

PROCEEDINGS  
OF THE  
Hawaiian Entomological Society

Editor Emeritus, O. H. Swezey

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This issue of the Proceedings is the first ever to appear without Mr. O. H. Swezey as its editor. After nearly forty years, at his own request, Mr. Swezey has relinquished the direction of this periodical in order to devote himself more fully to his studies of the native Hawaiian insect fauna. Under his editorship the Proceedings attained a position unique among journals of its kind, and constitutes an enduring monument to Mr. Swezey's long devotion to Hawaiian entomology. The amount of work he devoted to the production of the Proceedings cannot be fully appreciated by most of us. We know, however, that he has given to it the same fresh interest and zest which all phases of entomology claim from him. For the Society we wish to express our appreciation of his long and efficient service as editor, and the hope that as Editor Emeritus, he will continue for many years to counsel his successors on the editorial committee.

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JANUARY 11, 1943

The 445th meeting was held at the H.S.P.A. Experiment Station on Monday, January 11, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Faxon, Fullaway, Holdaway, Krauss, Look, Marlowe, McBride, Nishida, Pemberton, Rosa, Sakimura, Stains, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Lt. R. L. Douth, U.S.N.

NOTES AND EXHIBITIONS

*Records from Kauai*—Mr. Krauss presented the following data on material collected on Kauai: *Stenotrupis marshalli* Zimmerman; one specimen of this small weevil was taken at Lihue on October 18, 1942. Hitherto it has been recorded only from the island of Oahu and from Samoa. The specimen was identified by Mr. Zimmerman. *Latrodectus geometricus* Koch; found fairly abundant in

a rocky bank near the pier at Port Allen on October 16, 1942; identified by Prof. R. V. Chamberlin of the University of Utah. *Tetranychus* sp., identified by Mr. E. A. McGregor of the U.S. Bureau of Entomology and Plant Quarantine; collected on taro (*Colocasia esculenta* Schott) at Kapaia on October 20, 1942, and on cotton at Nawiliwili on the same date.

*Cyrtopeltis varians* (Distant)—Mr. Krauss reported finding nymphs and adults of the tomato bug abundantly on several plants of the wild spider flower (*Gynandropis pentaphylla* De Candolle) in Honolulu on December 24, 1942.

*Thysanoptera from Maui*—Mr. Krauss reported the collection on Maui of the following thrips, all identified by Mr. Sakimura: *Taeniothrips frici* Uzel, on the flowers of the common dandelion (*Taraxacum officinale* Weber) at an elevation of 9,000 feet on Haleakala, April 14, 1940. The Hawaiian thrips, *Thrips hawaiiensis* (Morgan), the composite thrips, *Microcephalothrips abdominalis* (Crawford), and *Haplothrips gowdeyi* (Franklin), were found on flowers of the golden crown-beard, *Verbesina encelioides* (Cav.) Benth. & Hook., at Makena on the same date.

*Acrodrepaxis megalophylla* (Meyr.)—A male specimen of this rare moth was exhibited by Mr. Swezey. He had found it among other unidentified material which he was recently examining. The specimen had a pencilled label as from Kilauea, Hawaii, collected by Dr. R. C. L. Perkins, without date, but it must have been collected sometime before 1904. There has been no specimen of this moth hitherto in the H.S.P.A. collection.

*Hydriris exaucta* (Meyr.)—Mr. Swezey exhibited a specimen of this rare pyralid moth similarly found among unidentified material as above. Its pencilled label was Kukuihaele, Hawaii, but without date or collector's name. It was most probably collected by Dr. Perkins at an early date. The species was described in the Proceedings of the Society (7 (1): 95, 1928) from specimens collected at Kaholuamano and Kokee, Kauai, 1920 (Kusche), and Halehaku, Maui (Bryan). The present record would extend its range to the island of Hawaii. Presumably this is an endemic species. It was not previously represented in the H.S.P.A. collection.

Parasitism of *Plusia* by *Litomastix*—Mr. Swezey reported on some recent records of parasitism by the polyembryonic encyrtid, *Litomastix floridana* (Ashmead), on *Plusia chalcites* (Esper) caterpillars collected in the field at various localities on Oahu. *Plusia* caterpillars had been scarce for quite a time, but had become more prevalent during a recent rainy spell, and parasitism has been quite pronounced.

Dec. 12. Experiment Station, H.S.P.A., seven caterpillars on *Emilia* were 43 per cent parasitized.

- Dec. 20. 2044 Lanihuli Drive, Manoa, ten caterpillars on sweet-potato leaves were 80 per cent parasitized.
- Dec. 21. Ewa Plantation, 19 caterpillars collected on the weed, *Verbesina*, by F. X. Williams, were 10 per cent parasitized.
- Dec. 31. Ewa Plantation, 22 caterpillars on an unidentified weed (Williams), were 9 per cent parasitized.
- Jan. 7. Waialua Agricultural Company, Mill Field no. 9, 15 caterpillars collected on lima beans (Van Zwaluwenburg) were 80 per cent parasitized.

*Eucelatoria armigera* (Coq.)—Mr. Swezey reported rearing this tachinid fly from *Plusia chalcites* caterpillars collected by Dr. Williams on weeds at Ewa Plantation, Dec. 21 and 31. Of 19 caterpillars collected on Dec. 21, 31 per cent were parasitized by this tachinid. Of 22 collected Dec. 31, 41 per cent were parasitized. These are the first rearings of this fly from field material in Hawaii.

*Mongoose capturing a monarch butterfly*—Dr. Williams stated that on January 10, at his house in upper Keeaumoku Street, two nearly grown mongooses were seen at the edge of tall grass. Presently a monarch butterfly, *Danaus plexippus* (Linn.), fluttered low nearby. One of the mongooses became somewhat interested and followed the insect for a while, but when the butterfly, hovering at a low weed, drew the attention of the second mongoose, the latter rushed at it and caught it in its jaws, seizing, in the act, a bit of plant leaf at which the butterfly had been pausing. The mongoose made away with its prize in the tall grass.

## FEBRUARY 8, 1943

The 446th meeting was held at the H.S.P.A. Experiment Station on Monday, February 8, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Fullaway, Holdaway, Illingworth, Krauss, Look, Marlowe, McBride, Nishida, Pemberton, Rosa, Sakimura, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Thomas Farr, U.S.N.

## PAPERS

Mr. Swezey presented, and discussed briefly, two papers entitled: "Synonymy of *Euxoa hephaestaea* (Meyrick)", and "The Kou Moth, *Ethmia colonella* Walsm., in Hawaii".

## NOTES AND EXHIBITIONS

*Apanteles marginiventris* (Cresson)—Mr. Pemberton spoke of the establishment of this armyworm parasite on the grounds of the H.S.P.A. Experiment Station, from specimens reared by Dr. Wil-

liams from material sent in last year from Brownsville, Texas by F. A. Bianchi. Some of these wasps, including a number that had already been used in oviposition on caterpillars, had been liberated on the Station grounds, with the result that their cocoons were found on nutgrass in January, and wasps hatched from them.

*Eucelatoria armigera* (Coq.)—Mr. Van Zwaluwenburg told of rearing this tachinid fly on nutgrass armyworm larvae, *Laphygma exempta* (Walker) in the laboratory. The ready acceptance by *Eucelatoria* of *Laphygma* caterpillars gives promise of value in controlling this pest in the field. The female fly deposits nearly mature maggots within the host, by means of a thorn-like larvipositor, and the life cycle is extremely short. In this connection Mr. Swezey described his discovery of the way in which our larger tachinid, *Chaetogaedia monticola* (Bigot), parasitizes noctuid caterpillars. The fly oviposits on vegetation which by chance may be eaten by a caterpillar, which ingests the *Chaetogaedia* egg without harm to the latter, but eventually with dire results to itself.

*Records from Palmyra Island*—Mr. Krauss reported the following interceptions made on March 20, 1942 at the Honolulu Plant Inspection Office in a shipment of bird's-nest ferns (*Asplenium* sp.) from Palmyra Island: one earthworm; four sowbugs (*Philoscia* sp.; det. J. O. Maloney, U.S. National Museum); and one immature spider (*Heteropoda* sp.; det. R. V Chamberlin, University of Utah).

*Graptostethus nigriceps* Stål—Mr. Krauss reported finding two specimens of this bug on January 18, 1943 in a package of wood-rose pods (*Ipomoea tuberosa* Linn.) being mailed to the mainland. On January 19 two more were collected on the foliage and pods of this plant at 3066 Wailani Road, Pacific Heights, Honolulu, where the mail shipment had originated.

*Aphis gossypii* Glover—Mr. Krauss reported collecting the cotton or melon aphid at the following places on Kauai: on sweet potato at Lawai-kai, October 19, 1942; on taro (*Colocasia esculenta* Schott) at Kapaia, October 20; on cotton at Waimea, October 23; and on cucumber at Hanapepe, October 28. The specimens were identified by Dr. P. W. Mason, U.S. Bureau of Entomology and Plant Quarantine.

#### MARCH 8, 1943

The 447th meeting was held at the H.S.P.A. Experiment Station on Monday, March 8, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Holdaway, Krauss, Look, Marlowe, McPhail, Nishida, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitors:* Messrs. T. C. Russell and Y. Tanada.

## PAPER

Mr. Look presented a paper by himself and Mrs. Ethel Lucas McAfee entitled: "Some First Records of Aphids in Hawaii".

## NOTES AND EXHIBITIONS

*Grasshoppers feeding on Irish potato*—Dr. Holdaway and Mr. Look exhibited plants of Irish potato showing the injury by three species of grasshopper, *Conocephalus saltator* (Sauss.), a long-horned grasshopper, and *Atractomorpha ambigua* Bolivar and *Oxya chinensis* (Thunb.), short-horned grasshoppers. The attack by *Conocephalus* consisted of large holes in the leaves, and was concentrated on the younger leaves of the plant. Attack by *Atractomorpha* consisted of holes of irregular shape, but in general not as large as those made by *Conocephalus*. Attack by *Atractomorpha* was concentrated on the older leaves. Attack by *Oxya* consisted of removal of the distal end of several leaflets and complete removal of two mature leaves, completely severed from the plant; the leaf petioles were cut through near the main stem.

The injury done by each species was the result of accumulated feeding over a period of four days, all species having been introduced at 1:00 p.m., March 4. *Atractomorpha* had begun feeding immediately it was introduced into the cage with the potato plant. *Conocephalus* had not fed for three hours after introduction, but was feeding the following morning, 19 hours after introduction. *Oxya* did not feed on the potato plant during the first two days. The injury described was found on the fourth day but may have been made any time between the second and fourth day.

This is not the first time injury by these grasshoppers has been secured under controlled conditions. On one previous occasion *Oxya* had severed the main stem, causing injury comparable to that made by a large cutworm on Irish potato.

In the annual report for 1940 of the Hawaii Agricultural Experiment Station (p. 39) reference was made to the fact that *C. saltator* and *O. chinensis* had attacked the foliage of Irish potato. The correctness of these observations was questioned by some local entomologists. It was pointed out, as indicated by Dr. Williams in his "Insects and Other Invertebrates of Hawaiian Sugar Cane Fields", that *Oxya* fed on the leaves of sugar cane and grasses, while *Conocephalus* prefers an insect to a vegetable diet, and thrives upon leafhoppers and aphids. It was stated that the alimentary tract of *C. saltator* did not normally contain chlorophyll-bearing plant tissue. Williams, however, refers to the fact that it feeds to a slight extent on the margin of leaves of rice and on pineapple.

The observations here described, and the injury exhibited, indicate that all three species will feed on the foliage of Irish potato. Individuals of *C. saltator* are common in potato fields. Further

observations may indicate the conditions under which attack occurs.

*Phyllocoptes destructor* Keifer\*—Dr. Holdaway reported the occurrence of the tomato russet mite on tomato on the islands of Oahu and Maui. This eriophyid was first observed and collected on tomato plants in the garden of Dr. F. G. Krauss, Parker Place, Manoa Valley, Honolulu, May 26, 1942. Additional records are the following:

Waimanalo, Oahu, on tomato, Sept. 8, 1942, coll. F. G. Holdaway; Pensacola substation, H.A.E.S., Honolulu, on tomato, Nov. 7, 1942, coll., Wm. C. Look; Omaopio, Maui, on tomato, Nov. 23, 1942, coll. F. Murphy. The plants on which this mite was collected at Manoa Valley were young plants which were so severely attacked they would have succumbed if control measures had not been adopted promptly. The plants infested at Waimanalo were severely attacked and production was prevented. Some of the plants in this field were also attacked by broad mite, *Hemitarsonemus latus* Banks. At Waimanalo the weed, *Solanum nodiflorum* Dunal (*S. nigrum* Linn.), was also infested by *P. destructor*. Mr. Murphy, who collected the specimens on Maui, reported that the mite was causing severe damage and about 90 per cent loss of the crop. All the specimens collected on Oahu have been identified by H. H. Keifer.

The occurrence of *P. destructor* in Hawaii has already been referred to by Dr. Schmidt (Proc. Haw. Ent. Soc., 11 (3): 275, 1943). The specimens on which Dr. Schmidt's record is based were collected Sept. 22, 1942, at a place only a few blocks from where the specimens collected last May were taken. Two of the records given above, however, antedate Dr. Schmidt's record. It would appear that this mite has become established in Hawaii comparatively recently. Its establishment on the island of Maui follows rapidly on its introduction to Oahu.

*Erinose mite of litchi*—Dr. Holdaway and Mr. Nishida reported that specimens of the erinose mite of litchi (*Litchi chinensis* Sonn.), hitherto apparently unidentified, had been submitted to Dr. Keifer for determination. He has replied that it is *Eriophyes chinensis* Trotter,† but that the species has never been adequately described. With the material forwarded to him he is now proceeding to draw up figures of the species.

Leaves of litchi exhibiting the characteristic felting were examined during the period between August 31 and November 10, 1942 without their yielding evidence of the presence of mites. On November 10, leaves from trees which had been examined during the previous months were found heavily infested with the mites.

\* Described in "Eriophyid Studies X", Bull. Cal. Dept. Agr., 29: 161-162, fig., 1940.

† Dr. Keifer has since described the litchi mite of Hawaii as *Eriophyes litchii* ("Eriophyid Studies XIII", Bull. Cal. Dept. Agr., 32(3): 212, pl. 171, July-September, 1943). (Ed.)

Evidence of the presence of mites in numbers has continued to be secured up to February. The lack of evidence of mites during the late summer months and their appearance in numbers in November, when the fall rains began, suggested a periodicity of broods possibly associated with the rains and the flush of new growth.

*Lema trilineata californica* Schaeffer—Mr. Krauss presented the following note on the three-lined potato beetle. Adults, larvae and egg masses were found abundantly on the solanaceous weed, apple of Peru (*Nicandra physaloides* Gaertner), in Kaimuki, Honolulu on February 26, 1943. This is a new host record. The following are unpublished early records of this species: the first specimens found in the Islands were collected on poha (*Physalis peruviana* Linn.), in the back yard of a house on Johnson Lane (off Liliha Street, above Vineyard), Honolulu, on September 15, 1933 by Miss F. Segawa, a university student. These were the specimens recorded without details in the Proceedings of the Society (8 (3): 389, 1934). Masao Nakano, another university student, collected about ten specimens at night in a house on Enos Lane in the Makiki district of Honolulu, some time between October 20 and 29, 1933. On March 6, 1934 Mr. Krauss found adults, larvae and egg masses on leaves of the angel's trumpet, *Brugmansia arborea* (Linn.), in the grounds of the Territorial Office Building, Honolulu, and on March 29 adults, larvae and egg masses were found on leaves of the jimson weed (*Datura stramonium* Linn.) on the University of Hawaii campus. This beetle is now established on the islands of Oahu, Kauai, Maui, Molokai and Hawaii. Besides the hosts noted above, it has been found breeding on *Datura metel* Linn., *D. tatula* Linn., cup of gold (*Solandra guttata* Don), Irish potato, and *Physalis mollis* Nuttall. Mr. Pemberton remarked that he had found this beetle on tobacco at the H.S.P.A. Experiment Station in Makiki.

*Elimaia punctifera* (Walker)—Mr. Krauss reported finding several nymphs of this narrow-winged katydid feeding on buds and flowers of azalea plants growing outdoors in pots in Manoa Valley, Honolulu, on March 1, 1943. The flowers were entirely ruined.

*Telmatoctopus albipunctatus* (Williston)—Mr. Russell spoke of the abundance, in annoying numbers, of this large psychodid moth-fly at the Naval hospital at Aiea, Oahu. The larvae were very numerous among rocks forming the filter for the sedimentation basin for the water supply.

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#### APRIL 12, 1943

The 448th meeting was held at the H.S.P.A. Experiment Station on Monday, April 12, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Faxon, Goolsby, Holdaway, Krauss, Look, Nishida, Pemberton, Rosa, Sakimura, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Yoshinori Tanada.

#### PAPER

Mr. Look and Mrs. Ethel Lucas McAfee presented a paper entitled: "New Host Records of Aphids in Hawaii."

#### NOTES AND EXHIBITIONS

*Nymphula oblitalis* (Walker)—Mr. Swezey reported rearing the water lily moth from larvae feeding on water lily leaves in the pond at Central Union Church on Beretania Street, a new locality for the occurrence of this moth.

*Hydra viridis* Linn.—Mr. Swezey reported finding this fresh water hydra on the under side of lily leaves in the lily pond in the Central Union Church grounds in March of this year, and again today. Six were found on one leaf. It is the second place he has seen *H. viridis* in Honolulu; the first was in Moanalua gardens in 1916 on a water lily leaf.

"*Insects of Guam—I*"—Mr. Swezey called to attention that in a mention of this publication in Experiment Station Record (88 (2): 218, Feb. 1943), the statement: "The list is said to contain about 50 species not known to occur in Hawaii", is misleading. In the reviewer's paragraph the statement is in reference to "*Insects of Guam—I*", which contains 361 species, whereas it actually should refer to a previously noted paper on "A Survey of the Insect Pests of Cultivated Plants in Guam", published in The Hawaiian Planters' Record (44 (3): 151-182, 1940), and reviewed in Experiment Station Record (84 (3): 358, March 1941).

*Tachinid parasites taken in wind traps*—Mr. Sakimura presented the following: Wind trap data from Kunia, Oahu, pineapple fields, showed that through the summer up until the end of October 1942, there was practically no flight of tachinid flies or of their hosts. Now, after very active flight during the five months from November 1942 to March 1943, they have practically disappeared. The tachinids caught during the five-months period were: 111 *Eucelatoria armigera* (Coq.) (two-thirds males); 14 *Frontina archippivora* (Williston) (one-half males); 13 *Chaetogaedia monticola* (Bigot) (one-quarter males); and 1 *Archytas cirphis* Curran. The moths caught were: 169 *Laphygma exempta* (Walker); 43 *Lycophotia margaritosa* (Haworth); 29 *Plusia chalcites* (Esper); and 3 *Cirphis unipuncta* (Haworth). After heavy rain during November, followed by the wet months of December and January, *L. exempta* appeared in outbreak numbers, with the peak of flight during December and January. A short active flight of



*P. chalcites* occurred during January, and of *L. margaritosa* during February. *Eucelatoria* suddenly appeared in a large group during January and February. An occasional flight of *Frontina* was observed during December, January and February, while flights of *Chaetogaedia* occurred throughout the five months. The number of species attacked by each parasite is difficult to determine from the present data. It is noteworthy that *Eucelatoria* was the predominating tachinid in the area during the period covered by these notes. Messrs. Swezey and Van Zwaluwenburg were consulted for the determination of the species.

*Synonymy of some Hawaiian Staphylinidae*—Mr. Van Zwaluwenburg called attention to some recent synonymy among immigrant species of Hawaiian staphylinids. In his "Monograph of the West Indian Beetles of the Family Staphylinidae" (U.S. National Museum Bull. 182, 658 pp., 1943) Dr. R. E. Blackwelder discusses five widely distributed species which are known from Hawaii as well as from the area under consideration. Only one of these, *Philonthus discoideus* (Gravenhorst), is retained under the name familiar to Hawaiian entomologists. The other four are either referred to other genera or synonymized as follows:

*Trogophloeus senilis* Sharp 1880 is a synonym of *Carpelimus fulvipes* (Erichson) 1840 (pp. 62-63).

*Oxytelus ferrugineus* Kraatz 1859 (*O. bledioides* Blackbn. & Sharp 1885) is referred (pp. 96-98) to *Oxytelus incisus* Motschulsky 1857.

*Ancaeus laevigatus* (Kraatz) 1859 (*Lispinodes pallescens* Blackbn. 1885) is synonymized (pp. 158-160) under *Paralispinus exiguus* (Erichson) 1840.

*Medon debilicornis* (Wollaston) 1857 is referred (pp. 267-269) to *Sunius debilicornis* (Wollaston).

*Triatoma rubrofasciata* (Degeer)—Mr. Pemberton reported a case of this bug biting a woman at Kaimuki, Honolulu, during March and April 1943, and causing severe pain and swelling on one side of the face and one arm, accompanied by pronounced reddish blotches on the skin. Numerous small reddish spots appeared on the face and arm where the bug had evidently fed. Illness persisted for three weeks. A search of the bed where the woman slept resulted in finding the bug, the abdomen of which was greatly distended with blood.

*Euscepes postfasciatus* (Fairmaire)—Mr. Pemberton reported finding this weevil extensively breeding in the fleshy roots of *Ipomoea triloba* Linn., near Aiea, Oahu, on March 18, 1943. This morning-glory vine has not previously been reported in Hawaii; it was identified by E. L. Caum.

*Haplogonatopus vitiensis* Perkins—Mr. Pemberton reported observing a number of small, white cocoons attached to the dried silk

on corn ears in a field at Kailua, Oahu, on Feb. 19, 1943. These were collected and from them, later, emerged adults of this dryinid. Previously known hosts of this parasite of delphacids have been the sugar cane leafhopper (*Perkinsiella saccharicida* Kirkaldy), the taro leafhopper (*Megamelus prosperina* Kirkaldy), both in Hawaii, and a delphacid on grass in Fiji, possibly different from *P. saccharicida*. Finding the cocoons on corn suggested that the parasite was breeding on the corn leafhopper (*Peregrinus maidis* [Ashmead]). Subsequently the adult dryinids which emerged from the cocoons readily parasitized corn leafhoppers confined with them, and normal adults were reared from this material.

*Anthonomus eugenii* Cano—Mr. Krauss reported finding fruits of the purple-fruited cherry pepper (*Capsicum frutescens cerasiforme* [Mill.]) heavily infested with pepper weevil larvae in the Kapalama district of Honolulu on March 23, 1943.

*Walnut insects*—Mr. Krauss reported that *Ephestia cautella* Walker, the almond moth, and *Oryzaephilus surinamensis* (Linn.), the saw-toothed grain weevil, were found abundantly in a package of unshelled walnuts which had been stored for some time by a resident of Honolulu. The nuts were entirely ruined.

*Laphygma exigua* (Hübner) on Johnston Island—Mr. Krauss reported that larvae of this species, the beet armyworm, were submitted for determination by a naval officer who reported them as doing severe damage, during the early part of April 1943, to ornamental shrubs and vines on Johnston Island, lying southwest of the Hawaiian group.

*Maruca testulalis* (Geyer) in *Gliricidia* flowers—Mr. Goolsby submitted the following: In February, when *Gliricidia sepium* (Jacq.) Steud. trees first began flowering, two or three short stems of blossoms were collected from trees growing near Pearl City, about a half-mile from the highway on the old Honolulu road. These were placed in a cage, and on March 1 adult moths began emerging. Ten *Maruca testulalis* adults emerged, and 11 larvae and pupae died in the cage. One *Lampides boeticus* (Linn.) (the bean lycaenid butterfly) and one *Amorbia emigratella* Busck also emerged from the lot. Early in March, four stems of flowers about six inches long were taken and caged. From these, 15 *Maruca* adults emerged, and one *Amorbia*. Again the mortality of larvae and pupae was about 50 per cent. Thus, in six or seven short stems of *G. sepium* flowers, about 50 *Maruca* were feeding. From one tree thousands of these insects would emerge during the flowering season, and it seems probable that such an increase might have a noticeable effect upon the infestation of crops such as string and lima beans.

*Graptostethus nigriceps* Stål—Dr. Williams spoke of finding a specimen of *G. nigriceps* on the outside of a laboratory window at

the H.S.P.A. Experiment Station, Honolulu, on March 31, 1943. This chiefly red and black lygaeid bug has but recently been taken here.

#### MAY 10, 1943

The 449th meeting was held at the H.S.P.A. Experiment Station on Monday, May 10, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Faxon, Holdaway, Krauss, Look, Marlowe, Nishida, Pemberton, Rosa, Sakimura, Stains, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Yoshinori Tanada.

Dr. Holdaway nominated Mr. Yoshinori Tanada for membership in the Society.

#### NOTES AND EXHIBITIONS

*New insect records from Kauai*—Mr. Krauss presented the following list of insects taken on Kauai in October 1942, none of which apparently has been recorded before from that island:

##### *Orthoptera:*

*Tenodera angustipennis* Saussure. Chinese mantid; egg case collected Nawiliwili, October 20.

##### *Coleoptera:*

*Amphicerus cornutus* (Pallas); Waimea, October 23, in dead branches of kiawe, *Prosopis chilensis* (Molina) Stuntz.

*Bruchus limbatus* Horn; Waimea, October 23.

*Calandra linearis* (Herbst); tamarind weevil, Waimea, October 23.

*Carpophilus hemipterus* (Linn.); dried-fruit beetle, Nawiliwili, October 21.

*Oryzaephilus surinamensis* (Linn.); saw-toothed grain beetle, Lihue, October 15.

*Pantomorus godmani* (Crotch); Fuller's rose beetle, Waimea, October 23.

*Platyomus lividigaster* Mulsant; yellow-shouldered lady-beetle, Anahola, October 26.

*Scymnus notescens* Blackburn; Hanapepe, October 28.

*Tribolium ferrugineum* (Fabr.); rusty flour beetle, Nawiliwili, October 21.

*Calandra granaria* (Linn.)—Mr. Krauss exhibited two specimens of the granary weevil collected in a Honolulu grain and feed warehouse April 29, 1943, together with a number of rice weevils, *Calandra oryzae* (Linn.). The granary weevil is apparently very seldom found in the Hawaiian Islands.

*Eucelatoria armigera* (Coq.)—Mr. Van Zwaluwenburg presented the following: Laboratory breeding of this recently established tachinid fly, on *Laphygma exempta* (Walker) larvae, showed no correlation between the sex ratio of the adult flies and the number of maggots per individual host. From 54 *Laphygma* larvae the following data were obtained:

	Per cent males
13 larvae produced 1 puparium each: 8 males and 5 females issued	61
16 larvae produced 2 puparia each: 17 males and 11 females issued	60
9 larvae produced 3 puparia each: 13 males and 13 females issued	50
2 larvae produced 4 puparia each: 5 males and 3 females issued	62
10 larvae produced 5 puparia each: 16 males and 23 females issued	41
1 larva produced 6 puparia each: 4 males and 1 female issued	80
1 larva produced 7 puparia each: 6 males and 0 females issued	100
2 larvae produced 8 puparia each: 6 males and 8 females issued	42
TOTAL: 76 males and 64 females issued	53.9

A total of 176 *Eucelatoria* from *Laphygma*, including those tabulated above, as well as some for which the number of puparia per host was not recorded, showed a total of 86 males and 90 females, or 48.8 per cent males. An illustrated account of *Eucelatoria* appears in 'The Hawaiian Planters' Record, 47 (2): 81-87, 1943.

*Hemitarsonemus latus* Banks—Dr. Holdaway and Messrs. Look and Nishida exhibited several economic plants showing symptoms of injury by the broad mite: papaya, beet, chard, pepper and green bean.

*Phyllocoptes destructor* Keifer—The following new records of occurrence on Oahu, of the tomato russet mite were contributed: University of Hawaii campus, by Mr. Nishida; McKinley School garden, by Dr. Holdaway; and Kalihi, by Mr. Look.

## JUNE 14, 1943

The 450th meeting was held at the H.S.P.A. Experiment Station on Monday, June 14, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Fullaway, Goolsby, Holdaway, Hy-slop, Krauss, Look, Marlowe, McBride, Nishida, Sakimura, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Franklin Sherman III, Capt., Sanitary Corps.

Mr. Yoshinori Tanada was elected to membership in the Society.

By unanimous vote the Treasurer was instructed to send, on behalf of the Society, the sum of \$25 to the Zoological Society of London as a contribution to the financing of the Zoological Record.

## NOTES AND EXHIBITIONS

*Xyletobius aleuritis* Perkins—Mr. Swezey exhibited a specimen of this rare anobiid beetle which he had cut out of a dead spot in a kukui (*Aleurites moluccana* Willd.) trunk in Ukumehame Valley, Maui, August 29, 1929. It had been collected previously only on Oahu, first by Dr. Perkins in April 1892: two examples dug out of dead kukui wood at a low elevation in the Waianae Mts. The next collection on Oahu was by O. H. Swezey in Makaleha Valley, Feb. 1, 1931: eight beetles from a standing dead kukui tree very much honeycombed by the larvae. Then again by Swezey in Kamo-kunui Valley, Oct. 1, 1933: two beetles under bark of *Pipturus*. The specimens of these last two collections were determined by Dr. Perkins (Proc. Haw. Ent. Soc., 9 (1): 87, 1935). Dr. Perkins states that: "The species is very different from any other and is not really congeneric with any Hawaiian anobiid". It is much larger than any other species of *Xyletobius* except one, *durranti* Perkins.

*Lycophotia margaritosa* (Haworth)—Mr. Swezey exhibited a variegated cutworm moth which was reared from a caterpillar found feeding in green tomatoes. Four of the caterpillars were found by Mr. Wm. Weinrich in tomatoes growing in a specially constructed screen house on Kewalo Street, May 15, 1943. One moth matured June 11. The other caterpillars were pickled. At first it seemed quite a mystery how these caterpillars could gain access to the screened house. The only feasible explanation seemed to be that an egg cluster had been deposited on a leaf of overhanging branch of avocado tree, as it is known that this moth has the oviposition habit of placing its eggs on leaves which may not necessarily be the normal food of the caterpillars. In this instance some of the young caterpillars, on hatching, may have dropped by spun thread to the screen roof of the house and gained access, where they at first had fed on the tomato leaves, and later attacked the green fruit. Apparently there is no previous record in Hawaii of caterpillars of this moth attacking green tomatoes.

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 JULY 12, 1943

The 451st meeting was held at the H.S.P.A. Experiment Station on Monday, July 12, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Carter, Faxon, Fullaway, Holdaway, Krauss, Look, Marlowe, McBride, Nishida, Pemberton, Rosa, Sakimura, Swezey, Tanada, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Thomas W. Cook.

## NOTES AND EXHIBITIONS

*Cryptorhynchus mangiferae* (Fabr.)—Mr. Swezey reported some observations on the present prevalence of the mango weevil. He had examined the seeds from mangoes which were eaten at different times as they fell from a heavily loaded mango tree on Lanihuli Drive, Manoa Valley, June 13 to July 9, 1943. Altogether 379 seeds were examined, and 90 per cent of them contained weevils in one stage or another: small larvae, 6 per cent; full grown larvae, 28 per cent; pupae, 40 per cent; mature beetles, 25 per cent. Some of the seeds contained more than one weevil: 26 per cent contained two weevils, and 4 per cent contained three weevils. As these mangoes were larger than usual for this particular tree, and were better flavored than usual, it would appear that having this high infestation of the seeds by the mango weevil was not detrimental to the fruit, nor had it caused premature dropping of the fruit. There has been some expression of opinion that the weevils caused premature dropping of fruit and undersized fruit. This is not borne out by the present observation. As a check in regard to this, fallen immature fruits from an adjacent tree were examined and the seeds of 83 per cent of them contained no weevils, though they were found in 67 per cent of the seeds of the fully matured fruit that fell from the same tree.

*Graptostethus nigriceps* Stål—Mr. Swezey reported having collected an adult of this new immigrant lygaeid bug on hibiscus in his garden, 2044 Lanihuli Drive, Manoa Valley, June 26, 1943. Mr. Look exhibited another adult taken on eggplant at the Puuhue Victory garden (Kalihi district), Honolulu on May 15; no nymphs were present. Both these records are additional stations in the spread of this insect.

*Hercothrips fasciatus* (Pergande)—Mr. Sakimura reported that the long-feared establishment of the California bean thrips in these Islands, must now be recorded. *H. fasciatus* was found among a series of thrips recently collected by Mr. Krauss on Molokai. He collected, on June 4, 1943, a large number of specimens from leaves, flowers and buds of prickly poppy (*Argemone glauca* Linn.) growing along the roadside near Kaunakakai. The present limits of this insect's distribution are not yet known. Identification of the material was verified by Mr. Dudley Moulton.

*Frankliniella* sp.—Mr. Sakimura reported that this species, common on Oahu, was recently collected by Mr. Krauss on Molokai and Maui.

*Psocids on stored dog food*—Mr. Krauss reported that many specimens of *Deipnopsocus* sp. and a few of *Liposcelis divinatorius* (Mull.) were collected on a commercial dry dog food made of cereal, meat, fish meal, etc., in Honolulu on January 18, 1943. The dog food had been stored for some time. Determinations were

made by Mr. H. K. Townes through the U.S. Bureau of Entomology and Plant Quarantine.

*Orthezia insignis* Douglas—Mr. Pemberton reported receiving a branch of pamakani (*Eupatorium glandulosum* H.B.K.) collected in Honalua gulch, Maui, at 2,000 feet elevation by F. W. Broadbent, which was heavily infested with this coccid. Though this insect has been known in Hawaii since 1899, this is apparently the first record of its occurrence on pamakani in the Islands. Mr. H. T. Osborn in 1924 recorded noticeable injury to pamakani by an *Orthezia* at Cuernavaca, Mexico.

Biological control of *Pseudococcus brevipes* (Ckll.)—Dr. Carter presented the following: The abandonment of ratoon pineapple fields due to labor shortages has resulted in many areas where mealybug populations on the developing ratoon fruit have reached a considerable size. At the same time the fields have become very weedy. Under these circumstances, biological control of *P. brevipes* has been sufficient to almost completely eliminate the insect from the fruit. The principal factor operating is undoubtedly *Lobodiplosis pseudococci* Felt, the predaceous midge collected in Mexico by Mr. Fullaway. Many fruits can be found plastered with the old webs of this insect, with no mealybugs left alive on the fruits.

With such control evident, it is interesting to speculate on why biological control of the mealybug is not more generally successful. First among the possible reasons is the establishment of large populations on fruit. The midge is rarely found on leaves, possibly because the mealybugs on leaves keep moving down into the dark center of the plant, as the leaves grow. On the other hand, mealybugs on the bases of fruits are more sessile and give opportunity for the midge to establish its web over the developing female mealybug. Second is the fact that in a weedy field, *Pheidole* ants are apparently more independent of mealybugs for food, and their attendance on the mealybug is not as close as normally.

Unfortunately, even in these fields where the mealybugs on fruit are practically wiped out, residues of the populations are to be found on all the developing suckers in the vicinity of the infested fruits. These colonies are untouched by the midge, and it is these colonies which will cause mealybug wilt in the developing suckers. It is clear that no biological factor can operate to prevent mealybug wilt unless it is capable of reducing populations of mealybugs on young, unfruited plants, well attended by ants.

Egg parasite of *Pycnoderes*—Mr. Fullaway recorded the establishment here of a new species of *Anagrus*,\* a parasite of the egg of *Pycnoderes quadrimaculatus* (Guerin), recently imported from Sinaloa, Mexico.

\* *Anagrus yawi* Fullaway; see p. 57.

*Bufo marinus* (Linn.)—Dr. Williams spoke of the homing faculty of the giant toad, *Bufo marinus*. This summer adult males were marked by cutting off the tips of certain toes, and brought from a small lily pond on upper Keeaumoku Street to the H.S.P.A. Experiment Station on the same street, a distance of about 2300 feet. One *Bufo*, blind in one eye, that had previously returned, was back the second time in 29 days. Of four other normal males, a large specimen carried in a sack to the Experiment Station was back to the lily pond within six days, the other three not having appeared to date. At present, and for some time, there has been a great preponderance of males in this lily pond.

#### AUGUST 9, 1943

The 452nd meeting was held at the H.S.P.A. Experiment Station on Monday, August 9, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Bianchi, Fullaway, Holdaway, Krauss, Look, Marlowe, McBride, Nishida, Pemberton, Rosa, Sakimura, Schmidt, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

*Visitor:* Ensign H. E. Graham, U.S.N.

#### PAPER

Mr. Swezey presented a paper entitled: "Keys to Some Lepidopterous Larvae Found in Gardens and Homes in Hawaii."

#### NOTES AND EXHIBITIONS

*Uloborus geniculatus* (Olivier)—Mr. Swezey exhibited this interesting spider, the name of which he found in "The Spider Book" by Comstock (Gertsch revision; p. 267, 1940). It is a tropical species of both hemispheres. It has made its appearance somewhat recently in Hawaii. It was especially abundant in his basement, with numerous webs in all possible positions. The earliest dated specimen in the H.S.P.A. collection is 1927.

*Trichogramma minutum* Riley—Mr. Swezey exhibited a slide mount of this parasite reared from an egg of *Heliothis armigera* (Hübner) on a tomato leaf, Honolulu, July 29, 1943. This is perhaps the first record of rearing this parasite from *Heliothis* in Hawaii.

*Lasioderma serricorne* (Fabr.)—Mr. Swezey reported having counted 1227 of the cigarette beetle in a small container of dried herbs, which had been entirely consumed, leaving a layer of fine black frass at the bottom. All stages were found: adults, pupae and larvae, and there were eggs amongst the frass. The eggs were not counted.



*Telenomus rhopali* Perkins — Mr. Swezey exhibited a slide mount of this scelionid, eight of which had issued from a cluster of 19 eggs of *Corizus hyalinus* (Fabr.) on a flower bud of *Sonchus oleraceus* Linn. collected by the roadside on Manoa hill above Punahou School grounds in June 1943. This is a parasitism of 42 per cent.

*Pleistodontes imperialis* Saunders — Mr. Pemberton reported the rearing of quantities of this caprifying fig wasp (family Agaonidae) from fruits of *Ficus eugenioides* F. v. Mueller, collected in upper Manoa Valley, Honolulu on August 4 by E. L. Caum. This is of interest since the insect is the normal caprifig, or pollinator, of *Ficus rubiginosa* Desfontaines, and was introduced into Hawaii in 1921 to induce the production of viable seed of this tree. The close similarity of *F. eugenioides* and *rubiginosa* suggests that one is merely a variety of the other, in view of the present breeding record.

*Murgantia histrionica* (Hahn) — Mr. McBride spoke of the presence, in all stages, of the harlequin cabbage bug in Victory gardens in Kalihi, Honolulu, on broccoli.

*New host of Mediterranean fruit fly* — Mr. McBride recorded the balsam apple (*Momordica balsamina* Linn.) as a new host for *Ceratitis capitata* (Wiedemann).

*An aphid new to Hawaii* — Mr. Zimmerman reported collecting *Aphis ferruginea-striata* Essig on carrot at Wilhelmina Rise, Honolulu, August 13, 1942. The material was identified by Prof. E. O. Essig. This California species, which occurs on celery also, has not been recorded heretofore from the Hawaiian Islands. It was described in *Hilgardia* 9 (9): 464, fig. 3, 1938).

*Parasites of tomato pin worm* — Mr. Fullaway exhibited two new Braconidae reared from *Keiferia lycopersicella* (Busck), the tomato pin worm. One is a species of *Apanteles*, the other, an undetermined genus, new to the Territory. They were secured in June 1943 by Messrs. Swezey, Fullaway and others.\*

*Two aphids new to the Hawaiian Islands* — Mr. Krauss presented the following notes on two aphid species not previously known from Hawaii, both determined by Prof. E. O. Essig: *Aphis tavaresi* Del Guercio, collected at Wailuku, Maui, June 6, 1943; this species occurs on *Citrus* in Japan, Australia and South Africa. Specimens of *Neophyllaphis araucariae* Takahashi were taken on leaves of Norfolk Island pine (*Araucaria excelsa* R. Brown) near the edge of Waikolu Valley, Molokai, June 3, 1943, and on the same host plant at Hana, Maui, June 30. This is the same aphid collected by Timberlake on *Araucaria* in Kapiolani Park, Honolulu, January 30, 1916 (Proc. Haw. Ent. Soc., 3(4): 267, 1917). The species was described by Takahashi (Proc. Roy. Ent. Soc. London

\* See p. 22.

(B) 6: 105, fig., 1937) from specimens collected in Mauritius on *Araucaria cunninghamii* Aiton.

*Graptostethus nigriceps* Stål—Mr. Nishida reported taking this lygaeid bug on eggplant at the Kaimukī Victory garden, July 23, 1943. This species was first taken by Mr. Sakimura in the Kunia district, Oahu, July 21, 1942.

Mr. Zimmerman reviewed the publication by J. T. Patterson et al. entitled: "Studies in the Genetics of *Drosophila* III. The *Drosophilidae* of the Southwest." (The University of Texas Publication 4313, 327 pp., ill., 1943). The following *Drosophilidae* which occur in Hawaii are illustrated in full color in this excellent volume: *Chymomyza procnemis* (Williston), *Drosophila ananassae* Doleschall, *D. mercatorum* Patterson & Wheeler, *D. melanogaster* Meigen and *D. hydei* Sturtevant.

## SEPTEMBER 13, 1943

The 453rd meeting was held at the H.S.P.A. Experiment Station on Monday, September 13, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Fullaway, Goolsby, Holdaway, Krauss, Look, Marlowe, Pemberton, Sakimura, Schmidt, Swezey, Tanada, Usinger, Williams and Zimmerman.

*Visitor:* T. C. Russell.

## PAPERS

Mr. Zimmerman, on behalf of Dr. R. A. Cushman, presented a paper entitled: "The Hawaiian Species of *Enicospilus* and *Abanchogastra* (Hymenoptera: Ichneumonidae)". Mr. Zimmerman also presented his own paper: "A Case of Bovine Auricular Myiasis and Some Ectoparasites New to Hawaii".

## NOTES AND EXHIBITIONS

*Argiope avara* Thorell—Mr. Swezey reported seeing a female of this spider on a web with two egg cocoons hanging to the electric wire near his place on Lanihuli Drive, Manoa. The spider has been scarce of late years on account of the ichneumonid, *Tromatobia rufipectus* (Cresson), feeding on its eggs.

*Cremastobombycia lantanella* Busck—Mr. Swezey reported having examined 110 mines of this moth in lantana leaves, August 23, 1943, in which 95 per cent of the larvae had been destroyed by parasites. Only three moth larvae were found, and two cocoons. A moth issued from one cocoon, and the eulophid parasite, (*Pseudopheliminus vagans* Timberlake), from the other, September 1.

*Ampulex compressa* (Fabr.)—Mr. Swezey reported some interesting observations on the New Caledonia cockroach wasp, made in the basement of his house. In one instance a female wasp was observed to enter a crack to an incompletely closed drawer to the workbench, and very quickly emerged again; then in a few moments returned with small bits of shavings in her mandibles. She was watched as she repeated this procedure half a dozen times in ten minutes. Then, on opening the drawer, an Australian cockroach was found behind an object in a corner of the drawer, where the wasp had attempted to enclose it by bits of shavings. An egg was found on the roach, which was then placed in a vial for the development of the parasite. The adult wasp issued in about six weeks. In another instance, an Australian cockroach was found in a small pasteboard carton among a pile of cartons. The roach seemed sluggish, and on examination was found to harbor a wasp larva on the ventral side of the thorax. The carton contained a mass of shredded paper used in packing. There was enough of a gap at one corner of the cover so that a wasp could enter, and it is inferred that she had found the roach already inside, and paralyzed it and oviposited on it right there, rather than dragged it in for seclusion.

*Truck garden pests*—Mr. Fullaway exhibited specimens of the onion leaf miner, *Acrolepia assectella* (Zeller), a plutellid moth new to the Territory. It was found in all the valleys back of Honolulu, as well as at Kailua, Oahu. Mr. Fullaway reported mites bad on Irish potatoes and yams, while the Mexican mealybug (*Phenacoccus gossypii* Towns. & Ckll.) was in heavy concentration on such crops as lima beans and eggplant.

*Acrolepia assectella* (Zeller)—Dr. Holdaway exhibited two cocoons of this onion moth collected by Walter Furuya in April 1939 on onion. Although the place record appears on the specimens as University campus, the material was probably collected at Kalihi, where Mr. Furuya had an experimental plat in which onions were being grown. This insect, identified by Mr. Swezey, has recently been the subject of study by Mr. Fullaway who found it on green bunching onions in Manoa Valley and other places in, or near, Honolulu. The specimens had been awaiting identification for some time and had remained unidentified until additional material was collected recently. The insect is recorded as a pest of onion and leek in Europe (Denmark, Germany and Russia). To date it appears not to be widespread in Hawaii, for Dr. Holdaway, who has just returned from a visit to Maui and Hawaii, stated that he had seen no evidence of it in the onion fields and plats he examined on those islands. However, except for the possible exception of one or two fields in Manoa, it does not seem to be serious yet.

*Tiphia segregata* Crawford—Mr. Sakimura reported that in the Kunia section of Oahu this parasite has been observed flying in

fairly large numbers among the wild growth immediately outside pineapple fields. Parasitized *Anomala* grubs have been found in pineapple fields, although a very small number of pupal shells were found there. The first case of parasitized *Anomala* was recently found (August 1943) among a lot of grubs dug from a Waipio pineapple field. Of 382 grubs, 25 (6.3 per cent) were parasitized. There was no parasitism by *Campsomeris marginella modesta* Smith among this material. These data show that *Tiphia* may operate in large numbers on *Anomala* grubs in pineapple fields under certain conditions.

*Graptostethus nigriceps* Stål—Mr. Sakimura said that general populations of this recently found lygaeid bug seem to have increased somewhat this season. During the summer of 1942 two individuals were caught in the wind traps at Kunia, while up to the present time this year more than 20 have been taken. Large numbers of the adults were observed feeding in the flowers of sweet potato and wild morning-glory in Kunia.

*Stictocephala festina* (Say)—Mr. Sakimura reported a very heavy infestation of this membracid on bush beans, which were badly damaged in a home garden under his observation. The insect showed a specific preference for this host; no other plants were attacked.

*Alphitobius diaperinus* (Panzer)—Mr. Zimmerman reported rearing this tenebrionid beetle from larvae found abundantly in the nests of English sparrows in Honolulu.

*New cockroach egg parasite from Honolulu*—Mr. Zimmerman presented the following: For a period of about two years I have had under observation the pretty little chalcid wasp recorded as a new immigrant *Metaphycus* by Mr. Pemberton (Proc. Haw. Ent. Soc., 11 (2): 139, 1942). I have found this parasite common over most parts of Honolulu, and had assumed from its habits that it was probably a cockroach parasite, in spite of the scale-infesting habits of its well known relative, *Metaphycus lounsburyi* (Howard). It is now possible to report that this elegant newcomer is an effective parasite of the oöthecae of the commonest household cockroach in Honolulu, *Supella supellectilium* (Serville). I have reared as many as 20-odd parasites from a single oötheca, and, at least in one locality, have found the rate of parasitism to be almost, or 100 per cent of, all oöthecae found. It is not known whether or not the parasite is host specific, but studies on the wasp are continuing, and further details as to its identity and habits will be forthcoming.

*Solenopsis geminata rufa* Jerdon—Mr. Pemberton reported this ant as killing tomato plants at Waialua, Oahu, by eating holes in the stems, chiefly underground.

OCTOBER 11, 1943

The 454th meeting was held at the H.S.P.A. Experiment Station on Monday, October 11, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Bianchi, Faxon, Fullaway, Holdaway, Hyslop, Look, Marlowe, Nishida, Pemberton, Rosa, Sakimura, Swezey, Usinger, Van Zwaluwenburg, Williams and Zimmerman.

*Visitors:* T. C. Russell and Capt. Franklin Sherman III.

## PAPER

Mr. Swezey presented a paper entitled: "Notes on *Zaischnopsis* sp., an Egg-parasite of *Holochlora japonica* in Hawaii".

## NOTES AND EXHIBITIONS

*Scholastes bimaculatus* Hendel—Mr. Swezey exhibited a large coconut which had been found to have hundreds of maggots of this ortolid fly in the husk, from the beach at Niu, Oahu, September 26, 1943. The nut had been caught in a barbed wire entanglement where, splashed by the waves, the husk had been softened and a good deal of its outer surface torn off. Maggots were somewhat yellowish in color when small, turning bluish when about full grown. They apparently fed on the moistened soft material between the fibers of the husk. There was no evidence of rotting. Maggots formed puparia in situ, though the nut was placed over sand in a jar, presuming that the maggots would issue and pupate in the sand.

Later note by Mr. Swezey: Later on, many maggots did issue from the husk and formed puparia in the sand beneath the coconut. Adult *Scholastes* began to issue on October 8 and records were kept daily. The bulk of them issued between October 20 and November 20, but there were a few scattering issues up to December 11. The total count was 1380, of which 42 per cent were females and 58 per cent males. They were constant in wing pattern, there being no variation that could approach a single unidentified specimen in the H.S.P.A. collection, collected in 1905, which differs from other specimens by having two distinct dark bars across the wings. It seems evident that this must be another species.

*Prohippелates pallidus* (Loew)—Mr. Swezey reported that this chloropid fly issued from the above coconut even more abundantly at first than *Scholastes* did.

*Synonymy of two Hawaiian moths*—Mr. Swezey called to attention that Corbett and Tams (*The Entomologist*, 76: 15, 1943) state that *Ephestia kuehniella* Zeller is a synonym of *Ephestia sericaria* (Scott), and that *Endrosis lactella* (Schiffermüller) is a synonym of *Endrosis sarcitrella* (Linn.).

*Hawaiiana wilsoni* (Rothschild)—Mr. Swezey called attention to the recent discovery in the literature, of a new genus, *Hawaiiana*, erected by Tutt (The Ent. Record and Journ. of Variation, 15:76, 1903). The genus was made for the Hawaiian Sphingidae which were described under *Deilephila* and later placed by Rothschild and Jordan in *Celerio*. Two species were known at the time: *wilsoni* and *calida* (Butler); a third species, *Celerio perkinsi* Swezey, was described later.

*Acrolepia assectella* (Zeller)—Mr. Swezey reported that he had received word from Dr. Muesebeck that Mr. Heinrich had confirmed the determination of the plutellid onion moth which was recently found attacking onion crops in Manoa Valley, as the above species. It is an onion pest in Europe, and also feeds on garlic, leeks and chives.

*Eumerus marginatus* Grimshaw and *E. aurifrons* (Wiedemann)—Mr. Swezey reported rearing these syrphid flies from maggots found in cassava root (*Manihot utilissima* Pohl) from Kailua, Oahu, July 21, 1943. Apparently the infestation had begun in a diseased portion of the root, and had worked on into the sound portion, causing it to rot. The first two flies to mature were *E. aurifrons*, appearing August 2 and 16. Most of the maggots were of the larger species, *E. marginatus*. They were full grown by September 10, and the flies matured before September 28. Fourteen issued and died before being noticed, as the tin they were in was not examined for several days.

*Parasites of tomato pin worm*—Mr. Fullaway reported that the parasites bred from *Keiferia lycopersicella* (Busck) had been identified by Dr. Muesebeck as *Hormius pallidipes* Ashmead\* and *Apanteles dignus* Muesebeck,\*\* both species being new records for Hawaii. Mr. Look reported that *Hormius* was first collected on October 10, 1942 at Waimanalo, Oahu, and later at Lualualei, Oahu on June 25, 1942. He stated that a third parasite reared from tomato pin worm has been identified by Dr. Muesebeck as *Chelonus blackburni* Cameron.

*Micromyzus formosanus* (Takahashi) on Maui—Mr. Fullaway reported finding the onion aphid at Olinda, Maui; this is a new island record for this species.

*Megachile gentilis* Cresson—Mr. Van Zwaluwenburg reported finding cells of this common megachilid bee under odd circumstances. Within an onion leaf which had been perforated by either a *Heliothis* or a *Lathygma exigua* (Hübner) larva, four cells of the bee were found on August 17 at Waipio substation. The leaf material from which the cells were made was not identified. The first bee emerged September 23-24. This species is better known

\* Described from Maryland in Trans. Amer. Ent. Soc., 20: 42, 1893.

\*\* Described from California in Proc. Ent. Soc. Washington, 40(7): 203, 1938.

locally as *Megachile palmarum* Perkins, a synonym. The identification was made by Dr. Williams.

*Corizus hyalinus* (Fabr.)—Mr. Van Zwaluwenburg presented the following notes on this coreid bug: Nymphs and adults were confined in large glass tubes and each day given fresh pieces of *Sonchus oleraceus* Linn., bearing blossoms or buds, on which they fed readily. When *Emilia sonchifolia* De Candolle or *Euphorbia* spp. were substituted, no feeding on these plants was observed. Egg-laying was confined mainly to the buds, but sometimes occurred on the petioles. The eggs, attached by a very short pedicel, were laid in clusters of from one to 18, with an average of 4.4 eggs per cluster. All eggs, without exception, hatched.

The egg stage required about 125 hours at an average mean temperature of 78.2 degrees Fahrenheit. The five instars from hatching to adult required a total of 15 to 16 days. Oviposition first took place between 72 and 78 hours after attaining the adult stage. One laboratory-bred female lived 35 days in captivity, and, ovipositing on each of 32 consecutive days, laid a total of 387 eggs (averaging 12 eggs per day of laying). A field-collected female lived 27 days in captivity (then escaped) and laid 350 eggs; she failed to produce even one egg on only three days of the entire period. A field-collected male survived for 41 days. Laboratory-bred females mated when three days old (at which time males first became available) and continued to mate daily until within a day of death.

Dr. P. A. Readio (Ann. Ent. Soc. America, 21: 187-201, 1928) working in Kansas with this species, reared it readily on *Lactuca scariola* Linn. Temperatures during this period were somewhat higher than those during observations in Honolulu, reaching the nineties and upper eighties at mid-day, whereas here they seldom exceeded 85 degrees Fahrenheit. Comparisons between Readio's results and those obtained here are interesting:

	Kansas	Honolulu
Preoviposition period .....	3-4 days	3 + days
Egg stage .....	6-7 "	5.2 "
Hatching to adult .....	9-11 "	15-16 "
Adult to adult .....	17*"	23-24 "

The maximum survival of laboratory-bred females recorded by Readio was 50 days, with a maximum of 558 eggs laid.

*Apanteles marginiventris* (Cresson)—Mr. Pemberton reported finding a cocoon of this armyworm parasite on a blade of grass at Wailua, Kauai on September 23, 1943. The cocoon later produced a normal female. This is the first evidence of the establishment of this braconid on the island of Kauai, where liberations were made during January and February 1943. The recovery was made at

\* Minimum.

least a mile from any point where liberations were made. The parasite was introduced into Hawaii from Brownsville, Texas, by F. A. Bianchi during 1942-43.

*Mosquitoes developing in brackish water*—Mr. Pemberton mentioned receiving about two gallons of water taken from wells in the coral plain at Ewa, Oahu, by Capt. Franklin Sherman III, which contained large numbers of larvae of *Culex quinquefasciatus* Say, as well as many of *Aedes albopictus* (Skuse). Analysis of this water by the chemistry department, Experiment Station, H.S.P.A., showed a salt concentration (mostly sodium chloride) of 2992 mg. per liter. All stages of larvae were present, together with pupae. Normal appearing adults began hatching within 24 hours.

*Mites and thrips on asparagus*—Severe injury, probably by the common red spider and *Thrips tabaci* Lindeman, was reported by Mr. Sakimura on a large commercial planting of asparagus at Waipahu. Many brown areas were scattered among the older plantings, and populations of both mites and thrips were extremely high there. Two predaceous thrips, *Aelothrips fasciatus* (Linn.) and *Scolothrips sexmaculatus* (Pergande), were vigorously preying upon them, and the former species especially, was unusually abundant. This is the first record of *A. fasciatus* on Oahu. The common *Frankliniella* sp. was also present on the plants, but was not noticeably abundant.

*Hercothrips fasciatus* (Pergande)—Mr. Sakimura reported that this notorious thrips was not found among Kauai material collected by Mr. Nishida during August. A special effort was made to detect this species at various localities, but it could not be found. This thrips was also absent from an extensive, systematic collection, still in progress, made on the leeward side of Oahu, especially at Waipahu, Manoa and Waialae. This species therefore does not seem to have become established as yet on Kauai or Oahu.

#### NOVEMBER 8, 1943

The 455th meeting was held at the H.S.P.A. Experiment Station on Monday, November 8, at 2:00 p.m., with Vice-president Fullaway in the chair.

*Members present:* Messrs. Bianchi, Fullaway, Krauss, Look, Nishida, Pemberton, Rosa, Sakimura, Schmidt, Swezey, Van Zwaluwenburg and Zimmerman.

*Visitors:* Ensigns Harry P. Chandler and H. E. Graham; T. C. Russell, and Capt. Franklin Sherman III.

The name of Mr. Kenneth Murakami was proposed for membership in the Society.

#### PAPERS

The following papers were presented: "Thrips from Maui and Molokai", by Messrs. Sakimura and Krauss; "Heteroptera of Can-



ton Island", by Dr. Usinger; and "Description of a New Mymarid Egg Parasite Collected at Los Mochis, Sinaloa, Mexico", by Mr. Fullaway.

#### NOTES AND EXHIBITIONS

*Apanteles marginiventris* (Cresson)—Mr. Pemberton reported on the spread of this armyworm parasite on the island of Kauai. On November 4 he found, without difficulty, cocoons of this parasite attached to grass at Kilauea Plantation Company, and reared the adult from one of the cocoons the following day. By direct line this is about 20 miles from any point on the island where liberations were made eight months previously. A cocoon of this parasite was also found on a grass blade at Olokele Sugar Company on November 5, which was approximately 25 miles from the nearest point of liberation. The spread of this braconid is of exceptional interest because of the great scarcity of its host during the entire period since the original liberations were made.

*Mosquitoes on inter-island planes*—Mr. Pemberton commented on the ineffectiveness of control methods adopted by the Hawaiian Airlines Ltd., in the prevention of mosquitoes moving from Oahu to other islands on their passenger airplanes. On three trips which he made during October and November, living mosquitoes were captured by him on planes while in flight, from 10 to 20 minutes after the planes had been sprayed with the widely-used "aerosol bomb". The spray is pyrethrum extract suspended in "freon" gas. It appeared that the failure to kill resulted from an insufficient liberation of gas or spray. Operators in each case allowed the gas to escape for only seven seconds at most. All living mosquitoes caught were *Culex quinquefasciatus* Say.

*Technomyrmex albipes* (F. Smith)—Mr. Pemberton discussed the prevalence of colonies of this ant in tightly curled leaves of the litchi tree (*Litchi chinensis* Sonn.) at Waiakea, Hawaii, which he found on October 20. In each case the occupied leaves were heavily infested with the litchi mite, *Eriophyes litchii* Keifer,\* and curled and deformed through this infestation. Entire colonies of the ant occurred in the leaves.

*Cardiocondyla emeryi* Forel—Mr. Swezey reported having a recent letter from Dr. M. R. Smith of the U.S. National Museum, in which he had determined as *emeryi* some specimens among other specimens of *Cardiocondyla* which had been sent him for study. In fact, there were more of this species in the lot than there were of the other species of *Cardiocondyla* known here. Apparently *emeryi* has been in Hawaii for some time; however, when Dr. Wheeler looked over ant collections here in 1930, he did not note any specimens of *emeryi*.

\* Described in "Eriophyid Studies XIII", Bull. Cal. Dept. Agr., 32(3): 212, pl. 171, July-Sept. 1943. This species was until now apparently misidentified under the name *Eriophyes chinensis* Trotter (Bull. Soc. ent. France, 1900: 180).

*Iridomyrmex humilis* Mayr—Mr. Fullaway said that the area now occupied by the Argentine ant measured about one-quarter by one-half mile, and was still confined to the military reservation on which it was first found here in 1940.

*Taeniothrips xanthius* (Williams)—Mr. Sakimura reported that this thrips was recently found to be breeding freely on leaves of *Asystasia gangetica* (Linn.) (family Acanthaceae) growing under benches of an orchid house in Manoa. Orchids, especially *Cypripedium*, in this house have been seriously injured. Contact sprays consisting of nicotine sulfate and "loro" have been used, but thrips persisted in spite of spraying. It is now evident that persistence was due to the presence within the orchid house of an alternative host plant. Keeping orchid houses free from *Asystasia* is evidently necessary for control of this thrips, which is one of the most injurious insect pests of orchids in Hawaii. Careful search on various weeds within the orchid house, and also on *Asystasia* growing immediately outside, did not reveal the presence of this thrips. It also failed to establish itself on several other species of plants under experimental conditions. Its extremely narrow host range indicates that dissemination from one orchid house to another occurs when orchid plants are transferred, but for survival within the house it probably depends on *Asystasia* in addition to orchids. This thrips has been known to be very injurious in the West Indies, eastern United States and Brazil, but no alternative host has been recorded, and it has been thought to be a specific feeder on orchids. It was once collected from insect galls on a plant other than orchids in Florida. This thrips has been known in Hawaii since 1935.

*Cryptoblabes aliena* Swezey—Mr. Krauss reported that larvae of this phycitid moth were found feeding on berries of the Christmas berry tree, *Schinus terebinthifolius* Raddi, in Manoa Valley, Honolulu, during September. The insect was causing an unsightly webbing in the clusters of ornamental berries.

*Latrodectus mactans* var. *hesperus* Chamberlin & Ivie—Mr. Krauss reported that specimens of this variety of the black widow spider were collected in south central Molokai on May 31, 1943. This variety is the one found in California and other western states. *Latrodectus geometricus* Koch was taken in the same area on the same date. The specimens were determined by Prof. R. V. Chamberlin.

*Thecla echeion* (Linn.)—Mr. Bianchi exhibited two small chili peppers which had been thoroughly destroyed in a Honolulu garden by caterpillars of this species, which were now in the pupal stage. This provides a new host record for the caterpillar, which has previously been reported from eggplant and other solanaceous plants, but not from pepper.

## DECEMBER 13, 1943

The 456th meeting was held at the H.S.P.A. Experiment Station on Monday, December 13, at 2:00 p.m., with President Holdaway in the chair.

*Members present:* Messrs. Bianchi, Carter, Faxon, Fullaway, Holdaway, Ito, Krauss, Look, Marlowe, McBride, McPhail, Nishida, Pemberton, Sakimura, Schmidt, Swezey, Tanada, Van Zwaluwenburg, Williams and Zimmerman.

*Visitors:* Wm. Craft, S. S. Ristich and T. C. Russell.

Mr. Kenneth Murakami was elected to membership; Mr. Zimmerman proposed the name of Mr. Wm. Craft for membership in the Society. On motion of Dr. Schmidt it was unanimously voted to instruct the Secretary to send a letter of thanks to the Hawaiian Sugar Planters' Association for financing the publication of the Society's Proceedings for 1942.

This being the annual meeting, a slate of officers to serve during the coming year was presented by the executive committee. There being no nominations from the floor, the slate was accepted and the following officers unanimously elected:

President.....	Richard Faxon
Vice president.....	N. L. H. Krauss
Secretary-treasurer.....	Dr. F. X. Williams
Additional members of executive committee.....	
.....	M. McPhail and Dr. C. T. Schmidt

## PAPERS

The following papers were presented: "Notes on Insects and Other Arthropods from the Islands of Molokai and Maui, Hawaii", by Mr. Krauss; "Thrips from Kauai", by K. Sakimura and T. Nishida; "Nesothrips Kirkaldy Supersedes Oedemothrips Bagnall", by Mr. Bianchi; and "Biological Studies in Hawaiian Water-loving Insects, Parts III D, IV and V", by Dr. Williams. Mr. Zimmerman presented two papers entitled: "Pembertonia, a New Genus of Papuan Cossoninae (Coleoptera, Curculionidae)" and "Two New Amblycnemus from Larat Island (Coleoptera, Curculionidae)".

## NOTES AND EXHIBITIONS

*Zaischnopsis* sp.—Mr. Swezey reported having reared 13 of these parasites from an egg cluster of *Holochlora japonica* (Bruner) eggs in an hibiscus twig collected in his garden on Lanihuli Drive, October 12, 1943. The parasites issued one to three per day over a period of 40 days from Oct. 18 to Nov. 29.

*Ephestia sericaria* (Scott)—Mr. Swezey exhibited a specimen of the Mediterranean flour moth which he had reared from a pecan nut December 13, 1943. An occasional infested nut was found in a pound of nuts obtained at a local fruit store. In each case, the nut was somewhat cracked allowing for the entrance of the small larva.

*Eucelatoria armigera* (Coq.)—Mr. Pemberton, commenting on Mr. Krauss' finding of this tachinid fly at Olinda, Maui on June 12 (see p. 89), spoke of the importance of this recovery and stated that adults of the fly were reared at the H.S.P.A. Experiment Station by Mr. Van Zwaliwenburg, and sent to Puunene, Maui on February 28 and March 8, 1943. These were liberated at Hawaiian Commercial and Sugar Company, Ltd. Since this conspicuous fly has never been previously collected on Maui, it is probable that its establishment on that island is the result of the introduction early this year.

*Eriosoma lanigerum* (Hausmann)—Mr. Look exhibited specimens of an aphid, apparently the wooly apple aphid. They were collected alive from a green apple (Newtown pippin) on November 22, 1943. Fifteen apterous adults and nymphs were found breeding in the core. No alates were present. The apple, which was imported apparently from the west coast, was bought in the local market in November. Mr. Pemberton stated that during a visit to Keanakolu, Hawaii, on October 27, 1943, he observed an abundance of this aphid on old apple trees. This is at an elevation of about 4500 feet. Mr. Fullaway remarked that this aphid has long been known in Hawaii on apple trees.

*Some new host records*—Mr. Nishida reported the following instances of new food plant records: On May 9, 1943 loopers were collected from lettuce seedlings grown in the Hawaii Experiment Station greenhouse. Upon rearing, it was found that these were *Autographa brassicae* (Riley) instead of *Plusia chalcites* (Esper). This is of interest because *A. brassicae* is commonly associated with cabbage, or plants closely related to it.

On September 1, 1943 *Conocephalus saltator* (Saussure) was observed on green beans at Waimea, Kauai. Several of these grasshoppers were observed feeding on the blossoms. It was not possible to ascertain whether the feeding had any detrimental effect on the yield, because it appeared that the grasshoppers fed primarily on the corolla; the pistils and stamens were apparently uninjured. On December 1, 1943, a heavy infestation of *Coccus viridis* (Green) was observed in a small celery patch on South Street, Honolulu. The scales were observed on both the petiole and leaf.

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President Holdaway then delivered his presidential address entitled: "Insects of Vegetable Crops in Hawaii Today". His introductory remarks were as follow:

The meeting today—the 456th meeting of the Entomological Society—is the 38th annual meeting. I am very conscious of the honor bestowed on me by the Society in asking me to be its President during the past year, an honor which is greater because of the upheaval in world affairs through which we are passing and the important part that our science is playing in helping the survival of this nation and her allies.

In spite of the war our Society has continued to meet regularly as in the past; not a single meeting has been missed. Because of this the Society holds a unique place among the scientific bodies of the Territory. Moreover, attendance at meetings has been maintained at a high level, and many valuable observations and contributions have been made available for the mutual benefit of ourselves and our fellow workers elsewhere.

We have been pleased to welcome several visiting entomologists and others interested in entomology at our meetings. While the war has brought in its train certain restrictions of personal liberties, it has also brought to our midst many entomological workers whom we have been pleased to have with us.

In recent years many insects not formerly present in the Territory have been discovered here and some, formerly of insignificance, have become important. The list of common names proposed by the Society in 1913 has thus been inadequate for the needs of entomological workers and agriculturists of today. In 1939 the Society appointed a committee consisting of D. T. Fullaway, F. G. Holdaway, O. H. Swezey and E. C. Zimmerman to compile a new list of common names adequate to the needs of the day, and, in the light of present knowledge, accurate as regards technical names. The committee had brought its studies to an advanced stage when the war hit us, and active work on the list had to be discontinued for a time. The need for public and popular dissemination of information on insects has, however, become even more necessary than in the past. In March 1943 the committee made its tentative list available in mimeographed form to entomological workers and other interested persons. Throughout the year the committee has continued to work on the list, revising, correcting and adding. Almost every technical name, authority and common name has been the subject of special and detailed study. The committee has appreciated the assistance given by several members of the Society who have contributed their time and specialized experience towards making the list as complete and accurate as possible in the light of present knowledge. The list, which now contains 330 names, is ready for final approval by the Society. I hope that the incoming executive committee will see its way clear to publishing the list in three different arrangements, with the common name first, with the technical name first, and according to orders.