

## LEPIDOPTERA

GEOMETRIDAE, ARCTIIDAE, AGROTIDAE, AND  
PYRALIDAE OF GUAM

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## FAMILY GEOMETRIDAE

1. *Eumelea rosalia* (Cramer).*Phalena rosalia* Cramer, Pap. Exot. 4: 152, pl. 368, fig. F, 1781.*Eumelea rosalia*, Hampson, Fauna Brit. India, Moths 3: 320, fig. 155, 1895.

This orange-yellow moth has a distribution throughout India, Ceylon, Burma, China, Formosa, and Malayan and Austro-Malayan subregions. We obtained a single specimen in Guam. It was reared from a looping caterpillar on *Macaranga thompsoni*, Mt. Alifan, May 21, Swezey. The adult moth issued June 6. Similar looping caterpillars were collected from *Macaranga* at Dededo, August 11 and Fadian, September 18, but they failed to mature, so it is not certain whether they were the same species.

2. *Craspedia* species.

Tarague, May 17, Swezey; Piti, May 9, June 1, 20, July 15, 26, Aug. 9, Sept. 11, 13, 16, Oct. 14, Nov. 4, Swezey; Dededo, Sept. 7, reared from looping caterpillar on *Guettarda speciosa*, adult issuing Sept. 22, Swezey.

This small ochreous species we found abundant in Guam, mostly taken at light. The single male has long ventral lateral tufts which are not mentioned in any description. Size is smaller also.

3. *Craspedia* species.

Piti, May 9, at light, Usinger; Piti, July 26, at light, Swezey. Two larger paler specimens.

4. *Craspedia* species.

Piti, May 9, at light, Usinger. One specimen still larger with more distinct markings.

5. *Chrysocraspeda* species.

Piti, at light, June 20, Aug. 8, Sept. 7, Swezey, three specimens.

6. *Anisodes* species.

One specimen from a pupa on leaf, Fadian, Aug. 19, Swezey; one at light, Piti, Sept. 7, Swezey.

7. **Timandra aventiaria** Guenée, Phal. 2: 3, 1852; Hampson, Fauna Brit. India, Moths 3: 459, fig. 206, 1895.

Piti, June 29, July 22, Sept. 12, 20, Oct. 23, all from slender looping caterpillars on *Pithecolobium dulce*, Swezey; Merizo, May 14, reared from caterpillar on rose, Swezey. All specimens reared.

This moth occurs throughout India, Ceylon, and Burma, and in Java, Formosa, and Australia. It is now recorded for the first time in Guam.

8. **Thalassodes pilaria** Guenée, Spec. Gén. Lép. 9: 361, pl. 15, fig. 2, 1858. *Thalassodes quadraria* Hampson, Fauna Brit. India, Moths 3: 507, fig. 225, 1895.

Piti, June 8, Aug. 8, 20, Sept. 12, at light, Swezey; Piti, Sept. 15, two reared from eggs found on *Intsia bijuga*, hatched Sept. 16, full-grown Sept. 24, adult moths Oct. 1, 3, Swezey.

This light green species has a wide range throughout India, Ceylon, and Burma, the Malayan subregion and Australian region, also recorded from Samoa. Now recorded from Guam for the first time.

#### FAMILY ARCTIIDAE

1. **Argina cribraria** Clerck.

*Ph (alaena) cribraria* Clerck, Icon. Ins. 2: pl. 54, fig. 4, 1764.

*Argina cribraria*, Hampson, Fauna Brit. India, Moths 2: 51, fig. 24, 1894.

Sasa, June 20, Usinger; Sasa, June 22, Swezey; Machanao, June 30, Usinger; Inarajan, Sept. 30, Swezey. Three specimens in U. S. National Museum and one in Bishop Museum, Fullaway, 1911.

This moth is widely distributed from Madagascar, Mauritius, throughout India, Ceylon, Burma, China, Philippines, Christmas Island (Indian Ocean), New Guinea, New Hebrides, and has been reported from Samoa and Fiji. It was not previously recorded from Guam. We found it rather rare. We reared it from caterpillars feeding on leaves and in pods of *Crotalaria quinquefolia* occasionally growing on dikes in fallow rice fields.

2. **Utetheisa pulchelloides** subspecies **umata** Jordan.

*Utetheisa pulchelloides* Hampson, Ann. Mag. Nat. Hist. VII, 19: 239, 1907.

*Utetheisa pulchelloides umata* Jordan, Nov. Zool. 41: 281, 1939.

Umatac, March 28, Bryan; Tarague, May 17, Swezey, Usinger, reared from numerous caterpillars on *Messerschmidia argentea*.

This pretty red-spotted moth is widely distributed from the Seychelles and Ceylon to Singapore and Formosa, Gilbert, Marshall, Ellice and Solomon Islands, New Guinea, Queensland, Samoa, Tuamotus, and Wake Island. Jordan has given subspecific names to the forms occurring in the different groups of islands. The differences are very slight. The form *umata* was

described from four male and two female specimens from Guam, October 1894 and April 1895, in the Rothschild collection.

The pupa is 13 mm., formed in a slight webbing in a crumpled leaf or secluded place; very dark brown, nearly black. Apex very blunt, cremaster with a few slender bristles.

#### FAMILY AGROTIDAE

The arrangement of this family follows the classification used by W. H. T. Tams in *Insects of Samoa* [3(4): 196-237, 1935], in which he gives his reasons for the use of the family name Agrotidae. The species marked with asterisks were determined by J. F. G. Clarke, U. S. National Museum.

#### SUBFAMILY AGROTINAE

##### 1. *Heliothis armigera* (Hübner).

*Noctua armigera* Hübner, Europ. Schmett., Tab. Noctua, pl. 79, fig. 370, 1802-1808.

*Heliothis armigera*, Hampson, Fauna Brit. India, Moths 2: 174, fig. 114, 1894.

*Heliothis armigera*, Tams, Ins. Samoa 3(4): 196, 1935.

Sinajana, June 15, Swezey; Machanao, June 30, Swezey, Usinger; Piti, at light, July 26, Swezey; Libugon, Aug. 12, Swezey; Dededo, Sept. 7, Swezey; Piti, Sept. 14, Swezey. One at U. S. National Museum and one at Bishop Museum, Fullaway, 1911.

This cosmopolitan pest was recorded in Guam by Fullaway in 1911. We found it to be the worst pest of corn, many of the ears being attacked by one to three caterpillars. A few caterpillars could always be found on tobacco, and an occasional one on taro. Most of our specimens were reared. In the citation above, Tams gives reasons why the name *Heliothis armigera* should be used for this cosmopolitan pest. He says: "It is to be hoped that nothing will occur to disturb further the name *Heliothis armigera*."

#### SUBFAMILY HADENINAE

##### 2. *Cirphis loreyi* (Duponchel).

*Noctua loreyi* Duponchel, Lep. France 7: 81, pl. 105, fig. 7, 1827.

*Cirphis loreyi*, Hampson, Cat. Lep. Phalaenae 5: 492, fig. 153, 1905.

This widely distributed moth is recorded in Europe, Africa, Southern Asia, Japan, Formosa, Philippines, Java, Queensland. It was not previously recorded in Guam. We collected only two specimens. Inarajan, May 7, in rice field, Swezey; Piti, Sept. 21, reared from a caterpillar on sword grass, *Xiphagrostis floridula*, Swezey.

## SUBFAMILY ACRONICTINAE

3. *Callopietria meridionalis nauticorum* Tams.

*Callopietria meridionalis* Collenette, Ent. Soc. London, Trans. 71: 471, fig. 1, pl. 21, fig. 4, 1928.

*Eriopus maillardi* Guenée, Rebel, Denk. K. Akad. Wiss. Wien. Math.-Nat., Kl. 85: 425, 1910.

*Callopietria meridionalis nauticorum* Tams, Ins. Samoa 3(4): 199, pl. 12, fig. 8, 1935.

The species *meridionalis* was described from Rapa and Austral Islands. The subspecies *nauticorum* is described from Samoa. One specimen which appears to be the latter was taken at light, Piti, Guam, Sept. 24, Swezey.

4. *Prodenia litura* (Fabricius).

*Noctua litura* Fabricius, Syst. Ent., 601, 1775.

*Prodenia litura*, Hampson, Cat. Lep. Phalaenae 8: 245, 1909.

Although caterpillars or their work were found in every garden we visited in the different districts of the island, the moths of our collection were obtained mostly at Agana and Piti as follows: Agana swamp, May 4, reared from caterpillars on taro, Swezey; Machanao, June 2, reared from caterpillars on tobacco, Swezey; Piti, Aug. 13, Sept. 3, at light, Swezey; Piti, Oct. 25, Nov. 24, reared from caterpillars on banana, Swezey.

This is called the cotton moth in Egypt. It is a pest in the tropics around the world. It does not yet occur in Hawaii, but is known in most islands of the Pacific. It was collected by Fullaway in 1911 but not recorded at the time. It was first recorded there in 1927 as a pest on taro. In 1936, caterpillars were found on a large variety of host plants, taro, banana, tobacco, tomato, onion, bean, cabbage, corn, and amaranth. More were found on banana and taro than on other plants, but they were not numerous enough to cause extensive injury. In cages, caterpillars fed and thrived on morning-glory, pumpkin, and papaya leaves, but none were found on these plants in the open. The eggs are laid in large clusters of one layer on the under side of the leaves. One cluster contained 1,224 eggs, but the usual number was 200 to 400. On hatching, the larvae feed gregariously for a time, but eventually scatter. While small, they eat only the surface of the leaf, but when larger consume the whole substance of the leaf blade.

The full-grown caterpillar is about 35 to 40 mm., of a general mottled fuscous coloration with two dorsal lines of segmental black marks, wide apart, and the marks usually have yellow on their ventral edge. The spiracles are black and situated in the ventral edge of fuscous spots, a whitish dot is situated above and a little behind each. Apparently very few of the caterpillars reached maturity, as large-sized caterpillars were never found in proportionate abundance to the number of young hatching from the egg clusters. It is likely that

the abundant *Polistes* and *Icaria* wasps were preying on them while still of small size, though we did not observe them doing this. These wasps were in such abundance as to require quantities of caterpillars as food for their young, and young *Prodenia* caterpillars would furnish the most ready supply for them.

While we were in Guam a supply of the egg-parasite *Telenomus nawai* was sent from the Experiment Station, Hawaiian Sugar Planters' Association, Honolulu. These parasites readily bred on *Prodenia* eggs, and were reared for distribution at the Agricultural School until they became well established.

##### 5. *Spodoptera mauritia* (Boisduval).

*Hadena mauritia* Boisduval, Nouv. Ann. Mus. Hist. Nat. Paris 2(2) : 240, 1833.

*Spodoptera mauritia*, Hampson, Fauna Brit. India, Moths 2 : 248, 1894.

Piti, at light, May 9, 13, August 8, 9, 12, 13, 17, 18, Sept. 4, 7, 16, 24, Oct. 18, Nov. 26, Swezey; Sasa, Sept. 3, reared from larvae and pupae in rice seedling plots, Swezey; Piti, May 12, reared from larva on grass, Swezey; Sept. 11, reared from an egg cluster found on porch screen; Oct. 6, reared from larvae and pupae under stones in pasture; Oct. 25, reared from egg cluster on rose bush, Swezey.

An ichneumonid, *Echthromorpha conopleura* Krieger, was reared from pupae of this moth.

This moth has a wide distribution in the Old World tropics and the islands of the Pacific. For a long time it was supposed to be present in Hawaii, where it had become known as the nutgrass armyworm, and sometimes severely injured cane fields which were infested with nutgrass. Recently, however, the correct name for the pest in Hawaii was determined as *Laphygma exempta* (Walker), which has much the same geographical distribution and habits as *Spodoptera mauritia*.

Fullaway reared *Spodoptera mauritia* from Bermuda grass in 1911. In more recent years it has been known as a rice pest, often becoming numerous in the rice fields, or in the seedling beds. Eggs were abundantly laid on under side of leaves of rose bushes in lawn at our residence. The caterpillars, never numerous, did not feed on the rose but ate several kinds of grass. Some of the caterpillars hatching from eggs were fed to maturity on grass. The caterpillars are very similar to those of *Laphygma exempta* in Hawaii. The *Telenomus nawai* from Honolulu became established on the *Spodoptera* eggs, as well as on *Prodenia* eggs.

##### 6. \**Perigea illecta* (Walker), List Lep. Ins. Brit. Mus. 32 : 684, 1865; Tams, Ins. Samoa 3(4) : 201, pl. 7, figs. 10, 11, pl. 8, figs. 6, 7, 1935.

*Euplexia conducta* Walker, Cat. 10 : 296, 1856.

This moth occurs throughout India, Ceylon, Burma, Andaman Islands, Fiji, Samoa, and no doubt other Pacific Islands. Now recorded for the first time from Guam. Four specimens were taken at light, Piti, Sept. 24, Oct. 14, Swezey; one specimen, U. S. National Museum, Fullaway, 1911.

7. **Chasmina sericea** (Hampson).

*Clinophlebia sericea* Hampson, Ill. Het. 9: 92, pl. 161, fig. 7, 1893.

*Chasmina sericea*, Hampson, Cat. Lep. Phalaenae 9: 322, fig. 161, 1910.

This pure white moth is known from Ceylon, Burma, Cocos Keeling Island, Christmas Island (Indian Ocean), and New Caledonia. It was not previously recorded in Guam, although there is one specimen in U. S. National Museum, collected by Fullaway in 1911. It came commonly to our screen at night at Piti. Specimens were taken Aug. 18, 19, 20, Sept. 4, 7, 11, 12, 13, Oct. 2, 10. We collected it in the open only twice; Sumay Road, in mangrove swamp, May 23, Usinger; Tumon, swept from *Thespesia populnea*, May 30, Swezey. We did not find its caterpillar, so learned nothing of its habits.

SUBFAMILY ERASTRIINAE

8. **Eublemma anachoresis** (Wallengren).

*Xanthoptera anachoresis* Wallengren, Wien. Ent. Monatschr. 7: 148, 1863.

*Eublemma anachoresis*, Hampson, Cat. Lep. Phalaenae 10: 131, 1910.

Piti, Aug. 24, Swezey; Barrigada, Aug. 28, Swezey.

This pretty little moth has a wide distribution in central and South Africa, India, Ceylon, Andaman Islands, Java, and Queensland. I have seen a specimen from Fiji, but do not know if it has been recorded from there. This is the first record of its occurrence in Guam. Our specimens were all reared from caterpillars on *Waltheria americana*. The caterpillars were feeding in the terminal bud and webbed together undeveloped leaves.

9. **\*Amyna octo** (Guenée).

*Perigea octo* Guenée, Spec. Gén., Noct. 1: 233, 1852.

*Amyna octo*, Hampson, Moths Ind. 2: 251, fig. 142, 1894; Cat. Lep. Phalaenae 10: 468, fig. 132, 1910; Tams, Ins. Samoa 3(4): 203, 1935; Colenette, B. P. Bishop Mus., Bull. 114: 205, 1935.

Agana, April 17, at light, Bryan; Fadian, Aug. 19, Sept. 18, reared from *Sida*, Swezey; Piti, Sept. 11, Oct. 14, at light, Swezey; Orote Peninsula, Sept. 27, reared from *Sida*, Swezey.

This variable moth has a very wide range of distribution: southern United States, Mexico, Central America, West Indies, South America, Africa, Arabia, India, Ceylon, Burma, Andaman Islands, Christmas Island (Indian Ocean), China, Japan, Borneo, Samoa, Marquesas, Society Islands, Fiji, Rarotonga, Tonga, Ellice Islands, Gilbert Islands, New Hebrides, Solomon Islands, New Guinea, Australia. Now recorded from Guam for the first time.

The species has 23 synonyms, and a considerable variation. J. F. G. Clarke considers that a thorough study of the male genitalia might result in distinguishing several good species in the lot. In his study of the male genitalia of Guam material, it came nearest to specimens from Texas, and was different from material from the Orient.

It was quite common in Guam, the slender, green, looping caterpillars feeding on *Sida acuta*.

## SUBFAMILY EUTELIINAE

10. *Bombotelia jocosatrix* (Guenée).

*Penicillaria jocosatrix* Guenée, Spec. Gén., Noct. 2: 304, 1852.

*Bombotelia jocosatrix*, Hampson, Cat. Lep. Phalaenae 9: 11, fig. 6, 1912.

This moth is known in India, Ceylon, Java, Philippines, Fiji, and Queensland. Only one specimen was obtained in Guam, reared from a green caterpillar on mango, Inarajan, June 8, Swezey.

## SUBFAMILY STICTOPTERINAE

11. *Stictoptera subobliqua* (Walker).

*Steiria subobliqua* Walker, Cat. 13: 1136, 1857.

*Stictoptera subobliqua*, Hampson, Cat. Lep. Phalaenae 11: 156, 1912.

This moth is recorded from Ceylon, Sikhim, North Assam, Singapore, and British New Guinea. Now recorded for the first time from Guam. Eight specimens were taken on the screen as they came to light at our residence: Piti, Aug. 9, 19, 20, Sept. 4, 7, 11, 12, 13, Swezey; Fadian, Aug. 19, four caterpillars on leaves of *Ochrocarpus obovalis* from which one moth matured Sept. 4, Swezey. The latter and four other specimens are of aberration 1. One in Bishop Museum, Fullaway, 1911.

12. *Stictoptera timesia* Swinhoe, Ann. Mag. Nat. Hist. VI, 12: 218, 1893; Hampson, Cat. Lep. Phalaenae 11: 157, pl. 177, fig. 30, 1912.

This moth was described from Singapore, and I have not found other records. Three specimens were taken at light, Piti, Aug. 20, Sept. 12, Nov. 3, Swezey. Nothing was learned of its habits. One specimen in U. S. National Museum, Fullaway, 1911.

## SUBFAMILY SARROTHRIPINAE

13. \**Characoma nilotica* (Rogenhofer).

*Sarrothripa nilotica* Rogenhofer, Zool.-Bot. Ges. Wien, Verh., 26, 1881.

*Characoma nilotica*, Hampson, Cat. Lep. Phalaenae 11: 231, fig. 76, 1912.

Inarajan, June 8, larvae found feeding in terminal leaf buds of *Hibiscus tiliaceus*, one moth reared, Swezey; Piti, 3 moths at light, July 12, Aug. 20, Nov. 4, Swezey.

This species is recorded from Texas, Mexico, Central America, Bahamas, West Indies, Canary Islands, Egypt, Sierra Leone, Gambia, Nigeria, Madras, Ceylon. The record from Guam is at a considerable distance from the other recorded localities. As I reared it from *Hibiscus tiliaceus* which is widely spread in the Pacific islands, no doubt this moth will yet be found more widely in the Pacific area.

14. \**Mniothripa lichenigera* (Hampson).

*Giaura lichenigera* Hampson, Ann. Mag. Nat. Hist. VII, 16: 543, 1905.

*Mniothripa lichenigera*, Hampson, Cat. Lep. Phalaenae 11: 261, 1912;

Tams, Ins. Samoa 3(4): 209, 1935.

Piti, May 9, July 12, 13, 27, Sept. 7, at light, Swezey; Piti, Sept. 15, reared from foliage of *Intsia bijuga*, Swezey; Tarague, May 17, Swezey; Fadian, Aug. 19, swept from *Pemphis* at seashore, Swezey.

This moth was described from Sierra Leone, Sikhim and Singapore, and has been recorded from Samoa. Now recorded from Guam for the first time. Most of our material was taken at light.

SUBFAMILY WESTERMANNIINAE

15. *Earias fabia* (Stoll).

*Noctua fabia* Stoll, Pap. Exot., 4, pl. 355, fig. H, 1782.

*Earias fabia*, Hampson, Fauna Brit. India, Moths 2: 133, 1894; Cat. Lep. Phalaenae 11: 507, 1912.

Sasa, June 22, reared from caterpillar feeding in flowers of *Abelmoschus esculentus*, Usinger; Piti, July 8, at light, Swezey; Piti, Sept. 17, Oct. 10, reared from caterpillars boring the tips of branches of a weed, *Malachra capitata*, Swezey.

This moth is distributed from India and Ceylon to Burma, Java, Andaman Islands, Philippines, Australia, and Fiji. In India, it is called the cotton bollworm on account of the injury to cotton bolls by its caterpillars. In Guam, it was recorded by Fullaway in 1911 as a stem borer in cotton. We reared the moths from caterpillars mostly on weeds.

SUBFAMILY CATOCALINAE

16. *Lagoptera regia* (Lucas).

*Thyas regia* Lucas, Linn. Soc. New South Wales, Proc. II, 8: 151, 1894.

*Lagoptera regia*, Hampson, Cat. Lep. Phalaenae 12: 415, pl. 213, fig. 6, 1913.

Piti, Aug. 19, at light, Swezey; Fadian, Aug. 19, reared from a caterpillar on leaf of *Barringtonia speciosa*, Swezey; Piti, Nov. 9, at light, Swezey. One specimen at Bishop Museum, Fullaway, 1911; and one at U. S. National Museum labeled "*L. honesta*" which I believe to be *regia*, Fullaway, 1911.



This is a large moth known in New Guinea, North Australia, North Queensland and Fiji. Three specimens were obtained in Guam.

**17. *Grammarodes geometrica* (Fabricius).**

*Noctua geometrica* Fabricius, Syst. Ent., 599, 1775.

*Grammarodes geometrica*, Hampson, Fauna Brit. India, Moths 2: 531, fig. 296, 1894; Hampson, Cat. Lep. Phalaenae 13: 18, fig. 4, 1913.

This moth has a very wide distribution, in Africa, southern Europe, southern Asia, Formosa, Java, Queensland. We collected only one specimen in Guam, at Piti, Oct. 22, at light, Swezey.

**18. *Anua coronata* (Fabricius).**

*Noctua coronata* Fabricius, Syst. Ent., 596, 1775.

*Anua coronata*, Hampson, Cat. Lep. Phalaenae 12: 427, fig. 101, 1913; Tams, Ins. Samoa 3(4): 214, 1935.

Agana, April 12, Bryan; Piti, Oct. 14, at light, Swezey; one in U. S. National Museum, Fullaway, 1911.

This large moth has a wide distribution in India, Ceylon, Burma, Andaman Islands, Penang, Singapore, Java, Philippines, Christmas Island (Indian Ocean), Cocos Keeling, north Australia, Society Islands, Samoa and Gilbert Islands. Two specimens were obtained in Guam. Nothing was learned of its habits.

**19. *Anua tongaensis* Hampson, Cat. Lep. Phalaenae 12: 434, pl. 214, fig. 11, 1913; Tams, Ins. Samoa 3(4): 215, 1935.**

Two specimens were procured in Guam: Machanao, June 2, Swezey; Piti, May 1, three small looping larvae on *Styphelia* in the hills above the town, one of which was reared, Swezey. One specimen in U. S. National Museum, Fullaway, 1911.

This moth is not yet widely known, having been recorded from Tongatabu, Fiji, and American Samoa.

The full grown caterpillar was 50 mm.; grayish, with yellowish background and numerous longitudinal crinkly blackish lines; head whitish with several longitudinal brown lines; spiracles oval, pale; abdominal prolegs on segments 6, 7, 8, 9, those on segments 6 and 7 smaller than the others; two dorsal, slightly prominent tubercles on segment 11. Pupation took place June 25, 65 days from its capture. The pupa was formed in leaves webbed together. It was 23 mm.; dark brown; wing sheaths terminating roundly at apical margin of the fourth abdominal segment; cremaster not produced, a few hooks on thickened dorsal edge of apical segment. The adult moth issued July 7, after 12 days in pupal stage.

**20. *Achaea janata* (Linnaeus).**

*Geometra janata* Linnaeus, Syst. Nat., 10th ed., 527, 1758.

*Ophiusa melicerte* Hampson, Fauna Brit. India, Moths 2: 494, 1894.

*Achaea janata*, Collenette, B. P. Bishop Mus., Bull. 114: 206, 1935; Tams, Ins. Samoa 3(4): 216, 1935.

Four specimens were obtained: Piti, May 3, Aug. 26, at light, Swezey; Talofoto plateau, June 17, pupa found in spun-together leaves on *Eugenia* tree, moth issued June 21, Swezey; Piti, reared from egg found on rose petal, Aug. 25, Swezey. The egg hatched Aug. 28, and the caterpillar was fed continuously on rose petals. It was 60 mm. when full grown, Sept. 20. Probably the rose is not its regular food plant. The cocoon was formed of debris spun together, and the moth issued Oct. 5. Two specimens in U. S. National Museum, Fullaway, 1911.

This moth has a very wide distribution throughout India to Australia and New Zealand, the island groups from Formosa, Philippines, all through Polynesia to the Marquesas. Now recorded from Guam for the first time.

21. *Achaea serva* (Fabricius).

*Noctua serva* Fabricius, Syst. Ent., 593, 1775.

*Achaea serva*, Hampson, Cat. Lep. Phalaenae 12: 521, fig. 123, 1913; Tams, Ins. Samoa 3(4): 216, 1935.

This moth has about as wide a range as *A. janata*, but has not been recorded quite so extensively from Polynesia, only as far east as Samoa. Our eight Guam specimens were mostly collected at light: Piti, Sept. 13, 20, Oct. 12, Nov. 3, Swezey. One was reared from a pupa found among paper rubbish by a student at the Agricultural School, Piti, Oct. 28. One specimen in U. S. National Museum, Fullaway, 1911.

22. *Mocis undata* (Fabricius).

*Noctua undata* Fabricius, Syst. Ent., 600, 1775.

*Mocis undata*, Hampson, Cat. Lep. Phalaenae 13: 91, fig. 25, 1913.

Agat, June 27, Swezey; Piti, Aug. 7, Oct. 27, Nov. 3, at light, Swezey.

This moth is widely distributed in Africa, India, China, Japan, Formosa, Philippines, Java. Now recorded for the first time in Guam. Our five specimens were mostly taken at light, so we learned nothing of its habits.

SUBFAMILY PLUSIINAE

23. *Plusia chalcites* (Esper).

*Noctua chalcytes* Esper, Die Schmett. 4: 447, pl. 141, fig. 3, 1789.

*Phytometra chalcytes*, Hampson, Cat. Lep. Phalaenae 13: 484, fig. 122, 1913.

*Phytometra chalcites*, Collenette, B. P. Bishop Mus., Bull. 114: 206, 1935.

*Plusia chalcites*, Tams, Ins. Samoa 3(4): 219, 1935.

This cosmopolitan moth was not reported in Guam by Fullaway in 1911, and we did not find it common in 1936. Santa Rosa Peak, May 18, Swezey;

Barrigada, June 14, Swezey; Piti, Aug. 25, Sept. 14, reared from caterpillars on morning-glory leaves, Swezey; Piti, Sept. 11, at light, Swezey. One in U. S. National Museum, Fullaway, 1911.

## SUBFAMILY OPHIDERINAE

24. *Catephia acronyctoides* (Guenée), Spec. Gén., Noct. 3:47, 1852; Hampson, Moths of India 2:482, 1894; Tams, Ins. Samoa 3(4):219, 1935.

Piti, Oct. 14, two specimens, at light, Nov. 3, in garage at Agricultural School, Swezey.

This moth is widely distributed from west and south Africa, throughout India, Ceylon, Burma, Andaman Islands, Java, Australia, Samoa. Now recorded from Guam for the first time. Identified by comparison with specimens in the U. S. National Museum.

25. *Catephia sericea* (Butler).

*Anophia sericea* Butler, Ann. Mag. Nat. Hist. V, 10:230, 1882.

*Catephia sericea*, Tams, Ins. Samoa 3(4):220, 1935.

One specimen at Bishop Museum, Fullaway, 1911.

26. *Ericeia inangulata* (Guenée).

*Hulodes inangulata* Guenée, Spec. Gén., Noct. 3:210, 1852.

*Polydesma inangulata*, Hampson, Fauna Brit. India, Moths 2:470, fig. 262, 1894.

*Ericeia inangulata*, Tams, Ins. Samoa 3(4):221, 1935.

This species has a wide distribution from Africa to India, Burma, China, Australia, and Samoa. Now recorded for the first time from Guam. Piti, Sept. 12, Nov. 3, 4, four specimens, all at light, Swezey. Two in U. S. National Museum and two in Bishop Museum, Fullaway, 1911.

27. *Polydesma umbricola* Boisduval, Faun. Ent. Madag., Lep., 108, pl. 13, fig. 5, 1833; Hampson, Fauna Brit. India, Moths 2:468, 1894.

Ritidian Point, April 22, Bryan; Piti, May 2, 10 moths issued from numerous pupae under bark of dead *Pithecolobium dulce*, Usinger; Piti, Aug. 26, Oct. 24, Nov. 5, at light, Swezey. One in U. S. National Museum, Fullaway, 1911.

Widely distributed in west and south Africa, Madagascar, India, Ceylon, Burma, Andaman Islands, and Society Islands. Now recorded for the first time in Guam, where it is now quite common. We never found its caterpillar, so did not learn of its food plant. The finding of pupae under bark of *Pithecolobium* would seem to indicate that the caterpillars had fed on that tree, yet they may have sought that location only as a safe place for making their cocoons.

28. *Othreis fullonia* (Clerck).

[*Phalaena*] *fullonia* Clerck, Icones 2: pl. 48, 1764.

*Ophideres fullonica*, Hampson, Fauna Brit. India, Moths 2: 560, fig. 317, 1894.

*Othreis fullonia*, Tams, Ins. Samoa 3(4): 224, 1935.

Piti, June 16, at light, Usinger; Asan, Nov. 2, a chrysalis found in webbed leaf on *Erythrina indica*, moth issued Nov. 9, Swezey. A few small caterpillars on an *Erythrina* tree at Agat, Oct. 17, may have been this species but we were not successful in rearing them. The tree was nearly defoliated, as though the caterpillars had been very abundant previously. There is one specimen in U. S. National Museum and one in Bishop Museum, Fullaway, 1911.

This fine large moth has a wide distribution from Africa throughout the Oriental region to New Guinea and Australia, and to Fiji and Samoa. We record it for the first time in Guam.

29. *Cosmophila flava flava* (Fabricius).

*Noctua flava* Fabricius, Syst. Ent., 601, 1775.

*Cosmophila flava flava*, Tams, Ent. Soc. London, Trans. 21, pl. 1, fig. 1; pl. 2, fig. 3; pl. 3, fig. 6, 1924; Ins. Samoa 3(4): 225, 1935.

Mt. Alifan, May 21, on *Hibiscus tiliaceus*, Swezey; Piti, Sept. 17, on *Malachra* and *Urena*, Swezey; Piti, Sept. 26, on *H. tiliaceus*, Swezey.

Widely distributed throughout the tropics of the Old World, Japan, Formosa, and the Pacific islands to Fiji, Samoa, Society Islands, and Marquesas. Not previously recorded from Guam. All of our dozen specimens were reared from green caterpillars feeding on *Hibiscus tiliaceus*, *Malachra capitata*, and *Urena sinuata*, all plants of the Malvaceae. They were more often found on *Malachra* than on the other plants mentioned.

30. *Lacera alope* (Stoll).

*Phal[aena] alope* Stoll in Cramer, Uitl. Kapellen 3(24): 168, pl. 286, figs. E, F, 1780.

*Lacera alope*, Hampson, Fauna Brit. India, Moths 3: 491, fig. 277, 1894.

Widely distributed from South Africa, Madagascar, throughout India, Ceylon to China, Japan, Fiji, and Samoa. We obtained only one specimen in Guam: Agana, April 28, in Government House, Swezey.

31. \**Anticarsia irrorata* (Fabricius).

*Noctua irrorata* Fabricius, Spec. Ins. 2: Appendix, 506, 1781.

*Anticarsia irrorata*, Tams, Ins. Samoa 3(4): 227, 1935.

Piti, Sept. 11, one specimen at light, Swezey. Oakley collected it more abundantly in 1938.

This moth was described from India. It is also recorded from Madagascar, Rapa, Society Islands, and Samoa, indicating a wide range of distribution. Now recorded from Guam for the first time.

## SUBFAMILY HYPENINAE

32. *Hypena abyssinialis* Guenée, Delt. et Pyral., 39, 1854; Hampson, Fauna Brit. India, Moths 3: 86, 1895.

Piti, Aug. 24, Sept. 20, Swezey. Three moths were reared from slender green caterpillars on a low weed called *yerbas babue* (no botanical name was learned for it).

Widely distributed in Africa, India, Ceylon, Burma, and Australia. Now recorded from Guam.

## SUBFAMILY HYBLAEINAE

33. *Hyblaea sanguinea* Gaede, Deutsch. Ent. Zeitschr., 26, 1917; Tams, Ins. Samoa 3(4): 237, 1935.

Eighteen specimens: Yona, May 12, Swezey; Umatac, May 14, Swezey; Tumon, May 30, Swezey; Machanao, June 30, Swezey; Sumay, July 15, Swezey; Orote Peninsula, July 18, Sept. 1, Swezey; Piti, July 13, Aug. 17, Sept. 12, at light, Swezey. One in Bishop Museum, Fullaway, 1911.

This beautiful moth was described from Fiji and is also known in Samoa. It was very common in Guam, where we record it for the first time. Its caterpillars were always to be found on the leaves of *Premna gaudichaudii*. The leaves are spun together for shelter or hiding place, and pupation takes place in the same situation. The full-grown caterpillar is 25 mm. long; black, with two narrow, white dorsal lines, an interrupted white line above the spiracles, and a white line below the spiracles; spiracles narrow oval, whitish; underside and legs pale; head entirely black; setae of abdomen white, of moderate length. Chrysalis 15 mm. long; light brown; wing sheaths extend to apical margin of fourth abdominal segment; cremaster black, produced and hooked into silk. Most of our specimens were reared from *Premna*; one was from an undetermined Philippine tree. The caterpillars were often observed, but rearing was not attempted.

## FAMILY PYRALIDAE

The arrangement of the Guam material of this family is according to the classification used by W. H. T. Tams [Insects of Samoa 3(4): 243-289, 1935]. Only a few of the subfamilies are represented in Guam. Besides our 1936 collections, records of D. T. Fullaway's collecting in 1911 are included. The species marked with asterisks were determined by Carl Heinrich, U. S. National Museum. There were a few species sent to Tams at the British Museum which have not yet been reported on.

## SUBFAMILY CRAMBINAE

1. **Crambus malacellus** Duponchel.

*Crambus malacellus* Duponchel, Lep. Fr. 8: 61, pl. 270, fig. 5, 1827.

*Crambus malacellus*, Hampson, Fauna Brit. India, Moths 4: 17, 1896.

Piti hills, May 1, Usinger; Piti hills, June 3, swept from sedges, Swezey; Barrigada, July 22, Swezey; Piti, July 26, Aug. 18, at light, Swezey. One specimen in U. S. National Museum, Fullaway, 1911 and one in Bishop Museum.

A widely distributed species, occurring in Palaearctic, Ethiopian, Oriental, and Australian regions. It is very common in grasslands, the moths flying up when disturbed.

## SUBFAMILY PHYCITINAE

The phycitids lacking specific determination are in the hands of Carl Heinrich for study, and are not yet reported on.

2. **Heterographis** species.

Orote Peninsula, July 19, two moths reared from larvae feeding among thrips-infested terminal leaves of small-leaved *Ficus*, Swezey.

3. **Heterographis** species.

Piti, May 26, two moths reared from larvae on leaves of *Peltophorum inerme*, Swezey.

4. **Euzophera** species.

Piti, June 1, on screen, Aug. 11, at light, Swezey; Fadian, Aug. 19, reared from larvae in old seeds of *Ochrocarpus obovalis*, Swezey.

5. **Euzophera** species.

Dededo, May 11, larvae numerous beneath webs on under side of leaves of *Guettarda speciosa*, a dozen reared, Swezey; Mt. Alifan, May 27, eight reared from same tree, Swezey. A parasite, *Macrocentrus pallidus* Fullaway, was often reared from the larvae of this moth.

6. **Nephoteryx** species.

Yona, May 12, two specimens reared from leafrollers on pigeon peas; Piti, Nov. 4, one at light, Swezey.

7. **Nephoteryx** species.

Piti, May 9, June 12, 20, July 9, 11, 12, 15, 26, Aug. 8, 11, 13, 18, 20, Sept. 7, at light, Swezey. No caterpillars of this species were found.

8. **Nephoteryx** species.

Barrigada, July 6; Dededo, Aug. 11, Sept. 11, Yigo, Oct. 18; all reared from larvae on leaves of *Gymnosporia thompsonii*, Swezey.

9. *Nephoteryx* species.

Piti, Aug. 20, one at light, Aug. 24, one swept from *Glochidion marianum*, Swezey.

10. *Cryptoblabes augustipenella* Ragonot, *Nouv. Gen.*, 6, 1888; Hampson, *Fauna Brit. India, Moths* 4: 105, 1896.

Orote Peninsula, May 24, Swezey; Tumon, May 30, Swezey; Merizo, June 11, Swezey; Piti, June 3, 9, 12, 21, July 12, 28, Aug. 9, Sept. 4, 7, Oct. 16, at light, Swezey; one in Bishop Museum, Fullaway, 1911.

This scavenger moth is known in India and Ceylon. We found it very common in Guam, the caterpillars feeding in dead dry plant materials. Moths were reared from caterpillars feeding in old fruits of *Barringtonia speciosa*, also on dried leaves, flowers and buds, and from leaves of *Barringtonia racemosa*, from larvae feeding among old seed clusters of *Mallotus moluccanus*, dried rose petals, and sunflower heads.

11. *Cryptoblabes* species.

One reared from larva on leaf of *Barringtonia speciosa*, Fadian, Sept. 18, Swezey; Piti, July 12, at light, Sept. 13, on screen, Swezey.

12. *Etiella zinckenella* (Treitschke).

*Phycis zinckenella* Treitschke, *Schmett. Eur.* 9(1): 201, 1832.

*Etiella zinckenella*, Hulst, *Am. Ent. Soc., Trans.* 17: 170, 1890; Hampson, *Fauna Brit. India, Moths* 4: 108, 1896.

This is a cosmopolitan pest in bean and pea pods and many other legumes. In Guam we found it in only one region, the larvae very abundant in pods of *Crotalaria saltiana* in a fallow corn field. Some specimens were reared from these larvae, a few were collected. Barrigada, June 14, 24, Swezey.

## SUBFAMILY HYDROCAMPINAE

13. *Nymphula fluctuosalis* Zeller, *K. Vet.-Akad. Handl.*, 27, 1852; Hampson, *Fauna Brit. India, Moths* 4: 193, fig. 115, 1896.

This rice pest is distributed throughout India, southern China, and Formosa, and is also in Australia and Hawaii. Apparently it was first recorded in Guam by Briggs in 1918, but the determination was no more definite than that it belonged to Nymphulinae. We collected one specimen at Piti, May 21. Apparently it is not now as abundant as when reported in 1918, when it was said that this and other insects caused the loss of the entire rice crop.

14. *Nymphula* species.

Agana, May 25, one example; Talofoto, June 17, one example, Swezey.

15. *Aulacodes plicatalis* Walker, *Cat.* 34: 1332, 1865; Hampson, *Fauna Brit. India, Moths* 4: 214, 1896.

Occurs in India, Java and Celebes. One specimen taken at light, Piti, Sept. 4, Swezey.

16. \**Tatobotys biannulalis* (Walker).

*Botys biannulalis* Walker, List. Lep. Ins. Brit. Mus. 34: 1439, 1865.

*Tatobotys biannulalis*, Tams, Ins. Samoa 3(4): 263, 1935.

Occurs in India, Malay Archipelago, Solomons, New Guinea, New Hebrides, Fiji, Samoa, Society Islands.

This moth was reared quite abundantly from caterpillars found feeding in decaying leaves at base of rice plants at Inarajan, June 8, Swezey; in grass, Piti, May 22, 31, and at light, Aug. 9, Swezey; Sasa, June 22, collected in fallow rice field, Swezey.

17. *Piletocera signiferalis* (Wallengren).

*Isopteryx signiferalis* Wallengren, Wien Ent. Monatschr. 4: 175, 1860.

*Piletocera signiferalis*, Tams, Ins. Samoa 3(4): 269, 1935.

Occurs in Samoa, Marquesas, Society Islands, Austral Islands, Fiji, Ellice, and Caroline Islands. Piti, Sept. 1, 12, at light, Swezey. One specimen in Bishop Museum, Fullaway, 1911.

## SUBFAMILY PYRAUSTINAE

18. \**Sufetula choreutalis* (Snellen).

*Pseudochoreutes choreutalis* Snellen, Tijd. vor Ent. 23: 202, 1880; 26, pl. 6, figs. 8, 8a, 1883.

*Sufetula sunidesalis* Walker, Hampson, Fauna Brit. India, Moths 4: 252, fig. 150, 1896.

*Sufetula choreutalis*, Tams, Ins. Samoa 3(4): 273, 1935.

Recorded from India, Assam, Ceylon, Malayan subregion. Three specimens were taken at light, Piti, Aug. 8, 9, Sept. 3, Swezey. One specimen in U. S. National Museum and one in Bishop Museum, Fullaway, 1911.

19. \**Entephria cribrata* (Fabricius).

*Phalaena cribrata* Fabricius, Ent. Syst. 3(2): 215, 1794.

*Spilomela caberalis* Guenée, Delt. et Pyral., 284, 1854.

*Pycnarmon caberalis*, Hampson, Fauna Brit. India, Moths 4: 258, 1896.

*Entephria cribrata*, Hampson, Zool. Soc. London, Proc., 619, 1898.

Widely distributed: Africa, India, Ceylon, China, Java, Celebes, Formosa, Flores, Sumbawa, Fiji. Now recorded for the first time from Guam. Ten specimens reared from leafroller caterpillars on *agalunde* (a shrub for which I could get only the Chamorro name), Asan, Aug. 22, Swezey. One specimen in Bishop Museum, Fullaway, 1911.

20. *Hymenia recurvalis* (Fabricius).

*Phalaena recurvalis* Fabricius, Ent. Syst., 644, 1775.

*Hymenia recurvalis*, Tams, Ins. Samoa 3(4): 274, 1935.

Sasa, June 22, Swezey; Piti, Sept. 3, at light, Swezey; Talofoto, Nov. 18, reared from spiny amaranth, Swezey.



Very widely distributed in southern Asia to Japan, and to Australian regions, Samoa, Fiji, Marquesas, and Hawaii. Recorded in Guam as a beet pest by Fullaway in 1911. We found its caterpillars abundant on spiny amaranth. *Apanteles guamensis* var. was reared from some of the larvae. Only a few moths were collected or reared.

**21. *Eurrhyarodes tricoloralis* (Zeller).**

*Botys tricoloralis* Zeller, Lep. Micropt. Caffr., 31, 1852.

*Eurrhyarodes tricoloralis*, Hampson, Fauna Brit. India, Moths 4:264, 1896; Tams, Ins. Samoa 3(4):275, 1935.

Talofoto, May 7, Nov. 18; Agana, May 16; Mt. Alifan, May 21; Dededo, Sept. 7; Mt. Tenjo, Sept. 22; Piti, Nov. 4, at light. All by Swezey.

Of wide distribution in Africa, India, Ceylon, Java, Australia, Fiji, Samoa and Austral Islands. Now recorded for the first time in Guam. Its caterpillars were abundant as leafrollers on *yerbas babue*. Nearly all of our specimens were reared from this weed.

**22. *Marasmia trapezalis* (Guenée).**

*Salbia trapezalis* Guenée, Spec. Gén., Lép. 8:200, 1854.

*Marasmia trapezalis*, Hampson, Fauna Brit. India, Moths 4:277, 1896; Tams, Ins. Samoa 3(4):276, 1935.

Dededo, May 11; Mt. Alifan, May 26; Barrigada, June 24; Piti, July 31, all reared from corn by Swezey. Four specimens in U. S. National Museum, Fullaway, 1911.

This corn leafroller is distributed around the world in the tropics. It occurs in many Pacific islands, but not in Hawaii. It was recorded in Guam by Fullaway in 1911. We found young corn plants commonly attacked by the larvae of this moth everywhere in Guam. They roll the tip of the leaf for a hiding place or protection while feeding within. If growing conditions are favorable the plant is not much checked, especially as the plant becomes older. Some are parasitized by a braconid, *Apanteles guamensis* Fullaway.

**23. *Marasmia venialialis* (Walker).**

*Asopia venialialis* Walker, List Lep. Ins. Brit. Mus. 17:373, 1859.

*Marasmia venialialis*, Hampson, Fauna Brit. India, Moths 4:276, 1896; Tams, Ins. Samoa 3(4):275, 1935.

Piti, May 2, 8, 22, Sept. 1, 15; Talofoto, May 7; Agana, May 15, 25; Sasa, June 22; Mt. Alifan, June 19; Dededo, Sept. 7, all reared by Swezey, except a few taken at light. One specimen in Bishop Museum and two in U. S. National Museum, Fullaway, 1911.

This is a smaller moth than the preceding and is a leafroller on various grasses. We reared it from *Panicum barbinode*, *Paspalum conjugatum*, and *Oplismenus compositus*. This moth also has a wide distribution in the tropics:

Africa, Asia, Japan, Borneo, Australia, Solomons, Fiji, Samoa, Society Islands, and Austral Islands, but not in Hawaii. Its work on grass was noted in 1911 by Fullaway, but its name was not determined.

**24. *Susumia exigua* (Butler).**

*Samea exigua* Butler, Ann. Mag. Nat. Hist. V, 4: 453, 1879.

*Susumia exigua*, Marumo, Oyo-Dobuts. Zasshi 2: 41, fig., 1930; Kawata, Icon. Insectorum Japonicorum, 1391, fig., 1932.

Inarajan, May 14; Piti, July 12, Sept. 1; Agat, Sept. 20, Swezey.

This rice leafroller was described from Japan, and I have not found it recorded elsewhere. No doubt it has been present in Guam for some time, as I find mention of a rice pest in the November 1933 number of The Guam Recorder which is apparently this insect: "The yearly invasion of the rice leaf folder upon young rice in the seed beds has made its appearance. This pest is harmful only while in the larva stage, injuring the plant by folding the leaf edges and fastening them together with a mucilaginous secretion. With this protection it feeds, but the principal damage is done by preventing the leaves from performing their proper functions, thus retarding growth. This year the invasion of the folder is in much greater proportions than in previous years." I saw similar work in rice seed beds, and also on maturing rice, but without serious results. I reared moths from the larvae found and presume it is the same pest as described in the quotation. Some of the larvae were parasitized by *Apanteles guamensis* Fullaway.

This moth is very similar to the preceding species which is a leafroller on grasses. Another similar species recorded on rice in the Philippines and India has the name *Cnaphalocrocis medinalis* (Guenée).

**25. *Syngamia abruptalis* Walker, Cat. 17: 371, 1859; Hampson, Fauna Brit. India, Moths 4: 279, 1896.**

Talofof plateau, June 17; Sumay road, June 22; Dandan, July 17; Piti, Oct. 12, Swezey. One specimen in the U. S. National Museum, Fullaway, 1911.

Occurs in west Africa, throughout India, Ceylon, Burma, Andamans, Java, Australia, Fiji. Now recorded for the first time from Guam. The larvae are leafrollers on a common weed, *Elephantopus capitata*.

**26. *Nacoleia diemenalis* (Guenée).**

*Asopia diemenalis* Guenée, Spec. Gén., Lép. 8: 203, 1854.

*Nacoleia diemenalis*, Hampson, Fauna Brit. India, Moths 4: 316, 1896; Tams, Ins. Samoa 3(4): 278, 1935.

Agana, May 4, 25; Talofof, May 7; Yona, May 12; Inarajan, June 14; Sumay Road, June 22; Piti, Sept. 8, 15, Oct. 2, 6, 17; Asan, Aug. 19, all by Swezey. One specimen in Bishop Museum, Fullaway, 1911.

This bean leafroller is distributed from Africa, India, and Ceylon to Burma, Andamans, Sumatra, Java, Celebes, Formosa, Fiji, Society Islands, Austral Islands, and Samoa. It does not seem to have been previously recorded in Guam. We found it quite common, and bean leaves were often considerably injured by its caterpillars. Our specimens were reared mainly from pole beans, also from pigeon pea and *Flemingia strobilifera*. A few moths were taken at light.

**27. *Sylepta derogata* (Fabricius).**

*Phalaena derogata* Fabricius, Ent. Syst., 641, 1775.

*Sylepta multilinealis* Guenée, Hampson, Fauna Brit. India, Moths 4: 334, 1896.

*Sylepta derogata*, Tams, Ins. Samoa 3(4): 279, 1935.

Piti, April 30; Yigo, Oct. 21, Nov. 8, all reared by Swezey. One specimen in Bishop Museum, Fullaway, 1911. The work of the larvae was seen in many places. An ichneumonid (*Echthromorpha conopleura* Krieger) issued from some of the pupae.

This widely distributed moth occurs from west Africa through south Asia to Japan, and the Malayan and Australian regions. It is in Samoa and no doubt other Pacific island groups. In some countries its larvae feed on cotton, but in Guam it is a leafroller on *pago* (*Hibiscus tiliaceus*). We found it often abundant, many of the leaves being partially rolled up for hiding places. The pupa was formed in the same place.

**28. *Agathodes ostentalis* (Geyer).**

*Perinephela ostentalis* Geyer, in Hübner, Zutr. Samml. Ex. Schm. 5: 11, figs. 833, 834, 1837.

*Agathodes ostentalis*, Hampson, Fauna Brit. India, Moths 4: 345, fig. 190, 1896.

Agat, Oct. 17; Asan, Nov. 2, Swezey. One in Bishop Museum, Fullaway, 1911.

Occurs in India, Ceylon, Burma, Andamans, Java, Sumbawa. Now recorded in Guam for the first time. Its caterpillars are leafrollers on *Erythrina indica*. All our specimens were reared.

**29. *Margaronia indica* (Saunders).**

*Eudiptes indica* Saunders, Ent. Soc. London, Trans. 2(1): 163, pl. 12, figs. 5-7, 1851.

*Glyphodes indica*, Hampson, Fauna Brit. India, Moths 4: 360, 1896.

*Margaronia indica*, Tams, Ins. Samoa 3(4): 282, 1935.

This cucumber and melon pest occurs throughout Ethiopian, Oriental, and Australian regions, Fiji, Samoa, and Marquesas. It was not previously reported from Guam, and we found only an occasional caterpillar on cucumber,

melon, and pumpkin leaves. The only two reared were from Yigo, May 19, on honeydew melon; Piti, Sept. 30, on pepino melon, Swezey. Two caterpillars on cucumber leaves at Agana swamp were parasitized, probably by *Cremastus flavo-orbitalis*, but as the parasites died in cocoons, I cannot be positive of their identity.

**30. *Margaronia samoana*** Swinhoe, Ann. Mag. Nat. Hist. VII, 18: 414, 1906; Tams, Ins. Samoa 3(4): 283, 1935.

Moths were reared from the following places: Inarajan, June 8; Asan, Aug. 22; Agat, Sept. 26; Sumay road, Oct. 1, Swezey; Piti, Sept. 11, 13, at light, Swezey. One specimen in Bishop Museum, Fullaway, 1911.

Described from Samoa, I have found no other record of it. In Guam it occurred as a leafroller on *hodda* (*Ficus tinctoria*). The Guam specimens have the white portions of the wings pure white, whereas in specimens from Samoa at Bishop Museum these areas have a creamy tinge.

**31. *Margaronia multilinealis*** (Kenrick).

*Glyphodes multilinealis* Kenrick, Zool. Soc. London, Proc., 83, pl. 4, fig. 173, 1907.

*Margaronia multilinealis*, Tams, Ins. Samoa 3(4): 284, 1935.

Moths were reared from Yona, May 12, Machanao, June 30, Orote Peninsula, Sept. 1, Swezey; Piti, at light, Aug. 13, 17, Swezey. One specimen at U. S. National Museum and one at Bishop Museum, Fullaway, 1911.

Described from New Guinea. Recorded also from Samoa and Society Islands. In Guam we reared it from leafroller caterpillars on a species of *Ficus* with narrow leaves. The young terminal leaves were rolled and fastened together, and the caterpillar fed within. They were sometimes very abundant.

**32. *Margaronia mysteris*** (Meyrick).

*Cydalima mysteris* Meyrick, Ent. Soc. London, Trans., 223, 1886.

*Margaronia mysteris*, Tams, Ins. Samoa 3(4): 281, 1935.

Described from the New Hebrides, and also known from Samoa; now recorded from Guam. One moth was reared from a leafroller caterpillar on *Colubrina asiatica* at Fadian, Aug. 19, Swezey; one moth collected at Fadian, Sept. 18, Swezey.

**33. *Margaronia* species.**

A green species near *marginata* was reared from a colony of caterpillars which had webbed together the terminal leaves on a branch of *Ochrosia mariannensis* in the forest at Machanao, June 4. There were 54 caterpillars in the colony. From them, 34 moths issued June 18-21 (some as cripples, which were not saved); 15 larvae and pupae died; thread worms issued from three; tachinid larvae issued from two (one of these died in puparium, the other issued a cripple).

The full-grown caterpillar was 30 mm. long; light yellow, with the tubercles broad, flattish, shining black, giving the caterpillars a black appearance, setae fine, pale, short. Spiracles nearly circular, yellow, margined with white. Head uniformly light brown, eyes black. Legs black, yellow tipped. The usual abdominal prolegs, pale.

**34. *Margaronia* species.**

Agana, April 28, Swezey; Barrigada, June 24, Swezey; Piti, July 13, Aug. 9, 12, 13, 18, 20, Sept. 1, Swezey. One specimen in Bishop Museum, Fullaway, 1911.

An ochreous species which came frequently to light at Piti. Its caterpillars were not found nor its host plant learned.

**35. *Crocidolomia binotalis* Zeller, K. Vet.-Akad., Handl. (1852), 66, 1854; Hampson, Fauna Brit. India, Moths 4: 372, 1896.**

Piti, May 14, reared from cabbage, Swezey; Piti, Aug. 13, 26, Oct. 14, at light, Swezey. Three specimens at Bishop Museum, Fullaway, 1911.

This moth is widely distributed from South Africa through southern Asia to Formosa, Java, Australia and Norfolk Island. The caterpillars feed on mustard, radish, cabbage, and other cruciferous plants in India. I found it on cabbage at Piti, Guam, but not as commonly as *Hellula undalis*.

**36. *Hellula undalis* (Fabricius).**

*Phalaena undalis* Fabricius, Ent. Syst. 3(2): 226, 1794.

*Hellula undalis*, Hampson, Fauna Brit. India, Moths 4: 373, fig. 200, 1896.

This cabbage pest is widely distributed in tropical regions, also the Mediterranean region and the United States. It occurs in Hawaii, and was recorded by Fullaway in Guam in 1911, as found on radish and horseradish. It attacks plants of the mustard family generally. I reared moths from cabbage at Piti, May 14 and June 9, and from Chinese cabbage June 6. One specimen at U. S. National Museum and one at Bishop Museum, Fullaway, 1911.

**37. *Maruca testulalis* (Geyer).**

*Crochiphora testulalis* Geyer, in Hübner, Zutr. Samml. Ex. Schm. 4(4): 12, figs. 629, 630, 1832.

*Maruca testulalis*, Hampson, Fauna Brit. India, Moths 4: 393, 1896; Tams, Ins. Samoa 3(4): 286, 1935.

This is a bean pest widely spread in the tropics of Africa, Asia, and the Pacific islands, Japan, and Australia. It occurs in Hawaii, but was not previously recorded from Guam. Small caterpillars were found in bean pods at Piti, Oct. 17, and two moths were taken at light, Oct. 14, Swezey.

**38. *Psara licarsisalis* (Walker).**

*Botys licarsisalis* Walker, Cat. 18: 686, 1859.

*Pachyzancla licarsisalis*, Hampson, Fauna Brit. India, Moths 4: 402, 1896.

*Psara licarsisalis*, Tams, Ins. Samoa 3(4): 286, 1935.

Piti, May 8, 22, July 27, Aug. 11, 16, 24, Sept. 4, 11, 12, 13, 28, Oct. 6, 18, Nov. 26; Agana, May 15; Tarague, May 17; Orote Peninsula, Aug. 2. All by Swezey. Five specimens in U. S. National Museum and one in Bishop Museum, Fullaway, 1911.

Widely distributed from India, Ceylon, Malacca, China, Japan, Java, Borneo, Marshall Islands, Fiji, Samoa, Society Islands, Austral Islands, and Australia. It was common in Guam, many coming to light at Piti. Fullaway reported a pyraustid moth (probably this species) which was destructive to lawns in 1911. We did not find it so abundant as to be injurious, but found its caterpillars feeding in the turf in grasslands, hiding under bits of board and under edges of dried cow droppings, or in webbed dead grass leaves. The moths were very abundant among weeds in a cornfield adjacent to a *Panicum* grass field, but at the time I did not find any caterpillars.

**39. *Psara stultalis* (Walker).**

*Botys stultalis* Walker, List Lep. Ins. Brit. Mus. 18: 669, 1859.

*Pachyzancla stultalis*, Hampson, Fauna Brit. India, Moths 4: 405, 1896;

Meyrick, B. P. Bishop Mus., Bull. 114: 340, 1934.

*Psara stultalis*, Tams, Ins. Samoa 3(4): 286, 1935.

This moth has much the same distribution as the preceding species including Samoa and the Marquesas. The only two specimens obtained in Guam were reared from leafroller caterpillars on *agalunde*, or a similar plant, Barrigada, Aug. 28, Swezey.

**40. \**Diasemia accalis* Walker, Cat. 19: 1015, 1859; Hampson, Fauna Brit. India, Moths 4: 411, 1896.**

One specimen reared from fruit of *Barringtonia speciosa*, Tumon, May 30, Swezey. Recorded from Shanghai, Dharmasala, and Burma.

**41. *Pyrausta phoenicealis* (Hübner).**

*Pyralis phoenicealis* Hübner, Zutr. Samml. Ex. Schm. 1: 22, figs. 115, 116, 1818.

*Pyrausta phoenicealis* Hampson, Fauna Brit. India, Moths 4: 431, 1896.

Talofofo plateau, June 17, reared from leafroller on *Elephantopus spicatus*, Swezey; Sasa, June 22, Swezey; Piti, July 13, 28, Oct. 6, Nov. 4, reared from *Elephantopus*, and two specimens at light, Swezey; Dandan, July 17, reared from *Elephantopus* and a weed of the mint family, Swezey. One specimen in Bishop Museum, Fullaway, 1911.

This moth has a very wide distribution: North and South America, West Indies, Africa, India, China, and Australia. Now recorded from Guam for the first time.

**42. *Pyrausta nubilalis* (Hübner).**

*Pyralis nubilalis* Hübner, Zutr. Samml. Eur. Schm., Pyr. 14: Sechste Horde, 24, 14, fig. 94, 1796.

*Pyrausta nubilalis*, Meyrick, Handbook Brit. Lep., 416, 1895; Hampson, Fauna Brit. India, Moths 4: 435, 1896; Caffrey and Worthley, U. S. Dept. Agric., Bull. 1476: 1-154, 1927; Briggs, Guam Agr. Expt. Sta. Rept. (1920), 39, 1921; Vandenberg, Guam Agr. Expt. Sta. Rept. (1930-32), 20, 1933.

Tumon, May 30; Ypan, June 8; Libugon, June 24; Machanao, June 30, Aug. 6; Piti, Aug. 26, Sept. 4, 15; Barrigada, Aug. 28. All collected or reared by Swezey. Three specimens in U. S. National Museum and one in Bishop Museum, Fullaway, 1911.

This moth is the notorious European corn borer, which has become widespread in the United States during the past 20 years. Its distribution is throughout central and southern Europe, Egypt, west-central and northern Asia, northern India, Siberia, Japan, Philippines, and Guam. The first record of it in Guam was by Fullaway in 1911 under the name *Pyrausta vastatrix*, given by Schultze in Manila, a name which was later recognized as a synonym. It became a very serious pest in Guam, and by 1920 was reported damaging 50 percent of the corn crop in some regions. Parasite introduction was attempted in 1926 to 1931. Several kinds of parasites were imported. In 1936 we found that a tachinid, *Lydella stabulans* var. *grisescens* Robineau-Desvoidy, was established and so efficient that very little damage was done to the corn crop by the European corn borer. Whenever we found corn borer larvae in corn stalks, usually 50 to 100 percent of them were parasitized. Often in examining the corn borer burrows in corn stalks, the puparia of the parasite would be found, usually one or two and occasionally three per burrow. This tachinid was introduced from Japan by Vandenberg in 1931. At first it was known in Guam reports as *Masicera senilis*, later as *Ceromasia lepida*. In subsequent studies of it, experts in the Tachinidae settled on the name *Lydella stabulans* var. *grisescens*. One other parasite, *Cremastus flavo-orbitalis* (Cameron), introduced from Japan by Vandenberg in 1931 became established in Guam. I reared it from several species of leafroller moths, but not from the corn borer.