, July 31, Swezey; Machanao, on spiny amaranth, Aug. 6, Swezey; Mata, very abundant with aleurodid (*Neomaskellia bergii*) on cane, Nov. 11, Swezey.

The "fire ant" is widely distributed in the Pacific islands to Papua and India. It was collected in Guam by Fullaway in 1911. We found it in various situations.

13. Solenopsis species.

Yigo, Nov. 13, Swezey. Two workers of a black species, identification by M. R. Smith, U. S. National Museum.

14. Pheidole javana Mayr, Tijdschr. Ent. **10** : 98, 1867. Wheeler, New York Ent. Soc., Jour. **20** : 45, 1912.

This large black *Pheidole* was collected by Fullaway in Guam in 1911, but we did not get it in 1936. Specimens of two or three smaller species of *Pheidole* were collected in several regions.

15. Pheidole umbonata Mayr, Sitzungsb. k. Akad. Wiss. Wien 53(1): 510, 1866; Zool. bot. Ges. Wien, Verh. 20: 978, 1870. Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 19, 1935.

Mt. Tenjo, May 3, under stones, Swezey; Machanao, May 4, 16, in moss, Swezey; Tumon, May 30, under bark, Usinger; Piti, July, Swezey; Barrigada, July 6, 22, Swezey; Yigo, Nov. 13, Swezey.

This dark brown ant is widespread in the Pacific islands from Marquesas, Tahiti, Samoa, Fiji, Tonga, New Caledonia, New Britain, Solomons and Papua. Now recorded from Guam for the first time. We found it widely distributed, and the most abundant of the species of *Pheidole* in Guam. Determination by M. R. Smith.

16. Pheidole umbonata, variety.

Yona, May 12, Swezey, a pale variety, collected in rotten sugar cane.

17. Pheidole, species near *philemon.*

Yigo, Oct. 18, Swezey, twelve specimens.

A small black species with a specially large big-headed soldier. Determination by M. R. Smith.

18. Pheidole species.

Piti, Aug. 4, Sept. 26, in garden, Swezey, about 30 specimens.

A light brown species. Determination by M. R. Smith.

***19. Tetramorium guineense** (Fabricius).

Formica guineense Fabricius, Ent. Syst. 2: 357, 1793.

Tetramorium guineense (Fabricius) Bingham, Fauna Brit. India, Hymenopt. 2: 184, 1903. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 30, 1935.

This red pantropical ant is distributed throughout the Pacific area and to India. It was collected in Guam by Fullaway in 1911, and is one of the very abundant species. It was collected practically everywhere, and in many situations: in cane fields, often nesting in rotten cane, often associated with mealybugs; in the house, the garden, and lawn; nesting under bark of *Pithecolobium,* in dead branch of breadfruit and orange, in rotten bamboo stumps; on corn, cacao, and pumpkin vines. In one nest among bases of coconut leaf stems were the small yellow lepismids which are inhabitants of ant nests.

20. Triglyphothrix striatidens (Emery).

Tetramorium obesum race *striatidens* Emery, Mus. civ. stor. nat. Genova, Ann. II, 7: 501, 1889.

Triglyphothrix obesa (Emery) Wheeler, New York Ent. Soc., Jour. 20: 46, 1912.

Triglyphothrix striatidens (Emery) Bingham, Fauna Brit. India, Hymenopt. 2: 173, 1903. Wheeler, B. P. Bishop Mus., Occ. Papers 11 (11): 30, 1935.

Mt. Tenjo, May 3, Usinger; Barrigada, June 12, sifted from leaf mold on ground, Usinger; Piti, Nov. 3, swept from lawn grass, Swezey.

A dark brown ant, smaller than the preceding species. Occurs in New Britain, Solomon Islands, Ceylon and India. Collected in Guam by Fullaway in 1911. We found it in only a few places in 1936.

21. Vollenhovia oblonga subspecies **pedestris** (F. Smith).

Myrmica oblonga Smith, Linn. Soc. London, Zool., Jour. Proc. 4, Suppl.: 107, 1860.

Myrmica pedestris Smith, Linn. Soc. London, Zool., Jour. Proc. 6: 47, 1861.

Vollenhovia pedestris (Smith) Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 22, 1935.

Dededo, under bark or in rotten log, May 11, Usinger; Mt. Alifan, May 25, Usinger; Barrigada, July 6, Swezey; Fadian, Sept. 18, Swezey.

This ant is known from New Britain, Solomons, Celebes, Papua, New Caledonia and Santa Cruz. It was not previously recorded from Guam. It is a large black ant which we found in only a few localities. Determination by M. R. Smith.

SUBFAMILY DOLICHODERINAE

***22. Tapinoma melanocephalum** (Fabricius).

Formica melanocephalum Fabricius, Ent. Syst. 2: 353, 1793.

Tapinoma melanocephalum (Fabricius) Bingham, Fauna Brit. India, Hymenopt. 2: 304, 1903. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 36, 1935.

Piti Hills, May 1, Usinger; Mt. Tenjo, May 3, Swezey; Mt. Alifan, June 27, in rotten log, Swezey; Sumay Road, June 23, in rotten stump of *Lumnitzera,* Swezey; Piti, July 30, 31, Sept. 26, in garden, Oct. 23, in cane field, Oct. 27, in dead bamboo, Swezey; Fadian, Aug. 19, Swezey; Machanao, Aug. 11, Swezey; Fonte Valley, Aug. 7, Swezey.

A very small pale pantropical ant, widely distributed throughout the Pacific area and the tropics of both hemispheres. Collected by Fullaway in Guam in 1911. Common in many situations.

22a. Tapinoma indicum Forel, Bomb. Nat. Hist. Soc., Jour. 9: 472, 1895; Bingham, Fauna Br. India, Hym. 2: 304, 1903.

What appears to be this species was obtained in a few places. It is of a uniformly brownish color, with shorter antennae than the preceding species. It occurs in India and New Britain. Our Guam specimens are from Santa Rosa

Peak, May 19, Swezey; Piti, July 30, on sugar-cane leaf, Swezey; Yigo, November 13, Swezey.

*23. **Technomyrmex albipes** (F. Smith).

Tapinoma albipes Smith, Linn. Soc. London, Zool., Jour. Proc. 6: 38, 1861.

Technomyrmex albipes (Smith) Bingham, Fauna Brit. India, Hymenopt. 2: 301, fig. 91, 1903. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 37, 1935.

Yona, Mar. 28, on tangerine trunk, Bryan; Orote Peninsula, April 9, Bryan; Piti, April 30, on *Pithecolobium,* Usinger; Mt. Tenjo, May 3, Swezey; Mt. Chachao, May 16, Usinger; Mt. Alifan, May 21, in breadfruit log, Swezey; Libugon, July 10, Swezey; Fadian, Aug. 19, nest in old seed of (*chopag*) *Ochrocarpus obovalis,* Swezey; Piti, in garden Sept. 26, Swezey; Piti, Oct. 7, in dead orange twigs, Swezey; Yigo, Nov. 13, Swezey.

SUBFAMILY FORMICINAE

24. **Anoplolepis longipes** (Jerdon).

Formica longipes Jerdon, Madras Lit. Sci., Jour. 17: 122, 1851.

Plagiolepis longipes (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2: 320, fig. 97, 1903.

Anoplolepis longipes (Jerdon) Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 37, 1935; 12(18): 15, 1936.

This lively, long-legged, yellowish ant is distributed throughout the Pacific islands, Papua, Indomalaya, Reunion, Ceylon, India, and Burma. It was collected in Guam by Fullaway in 1911. We collected it practically everywhere we went in Guam in 1936, and in many kinds of situations. Nests were in rotten logs, under stones, and one populous nest was in the dead frond of the giant fern (*Angiopteris evecta*). They were lively on garden plants and shrubbery, and could be swept from most plants in the forests. They were always running on the floor of our residence and in corners, and any insect dropped on the floor would soon be found and dragged off. The female is brown and many times larger than the worker. The male is a little larger than the worker and of the same color.

25. **Nylanderia minutula** subspecies **atomus** variety **fullawayi** (Wheeler).

Prenolepis minutula atomus fullawayi Wheeler, New York Ent. Soc., Jour. 20: 46, 1912.

Nylanderia minutula atomus variety *fullawayi* (Wheeler), B. P. Bishop Mus., Occ. Papers 11(11): 50, 1935.

Upi Trail, May 5, Bryan, Swezey; Machanao, June 2, 4, Swezey; Barrigada, July 6, Swezey.

This tiny blackish ant (variety *fullawayi*) was described from specimens collected in Guam by Fullaway in 1911. We collected it, by sweeping, in only a few places. It may have been overlooked because of its small size.

26. **Nylanderia bourbonica** (Forel).

Prenolepis bourbonica Forel, Soc. Ent. Belg., Ann. **30**: 210, 1886. Grandidier, Hist. Madagascar **20**: 82, 1891. Wheeler, New York Ent. Soc., Jour. **20**: 46, 1912.

Nylanderia bourbonica (Forel) Wheeler, B. P. Bishop Mus., Occ. Papers **11**(11): 49, 1935.

Yona, Mar. 28, Bryan; Ritidian Pt., April 15, 16, Bryan; Mt. Alifan, April 20, Bryan; Merizo, April 24, Bryan; Mt. Tenjo, under stones, May 3, Swezey; Upi Trail, May 5, Swezey; Santa Rosa, May 19, Swezey; Umatac, May 28, Swezey; Piti, July 24, on cane, Sept. 26, in garden, Swezey; Machanao, Aug. 6, Swezey; Yigo, Oct. 18, Swezey; Piti, Oct. 27, in bamboo stump, Swezey.

A blackish, ordinary sized ant, known from Nicobar, Reunion, Cargados and Chagas Islands, and India. Collected in Guam by Fullaway in 1911. We found it one of the common ants in 1936.

*27. **Paratrechina longicornis** (Latreille).

Formica longicornis Latreille, Hist. nat. Fourmis, 113, 1802.

Prenolepis longicornis (Latreille) Bingham, Fauna Brit. India, Hymenopt. **2**: 326, 1903.

Paratrechina longicornis (Latreille) Wheeler, B. P. Bishop Mus., Occ. Papers **10**(21): 17, 1934, and **11**(11): 48, 1935.

Barrigada, July 22, Swezey; Piti, Oct. 23, in cane field, Swezey.

A dark brown ant the size of *Nylanderia bourbonica,* with very long scape to the antennae. It is a tropicopolitan ant, known in some places as the "crazy ant" because of its rapid movements. Previously collected in Guam by Fullaway in 1911. Apparently it is rare, as we have it from only two localities.

28. **Camponotus (Tanaemyrmex) irritans chloroticus** Emery.

Camponotus maculatus chloroticus Emery, Mus. civ. stor. nat. Genova **38**: 574, 1897. Wheeler, New York Ent. Soc., Jour. **20**: 47, 1912.

Camponotus (*Tanaemyrmex*) *irritans chloroticus* Emery, Wheeler, B. P. Bishop Mus., Occ. Papers **11**(11): 39, 1935.

Ritidian Pt., April 15, 16, 22, Bryan; Mt. Tenjo, May 3, nest in rotten stick, Bryan, Swezey; Machanao, June 2, 30, Aug. 6, Swezey; Mt. Alifan, June 27, Usinger; Sumay Road, June 23, nest in stump of *Lumnitzera,* Swezey; Libugon, July 10, Swezey; Fadian, Aug. 19, Swezey; Piti, nest in bamboo stump, Oct. 27, Swezey.

This large pale brown wood ant occurs in New Caledonia, Loyalty Islands, New Britain, and Matupi Island. It was collected in Guam by Fullaway in

1911. We found it everywhere in stumps and rotten logs, sometimes in very populous nests.

29. **Camponotus (Myrmamblys) reticulatus** subspecies **fullawayi** Wheeler, New York Ent. Soc., Jour. 20: 47, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 41, 1935.

Ritidian Pt., April 16, Bryan, June 2, Usinger; Upi Trail, May 5, Swezey; Agana, May 15, Swezey, Usinger; Santa Rosa Peak, May 19, Swezey; Machanao, June 2, 4, Swezey; Barrigada, July 6, Swezey; Yigo, Oct. 18, Nov. 13, Swezey.

The subspecies of this black wood ant was described from specimens collected in Guam by Fullaway in 1911. It is not so abundant as *C. (Tanaemyrmex) irritans chloroticus,* but we collected it in several localities.

WASPS OF GUAM

By O. H. Swezey
Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

There are only a few species of wasps in Guam, and apparently they are immigrants from other regions. D. T. Fullaway collected seven species of wasps in Guam in 1911 (Haw. Ent. Soc., Proc. 2:283, 1913). In 1936, we found four additional species, which surely must have arrived there more recently, three of them being already quite common.

Several species are abundant and are beneficial, for they prey on caterpillars to feed their young, either storing them in cells for their larvae to consume or chewing up the captured caterpillars for daily feeding to larvae in individual cells of paper nests. Leafroller caterpillars of various kinds are the ones mostly preyed upon, but some noctuid caterpillars are also used. At least one species of the wasps captures young grasshoppers. Four of the wasps store up spiders, and two of them store up crickets for their young.

Family LARRIDAE

1. Liris aurata (Fabricius).

Sphex aurata Fabricius, Ent. Syst. 2:213, 1793.

Liris aurata (Fabricius) Syst. Piezatorum, 228, 1804. Williams, Hawaii. Sugar Plant. Assoc., Ent. Bull. **14**: 138, 1919.

Piti, May 13, Aug. 20, 25, Sept. 1, 6; Agana, Aug. 20, Swezey.

This beautiful golden-marked, cricket-hunting wasp was not previously recorded in Guam, but F. X. Williams gives an account of observations on its habits in the Philippines. The half dozen specimens which I obtained in Guam were mostly in the vicinity of buildings. Several times I saw a female hunting among boxes at the back of our residence where a common cricket (*Gryllodes sigillatus*) was abundant. One was captured on a cement walk; another flew into the automobile. The Guam specimens were identified by F. X. Williams.

2. Notogonidea manilae (Ashmead).

Notogonia manilae Ashmead, U. S. Nat. Mus., Proc. 28: 130, 1905.

Notogonidea williamsi Rohwer, Hawaii. Sugar Plant. Assoc. Ent. Bull. **14**: 9, 1919.

Notogonidea manilae (Ashmead) Williams, Hawaii. Sugar Plant. Assoc., Ent. Bull. **19**: 75, 1928.

Dededo, May 11; Merizo, June 11; Mt. Alifan, June 19, Swezey.

This is a smaller plain black cricket-hunting wasp. It was not previously recorded from Guam. I obtained only three specimens, all in forest or field.

Dr. Williams has given an account of the habits of this wasp in the Philippines, and has also identified the Guam specimens.

FAMILY TRYPOXYLONIDAE

3. **Pison argentatum** (Shuckard).

Pisonites argentatus Shuckard, Ent. Soc. London, Trans. 2: 79, 1837.

Pison argentatum (Shuckard) Bingham, Fauna Brit. India, Hymenopt. 1: 220, 1897.

Piti, April 30, May 19, 24, 30; June 1, 3, 13; July 5, 28; Aug. 9; Sept. 13; Oct. 29; Nov. 6, Swezey, Usinger; Merizo, June 11, Swezey.

Among the wasps collected by Fullaway in Guam in 1911 (in Bishop Museum) there are at least four species of *Pison,* all undetermined, and no *P. argentatum* among them. In 1936 we procured more specimens of *P. argentatum* than of all the others. We have 21 specimens of *P. argentatum,* all but one from Piti, where they were quite common in and about our residence. The little mud nests were common on walls and in corners of back rooms. These nests are made up of one to six cells in which the wasp stores up small spiders on which its larvae feed. There is considerable parasitism by *Melittobia hawaiiensis,* a tiny parasite whose larvae feed externally on the wasp larvae. There may be up to 100 parasite larvae on one wasp larva. On May 19, a nest containing 6 cells was collected on the scale shed at the Agricultural School, Piti, each cell containing a *Pison* cocoon in which were tiny exit holes where parasites had issued; hence, a parasitism of 100 percent. On September 24, several nests were collected and examined at the residence. These nests totalled 19 cells, the contents of which were: four with dead pisons; one with dead spiders, one with caterpillars stored by *Pachodynerus nasidens;* two with roach egg case; ten had cocoons showing exit holes of *Melittobia;* one had living pupae of *Melittobia.* In this nest, the parasitism would have been at least 56 percent.

This wasp occurs in Madagascar, India, Philippines, and Hawaii. It has undoubtedly become introduced into Guam in somewhat recent years, from Hawaii or the Philippines.

4. **Pison lagunae** Ashmead, U. S. Nat. Mus., Proc. 28: 131, 1905.

Piti, July 11, Swezey, one specimen.

This Philippine species was collected by Fullaway in Guam in 1911. There are ten specimens of it in the collection at Bishop Museum. I obtained only one specimen, identified by F. X. Williams.

5. **Pison** species.

Three other species were collected, but are as yet unidentified.

FAMILY VESPIDAE

6. **Polistes macaënsis** (Fabricius).

Vespa macaënsis Fabricius, Ent. Syst. 2: 259, 1793.

Polistes macaënsis (Fabricius), Syst. Piezatorum, 272, 1804.

Polistes hebraeus (Fabricius) Fullaway, Haw. Ent. Soc., Proc. 2: 283, 1913.

Agana, March 27, 28, Bryan, May 25, Swezey; Piti, May 23, Swezey, June 2, Usinger, Oct. 12, 31, Swezey; Talofofo, June 11, Nov. 18, two specimens dead with parasitic fungus, one fastened on a leaf, the other on a nest, Swezey.

This very common yellowjacket wasp was collected in Guam by Fullaway and recorded under the name *P. hebraeus,* a related species which has been synonymized with *P. macaënsis* in some of the literature. It occurs in Hawaii and other Pacific island groups. It is common and widely distributed in Guam.

These wasps are useful in gardens as they habitually carry caterpillars and young grasshoppers home for feeding the larvae in their paper nests. Their abundance may be indicated by the size of nests found. One nest, four inches in diameter, contained 193 cells, in each of which a wasp had grown to maturity.

7. **Polistes semiflavus** Holmgren, Eugenies Resa, Ins., 439, 1868. Fullaway, Haw. Ent. Soc., Proc. 2: 283, 1913.

Ritidian Pt., on *Hernandia* blossoms, April 15, Bryan; Agana, May 9, Usinger; Yona, May 12, Swezey; Piti, June 22, Aug. 10, Sept. 26, Swezey; Orote Pt., Sept. 1, Swezey; Tumon, Nov. 13, Swezey.

This species is less common than *P. macaënsis* and it is smaller and has smaller colonies. It was also collected by Fullaway in 1911.

8. **Icaria marginata** (Lepeletier).*

Epipona marginata Lepeletier, Hist. nat. Ins., Hymenopt. 1: 541, 1836.

Icaria marginata (Lepeletier) Saussure, Études Fam. Vespides 2: 237, 1853-58. Fullaway, Haw. Ent. Soc., Proc. 2: 283, 1913.

Agana, March 28, Bryan; Orote Peninsula, April 9, Bryan; Talofofo, April 11, Bryan; Yigo, April 13, Bryan; Upi Trail, May 5, Bryan; Piti, May 1, July 24, Sept. 14, Swezey; Mt. Tenjo, May 3, Swezey; Barrigada, June 14, on *Crotalaria* flowers, Aug. 28; on corn tassels, Swezey; Dededo, Aug. 11, Swezey; Mata, Nov. 11, Swezey.

This species is smaller and more abundant than the *Polistes* wasps. It is to be seen searching for caterpillars in grass lands, gardens, fields, roadsides and in the forests. Leafroller caterpillars are their particular prey. These are used for daily feeding to their larvae in paper nests. The nests are composed

* While this paper was in press, J. Van Der Vecht published a paper on "The Indo-Australian species of the genus Ropalidia (= Icaria) (Hym. : Vespidae)" (Treubia 18 (1): 122, 1941), in which *Icaria* is treated as a synonym of *Ropalidia. Icaria marginata* is described as *Ropalidia marginata sundaica,* new subspecies, from Guam, Java, Marianas Islands, Malay Peninsula, Sumatra, Bangka Island, and Borneo.

of much smaller cells than those of *Polistes*. The cells are vertical, and the nest is usually elongate and hangs on a slant instead of being horizontal and nearly circular as is the *Polistes* nest. These nests are commonly found on the under side of palm leaves, in hedges and on mango leaves. One nest found among mango leaves contained 541 cells. This wasp is quick to attack when its nest is disturbed, and the sting is severe for its size. We found several specimens dead with a fungus disease, the same kind as found on *Polistes macaënsis*. This may prove to be *Hirsutella saussurei* (Cooke).

9. Rhynchium brunneum (Fabricius).

Vespa brunnea Fabricius, Ent. Syst. 2: 264, 1793.

Rhynchium brunneum (Fabricius) Bingham, Fauna Brit. India, Hymenopt. 1: 355, 1897. Fullaway, Haw. Ent. Soc., Proc. 2: 283, 1913.

Agana, at Officers' Club, March 28, Bryan, May 4, 15, Swezey; Orote Peninsula, April 7, on coconut blossoms, Bryan; Ritidian Pt., April 15, on *Hernandia* blossoms, Bryan; Dededo, May 11, Swezey; Taragüe, May 17, Swezey; Fadian, Sept. 18, Swezey.

This large brown wasp is very abundant and widely distributed. It is usually to be found in gardens, and is often seen abundantly on country roadsides and trails. It is a caterpillar hunter, storing the caterpillars in empty burrows of tree-boring beetles in stumps, trunks, or dead branches. Enough caterpillars are placed in a burrow to supply food for one larva, then plugged with mud. Their presence on or along roadsides is for the purpose of gathering mud for plugging the nests. Fullaway collected this wasp in 1911. It occurs in Borneo, Sumatra and all through southern Asia.

10. Pachodynerus nasidens (Latreille).

Odynerus nasidens Latreille, Humboldt and Bonpland, Voy. Regions equinoxiales . . ., Zool. 2: 112, 1812.

Pachodynerus nasidens (Latreille) Saussure, Smithsonian Misc. Coll. **16** (254): 232, 1875.

Piti, April 30, May 11, 22, 30, 31, June 8, July 6, Swezey, Usinger; Sumay, June 22, Swezey.

This wasp is apparently a recent immigrant in Guam, as it was not previously recorded. Its home is tropical America, and it is very common in the Hawaiian islands, where it was first observed in 1911. Probably it has reached Guam from Honolulu since that year. It frequents houses, and habitually makes use of empty cells of muddauber wasps' nests to store caterpillars for food for its larvae. The caterpillars stored are those of Microlepidoptera, commonly tortricid larvae. In Guam, *P. nasidens* was found using empty nests of *Pison argentatum* about our residence at Piti. It was found generally throughout Guam, but the specimens in our collection were nearly all from Piti.

BEES OF GUAM

By T. D. A. COCKERELL
UNIVERSITY OF COLORADO, BOULDER, COLORADO

The bees in this list were collected in Guam in 1936 by O. H. Swezey, E. H. Bryan, Jr., and R. L. Usinger. Distribution and other notes were supplied by Mr. Swezey.

FAMILY APIDAE

1. **Apis mellifera** Linnaeus, Syst. Nat., 10th ed., 576, 1758.

"A large colony was observed hanging beneath a large branch of a *Pithecolobium* tree by the roadside near Piti. It was at an elevation of 15 to 20 feet, and continued there for five months after we discovered it. A smaller colony was similarly situated higher up in the tree. Sometimes the bees nest in cliffs of the coral limestone.

"The honeybee, introduced into Guam from the Hawaiian islands in 1907, seems to readily take to open air life there. Little effort is made to produce honey on a commercial scale. Any convenient box is used for a hive. The universal kerosene case is commonly used, sometimes with a side open to the weather."—O. H. Swezey.

FAMILY MEGACHILIDAE

2. **Megachile laticeps** Smith, Cat. Hymenopt. British Mus. **1**: 183, 1853.

Ritidian Pt., April 16, Bryan; Agana, Aug. 13, Rowley; Barrigada, June, Swezey; Piti, May 12, July 7, 24, Sept. 16-20, Swezey, from trellised flowers of *Antigonon leptopus,* numerous males and females.

The female is *M. metallescens* Cockerell, which has been said to be identical with *M. robbii* Ashmead, though I did not think so when revising the Philippine *Megachile.* I now think that *M. mcgregori* Cockerell, based on the male, cannot be separated from *M. laticeps.* In the Philippine Journal of Science (**16**: 147, 1920), I wrote of *M. mcgregori:* "This may be the male of *Megachile metallescens,* which occurs in the same two localities. The abdomen is not at all metallic; but otherwise, aside from the usual sexual differences, the insects are very much alike." This species has undoubtedly been introduced into Guam from the Philippine Islands.

"This bee is widely distributed in Guam, but most of the specimens were collected at Piti. Evidence of its leafcutting activities was conspicuous throughout the island. Young kapok trees were often nearly completely defoliated by this bee, which cuts the circular and oblong bits of the leaves for the lining of

nests. Rose bushes, too, were often nearly defoliated similarly."—O. H. Swezey.

3. **Megachile fullawayi** Cockerell, Ann. Mag. Nat. Hist. VIII, **14**: 2, 1914.

This species described from Guam in the Fullaway collection of 1911 seems to have disappeared; at least, it was not met with in 1936. It occurs on Oahu, Hawaiian islands.

4. **Lithurgus guamensis** Cockerell, Ann. Mag. Nat. Hist. VIII, **14**: 1, 1914.

Taragüe Beach, on cotton flowers, May 17, Swezey; Machanao, June 30, community nest in large, partly rotten breadfruit stump, with dozens of bees nesting in easily excavated wood, Usinger, Swezey; Orote Peninsula, Sept. 27, Swezey; Yigo, May 19, Oct. 18, Swezey.

Family HYLAEIDAE

5. **Hylaeus guamensis** (Cockerell).

Prosopis guamensis Cockerell, Ann. Mag. Nat. Hist. VIII, **14**: 4, 1914.

Sumay Road, June 23, Swezey.

Both sexes were reared from nests in a soft-rotten branch of a red-flowered mangrove tree (*Lumnitzera pedicellata*) but this was the only occasion on which the species was found. My original male was headless; it may now be stated that the clypeus is nearly all yellow, but the yellow is strongly notched or bilobed above; the band-like lateral face marks, about twice as broad below as above, extend along the inner orbits halfway up sides of front; labrum brown with a small yellowish mark; mandibles black with some red sub-apically; scape yellow in front; flagellum dull ferruginous beneath. In one of the females, the face lacks the lateral marks.

Family ANDRENIDAE

6. **Halictus saffordi** Cockerell, Ann. Mag. Nat. Hist. VIII, **14**: 2, 1914.

Orote Peninsula, April 7, on coconut blossoms, Bryan; Ritidian Pt., April 16, Bryan; Mt. Alifan, April 20, Bryan; Santa Rosa Peak, May 19, Swezey; Merizo, June 11, Swezey; Barrigada, Nov. 26, on sunflower, Swezey.

Both sexes collected, about 20 specimens. The male has the mesothorax and scutellum dark purple varying to blue green; the apical plate of abdomen dark red, and very broadly truncate.

7. **Halictus swezeyi** Cockerell, B. P. Bishop Mus., Occ. Papers **15**(5): 66 (in table only), 1939.

Female, type. Similar to *H. saffordi* in many respects, but entirely distinct by the following characters: brassy green, with variable coppery or purple tints; area of metathorax short, boat shaped in outline (subtriangular in *saffordi*), with the hind margin straight or nearly so, and the whole surface covered with fine plicae which reach the mar-

gin and are connected by little lateral branches, forming a fine reticulation. The male of *swezeyi* is about 6 mm. long, considerably smaller and less robust than the male of *saffordi,* but very variable in coloration, and in the sculpture of the metathoracic area, which, however, is never of the *saffordi* pattern. The tibiae are usually bright red, but in one specimen, which has a brilliant purple abdomen and black tegulae, the middle and hind tibiae are black. The apical plate is hardly half the width of that in male *saffordi,* and the wings are much clearer. Length, 7 to nearly 8 mm.

Ritidian Pt., April 16, Bryan; Mt. Sasalaguan, April 25, Bryan; Yona, April 29, Bryan; Dededo, on flowers of unknown shrub, May 11, Swezey; Santa Rosa Peak, May 19, Swezey; Merizo, June 11, Swezey, Usinger; near Atao Beach, June 25, Usinger; Machanao, on tobacco flowers, June 30, Swezey; Dandan, on *Glochidion* flowers, July 17, Swezey; Piti, Aug. 24, Sept. 27, Swezey.

P. H. Timberlake, looking over Swezey's collection, had already recognized that this was a distinct species. Judging from the number of specimens, this would seem to be the commoner species.

HALICTINE BEES FROM ROTA ISLAND

By T. D. A. Cockerell,
University of Colorado, Boulder, Colorado

I am indebted to O. H. Swezey for a series of *Halictus* (females), collected by H. G. Hornbostel on Rota Island, July 1925. There are two species in his collection.

1. **Halictus swezeyi** Cockerell.

I cannot clearly separate these from *H. swezeyi* which occurs on Guam. On the average, the abdomen is a darker, bluer green, but it is variable. They are less robust than *H. saffordi,* the area of metathorax has denser plicas, and the first recurrent nervure joins the third cubital cell (in *H. saffordi* it joins the second). In both sexes of *H. swezeyi* from Guam, I find the first recurrent nervure meeting the intercubitus.

Rota Island, July 23, eleven specimens.

2. **Halictus rotaënsis,** new species.

Head ordinary, face rather narrow (head smaller and face much narrower than in *H. saffordi*); apical part of flagellum variably reddish beneath; tongue short and pointed; head dull dark green, supraclypeal area shining; face, cheeks, sides of thorax and metathorax with thin white hairs; mesothorax and scutellum peacock green, not distinctly polished; metathorax (propodeum) very dark bluish, the basal area with fine plicae, tegulae shining red; wings grayish, with large dark stigma; outer intercubitus very pale; first recurrent nervure joining second cubital cell well before the end; legs dark brown, abdomen broad, without hair bands, dark purplish, with the hind margins of the tergites more or less pallid; as in related species, there is a ventral scopa of curled hairs, collecting pollen. Under the microscope the mesonotum and area of metathorax are seen to be minutely tessellate; mesonotum with very minute punctures, area of metathorax with irregular plicae. Length, about 5.5 mm.; anterior wing, 4.3 mm.

Rota Island, July 20, three specimens.

Halictus rotaënsis var. **hornbosteli,** new variety.

Clypeus and supraclypeal area with rosy tints, mesonotum and scutellum rosy pink, the scutellum brightly colored.

One specimen, Rota Island, July 1925. I give this a name as it has a very distinctive appearance. Typical *H. rotaënsis,* seen from in front, looks almost exactly like *H. crotalariae* Cockerell from New Caledonia, which however has a shining, olive-green abdomen.

Key to Halictines of Pacific Islands

A. Abdomen black, or not at all metallic, or very slightly so (*H. samoae, H. semicyaneus* 1

B. Abdomen distinctly, or very faintly metallic (*H. samoae, H. semicyaneus*) 5

1. Head and thorax black, not metallic (New Caledonia) ..... **H. polygoni** Cockerell.
   Thorax brilliantly metallic 2
2. Head greatly elongated (Samoa) ..... **H. samoae** Perkins and Cheesman.
   Head brown 3
3. Anterior femora and tibiae clear red; small species with purple mesonotum (Samoa) ..... **Echthralictus extraordinarius** (Kohl), male.
   Anterior femora dark 4
4. Mesonotum and scutellum very rich purple (Samoa) ..... **H. mackieae** Cockerell.
   Mesonotum and scutellum green, metathorax blue (Samoa) ..... **H. semicyaneus** Cockerell.
5. Head greatly elongated; mesonotum brilliant blue green (Samoa) ..... **H. samoae** Perkins and Cheesman.
   Head ordinary 6
6. Legs clear red, including femora 7
   Femora not thus red 8
7. First two abdominal tergites entirely green (Samoa) ..... **H. perpessicius** Kohl, male.
   First two tergites black at base, with broad green hind borders (Samoa) ..... **H. perpessicius** Kohl, female.
8. Thorax entirely brilliant shining purple blue (Samoa) ..... **Echthralictus stevensoni** Cockerell, male.
   Thorax not so colored 9
9. Males 10
   Females 13
10. Abdomen olive green 11
    Abdomen not olive green 12
11. Larger; flagellum broadly red beneath apically (Samoa) ..... **H. zachlorus** Cockerell.
    Smaller; flagellum black (Fiji) ..... **H. fijiensis** Perkins and Cheesman.
12. Apical plate very large and broad (Guam) ..... **H. saffordi** Cockerell.
    Apical plate relatively small; abdomen black with an obscure greenish luster, varying to strongly purple (Guam) ..... **H. swezeyi** Cockerell.
13. Small species from New Caledonia, and Rota (*H. rotaënsis*); thorax above green, with no purple shades 14
    Larger species, or if rather small (*H. suvaënsis*) thorax above largely purple blue, or rosy pink (*H. rotaënsis hornbosteli*) 16
14. Tegulae dark (New Caledonia) ..... **H. risbeci** Cockerell.
    Tegulae clear red 15
15. Abdomen dark purplish (Rota) ..... **H. rotaënsis** Cockerell.
    Abdomen green (New Caledonia) ..... **H. crotalariae** Cockerell.
16. Mesothorax and scutellum shining, with brilliant blue purple tints; front tibiae and tarsi clear red (Fiji) ..... **H. suvaënsis** Cockerell.
    Thorax not so colored 17
17. Tibiae and tarsi red (Samoa) ..... **H. zachlorus** Cockerell.
    Tibiae not thus red 18

18. Mesothorax and scutellum violet, contrasting with the blue-green metathorax, legs partly red (Guam)..... **H. saffordi** Cockerell.
Mesothorax and scutellum rosy, contrasting with the dark blue green of metathorax; legs dark brown; a smaller species (Rota)..... **H. rotaënsis hornbosteli** Cockerell.
Mesothorax and scutellum not at all violet or rosy..... 19
19. Legs black, without red..... 20
Legs partly red..... 22
20. Mesonotum dull green; abdomen broad, tergites dark bluish with black margins (Solomon Islands)..... **H. viridiscitus** Cockerell.
Mesonotum shining 21
21. Larger, face broader; abdomen dark bluish green..... **H. saffordi** Cockerell, var.
Smaller, face narrower; abdomen olive green, varying to more bluish green (Guam and Rota)..... **H. swezeyi** Cockerell.
22. Mesonotum dull peacock green; abdomen not distinctly metallic (Samoa)..... **H. semicyaneus** Cockerell.
Mesonotum and scutellum shining brilliant green (Fiji)..... **H. fijiensis** Perkins and Cheesman.

The above key is based on the species which I have at present in my collection. *Halictus semicyaneus* was first named *H. mesocyaneus,* but that name was preoccupied.

The following species are recorded from Pacific islands. (A) indicates types in American Museum of Natural History.

Samoa
Echthralictus stevensoni (Cockerell), 1924
Echthralictus extraordinarius (Kohl), 1908
Echthralictus latro Perkins and Cheesman, 1928
Halictus zachlorus (Cockerell), 1929 (A)
Halictus perpessicius Kohl, 1908
Halictus upoluensis Perkins and Cheesman, 1928
Halictus upoluensis savaiiensis Perkins and Cheesman, 1928
Halictus upoluensis tutuilae Perkins and Cheesman, 1928
Halictus samoae Perkins and Cheesman, 1928
Halictus mackieae Cockerell, 1929 (A)
Halictus semicyaneus Cockerell, 1929 (A)

Tonga
Halictus tonganus Perkins and Cheesman, 1928

Fiji
Halictus fijiensis Perkins and Cheesman, 1928
Halictus versifrons Perkins and Cheesman, 1928
Halictus suvaënsis Cockerell, 1929

New Hebrides*
Halictus aponi Cheesman and Perkins, 1939
Halictus aponi erromangana Cheesman and Perkins, 1939
Halictus tannaënsis Cockerell, 1916 (also Banks Island)
Halictus ounuensis Cheesman and Perkins, 1939
Halictus epiensis Cockerell, 1916 (also Banks Island)
Halictus wilsoni Cheesman and Perkins, 1939
Halictus zingowli Cheesman and Perkins, 1939

* Since this paper was written, an admirable paper on *Halictus* in the New Hebrides, by Miss Cheesman and Dr. Perkins, has been published (Roy. Ent. Soc. London, Trans. 88: 161-171, 1939).

New Caledonia
Halictus polygoni Cockerell, 1929
Halictus risbeci Cockerell, 1929
Halictus crotalariae Cockerell, 1929
(Vachal's record of *H. urbanus baudinensis* Cockerell is believed to be an error.)

Guam
Halictus saffordi Cockerell, 1914
Halictus swezeyi Cockerell, 1939

Rota
Halictus swezeyi Cockerell, 1939
Halictus rotaënsis Cockerell
Halictus rotaënsis hornbosteli, Cockerell

Solomon Islands
Halictus froggatti Cockerell, 1911
Halictus viridiscitus Cockerell, 1911
Halictus exterus Cockerell, 1911
Halictus lavoroensis Cockerell, 1929 (See Australian Mus. Rec. 17 : 228, 1929).
Halictus dampieri Cockerell (also Australia).

DIPTERA

TIPULIDAE OF GUAM

By CHARLES P. ALEXANDER
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I am greatly indebted to O. H. Swezey for the opportunity of examining the Tipulidae collected in Guam by him and his colleagues. The types and uniques in this series have been returned to Mr. Swezey and will be deposited in the collection of the Hawaiian Sugar Planters' Association, Honolulu. Almost at the same time that the present collection was studied, a much larger one taken by Teiso Esaki of the Kiushiu Imperial University, Fukuoka, Japan, was examined and has been reported upon in a separate paper. It is of interest to note that of the nine species from Guam reported in the present article, five had not been taken on any of the islands in the Japanese mandated group visited by Professor Esaki and colleagues (Palau, Marianas, Caroline, and Marshall Islands). The only previous paper recording species of Tipulidae from Guam is one by me (Canad. Ent. 47: 79-84, 1915). A single species from the Caroline Islands is included.

TRIBE LIMONIINI

1. **Limonia (Libnotes) jocularis** Alexander, Annot. Zool. Jap. **19**: 205-207, 1940.

Fadian, Sept. 18, Swezey, 4 badly molded specimens; "ex rotten bark of dug-dug", Swezey.

2. **Limonia (Libnotes) nesopicta** Alexander.

Libnotes picta Alexander, Canad. Ent. **47**: 80-82, fig., 1915 (name preoccupied in *Limonia*).

Limonia (*Libnotes*) *nesopicta* Alexander, Annot. Zool. Jap. **19**: 204, 1940.

Piti, Nov. 3, at light, Swezey, one specimen.

The abdomen shows three intermediate tergites with broad and conspicuous black bands.

3. **Limonia (Libnotes) strigivena** (Walker).

Limnobia strigivena Walker, Linn. Soc. London, Jour. **5**: 229, 1861.

Fadian, Sept. 22, Swezey; "ex rotten bark of dug-dug", Swezey.

4. **Limonia (Limonia) swezeyana,** new species.

Belongs to the *albitarsis* group; general coloration of mesonotum medium brown; pleura paler; legs brown, the tarsi snowy white, involving about the distal fourth or fifth

of the basitarsus; wings with a strong brownish tinge; Sc_1 ending about opposite two-fifths the length of *Rs;* male hypopygium with two rostral spines. Male, length about 5 mm., wing 5.5 mm.; female, length about 5 mm., wing, 5 mm.

Rostrum and palpi black. Antennae black throughout. Head dark.

Mesonotum almost uniformly medium brown; pleura paler. Halteres dark brown. Legs brown, the tarsi snowy white, this including about the distal fourth or fifth of the basitarsus, as well as the outer tarsal segments. Wings with a strong brownish tinge; stigma not or scarcely darker; veins dark brown. Venation: Sc_1 ending about opposite two-fifths the length of *Rs*, Sc_2 a short distance from its tip; free tip of Sc_2 lying a short distance beyond the level of R_2; *m-cu* close to fork of *M*.

Abdominal tergites dark brown, the caudal borders of the segments a trifle paler. Male hypopygium with the tergite transverse, the setae apical. Basistyle relatively long, the lobes much as in *albitarsis*. Dorsal dististyle a nearly straight, stout rod. Ventral dististyle small, the prolongation conspicuous, bearing two long conspicuous spines from a common tubercle; outer spine about four-fifths as long as the inner and a little more slender. Gonapophyses with mesal-apical lobe long, straight and very slender.

Fadian, Sept. 18, Swezey, holotype female; "ex rotten bark of dug-dug", Swezey, allotopotype male, in poor condition.

I take great pleasure in naming this species in honor of the collector, O. H. Swezey. It is allied to *Limonia* (*Limonia*) *albitarsis* (Alexander) and *Limonia* (*L.*) *subalbitarsis* Alexander, of the East Indies, differing in the small size and in the possession of two rostral spines on the ventral dististyle of the male hypopygium.

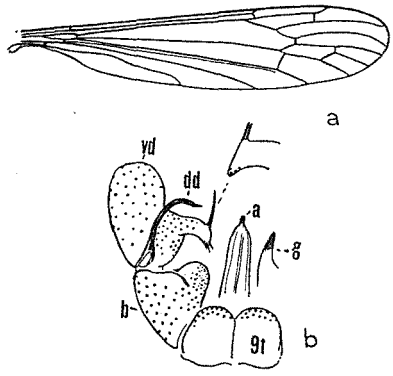

FIGURE 1.—*Limonia* (*Dicranomyia*) *guamicola,* new species: **a,** venation; **b,** male hypopygium, symbols: *a,* aedeagus; *b,* basistyle; *dd,* dorsal dististyle; *g,* gonapophysis; *gt,* 9th tergite; *vd,* ventral dististyle.

5. **Limonia (Dicranomyia) guamicola,** new species (fig. 1, *a, b*).

Belongs to the *punctulata* group; size large; general coloration of thorax reddish brown, variegated with darker, including a narrow brownish black pleural stripe; male hypopygium with a single rostral spine that is placed far out at tip of prolongation; mesal-apical lobe of gonapophysis slender, nearly straight, blackened. Male, length about 8 mm., wing, 9 mm.

Rostrum and palpi black. Antennae black throughout; flagellar segments oval to long-oval; terminal segment about one-fourth longer than the penultimate. Head blackish gray; anterior vertex reduced to a linear strip that is about as wide as a single ommatidium.

Pronotum brown. Mesonotum reddish brown to buffy, with poorly differentiated, pale brown stripes, the intermediate pair darker and more conspicuous near the suture; scutal lobes more darkened; mediotergite darkened on cephalic portion; pleurotergite dark brown, more or less pruinose. Pleura buffy, with a narrow brownish black longitudinal stripe from the cervical sclerites across the propleura, ventral anepisternum and ventral pteropleurite to the base of abdomen. Halteres yellow, the small knobs very weakly darkened. Legs with the coxae yellow, the fore and middle pairs narrowly infuscated at base; trochanters yellow; femora pale brown, the bases brightened, the tips vaguely darkened; tibiae and tarsi pale brown, the outer segments darker; claws elongate, simple. Wings (fig. 1, *a*) brownish yellow, sparsely patterned with brown as in the *punctulata* group, including the usual two spots along vein 2d *A*; cells *C* and *Sc* unpatterned or the former with two or three pale brown clouds near outer end; veins yellow, darker in the clouded portions. Venation Sc_1 ending a short distance beyond origin of *Rs*, Sc_2 at its tip; *m-cu* shortly beyond fork of *M*.

Abdomen reddish brown, the basal segments somewhat darker; hypopygium obscure yellow. Male hypopygium (fig. 1, *b*) with the tergite extensive, the caudal margin gently emarginate, lateral lobes rounded. Dorsal dististyle, *dd*, a slender curved rod, the tip acute and very gently upcurved. Ventral dististyle, *vd*, large, more extensive than the basistyle; rostral prolongation conspicuous; a single powerful spine placed far out on the prolongation, without a basal tubercle. Gonapophyses, *g*, with mesal-apical lobe slender, nearly straight, blackened. Aedeagus, *a*, terminating in a simple narrow point.

Piti, at light, June 12, Swezey, holotype male.

In its large size and in the structure of the male hypopygium, the present fly is quite distinct from all species of the group so far made known. In the structure of the male hypopygium, it is closest to *Limonia* (*Dicranomyia*) *neopunctulata* Alexander, of the southern Philippine Islands and Borneo, differing especially in the structure of the dististyles and gonapophyses. The species belonging to the *punctulata* group are as follows:

L. (*D.*) *fijiana* Alexander. Fiji.
L. (*D.*) *fullawayi* Alexander. Ladrones, Carolines.
L. (*D.*) *kulin* Alexander. Southeastern Australia.
L. (*D.*) *magnistyla* Alexander. New Britain.
L. (*D.*) *neopunctulata* Alexander. Mindanao, Borneo.
L. (*D.*) *poli* Alexander. China, Japan.
L. (*D.*) *punctipennis* Skuse. Eastern Australia.
L. (*D.*) *p. maoriensis* Alexander. New Zealand.
L. (*D.*) *p. occidentalis* Alexander. Western Australia.
L. (*D.*) *punctulata* de Meijere. East Indies.
L. (*D.*) *punctulatella* Alexander. Northeastern Australia.
L. (*D.*) *punctulatoides* Alexander. Mindanao.
L. (*D.*) *rectidens* Alexander. China.
L. (*D.*) *subpunctulata* Alexander. Formosa.

5a. Limonia (Dicranomyia) fullawayi (Alexander).

Dicranomyia fullowayi Alexander, Canadian Entomologist 47: 79, 1915.

Limonia (*Dicranomyia*) *fullowayi* Alexander, B. P. Bishop Mus., Occ. Papers 9(21): 6, 1932.

Collected in Guam in 1911 by Fullaway. None collected in 1936.

6. **Limonia (Dicranomyia) sordida** (Brunetti).
Dicranomyia sordida Brunetti, Fauna British India, Dipt. Nematocera, 382, 383, 1912.
Piti, July 13, 24, Swezey; Talofofo, June 17, Swezey.
Widespread in continental Asia and the Greater Sunda Islands. Hitherto not recorded from the Micronesian Islands.

7. **Limonia (Idioglochina) obesula** (Edwards).
Dicranomyia (Idioglochina) obesula Edwards, Ann. Mag. Nat. Hist. IX 20: 232, 1927.
Taragüe, April 19, Bryan.

8. **Conosia irrorata insularis,** new subspecies.

Similar to the typical form, differing as follows: Wings of male not conspicuously dilated opposite vein 2d *A*. Wing pattern in some specimens much heavier than in continental material, this being the case in the type. Male hypopygium with the gonapophyses much longer and stronger, heavily blackened.

Caroline Islands: Ponape, Mt. Nanalaut, March 7, 1936, Z. Ono, holotype male, B. P. Bishop Museum collection; Ponape, Nipit-Ninoani, Jan. 13, 1938, Esaki, one male, Alexander collection; Ponape, Kolonia-Nat, Nov. 19, 1937, Esaki, one male, Kiushiu Imperial University collection; Ponape, March 14, 1936, Z. Ono, one male, B. P. Bishop Museum collection. Palau, Babelthaob [Babelthuap], Marukyoku [Melekiok], Feb. 23, 1936, Esaki, one male, Kiushiu Imperial University collection (paratypes).

9. **Trentepohlia (Mongoma) guamensis** (Alexander).
Mongoma guamensis Alexander, Canad. Ent. 47: 83, 1915.
Ritidian Pt., April 15, Bryan; Talofofo, Headwaters Plateau, June 18, Usinger; Yigo, Nov. 8, on rotten corn stalk, Swezey.
Caroline Islands: Kusaie-Mt. Wakapp, Jan. 26, Z. Ono.

10. **Gonomyia (Lipophleps) pietatis** Alexander, Annot. Zool. Jap. 19: 220-221, 1940.
Piti, May 23, from grass, Swezey.

11. **Styringomyia didyma** Grimshaw, Fauna Hawaiiensis, 3: 10, 1901.
Ritidian Pt., April 22, Bryan; Piti, April 30, Usinger; Agat, May 20, 31, Usinger; Sumay Road, June 23, Usinger, July 15, Swezey.

CULICIDAE OF GUAM

By O. H. Swezey
Experiment Station, Hawaiian Sugar Planters' Association, Honolulu

1. **Culex quinquefasciatus** Say, Acad. Nat. Sci. Phila., Jour. 3: 10, 1823. Dyar, Mosquitoes of the Americas, 380, pl. 102, fig. 357, 1928.

This widely distributed night mosquito was common in Guam, but we collected only a few specimens, chiefly in our residence at Piti. Some were reared from larvae found in a hog wallow at Agana Swamp, May 4. It is probably the species recorded by Fullaway in 1911 as "*Culex* sp. near *vishnui.*"

2. **Aëdes pseudoscutellaris** (Theobald).

Stegomyia pseudoscutellaris Theobald, Entomologist **43**: 156, 1910.

Aëdes scutellaris variety *pseudoscutellaris* (Theobald) Edwards, Gen. Insect. Culicidae (194), 1932.

This day mosquito was described from Fiji, and also occurs in Samoa. A few were reared from larvae in a water-filled tree hollow at Barrigada, August 28, and from larvae in water-filled coconut shells on the ground at Piti, October 11. In 1937, A. Cruz reared quite a lot of them from larvae in coconut hulls at Mogfog, Nov. 10. This species was determined by W. V. King.

3. **Aëdes (Stegomyia) aegypti** (Linnaeus).

Culex aegypti Linnaeus, Hass. Pal. Reise, 470, 1762.

Aëdes (*Stegomyia*) *aegypti* (Linnaeus) Dyar, Insect. Inscit. mens. **7**: 204, 1920.

This is the widely spread yellow fever mosquito. We did not note this mosquito in 1936, but in the lot of the preceding species reared by Cruz, I found nine specimens of this species.

4. **Aëdes (Stegomyia) pandani** Stone, Ent. Soc. Wash., Proc. **41**: 162, fig. 1a, 1939.

This species was described from an abundance of material collected and reared by us in 1936, and by R. G. Oakley in 1937 and 1938. It is the mosquito recorded by Fullaway in 1911 as *Stegomyia scutellaris,* of which he said: "The latter is very abundant in the forests and makes progress through the brush very unpleasant." We also were tormented by this day mosquito whenever out in the gardens, ranches, or forests. This is by far the most abundant species in Guam. Fortunately the effect of their bites is not so severe as it is with some of the other species. The larvae were in only one situation, in water held in the axils of *Pandanus* leaves. There are several species of *Pandanus* in the forests and valleys of Guam, and they are abundant enough

everywhere to provide ready breeding places for this mosquito. Furthermore, the rainfall is sufficient to maintain the water supply in the leaf axils. The larvae were always found when searched for in this situation, and sometimes they were reared. The species occurred in all regions, and there is no object in listing the places where collected.

5. **Aëdes (Aëdimorphus) oakleyi** Stone, Ent. Soc. Wash., Proc. 41 : 163, fig. 1, b, 1939.

Root School Farm, from water drum, Oct. 3, 1938, reared abundantly by R. G. Oakley.

A few specimens of another species of *Culex* have not yet been determined. The material was too meager for satisfactory study, and positive determination will have to wait until further material is obtainable.

TRYPETIDAE, OTITIDAE, HELOMYZIDAE, AND CLUSIIDAE OF GUAM (DIPTERA)

By J. R. MALLOCH
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The species treated in this paper were chiefly obtained in an entomological survey of Guam in 1936, and submitted to me by O. H. Swezey. A few records, collected by D. T. Fullaway in 1911, are included from specimens in the U. S. National Museum.

FAMILY TRYPETIDAE

There are but four genera, each represented by a single species, in this collection. Three appear to be undescribed, and the fourth is a widely spread Old World species.

Genus **DACUS** Fabricius

Dacus Fabricius, Syst. Antliatorum, *272*, 1805.

This genus has been divided into a number of genera or subgenera, according to the views of various workers on the family, and the species before me falls in the subgenus *Bactrocera*. The only character distinguishing the concept from *Chaetodacus* is the presence of one or two oblique dark fasciae on the disk of the wing in addition to the one over the anal cell.

In my paper dealing with this family [Insects of Samoa 6(7): 253-266, 1931], I presented a key to the then known Pacific island species of this group, and in that key the Guam species runs down to *D. distinctus* Malloch, but it is readily distinguished therefrom by the wing markings and other characters noted below.

Dacus ochrosiae, new species.

Male and female. Close to *D. distinctus* Malloch, readily distinguished by lack of black spots on face, undivided central gray-dusted mesonotal vitta, lack of a yellow notopleural spot, more extensively blackened scutellum, brown posterior basal cell of wing, and break in costal border at hind margin of discal fascia.

Head yellow, frons more or less extensively brown centrally, occiput with a small subquadrate brown mark above neck, no black spots on face, a brown spot below eye; antennae brownish yellow, third segment almost entirely dark brown, narrowly reddish at base; palpi brownish yellow. All bristles black. Frons about twice as long as wide, with one pair of reclinate upper and two pairs of incurved lower bristles on orbits; the four vertical bristles strong; ocellars microscopic; postverticals lacking. *Antennae* about as long as face. Face slightly humped in center. *Thorax* shiny black, mesonotum with a complete central rather broad uniform vitta of gray dust that fills the space between prescutellar acrostichals, a yellow sublateral vitta from suture to near hind margin, and humeri yellow, no other yellow marks on mesonotum. Upper margin of mesopleura with a yellow stripe that is widened behind to about one third the height of sclerite; scutellum with a

yellow margin, black on disk and below; metapleural spot above and below stricture. Bristles as follows: no humeral, 2 notopleurals, 1 supra-alar, 2 postalars, 2 acrostichals, 1 mesopleural, 1 weak pteropleural, 2 scutellars, and 4 scapulars of variable length. *Legs* fulvous yellow, hind tibia and apices of tarsi somewhat browned. *Wings* hyaline, with a broad brown costal streak that extends across wing to the fourth vein from opposite the humeral cross vein, is interrupted at apex of first vein, and from beyond this rather narrow break extends to wing tip, covering the wing surface from costal margin to over third vein, and at tip touching apex of fourth vein. From this costal streak there are two oblique dark brown fasciae, one over the posterior basal cell that almost fills it and extends over anal cell to wing margin, and the other extending from just before costal break to hind margin and covering both cross veins. The apical portion of the border has usually a short projection on its lower side at base representing apparently a rudimentary second discal fascia. Inner cross vein oblique, at less than its own length, and not one third the length of discal cell from apex of cell. Fifth vein bare. *Abdomen* black, with yellow apices to tergites, discal depressions on fifth tergite not very well marked. Length, 6-8 mm.

Fadian, Aug. 19, ex *Ochrosia* fruits, type male, allotype female and eight paratypes, Swezey; Ritidian Pt., Aug. 6, ex *Ochrosia* fruits, two paratypes, Swezey; Dededo, Sept. 7, ex *Ochrosia* fruits, one paratype, Swezey; Guam, no other data, one paratype, Fullaway; Yigo, Sept. 5, 1937, in field on fruits of *Ximenia americana,* U. S. National Museum, no. 153 b.

One reared female has the apical costal stripe reduced to streaks on the veins, the cells subhyaline centrally.

Genus **SPATHULINA** Rondani

Spathulina Rondani, Dipt. Ital. prodr., **1**: 113, 1856.

Spathulina acroleuca Schiner, Reise Novara, Dipt., 268, 1868.

Near Agfayan, Mt. Alifan, Yona, Inarajan, Bryan, Swezey, five specimens.

This species is quite variable in the wing markings and has been described under at least four different specific names. It occurs in Egypt, South Africa, and widely throughout the Indo-Australian Region, including Australia where it is common on the east coastal portion. Not known to occur in New Zealand.

Genus **CYCASIA,** new genus

Postocular bristles pale, but fine and slender, two supraorbital pairs of bristles, both reclinate, and three pairs of incurved infraorbitals; outer vertical bristles of moderate length and inner pair very long and erect, situated on short elevated bases; eye higher than long, face vertical; third antennal segment not acute at apex above; arista short pubescent; proboscis short and stout. Presutural bristle strong; dorsocentral pair a little behind a line drawn between supra-alars; sternopleural, mesopleural, and pteropleural strong; scutellum slightly flattened, bare on disk, with four long bristles. Femora unspined; mid tibia with short posterior setulae and one stout apical ventral bristle; hind tibia with a series of anterodorsal setulae. First wing vein setulose from humeral cross vein to apex above, bare below; third vein with three or four setulae at base above, other veins bare; fourth vein slightly dipped down into discal cell before inner cross vein; cross vein closing anal cell almost erect, cell without an apical lower lobe. Fifth abdominal tergite of male

as long as two preceding tergites combined, rounded in apical outline, with a pair of prominent glossy black discal bullae and a series of quite long marginal bristles.

Genotype: *Cycasia oculata,* new species.

This genus will not run down satisfactorily to any in Hendel's key to the genera of the family (Wien. ent. Zeitung, 33:73, 1914). It undoubtedly belongs to the segregate or tribe *Euribiini* of Hendel's latest paper on the family (Die Fliegen der palaearktischen Region, 49, Trypetidae, 1927).

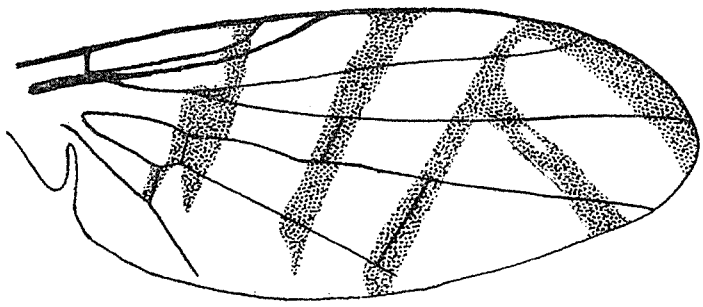

FIGURE 1.—Wing of *Cycasia oculata.*

Cycasia oculata, new species (fig. 1).

Male. Fulvous or orange yellow, thorax and abdomen glossy, wings with brownish yellow fasciae. *Head* from in front wider than high, in profile a little higher than long; frons at vertex about four fifths as wide as long, much narrowed in front. Third antennal segment about 2.5 times as long as second. Gena about one eighth as high as eye. All bristles and hairs yellow. Thorax with a whitish yellow line over humeri and extending backward along upper margin of pleura to bases of wings; scutellum also much paler than mesonotum, which is undusted, and there is a black dot at anterior extremity of the postalar declivities. Mesonotal hairs short, rather dense, and yellow; bristles yellow. *Wing* as in figure 1. *Abdomen* broadly ovate, not longer than thorax, convex on dorsum. Length, 4 mm.

Mt. Chachao, May 16, ex *Cycas,* type and one paratype, Swezey; Piti, Aug. 24, one paratype, Swezey; Agat, May 31, one paratype, Swezey; Passan, June 15, one paratype, Usinger; Guam, no other data, one male paratype, Fullaway.

Genus **RHABDOCHAETA** de Meijere

Rhabdochaeta de Meijere, Bijd. Dierk. **17**: 109, 1904.

This genus occurs in the Seychelles, East Indies, Formosa and possibly in some other sections of the Malayan region. The small size of the species and the pale color of the great majority of them possibly renders them difficult to collect in the field so that but few are known in collections. The only specimen in my possession belongs to an undescribed species.

Rhabdochaeta guamae, new species (fig. 2, *a, b*).

Male. A characteristic species of the genus, distinguished from its allies by wing markings. In figure 2, *a,* the bullae are not shown. They are merely slightly elevated spots a little more elevated and more shiny on the upper surface than the surrounding membrane, three in number, located as follows: one on each side of the outer cross vein against the fourth vein, and the third above the outer extremity of the black spot beyond the inner cross vein. The third and first veins are setulose above.

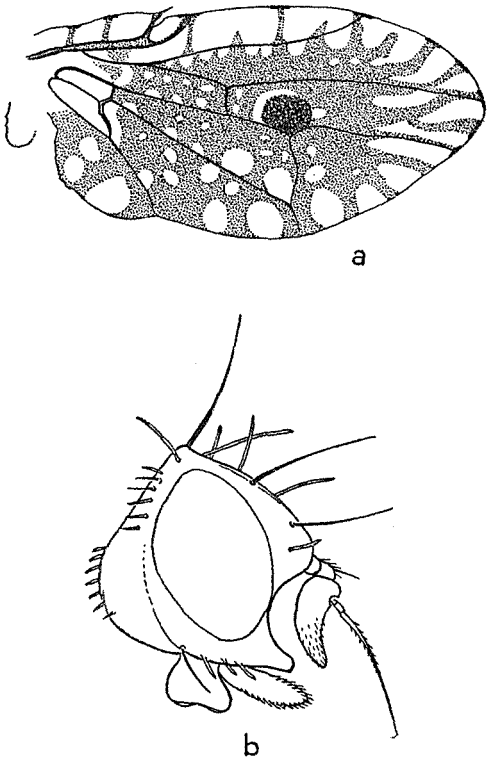

FIGURE 2.—*Rhabdochaeta guamae:* a, wing; b, head.

Head testaceous yellow, with whitish dust, vertex gray, occiput with a pair of black spots connected above neck, gray dusted. *Antennae* yellow, aristae yellow at base, whitish beyond; palpi pale testaceous yellow, with quite dense short stiff black hairs along sides. A small black spot between each antennal base and eye. Profile as in figure 2, *b.* Inner vertical and two intermediate orbital bristles dark brown, anterior infraorbital, two upper reclinate supraorbital, ocellar, outer vertical, postvertical, and interfrontal bristles, and most postocular setulae white. Frons about half the head width, almost quadrate, orbits linear, widened below. A strong pair of bristles on interfrontal stripe about midway between anterior ocellus and lunule, three incurved white bristles behind each inner vertical bristle. Third antennal segment tapered to apex; aristae pubescent. *Thorax* testaceous yellow, disk on mesonotum and scutellum, postnotum and marks on pleural sclerites black, with dense pale gray dust. Bristles luteous, dark brown at extreme bases, all mesonotal hairs and most of those on pleura except a few on mesopleura and all the short pleural bristles, white.

Bristles as follows: 1 humeral, 1 presutural, 2 notopleural, 1 supra-alar, 2 postalar, 2 pairs of dorsocentrals, anterior pair at suture, and 4 scutellars, apical pair minute; all pleural bristles short. *Legs* yellow, hind tibia with a dark brown annulus near base opposite a similarly colored mark on ventral surface of hind femora. No exceptional armature nor structures present. *Wings* whitish hyaline, with yellowish brown markings as shown in figure 2, *a;* usual deep black spots above outer cross vein, and fourth vein bent upward just beyond outer cross vein as in the other species. Halteres yellow. *Abdomen* short ovate, testaceous yellow, largely blackened and entirely gray dusted on dorsum; hairs and bristles white. Length, 2.75 mm.

Guam, no other data, Fullaway, type.

Family OTITIDAE

This is the family that until recently was called *Ortalidae* by authors, but, owing to the preoccupation of the generic name *Ortalis* in Ornithology, the name was changed to Otitidae.

There are four genera of the family in the present collection, represented by five species. One of the species is widely distributed, being almost cosmopolitan, its saprophagous larval habits making it a ready subject for transportation in commercial vessels. All the others appear to be new to science, and possibly they are indigenous to Guam.

Genus **CHRYSOMYZA** Fallen

Chrysomyza Fallen, Dipt. Suec. Scenop., 4, 1817.

Chrysomyza aenea (Fabricius).

Musca aenea Fabricius, Ent. Syst., 4: 335, 1794.

Piti, June 13, on cane; Sept. 13, Swezey. Two specimens.

Distributed throughout the Malayan and Australian regions.

Genus **POGONORTALIS** Hendel

Pogonortalis Hendel, Tijdschr. Ent. 54: 370, 1911.

There are three known species of this genus, and below I describe a fourth. The male in the new species does not have a pronounced beard though it does have a group of bristles on the jowls and the latter are more or less expanded, sometimes angularly so. The mouth opening is as usual large in both sexes.

Pogonortalis fulvofemoralis, new species.

Male and female. *Head* black, frons except triangle and upper orbits dull, lower orbits, parafacials, and postocular orbits white dusted; basal two segments of antennae brown; palpi blackish brown; face distinctly white dusted above and in foveae, dust thinning out at middle and lacking below. Frons about 1.5 times as long as wide, two pairs of orbitals short and fine, quite close to upper margin; ocellars minute, divergent; all four verticals strong and quite long; postocular of moderate length. Jowls of male quite variable, sometimes prominently angularly produced and head then distinctly wider than length

of thorax, angle rather densely haired, beard consisting of fine bristles that become longer behind; female without angulation of jowls and exceptional bristling. Aristae short haired on entire extent; palpi slightly spatulate, larger in male than in female. *Thorax* glossy black, with bluish or purplish tinge, with very little trace of dusting and no markings, surface rather closely piliferous punctate, pile and bristles black. Bristles as follows: 1 humeral, 2 notopleurals, 1 supra-alar, 2 postalars, 1 pair of dorsocentrals, no acrostichals, scapulars minute, 4 scutellars, and 1 mesopleural. Scutellum convex, without discal hairs. *Legs* fulvous yellow, all tibiae and tarsi blackish brown. Fore femur with one or two fine black bristles apically sloped on posteroventral surface apically, mid tibia with a strong straight apical ventral bristle; hind femur a little thicker than other pairs, with usual elevated keel-like ridge about one third from apex on anteroventral surface, and a group of fine short bristles on apical third above keel on anterodorsal surface; hind tibia with a series of very short anteroventral setulae centrally that are hardly distinguishable above the surface hairs. *Wings* brownish hyaline, with the following dark marks: all of anterior basal cell up to inner cross vein, a subquadrate mark from brown stigma to third vein across field of wing, a streak from apex of second vein along costa to apex of wing, widened apically, and narrow clouds over all cross veins, membrane except between costal spots distinctly brown tinged. Inner cross vein oblique, close to middle of discal cell; third vein curved downward at apex so that first posterior cell is narrowed apically; base of second vein with a few short setulae below; first and third veins closely setulose on entire extent above. Halteres dark brown. *Abdomen* glossy black, with a bluish or purplish tinge. Hairs short and quite dense, third tergite elongate in male and with a number of fine apical bristles on sides, much as in *Cleitamia*. Length, 5-7.5 mm.

Guam, no other data, Fullaway, type male and allotype female; paratypes: Yigo, Nov. 8, on corn, male, Swezey; Yona, April 29, on dead *Areca* palm leaves, female, Bryan.

Genus **GUAMOMYIA,** new genus

This genus belongs to the *Platystominae* and runs down to *Scotinosoma* in Hendel's key to the genera (Genera Insectorum). It has the frons entirely different, however, the ocelli being about one third of length from vertex to anterior margin instead of close to vertex, and the arrangement of the bristles is quite remarkable. There are three long, equally spaced bristles on each orbital margin, the anterior one close to the middle and the upper one at vertex, the middle one being a little behind the level of the posterior ocelli; a fourth pair of bristles that are much shorter, finer, and incurved (undoubtedly the inner vertical pair) is situated about one third of the distance from the vertical to the second bristle and closer together on the inner edge of the orbits; ocellars short, divergent. Frons slightly bulged upward in front, with many stiff erect black hairs. Eyes bare. Profile higher than long. Antennae about half the face length, third segment not over twice as long as wide, broadly rounded at apex, second segment with some long hairs at apex below, one or two of which extend beyond the apex of third segment; aristae short haired on entire length; facial foveae shallow and narrow; epistome slightly projecting; genal bristle present; postocular bristle lacking. Thorax with the following bristles: 1 humeral, 2 notopleurals, 1 supra-alar, 2 postalars, 1 pair of dorsocentrals, 1 pair of short prescutellar acrostichals, and 6 scutellars; disk of scutellum haired. Wing fasciate with black, first and third veins setulose on their entire extent above, inner cross vein close to middle of the discal cell; first posterior cell not narrowed at apex, anal vein obsolete apically, cross vein closing anal cell almost straight. Lower squama rudimentary.

Genotype: *Guamomyia fascipennis,* new species.

Guamomyia fascipennis, new species (fig. 3).

Female. Head tawny yellow, upper orbits, ocellar region and vertex usually darker and slightly pale gray dusted, occiput infuscated centrally; face with a more or less distinct dark line along each facial ridge and with a dark streak across epistome; antennae not darkened; aristae black; prelabrum and proboscis black. Frons fully twice as long as wide at vertex, slightly widened in front. Eye distinctly higher than long tapered below, facets uniform in size. Gena about as high as width of third antennal segment and one eighth as high as eye; parafacial almost invisible in profile; face with a small elevation in center below level of antennal insertions. *Thorax* black, slightly shiny, with rather dense pale gray dust, mesonotum with four indistinct dark vittae, submedian pair widely separated and more evident than wider sublateral pair. Dorsal hairs black, not inserted in evident punctures; mesopleura, propleura, sternopleura, and pteropleura haired. *Legs* moderately stout, pitchy black, knees very narrowly yellowish, and basal two segments of all tarsi pale yellow. No exceptional armature present; fore femur with a series of moderately long posteroventral bristles; mid tibia with a long straight apical ventral bristle. *Wings* hyaline, with dark pattern and venation as in figure 3. Halteres yellow. *Abdomen* blackish brown, slightly shiny, with pale gray dust on a narrow apical margin of third and fourth tergites and entire fifth gray dusted. Base close against postnotum, apex of first visible tergite elevated, the sides slightly compressed; genital cone broad, rather abruptly narrowed at apex. Length, 3-3.5 mm.

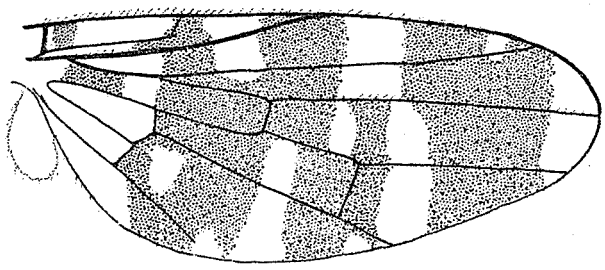

FIGURE 3.—Wing of *Guamomyia fascipennis.*

Guam, no other data, Fullaway, type and four paratypes, one without head.

I have seen one or two other genera in which the ocelli are well forward of the vertex but in none of them are the other characters as here.

Genus **SCHOLASTES** Loew

Scholastes Loew, Smithsonian Miss. Coll. **11**(3): 38, 1873.

This genus contains a dozen or more described species and occurs from southern Asia southward to Australia, the commonest and most widely distributed species being S. *cinctus* Guerin. In the present collection there are two species, one apparently undescribed.

Scholastes aitapensis Malloch, Linn. Soc. New South Wales, Proc. 64: 128, pl. 5, fig. 24, 1939.

Agana, June 2, Swezey, one specimen.

This species which closely resembles *S. bimaculatus* Hendel, was described from the Admiralty Islands, the Solomon Islands, and New Guinea.

Scholastes hirtiventris, new species.

Male and female. A black species much like *S. distigma* Hendel, but differing from it and any other species known to me in having the large discal abdominal plate of the female furnished with dense long stiff hairs that are sparser basally.

Head testaceous yellow, black on occiput except margin, two broad frontal bands as in *S. aitapensis,* a large mark on genae, a narrow line across lower extremities of facial foveae, a spot between base of each antenna and eye and another on central facial carina between antennal bases. *Antennae* red, third segment dark on upper edge; palpi red. Frons a little longer than its anterior width, slightly narrowed behind; anterior carina distinct; bristles normal. Arista long haired to near apex, without apical pallette. *Thorax* black, humeri yellow, with a black spot, the usual pale yellow sublateral lines conspicuous, as is also the one around the apex of scutellum and one on upper margin of pleura. Supra-alar bristle strong; dorsocentrals 2 pairs; prescutellar pair of acrostichals as strong as posterior dorsocentral pair. *Legs* black, fore coxae brown, basal segment of all tarsi except its extreme apex whitish yellow. *Wings* grayish hyaline, with blackish brown marks as follows: a fascia from basal half of the stigma passing through discal cell before middle, and not attaining hind margin, another fascia from apex of first vein passing over outer cross vein and divided from middle of latter to hind margin, a large subquadrate mark over apical fourth of second vein that extends backward over fourth vein and usually forks from there to hind margin, a spot in wing tip that does not extend entirely to edge of wing, a partial streak from costa to inner cross vein, and some spots in basal third of wing. Fifth vein bare. *Abdomen* black, with distinct blue tinge. Tergites in male with numerous short black hairs, in female, the large dorsal plate has dense, long, stiff, apically directed black hairs except basally, and in this sex, membrane between large plate and sternites also densely covered with rather shorter stiff black hairs. Length, 7-8 mm.

Agana, May 25, O. H. Swezey, type female; Ritidian Pt., April 15, Bryan, allotype male.

The description of the wing markings is drawn from the wings of the male as those of the female are rather badly torn.

Family HELOMYZIDAE

Subfamily TETHININAE

Hendel accepted this group as a family (Tijdschr. Ent. 79: 37, 1934) but I prefer to consider it as above.

Genus **PSEUDORHICNOESSA** Malloch

Pseudorhicnoessa Malloch, Mus. Nat. Hung., Ann. 12: 306, 1914.

This genus is distinguished from *Tethina* and related genera by the possession of outstanding though not very long bristles on the anterodorsal and posterodorsal surfaces of the mid and hind tibiae. There is an Australian subgenus of *Tethina* that has similar tibial bristles, but in it the postvertical bristles are undeveloped while in the present genus they are strong.

Pseudorhicnoessa spinipes Malloch, Mus. Nat. Hung., Ann. **12**: 307, 1914.

Originally described from Formosa. In the present collection there are specimens from Agat and Inarajan, those from Inarajan collected on seaweed, Usinger.

This species may occur on the seashore of other islands in the Indo-Australian region, but collecting on the proper locations will be essential to the discovery of specimens as they seldom leave their special habitat.

A series of both sexes of this species shows that there is but little variation in either color or structure from my description of the female type specimen. It may be noted here, however, that I omitted mention in my description of a series of short, fine, erect, closely placed stiff hairs on the apical third or more of the anteroventral surface of the fore femora.

Family CLUSIIDAE

This group is referred to as *Heteroneuridae* in the older papers on Diptera. The larvae, as far as is known, feed in much decayed tree stumps and logs. There are comparatively few species known from the Indo-Australian region, but in all probability, many more will be discovered by careful collecting in proper localities.

Genus **CZERNYOLA** Bezzi

Czernyola Bezzi, Wien. ent. Zeitung **26**: 52, 1907.

Craspedochaeta Czerny, Wien. ent. Zeitung **22**: 103, 1903, nec Macquart, 1851.

Tonnoiria Malloch, Ann. Mag. Nat. Hist. **26**: 98, 1929.

Hendel has described a species, *C. biseta,* from Formosa, and I have described a species from the Society Islands as *Tonnoiria palliseta.*

Czernyola atrifrons, new species.

Female. *Head* testaceous yellow, frons glossy black, with a fulvous spot in center of anterior margin; antennae reddish yellow, third segment sometimes slightly browned on upper edge; palpi pale yellow; parafacials and genae silvery white dusted; occiput glossy black, yellowish below. Frons with the usual three strong orbitals, second pair incurved and almost in line with the others; ocellar bristles fine and much shorter than orbitals, about equal to the postvertical pair; gena about half as high as width of third antennal segment. *Thorax* glossy fulvous yellow, mesonotum with a large black oblong mark on center behind suture that extends to posterior margin, and a black mark of variable size on anterior margin which is sometimes tridentate behind and with traces of central and lateral lines extending back to postsutural mark; a large black mark covering upper half or more of mesopleura, and another on metapleura; scutellum fulvous yellow. Bristles all black, arranged as follows: 1 humeral, 2 notopleurals, 2 pairs of long posterior and 1 very short pair of anterior dorsocentrals, 1 supra-alar, 1 very long and 1 very short postalar, 2 long apical and 2 very short lateral pairs of bristles on scutellum, 1 mesopleural, and 1 sternopleural. Mesonotum rather strongly haired; propleura finely haired on sides. *Legs* yellow. All tibiae with preapical dorsal bristle, the one on fore tibia short and fine, the

others strong and long, mid tibia with a shorter posterodorsal bristle nearer apex than the usual one slightly over center of dorsum and almost on anterodorsal surface, and a long apical ventral bristle. *Wings* brownish hyaline, with a pale rather diffuse brown cloud on apical costal half, veins dark brown. Inner cross vein at one third from apex of discal cell; penultimate section of fourth vein about one fifth as long as ultimate vein. *Abdomen* more or less extensively blackened, sometimes only genital segments yellow. Length, 3 mm.

Dededo, May 19, Usinger, type; Guam, no other data, Fullaway, 2 paratypes.

The Samoan species *C. palliseta* Malloch, differs from *C. atrifrons* in having the cephalic and thoracic bristles yellow, and the thorax except the lower portion of the pleura entirely black. The Formosan species, *C. biseta* Hendel, has the thorax and abdomen black, and the hind femora with a preapical brown ring. Both of these species were described from males. It is possible that one or the other of them may be the male of *C. atrifrons,* but this is hardly probable, the amount of difference in color characters being exceptional in a species of this genus.

INDEX

ENTOMOLOGY

Host Plants