

**P R O C E E D I N G S**  
*of the* **H A W A I I A N**  
**ENTOMOLOGICAL**  
**SOCIETY** *for* **1967**

**VOL. XX, No. 1**  
**June, 1968**



## Suggestions for Manuscripts

Manuscripts should be typewritten on one side of 8-1/2 × 11 white bond paper. Double space all text including tables. Margin should be a minimum of 1 inch. One original and 1 copy should be sent to the editor.

Pages should be numbered consecutively as well as footnotes, figures and tables. Place footnotes at the bottom of the manuscript page on which they appear with a dividing line. Place tables appearing in the manuscript separately at the back of the manuscript with a circled notation in the margin of the manuscript as to approximately where you wish them to appear.

Illustrations should be planned to fit the type page of 4-1/2 × 7 inches. The originals should be drawn to allow at least 1/2 reduction. It is preferred that original art work be reduced for reshotting by a line drawing velox process as supplied by a graphic arts plant to a size approximating 9 inches × 14 inches for submission to the editor. Photographs and graphs should be at least 8 × 10 inches. Original art work, however, is acceptable. Graphs and figures should be drawn in India ink on white paper, tracing cloth or light blue cross-hatched paper. Submit a 2nd copy of all art work.

Proofs should be corrected as soon as received and returned to the editor with the abstract on the forms provided. Additional costs to the Society for correction of authors' changes in proofs may be charged to the authors. An order for reprints should be placed when proofs are returned.

Fifty gratis copies of reprints will be supplied by the Society to authors under certain circumstances.

Examination of articles in this issue will help in conforming to the style of presentation desired. Many helpful hints are found in *Style Manual for Biological Journals* prepared by the Committee on Forms and Style of the Conference of Biological Editors available from the American Institute of Biological Sciences, 3900 Wisconsin Avenue N. W., Washington, D. C., 20016.

P R O C E E D I N G S  
o f t h e  
H a w a i i a n E n t o m o l o g i c a l S o c i e t y

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VOL. XX, No. 1

FOR THE YEAR 1967

JULY, 1968

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J A N U A R Y

The 733rd meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 10 January 1967 in Agee Hall, HSPA Experiment Station.

Members present: Ashlock, Barrett, Bianchi, Clagg, Chong, Davis, Delfinado, Funasaki, Gressit, Haramoto, Hardy, Hirashima, Holway, Jackson, Joyce, Kajiwara, Krauss, LaPlante, Look, Mitchell, Nakata, Park, Pemberton, Saigusa, Sherman, Shiroma, Steffan, Steiner, Suehiro, Suger- man, Tamashiro, Vockeroth, Wilson, Woolford, Yates and Yoshimoto.

Visitors: H. M. Steiner, J. L. McDonald and Gary G. Smith.

Announcements: Committee selections were announced by President Tamashiro as follows: Executive Committee—Tamashiro, Bianchi, Suger- man, Haramoto, Quate and Yoshimoto; Editorial Committee—LaPlante (Editor), Mitchell, Davis, Steffan and Kajiwara; Finance Committee— Namba (Chairman), Haramoto, LaPlante and Shiroma; Program Com- mittee-Bess; Science Fair Committee—Voss (Chairman), Park and Higa; ISSEC Committee—Mitchell, and Haramoto (Alternate).

Nomination of new members: Mr. Gary G. Smith was nominated for membership.

Election of new members: Mr. Julian Yates, Mr. Gerald Takei, Mr. Roy Furumizo, Mr. Warren Fujii and Mr. Dick S. Jackson were unani- mously elected to membership.

Commendations: It was announced that Dr. Loren F. Steiner was given the J. Everett Bussart Memorial Award consisting of a plaque and \$1,000 at the recent meeting of the Entomological Society of America in Portland, Oregon. He was chosen for the award by the Society for his pioneering research on the annihilation of male insects by chemical lures.

A motion was passed commending Dr. LaPlante for the wonderful job he has done on editing the Proceedings of the Hawaiian Entomological Society.

N O T E S A N D E X H I B I T I O N S

**Pachylister lutarius** Erichson: An adult of this histerid, 7 mm long, was collected in cow dung at Honouliuli, Oahu on 25 February 1966.

The identification was made by Rupert L. Wenzel, Field Museum of Natural History, Chicago. This was the first recovery of this beetle which was introduced by the State Department of Agriculture from Ceylon in 1958 for control of the horn fly, *Haematobia irritans* (L.). Note presented by Mr. N. L. H. Krauss.

**Schistocerca vaga** (Scudder): During 14 months of rearing the vagrant grasshopper, *S. vaga* for biological control, this is the 1st instance where a 4th-stage nymph was found dead on the floor of the cage with 6 roundworms issuing from the thorax or coiled close by the dead grasshopper. In another cage another nymph was found with 2 roundworms issuing from the neck. Note presented by Mr. N. L. H. Krauss for Mr. Sung Hin Au.

**Malaria in Guam:** There is good evidence that introduced autochthonous malaria occurred in Guam during 1966. Two cases of *Plasmodium falciparum* malaria were diagnosed in U. S. Army personnel who were on leave from Vietnam at their homes in Dededo. On the 5th and 8th of November, 2 Guamanians who had never been away from Guam or Rota were also admitted to the Naval Hospital with a diagnosis of *P. falciparum* malaria. One of these also lived in Dededo within a block of the homes of the 2 army men on leave from Vietnam.

During 1966, 2 other cases occurred in Guam which could not be traced to an outside origin. However, since these could not be associated with other cases through epidemiological investigation they must be classified as cryptic. Both were living on ships in the Apra Harbor area and 1 was in close proximity to a Vietnamese ship undergoing repairs.

Authorities in Guam have been warned since 1948 of the possibility that malaria might be introduced. However, there is still no authentic record of *Anopheles subpictus indefinitus* biting man naturally in Guam. Light trap and larval collections have not as yet shown that any other species is present. It is reasonable to expect that *A. subpictus* would produce man-biting tendencies over a period of 20 years, particularly in residential areas such as Dededo and Apra Harbor where animals are not common. Note presented by Captain Holway.

**Culex annulirostris marinae** and **Aedomyia catastica:** During December, over 100 *Culex annulirostris marinae* in 2 nights were taken in man-biting collections in Guam. This is the 1st record of this species biting man in such significant numbers. Larvae of *Aedomyia catastica* were collected for the 1st time in Guam from a grassy, roadside pasture pool. Notes presented by Captain Holway.

**Asteia** sp. n.: A specimen of a minute fly of the family Asteiidae was taken in a mosquito light trap operated at the U. S. Public Health Service Quarantine Station, 591 Ala Moana Blvd., Honolulu, Hawaii on 18 July 1966. The specimen was sent to Dr. C. W. Sabrosky for determination. He states that it is clearly a new species, unlike anything known from the whole Pacific area. Note presented by Dr. C. R. Joyce.

**Graphomya maculata** (Scop.): A single specimen of this muscoid fly was taken near the Hilo, Hawaii airport on 6 December 1966. The fly had been captured by a jumping spider. It represents the first record for this fly from the island of Hawaii being previously reported from the islands of Oahu and Maui. Note presented by Dr. C. R. Joyce.

**Releases of beneficial insects:** The Department of Agriculture recently approved the release of 2 species of beneficial insects to aid in the control of *Schistocerca vaga* (Scudder), the vagrant grasshopper. The 1st of these is *Trox procerus* (Harold), family Trogidae, a predator of grasshopper eggs and was imported from Bangalore, India. On 28 November 1966 a total of 26 adults was released on Sand Island, Oahu. The other beneficial species recently released is a sarcophagid fly, *Blaesoxipha lineata* Fallen, a parasite of the last instar and young adult of *Schistocerca vaga*. A shipment containing 35 puparia and 255 larvae was sent from Moorestown, New Jersey on 16 November 1966. The 1st release of 14 adults was made on Sand Island on 6 January 1967. This fly is a native of southern France where it is known to be a parasite of *Locusta migratoria* L. Note presented by Miss M. Chong.

**Xylosandrus compactus** (Eichhoff), **Microlarynus lypriformis** (Wollaston) and **Hypena strigata** (Fabr.): The insidious pest commonly known as the black or coffee twig borer was discovered by Y. Seigas, a nurseryman on the University Experimental Farm, Waiakea Branch, Hilo, Hawaii on or about 21 December 1966. Specimens were confirmed by Miss Mabel Chong, State Department of Agriculture. With the cooperation of University, State and Federal personnel, a total of 29 infested plants was recorded and, of these, 20 were confirmed hosts. These were as follows: custard apple, *Annona reticulata*; mountain soursop, *A. montana*; soursop, *A. muricata*; sugar apple, *A. squamosa*; cherimoya, *A. cherimola*; *Olmedella betscheriana*; hibiscus, *Hibiscus rosa-sinensis*; Australian blackwood, *Acacia melanoxylon*; tropical ash, *Fraxinus* sp.; Tahitian chestnut, *Incarpus edulis*; cacao, *Theobroma cacao*; copalchi, *Croton reflexifolius*; laurel, *Cordia alliodora*; *Byrsonima crassifolia*; Norfolk Island pine, *Araucaria heterophylla*; mamake, *Pipturus* sp.; beauty cherry, *Callicarpa* sp.; melochia, *Melochia umbellatum*; Governors plum, *Flacourtia indica*; and Spanish lime, *Melicocca bijuga*. Hosts pending confirmation include: *Olmedella betscheriana*; inga, *Inga paterno*; white sapote, *Casimiroa edulis*; santol *Sandoricum koetjape*; mango, *Mangifera indica*; mock orange, *Murraya exotica*; eucalyptus, *Eucalyptus saligna*; sapucaia, *Lecythis zabucajo*; and Spanish plum, *Jacote* sp. (?). *Microlarynus lypriformis* (Wollaston), the introduced puncture vine stem weevil, has bridged the ocean gap to Hawaii where it is firmly established at Kawaihae on *Tribulus cistoides*, locally known as nohu. *M. lypriformis* was purposely introduced and liberated on Kauai in 1963, Oahu and Maui in 1964 and successfully bridged the ocean gap to Molokai some time in 1965 and Kamiloa, Lanai, and Kawaihae, Hawaii some time during 1966.

It was first reported from Lanai and Hawaii in November and December respectively. The lantana defoliator caterpillar, *Hyphenia strigata*, was very active in December between Ulupalakua and Auwahi, Maui causing about 75-90% defoliation to approximately 5,000 acres of lantana. Notes presented by Mr. C. J. Davis.

**Xylocopa sonorina** F. Smith: A large piece of redwood which had been cut to show the tunneling habits and the rearing cells of the larvae of the Sonoran carpenter bee was exhibited. The piece of redwood had been collected from Foster Village, Oahu. Exhibit by Mr. C. F. Clagg.

Program: Dr. W. C. Mitchell gave informative comments on the Entomological Society of America meetings at Portland.

#### FEBRUARY

The 734th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 14 February 1967 in Agee Hall, HSPA Experiment Station.

Members present: Andersen, Au, Barrett, Bianchi, Bess, Davis, Fluker, Fujii, Gressitt, Hale, Haramoto, Hardy, Harris, Huang, Huddleston, Ikeda, Jackson, Kajiwara, Kim, Krauss, LaPlante, Look, Nakao, Nakata, Nishida, Park, Pemberton, Shiroma, Steiner, Suehiro, Sugerman, Tamashiro, Tenorio, Thistle, Yates, Yoshimoto and Strandtmann.

Visitors: Ali Navvab-Gojrati, Nelson M. Esquerra, F. R. Holbrook, Dan T. Nishimura, Ted Kimura, Daniel J. Aoro and Mr. Bertram Gross.

New business: It was moved, seconded and approved by the Society to purchase and install shelves for the storage of old copies of the proceedings at the Bishop Museum. The estimated cost, including labor and materials, is \$194.00.

The preliminary list of the Common Names of Hawaiian Insects was accepted by the Society as proposed by the committee with a reservation open to a provision for future amendments. The committee received the wholehearted thanks of the Society for a job well done.

Nomination of new members: Dr. F. R. Holbrook, Mr. Nelson Esquerra and Mr. Ali Navvab-Gojrati were nominated for membership.

Election of new members: Mr. Gary E. Smith was unanimously elected to membership.

Election of honorary members: Mr. N. L. H. Krauss was elected to honorary membership.

#### NOTES AND EXHIBITIONS

**Cryptochaetum iceryae** (Williston): This well-known fly parasite was caught in a light trap in Honolulu, Oahu in July 1966 by Dr. J. W. Beardsley. Since that time 8 specimens have been reared from the cottony-cushion scale, *Icerya purchasi* Mask., which were collected during December 1966 and emerged in January 1967 on the Manoa Campus of the University

of Hawaii. Several apparently infested scales have been observed on the Manoa Campus, however, none have been found in other areas of Oahu. Four specimens were sent to the U. S. National Museum and George Steyskol confirmed our identification of this specimen as *Cryptochetum iceryae* (Williston). Note by Mr. D. Hale.

**Pheidole javana** Mayr, **Strumigenis rogeri** Emery and **Solenopsis (Diplorhoptum)** sp.: Three species of ants never reported from the Hawaiian Islands have been identified by D. R. Smith, USDA, Beltsville, Maryland. *Pheidole javana* Mayr, a species distributed throughout Southeast Asia and the Pacific, has been collected in upper Manoa Valley, Honolulu and around Hilo on the island of Hawaii. *Strumigenis rogeri* Emery was collected 21 November 1966 at the University of Hawaii Arboretum in upper Manoa Valley. It was found in a dead, bored, sugar cane stalk in a volunteer stand. This insect is distributed throughout the tropics and is found on other Pacific islands. A new subgenus of *Solenopsis* (*Diplorhoptum*) was collected in the Woodlawn area of upper Manoa Valley by Dr. Pete Bellinger on 25 September 1966 and by Dr. Huddleston at the exact location and on the same day that *Strumigenys rogeri* was collected. Members of the subgenus *Diplorhoptum* are small, monomorphic insects closely resembling the genus *Monomorium*, but can be distinguished by the 10-segmented antennae. A species determination was not made. Notes presented by Dr. E. W. Huddleston and Mr. S. S. Fluker.

**Sphenophorus venatus vestitus** Chittenden: Specimens of the hunting billbug collected from Honolulu, Oahu and the Kahua Ranch, Kohala on the island of Hawaii, were submitted to Mrs. P. Vaurie of the American Museum of Natural History. She reported that she had "examined the specimens and compared them with our series from other localities and find that they are all *Sphenophorus venatus vestitus* Chittenden. Individual specimens vary somewhat, as do most *Sphenophorus*, but they are the same species and subspecies. This subspecies differs from the others by having the punctures on the raised vittae of the pronotum minute in comparison with the punctures in between. Some have a yellowish, some a grayish coating and some are shining red. In 1961 my husband and I found this subspecies—one specimen only—on the island of Martinique in the Lesser Antilles, and it was recently found on the peninsula of Yucatan. It seems to be quite a wanderer—probably gets there in roots I suppose. Another of this genus is now a pest of lawns in California." Note presented by Dr. A. A. LaPlante.

**Cryptolestes pusillus** (Schönherr): The flat grain beetle is synonymous with *Laemophalaeus minutus* (Olivier) and has been previously collected in Honolulu under the name of *L. minutus*. Note presented by Dr. A. A. LaPlante.

**Trinoton querquidule** (L.) and **Anysis alcocki** (Ashmead); Nymphs and adults of the large duck louse, *T. querquidule*, were found on the native



Koloa duck and on the immigrant pintail duck in Lihue, Kauai on 3 January 1967 by J. Swedberg, Fish and Game biologist. This constitutes a new insect record for the State. Light numbers of adults of *A. alcocki*, a pteromalid wasp, were reared from the barnacle scale, *Ceroplastes cirripediformis*, collected from Sand Island, Oahu. This is the first recovery of this beneficial wasp since its introduction from the Philippines in 1964 to aid in the control of wax scales. Presented for Miss M. Chong by Mr. C. J. Davis.

Program: Mr. Bertram Gross gave informative comments on rodents and pesticides.

### MARCH

The 735th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 14 March 1967 in Agee Hall, HSPA Experiment Station.

Members present: Au, Barrett, Bess, Bianchi, Bryan, Clagg, Chong, Davis, Esquerra, Fluker, W. Fujii, Funasaki, Gressitt, Hale, Haramoto, Harris, Hirashima, Holbrook, Holway, Huang, Huddleston, Jackson, Keck, LaPlante, Look, Mitchell, Morrill, Nakata, Namba, Nishida, Park, Pemberton, Shiroma, Smith, Steffan, Steiner, Strandtmann, Suehiro, Sugerman, Tamashiro, Tenorio, Vockeroth, Wilson, Woolford and Yoshimoto.

Visitors: Matsuko Arakaki, Eileen Garrett, Linda Reineccios, Ipeei Sakakibara and Grace Thompson.

Election of new members: Dr. F. R. Holbrook, Mr. Nelson Esquerra and Mr. Ali Navvab-Gojrati were unanimously elected to membership.

Election to honorary membership: Mr. H. A. Woolford was elected to honorary membership.

### NOTES AND EXHIBITIONS

The *Pacific Entomologist Newsletter*, Vol. 1, No. 1, a publication of the Pacific Scientific Information Center, Bishop Museum, was distributed by Mr. Bryan.

**Hysteroneura setariae** (Thos.): On 2 January, a single sugar cane tassel had been found heavily infested with the aphid, *H. setariae*, at Kailua, Oahu. The insect is known as a vector of sugarcane and cucumber mosaic viruses on the mainland, but it had been previously found in Hawaii only on wiregrass, *Elyusine indica* (L.) Goertner, at Ewa, Oahu during September 1961 (Proc. Hawaiian Entomol. Soc. **18**:21. 1962). Determination of the species was made in both instances by Miss L. M. Russell, USDA, Washington, D. C. Note presented by Mr. F. L. Bianchi.

**Polyphagotarsonemus latus** Banks: A heavy infestation of the broad mite, *P. latus*, caused considerable injury to macadamia flowers in scattered areas of the Royal Hawaiian Macadamia Nut Co. orchard in



Hilo, Hawaii earlier this month. Brownish feeding injury was much in evidence. This is believed to be the 1st known occurrence of the broad mite attacking macadamia flowers in Hawaii. Determination by Dr. F. Haramoto. Presented by G. Funasaki for E. Yoshioka.

**Xylosandrus compactus** (Eichhoff): On the island of Hawaii, coffee, *Coffea arabica*, was found infested for the first time by the black twig borer on a residential property in Hilo during the week ending 24 February. Also, *Epicattleya*, *Dendrobium*, and *Epidendrum* orchid plants were found infested in a plant nursery in Hilo during the first 2 weeks of this month. This is the 1st record of these borers attacking orchids in Hawaii. Presented by G. Funasaki for E. Yoshioka.

**Xylosandrus compactus** (Eichhoff): A medium to heavy infestation of the black twig borer was found on mountain apple, *Eugenia malaccensis*, and light infestations were found on hau, *Hibiscus tiliaceus*; Christmas berry, *Schinus terebinthifolius*; undetermined ginger plant; and coffee, *Coffea arabica*; in upper Manoa Valley, Oahu on 8 March 1967. This is the 1st known report of coffee being attacked in Oahu. Mountain apple, hau and Christmas berry are new host records for the State. Presented by C. J. Davis.

Program: Dr. R. W. Strandtmann gave a talk on the mites of Antarctica.

#### APRIL

The 736th meeting of the Hawaiian Entomological Society was called to order by Dr. W. C. Mitchell, substituting for President Tamashiro, at 2:00 PM, 18 April 1967 in Agee Hall, HSPA Experiment Station.

Members present: Bess, Clagg, Chong, Fluker, W. Fujii, Funasaki, Hale, Haramoto, Hardy, Hart, Higa, Hirashima, Huddleston, Johnson, Joyce, Keenan, LaPlante, Look, Mitchell, Namba, Navvab-Gojrati, Park, Pemberton, Sherman, Smith, Strandtmann, Suehiro, Sugerman, Takei, Tenorio, Thistle, Vockeroth and Woolford.

Visitors: A. J. Berger, Eileen Garrett, Marie Sadlacek and various trainees in plant quarantine procedures from Samoa and other islands of the Pacific.

Science Fair committee report: This year there were 6 entomological exhibits out of a total of 128 at the 10th Hawaiian Science Fair. The recipient of the Hawaiian Entomological Society award for the best entomological exhibit was Miss Anna Jeung of Waipahu High School, Oahu. Her exhibit was entitled "Effect of time and temperature on the ant's ability to follow odor trails." A book, *Living Insects of the World*, by Alexander B. Klots and Elsie B. Klots was presented to her at the awards banquet. Miss Jeung thanked the Society for her prize with a sincere letter.

## NOTES AND EXHIBITIONS

**Psylla uncatoides** (Ferris and Klyver): The acacia psyllid was found established on Formosan koa, *Acacia confusa*, in the State Park on Round Top and in the Pali Golf Course grounds in Kaneohe. It was also found on Formosan koa and the endemic *Acacia koa* in Kalihi and Nuuanu Valleys in Honolulu. Surveys for this psyllid on koa trees were made during the month in the Honouliuli and Mokuleia areas with negative findings. The insect was first collected in the State by Dr. C. R. Joyce from March to June 1966 in light traps in Honolulu. Determination of the psyllid on *Acacia* was by Dr. L. D. Tuthill of the University of Hawaii. Note presented by Mr. George Funasaki.

**Ecthromorpha fuscator** (Fabricius): Two specimens of this ichneumonid wasp have been reared from chrysalids of the monarch butterfly, *Danaus plexippus* (Linnaeus). Identification was by Dr. C. Yoshimoto of the Bishop Museum. Collectors were Mr. Hale and Dr. E. Huddleston and they were collected on milkweed, *Asclepias curassavica* L., at Manoa Valley, Oahu. This is a new host record for this native wasp. Note presented by Mr. L. D. Hale.

**Paroxyna sororcula** (Wiedemann): This tephritid fly is apparently well established and is spreading from its original collection point in the Pearl Harbor area during April and May 1966. A specimen was taken on 6 February 1967 in a mosquito light trap on the Waikiki side of the Honolulu Airport. Since that time a number of specimens have been taken in the same trap throughout the months of February, March and April. Note presented by Dr. C. R. Joyce.

**Asterolecanium pustulans** (Cockerell), **Chrysodeixis chalcites** (Esper), **Phoridae** sp. and **Phaenicia cuprina** (Wiedemann): These insects were collected on Johnston Island, 5 April 1967 by Mr. Bill Takabayashi of Hickam Air Force Base, Entomology Section. They are apparently new to Johnston Island. The pit scale, *A. pustulans*, was collected on the trunk of a banyan tree. The green garden looper, *C. chalcites*, was collected on ti plants. The phorid was collected at large. The adult specimens of *P. cuprina* may be the species recorded previously to genus only (Proc. Hawaiian Entomol. Soc. 15:84, 1953). Note presented by Mr. G. C. Smith for Mr. E. Shiroma.

**Scadra rufidens** Stål: This reduviid bug, which was first reported in Hawaii in October of 1958 was collected in large numbers (1000) at Sandy Beach near the Blow Hole along the shore on 13 April by Robert Greenwell. The insects were along the beach being thrown on the shore by the waves. Examination of the plants along the beach did not produce any insects. They must have been blown in by the winds. The seas were heavy and a wind was blowing in from the east. Note by Dr. W. C. Mitchell.

Program: Dr. A. J. Berger gave a very interesting and informative talk on the "Natural History of Hawaiian Land Birds."

## MAY

The 737th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 8 May 1967 in Agee Hall, HSPA Experiment Station.

Members present: Bess, Bianchi, Chong, Fluker, Fujii, Funasaki, Hale, Haramoto, Hardy, Harris, Hart, Holbrook, Huddleston, Jackson, Joyce, Kajiwara, LaPlante, Look, Mitchell, Nakata, Navvab-Gojrati, Nishida, Pemberton, Shiroma, Smith, Steffan, Strandtmann, Suehiro, Tamashiro, Van Zwaluwenburg, Vockeroth, Woolford and Yoshimoto.

## NOTES AND EXHIBITIONS

An ant-collection aspirator and an antrearing chamber were exhibited by Dr. Huddleston.

*Pacific Insects*, Vol 9(1) and *Pacific Insects Monograph* No. 12 were exhibited by Dr. Carl Yoshimoto.

**Hypothenemus (Stephanoderes) birmanus** Eichhoff, **Hypothenemus (Stephanoderes) vulgaris** Schaufuss, **Cinara carolina** Tissot and **Coptosoma xanthogramma** (White): The scolytid beetle, *H. birmanus*, has been previously reported only from Oahu, Kauai and Maui. It has now been collected from dead twigs of cacao, litchi, avocado and mock orange in Kona, Hawaii in January 1967. *H. vulgaris*, another scolytid, was also collected for the first time on the island of Hawaii on *Byrsonima crassifolia* in January 1967. Previously it was found established only on Kauai and Oahu. Both *Hypothenemus* species were determined by Dr. Stephen Wood of Brigham Young University. *C. carolina*, the Carolina coniferous aphid, was first reported from Maui. It has now been found infesting slash pine, *Pinus elliottii*, in the Kokee area of Kauai on 18 April 1967. This constitutes a new island record for this forest pest. This aphid has also been reported from Molokai and Lanai. The determination was confirmed by Dr. R. C. Dickson of the University of California at Riverside, California. *C. xanthogramma*, the black stink bug, was discovered for the 1st time on 26 April 1967 on the island of Hawaii. Nymphs and adults were found in moderate numbers on an ornamental vine, *Mucuna* sp., in Hilo adjacent to the Kuhio wharf. This plataspid bug was previously found established only in Oahu. Notes presented by Miss Mabel Chong.

**Xyleborus affinis** Eichhoff, **Bracon analcidis** Ashmead and **Anolis carolinensis portacus** Gray: *X. affinis* was found tunneling and breeding in healthy sugar cane at Lihue, Kauai during the 1st week of April. Dr. S. L. Wood, who determined the species, has already mentioned its presence in Hawaii, but the present report constitutes a new island and host plant record for the State. *X. affinis* is of tropicopolitan distribution and is known as a more or less incidental pest of sugar cane in several countries, especially in Puerto Rico, where it has been an important pest at times. The braconid, *B. analcidis* (1889, U. S. Nat. Mus. Proc. 11:619), is known

from Kentucky, Tennessee, Iowa, Missouri and Arkansas and has been recorded at least once as a parasite of the strawberry weevil, *Tyloderma fragariae* (Riley). Hitherto, it has not been recorded that the species is also a parasite of *Calendra parvula* (Gyllenhal), a curculionid of the eastern U. S. and Canada. The fact was discovered by F. A. Bianchi during August 1963 in the environs of Columbia, Missouri where many cocoons and several parasitized *C. parvula* larvae were found in timothygrass, *Phleum pratense* Linnaeus. This material produced 30 to 40 wasps which were determined by F. G. E. Muesbeck of the National Museum in Washington, D. C. A specimen of the lizard, *Anolis carolinensis porcatus* [Oliver, J. C. and C. E. Shaw. 1953. Scientific Contributions, New York Zool. Soc. **38**(2):89] was brought to the Experiment Station, HSPA on 30 March 1967. It has been captured at Kailua, on the windward side of Oahu, the day before constituting a new locality record for the species. Note presented by Mr. F. A. Bianchi.

**Coptosoma xanthogramma** (White), **Euglandina rosea** (Férusac) and **Nezara viridula** (Linnaeus): Adults of *C. xanthogramma* have been observed in large numbers on *Crotalaria* sp. at Waimanalo these past months. The rosy predator snail, *E. rosea*, was observed in numbers on 2 May 1967 crossing Highway 22, the road to Akaka falls, 2 miles above Honoumou, Hawaii. They were observed 28 December 1966 crossing the lower highway (Highway 137) near the junction of Highway 132 and 137 at Kumukahi Point light house in the Puna district of the island of Hawaii. Southern green stink bug, *N. viridula*, weed hosts were found destroyed in a survey in May 1967 of the water front area at Hilo and the road sides along the Kailua-Kona beach road to Keauhou Bay. They appear to have been destroyed by herbicides and cattle. Five bugs collected on *Crotalaria* at Kainaliu, Hawaii on 2 May 1967 were parasitized by the tachinid fly, *Trichopoda pennipes*. Stink bug (5th-instar) nymphs picked up on spider weed along the lower road from Kailua-Kona to Keauhou Bay were 69.2% parasitized while the adults were 44.82% parasitized. In January 1967 specimens of southern green stink bug collected in the waterfront area at Hilo, Hawaii were 70% parasitized by *T. pennipes*. Parasitization by the fly was 70% at Keeau Orchard, 19.2% at Captain Cook, Hawaii and from 33.7% to 60.5% parasitized along the Kailua-Kona beach road to Keauhou Bay. Notes presented by Dr. W. C. Mitchell.

Program: Dr. Ellis Huddleston gave a very informative and interesting talk on the ants of Hawaii.

## JUNE

The 738th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 13 June 1967 in Agee Hall, HSPA Experiment Station.

Announcements: President Tamashiro notified the members that

Dr. Loren F. Steiner received an honorary Doctor of Science degree from Ohio State University on 13 June 1967. The members asked the secretary to write a letter of congratulations to Dr. Steiner. Dr. Mitchell announced that in a survey conducted by the Pacific Branch of the Entomological Society of America of its members as to whether to conduct the 1970 meeting in Hawaii or in Mexico, only 23% of the members responded. The response was as follows: 58% in favor of Hawaii, 27% in favor of Mexico and 13% opposed to either.

Members present: S. H. Au, Barrett, Carter, Clagg, Chong, Delfinado, Fujii, Furumizo, Gressitt, Hale, Haramoto, Hardy, Hart, Higa, Holbrook, Holway, Huang, Huddleston, Joyce, Kajiwara, Look, Mau, Mitchell, Nakata, Namba, Navvab-Gojrati, Nishida, Park, Pemberton, Shiroma, Steffan, Suehiro, Sugerman, Takei, Tamashiro, Woolford, Yater and Yoshimoto.

Visitors present: Paul W. Schaefer, Satoshi Shinonaga, Yasatileke Elikewela, Bill Kaneshige and Pensri Vaivanijkul.

#### NOTES AND EXHIBITIONS

**Selenothrips rubrocinctus** (Giard): The red-banded thrips was reported to have almost completely defoliated all of the lush, spring growth of the terminal branches on a mango tree at the residence of Dr. Pemberton on the slopes of Diamond Head. This will preclude the development of blossoms and fruits. This home has been occupied for the last 9 years and this is the 1st time such extensive damage has occurred on this tree during the 9-year period. It is noted in the *Hawaiian Cooperative Economic Insect Report* of 2 June 1967 that Messrs. Au and Kubota mention heavy infestation of fruits and foliage of guava in Waimanalo, Oahu. Environmental causes for the repercussion of this thrips are not understood. It has been in Hawaii a long time. At the 58th regular meeting of this Society held on 2 December 1909 D. T. Fullaway reported its presence in Hawaii on mango under the name of *Heliiothrips rubrocinctus* Franklin. Note by Dr. C. E. Pemberton.

**Nezara viridula** L.: A yellow specimen was reared in the laboratory at the University of Hawaii on 15 May 1967. It was a ♂ and appeared to be normal in all respects with the exception of its color. The insect lived for 1 week. The legs, antennae and body were yellow. It is the first specimen of this color reported in Hawaii. Note by Dr. W. C. Mitchell.

**Cryptophlebia ombrodelta** (Lower) and **Scimnus debilis** Lec.: The tortricid, *C. ombrodelta*, was reared from terminal branches of 2 young seedlings of *Sapindus saponaria* L. in January of this year. The same seedlings, in a private garden in Manoa Valley, have been badly damaged again during May. This constitutes a new host plant record for *C. ombrodelta*, which was 1st recorded in the State in 1961 (Proc. Hawaiian Entomol. Soc. 18:2). About 20 beetles of the tiny coccinellid, *S. debilis*, have been reared during the last 2 months from the pink sugarcane mealybug, *Saccharicoccus*



*sachari* Ckll., on sugar cane grown at the Makiki Station, HSPA. Both adults and larvae have been observed feeding on crawlers and full grown mealybugs. This constitutes a new host record for *S. debilis*, which has been previously associated circumstantially with other coccids on *Eragrostis* and other grasses (Proc. Hawaiian Entomol. Soc. 16:209, 1957). Notes presented by Mr. S. H. Au for Mr. F. A. Bianchi.

**Psylla uncatoides** (Ferris and Klyver) and **Maruca testulalis** (Geyer): The acacia psyllid, *P. uncatoides*, was found for the 1st time in Maui on *Acacia koa* at Olinda and Haiku and on Formosan koa at Kahului. The bean pod borer, *M. testulalis*, was found in lima bean plantings in the larval stage at Lanai City, Lanai which is the 1st record of this insect on that island. Notes presented by Mr. S. H. Au for Mr. G. Funasaki.

**Euxesta quadrivittata** (Macq.) and **Euxesta wettsteini** Hendel (Diptera:Otitidae): It has been reported that *E. quadrivittata* (Macq.) 1935, is a synonym of *E. annonae* (Fab.) 1794. *E. wettsteini* is a new record for the Islands. The record is based upon specimens from Oahu, Molokai, and Lanai, and determination was by George Steyskal, U. S. National Museum. Notes presented by Dr. D. E. Hardy.

**Coptosoma xanthogramma** (White), **Xyleborus saxesni** (Ratzeburg), **Ceroplastes rubens** (Maskell) and **Oncocephalus** sp.: Recently a heavy population of the black stink bug, *C. xanthogramma*, was noticed around the Honolulu International Airport area. Many adults were seen resting in clusters on camphor trees located near the Japanese garden. Several adults were collected in the Airport Control Tower and were also reported to be abundant in and around the Airport Fire Station. The scolytid, *X. saxesni*, was intercepted in Hilo on 7 June 1966 by Inspectors Ben Hu and Shin Matayoshi. The determination was made by D. M. Anderson of the U. S. National Museum. The beetle was found boring into ti stems, *Cordyline terminalis*, which originated in Hilo, Hawaii. This constitutes a new host record as well as a new locality record in the State. This scolytid was first reported by E. J. Ford as occurring in *Acacia koa* in the Waianae Mountains of Oahu in June of 1954 (Proc. Hawaiian Entomol. Soc. 15:388). The red wax scale, *C. rubens*, was recently found on a pine needle (3-needle pine) from the island of Kauai by Earl T. Ozaki. This constitutes a new host record for this scale in the State. A reduviid picked up at large at Hickam Air Force Base by Inspector Robert Townsend on 2 December 1966 has been determined as *Oncocephalus* sp. by R. C. Froeschner of the U. S. National Museum.

Dr. T. Nishida gave a very interesting talk on the biological control of rice pests in Thailand.

## JULY

The 739th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 10 July 1967 in Agee Hall,

## HSPA Experiment Station.

Members present: Carter, Chong, Clagg, Fluker, Funasaki, Gressitt, Haramoto, Hardy, Huddleston, Joyce, Kajiwara, LaPlante, Look, Mau, Mitchell, Morrill, Nakao, Namba, Navvab-Gojrati, Nishida, Pemberton, Sherman, Shiroma, Smith, Steffan, Suman, Tamashiro, Van Zwaluwenburg, Wilson, Woolford and Yates.

Visitors present: Wei-Huai Horng, Anita Lang, Reva Mizunaka, Vernon Olney, Mrs. Richard Spadoni and Richard Spadoni.

Announcements: Dr. Hardy announced that Dr. Robert Yamamoto from North Carolina State University will conduct a seminar at the University of Hawaii. Dr. Yamamoto will discuss "The Regulation of Sex Hormone Production in the American Cockroach."

Dr. Mitchell announced that the Pacific Branch of the Entomological Society of America has elected to meet in Hawaii in 1970.

Dr. Haramoto, who attended the Pacific Branch meeting held at Salt Lake City, Utah, presented the following report. The meeting schedule of the Pacific Branch will be: 1968, Lake Tahoe; 1969 Yakima; 1970, Hawaii; 1971, open. Only 188 registrants were recorded which made this meeting one of the lowest in attendance. At the business meeting, Dr. W. C. Mitchell and Dr. Anderson were elected to the executive committee. Dr. Loren Steiner was honored at the meeting for receiving his honorary Doctor of Science degree from Ohio State University on 13 June 1967.

Dr. Tamashiro announced that Ted Suman has completed all the requirements for a Ph. D. degree at the University of Hawaii.

Election of honorary members: Stephen Au and Chester Keck were unanimously elected to honorary membership. President Tamashiro instructed the secretaty to write a letter of congratulations to each member informing them of the election.

## NOTES AND EXHIBITIONS

**Coptosoma xanthogramma** (White), **Schistocera vaga** (Scudder), **Ceroplastes cirripediformis** Comstock and **Psylla uncatoides** (Ferris and Klyver): All stages of the black stink bug, *C. xanthogramma*, were found in moderate to heavy numbers on *Wisteria* sp. in Palolo and Nuuanu Valleys. This is a new host record. A total of 4 ♀ adults of the vagrant grasshopper, *S. vaga*, were caught in residential areas in scattered areas of Oahu. One was caught in Whitmore City, Wahiawa; 1 in Pacific Palisades, Pearl City; 1 in Kalihi Valley; and 1 in Kaneohe. Previously this insect was confined to weedy coastland areas from Sand Ialand to Kaena Point. A heavy infestation of the barnacle scale, *C. cirripediformis*, was found on purple false eranthemum, *Pseuderanthemum atropurpureum* in Maile, Oahu. This is a new host record. Heavy infestations of the acacia psyllid, *P. uncatoides*, were found on *Acacia koa* at Kukuiolono Park in Kalaheo and Kokee State Park in Kauai. This is a new island record. The acacia

psyllid is also known from Oahu and Maui. Notes presented by Miss Mabel Chong for Mr. G. Funasaki.

**Coptosoma xanthogramma** (White): Many black stink bugs, *C. xanthogramma*, were observed feeding on young leaves and fruit of the Chinese banyan on 10 July 1967 in Aliamanu by Mr. C. F. Clagg and Mr. J. T. Kajiwaru. This constitutes a new host record for the State. Note by Mr. C. F. Clagg.

**Tribolium castaneum** (Herbst) and **Oryzaephilus surinamensis** (L.): During a trip to Guam in early May 1967 Mr. A. W. Morrill observed several anthocorid bugs apparently feeding on the red flour beetle, *T. castaneum*, and the saw-toothed grain beetle, *O. surinamensis*. The beetles were found on AID rice stored in a ship which was anchored in the Guam harbor. Note presented by Mr. A. W. Morrill.

**Ceratitis capitata** (Wied.): While in Salt Lake City, Dr. Haramoto saw a newspaper article concerning the finding of larval specimens of the Mediterranean fruit fly in papaya that was shipped to California from Hawaii. Apparently a United Air Lines pilot received a box of papaya from Hawaii which was supposedly treated, but found to be infested. He turned over the specimens to California authorities who made the determination. The article indicated that the home of the pilot was effectively fumigated to assure complete eradication of any remaining larvae.

Program: Dr. Mitchell introduced Dr. A. A. LaPlante, University of Hawaii Extension Entomologist, who gave an interesting talk on extension entomology in Hawaii. He also showed some interesting slides of the various pests in Hawaii.

#### AUGUST

The 740th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:00 PM, 14 August 1967 in Agee Hall, HSPA Experiment Station.

Members present: Andersen, Anwar, Carter, Fluker, Funasaki, Haramoto, Hart, Holbrook, Holway, Huang, Joyce, Keenan, LaPlante, Look, Mau, Mitchell, Nakata, Park, Pemberton, Shiroma, Steffan, Suehiro, Sugerman, Suman, Tamashiro and Van Zwaluwenburg.

Visitors present: Bampot Napompeth, Takao Gishimoto, Michael D. Flanagan, L. R. Akaka, Pensri Vaivaniukul, John, J. S. Burton and Michael J. Sinsko.

Announcements: President Tamashiro read a letter from the Entomological Society of Japan announcing the celebration of the 50th anniversary of their Society and requesting a congratulatory letter from our Society. President Tamashiro volunteered to answer their request.

#### NOTES AND EXHIBITIONS

**Iridomyrmex humilis** (Mayr): A new locality was recorded for

the Argentine ant, *I. humilis*, on 13 July 1967. This locality was the radio station located 3/4 of a mile north of Kekaha, Kauai on the oceanside of Highway 50. This ant had previously been reported in the Kokee area at about 4000 ft elevation.

Program: President Tamashiro introduced Mr. Patrick Nakagawa who, as Entomologist-in-Charge of the Mosquito Control Program for the State of Hawaii Department of Health, gave a very interesting and informative talk on the Mosquito Control Program in Hawaii.

#### SEPTEMBER

The 741st meeting of the Hawaiian Entomological Society was called to order by President Tamashiro at 2:07 PM, 11 September 1967 in Agee Hall, HSPA Experiment Station.

Members present: Andersen, Carter, Clagg, Davis, Fluker, Funasaki, Gressitt, Haramoto, Joyce, Kajiwara, Look, Maehler, Nakata, Park, Pemberton, Shiroma, Steffan, Strandtmann, Tamashiro, Thistle, Woolford and Van Zwaluwenburg.

Visitors present: Donald Ashdown, Thomas Darling, Elbert Jackson, George Kitaguchi, Thomas Lauret, John Sharp, Satoshi Shinonaga and Richard Spadoni.

Nomination of new members: Dr. Donald Ashdown, Mr. E. W. Jackson, Mr. Charles Lauret, Mr. John Sharp and Dr. Richard Spadoni were nominated for membership.

#### NOTES AND EXHIBITIONS

**Trissolcus nakagawai** Watanabe, **Coccidoxenus mexicanus** (Girault) and **Sepedon sauteri** Hendel: The scelionid parasite, *T. nakagawai*, of the southern green stink bug obtained from Shikoku, Japan in May 1967 was recently released on Maui. Five hundred adults were released at Kahului on 22 August and another 500 at Waikapu on 29 August. *C. mexicanus* was released at Kahului, Maui on 17 July on passion fruit vines infested with the barnacle scale, *Ceroplastes cirripediformis*. *Coccidoxenus mexicanus* is a parasite of *Ceroplastes* spp. and *Saissetia* spp. and was obtained through the cooperation of F. D. Bennett, Commonwealth Institute of Biological Control, West Indian Station, Trinidad, W. I. The first recovery of *S. sauteri*, a predator of the liverfluke snail, *Galba ollula*, was made from pupal material collected at Henry Poe's taro patch in Waianae Valley on 29 August 1967. The original release of 100 flies was made here on 29 March 1967. *S. sauteri*, a sciomyzid fly, was introduced from Fukuoka, Japan, in October 1966. Notes presented by Mr. G. Funasaki for Miss Mabel Chong.

**Eumerus figurans** (Walker): The ginger maggot, *E. figurans*, was bred out from many larvae feeding among decomposing pineapple stumps

buried underground at Waipio, Oahu in August 1967. Narcissus bulbs and ginger roots have been recorded as breeding hosts, but pineapple stumps are believed to be recorded here for the first time. These syrphid flies have been, in the past, occasionally collected in pineapple fields. Specimens of pupae and adults were exhibited. This note and exhibition was presented by Dr. W. Carter for Mr. S. Sakimura.

A publication entitled *Price List of Malaysian Butterflies* was exhibited by Dr. Carter for those interested.

**Pyralidae** sp.: An undetermined pyralid moth, collected by Clarence Lyman at Kualoa Ranch on 29 August 1967 is currently very active with caterpillars causing some damage to kikuyugrass and *Paspalum* sp. A similar moth has also been observed in great numbers on the sides of buildings at Hickam Air Force Base and caterpillars were found at the base of *Paspalum fimbriatum* (Det. by B. Shinbara, SDA, Weed Branch) where feeding damage was evident. Note presented by Mr. C. J. Davis for Dr. A. A. LaPlante.

Program: Dr. Walter Carter presented an interesting talk about his mission in Malaysia for the FAO and showed interesting slides of insects and diseases which occur in Malaysia.

#### OCTOBER

The 742nd meeting of the Hawaiian Entomological Society was called to order by Dr. W. C. Mitchell, substituting for President Tamashiro, at 2:03 PM, 9 October 1967 in Agee Hall, HSPA Experiment Station.

Members present: Au, Barrett, Carter, Chong, Clagg, Davis, Fluker, J. K. Fujii, Warren Fujii, Gressitt, Haramoto, Joyce, Kajiwara, Keenan, LaPlante, Mau, Mitchell, Nakata, Ozaki, Pemberton, Shiroma, Steffan, Steiner, Strandtmann, Sugarman, Tenorio, Van Zwaluwenberg and Woolford.

Visitors present: Richard D. Spadoni, Satoshi Shinonaga, Frank Olson and Hampton L. Carson.

Dr. A. A. LaPlante, editor of the Proceedings, announced that the deadline for the presentation of papers for the 1967 Proceedings of the Hawaiian Entomological Society is the December meeting of the Society.

Election of new members: Dr. Donald Ashdown, Mr. E. W. Jackson, Mr. John Sharp, Dr. Richard Spadoni and Mr. Charles Lauret were elected to membership.

Nomination of new members: Mr. Frank Olson was nominated for membership.

#### NOTES AND EXHIBITIONS

**Billbug egg parasite:** The first release of *Patasson calendrae* (Gahan) on the Island of Hawaii was made at Aiea Paddock, Kahua Ranch, Kohala on 20 September 1967. Sixty-three wasps were released. *P.*



*calendrae* is an egg parasite and was originally introduced by the HSPA by Williams in 1929. It was again introduced from Missouri in 1963 for control of the hunting billbug, *Sphenophorus venatus vestitus* Chittenden, and the New Guinea sugar cane weevil, *Rhabdoscelus obscurus* (Boisduval), by Mr. F. A. Bianchi. It has not been recovered on Oahu to date.

As a result of serious damage to kikuyugrass rhizomes by the hunting billbug at Kahua Ranch and other ranches on the island of Hawaii, *P. calendrae* was reintroduced from Missouri in August 1967 for trial on this pest under Hawaii Island range conditions. Note presented by Mr. C. J. Davis.

**Pachyzancla licarsisalis** (Walker): The pyraustid moth reported at the last meeting has been identified by Dr. Ronald Hodges as *Pachyzancla licarsisalis* (Walker). It has been recorded from Guam, Samoa, Malaysia, Australia, India, Ceylon, Malacca, China, Japan, Java, Borneo, Marshall Islands, Fiji, Society Islands and Austral Islands. It is widespread on Oahu. Severe damage to lawn grass has been reported from Hickam Air Force Base and Radford High School. At Kualoa Ranch, kikuyugrass, pangolagrass and *Paspalum fimbriatum* were badly damaged in spots. From caterpillar and pupal material brought in from Kualoa, the following parasites provisionally identified as: *Eucelatoria amigera* (Coq.), *Casinaria infesta*, *Zalyptopygus flavo-orbitalis* and *Brachymeria* sp. probably *obscurata*, were reared out in very small numbers. At Ewa Plantation, 200 moth eggs examined on 3 October showed over 80% parasitism. Parasites emerging appear to be *Trichogramma minutum*. Eggs laid in the laboratory exposed in the field for 2 days close to the infested lawn, showed over 33% parasitism. All emerging *Trichogramma* were being held in the insectary for further propagation. In insectary studies, this moth prefers to lay its eggs on millet seedlings and *Panicum purpurascens* Raddi. For food, young corn seedlings, millet, wiregrass, nutgrass, Bermudagrass, kikuyugrass, pangolagrass and *Paspalum fimbriatum* are preferred in descending order. Tests with sugar cane were negative. Life history studies under insectary conditions provide the following information: moth longevity, 6–8 days; moth preoviposition, 2–3 days; moth oviposition period, 4–5 days; moth no. of eggs per day, 15–20 eggs; moth no. of eggs period, 75–100 eggs; egg incubation, 4–5 days; larval period, 11–12 days; prepupa, 1 day; pupa, 6 days; eggs to adult, 22–24 days; total life span, 28–32 days.

Note presented by Mr. S. A. Au.

**Podagrion mantis** Ashmead and **Coptosoma xanthogramma** (White): On 12 September 1967 Mr. C. J. Davis collected an ootheca of the narrow-winged mantid, *Tenodera angustipennis* Saussure, at Pupukeya, Oahu which was parasitized by the wasp, *Podagrion mantis* Ashmead. A total of 17 parasites emerged from the egg mass. The black stink bug, *C. xanthogramma* (White), was discovered on Maui for the first time on 19 September 1967 according to resident entomologist Nobuo Miyahira. The

discovery was made in response to a routine pest call from a Waihee resident. The infestation was heavy (adults and nymphs) on maunaloa and very light on pigeon pea. Subsequently, an intensive survey was made in Wailuku, Kahului and Waiehu. A light infestation was discovered on maunaloa in Wailuku. Previously this relatively new immigrant pest had been reported only from Oahu and Hawaii. Notes presented by Miss. M. Chong.

**Eumerus figurans** (Walker), **Subterranean termite** and **Nezara viridula**: Larvae of the syrphid fly, *E. figurans*, were found in taro roots grown at the University of Hawaii Experimental Farm. The larvae were attracted to decomposing roots that had been injured by hoes. An unidentified small species of subterranean termite was collected in the wood sill and shower stall in a residence at Kahala, Oahu. Populations of the southern green stink bug, *N. viridula* have begun to build up on *Crotalaria* spp. in the windbreaks of the Keaau Orchard of Hilo, Hawaii during late August and September. A total of 53.3% of the adults were infested with eggs of *Trichopoda pennipes*. Notes presented by Dr. W. C. Mitchell.

Program: Dr. Hampton L. Carson presented an interesting talk on the "Chromosomal Evaluation in Hawaiian Drosophilidae."

#### NOVEMBER

The 743rd meeting of the Hawaiian Entomological Society was called to order by President Tamashiro, at 2:00 PM, 14 November 1967 in Agee Hall, HSPA Experiment Station.

Members present: Andersen, Ashdown, Au, Barrett, Bianchi, Carter, Chong, Davis, Fluker, Warren Fujii, Gressitt, Hale, Haramoto, Joyce, Kajiwara, LaPlante, Look, Nakao, Nakata, Pemberton, Shiroma, Spadoni, Sugerman, Tamashiro, Van Zwaluwenburg and Woolford.

Visitors present: Theresa H. Ashdown.

Election of new members: Mr. Frank Olson was elected to membership.

#### NOTES AND EXHIBITIONS

**Herpetogramma licarsisalis** (Walker): The reported name of the pyraustid moth previously known as *Pachyzancla licarsisalis* (Walker) and *Psara licarsisalis* (Walker) has been changed to *Herpetogramma licarsisalis* (Walker). Live specimens of all the life stages of this moth were exhibited. Note by Dr. A. A. LaPlante and exhibition by Mr. S. H. Au.

Program: Mr. C. J. Davis presented an interesting talk on his exploration for parasites of the hunting billbug.

#### DECEMBER

The 744th meeting of the Hawaiian Entomological Society was called to order by President Tamashiro, at 2:05 PM, 11 December 1967 in Agee Hall, HSPA Experiment Station.

Members present: Andersen, Ashdown, Barrett, Bianchi, Carter, Chong, Clagg, Davis, J. Fujii, W. Fujii, Hale, Haramoto, Harris, Higa, Holbrook, Jackson, Joyce, Kajiwara, LaPlante, Mau, Mitchell, Nakata, Olson, Park, Pemberton, Sherman, Shiroma, Steffan, Takei, Tamashiro, Van Zwaluwenburg, Woolford and Yates.

Visitors present: Dr. Harvey Sweetman, Professor Emeritus, University of Massachusetts.

Election of officers for 1968: The following were elected: President-elect, A. A. LaPlante; Secretary, E. S. Shiroma; Treasurer, F. Haramoto; and Advisor, T. Nishida.

New business; President Tamashiro read a letter from the Hawaiian Academy of Science asking if our Society again wishes to participate by presenting an award in the field of entomology for the next Hawaii Science Fair. Dr. Mitchell made a motion, seconded by C. F. Clagg, that a maximum of \$15.00 be allotted towards the purchase of an entomological book and a certificate of award for the best exhibit in entomology at the next Hawaii Science Fair. Motion was passed unanimously.

#### NOTES AND EXHIBITIONS

Dr. Mitchell and Dr. Sherman presented accounts of the annual meeting of the Entomological Society of America held in November in New York City. Dr. Mitchell was able to attend the retirement dinner for L. D. Christensen at the University of Maryland. He is a long-time member of the Society and the secretary was instructed to write a letter of congratulations, wishing him luck in his retirement.

**Gynaikothrips ficorum** (Marchal): The Cuban-laurel thrips whose host range is believed to be limited to *Ficus* spp., was recently found infesting *Brassaia actinophylla* Endl. seedlings in the Woodlawn area. The lesion produced on this newly recorded host are the same as those of banyan trees. Note by Dr. W. Carter.

**Phoracantha semipunctata** (Fabr.): The first record of adults of this longhorned beetle from *Eucalyptus* in Hawaii has been obtained. In December 1966 Federal foresters brought in sections of *Eucalyptus robusta* from Manoa Valley which were infested by cerambycid larvae. The larvae were tentatively determined as *Phoracantha semipunctata* (Fabr.). On 22 March 1967 one adult *Phoracantha* emerged, thus confirming the larval determination. Since then, a good series of *Phoracantha* have been obtained from this host. Note by Mr. C. J. Davis.

**Neoloxotaenia gracilis** (Meijere) and **Haemaphysalis longicornis** Neumann: A new immigrant chloropid fly, *N. gracilis*, has been reported in the State. Three specimens have been taken to date from light trap catches; the 1st on 14 September 1964 at the Public Health Service Quarantine Station, Honolulu, Hawaii the 2nd on 27 December 1966 near the foreign arrival area at the Honolulu International Airport; and the third

on 6 November 1967 in the same airport trap. A specimen was recently sent to the U. S. National Museum and has been determined by Dr. Sabrosky as the above species. He states that it was described from Java and is widely distributed in the Oriental region. Four female specimens of the ixodid tick, *H. longicornis*, were taken from a dog which arrived in Honolulu from New South Wales, Australia on 14 November 1967. The dog was destined for Quinland, Texas. The dog was detained at the Animal Quarantine Station in Honolulu for further examination and treatment. Two of the engorged females were isolated in the laboratory and have proceeded to lay a number of eggs. Identification was confirmed by Glen M. Kohls of the Rocky Mountain Laboratory. *H. longicornis* is known from Australia and New Zealand and is to be found on various domestic and wild animals including the dog. It has long been regarded as a synonym of *H. bispinosa* Neu. which has a wider distribution throughout Southeast Asia to India. Records are thus somewhat confused. Dr. Hoogstrall has recently found that *H. longicornis* is a valid species. The tick is known to reproduce parthogenetically without the need for males and may be involved in the transmission of "Q" fever and possibly some of the pathogenic Babesidae. Notes by Dr. C. R. Joyce.

***Polididus armatissimus*** Stål: A total of 4 specimens of this rediviid were caught on 15 November 1967 at light in Lihue, Kauai by Mr. F. A. Bianchi and Dr. W. C. Mitchell. The find constitutes a new island record for the species, which was first found on the island of Hawaii in 1953 and on Oahu in 1961 (Proc. Hawaiian Entomol. Soc. **18**: 20, 1962). Note and exhibition by F. A. Bianchi.

Program: The Presidential Address. *Microbial Control in Hawaii* by President Tamashiro.



## Dr. Francis Xavier Williams

1882-1967

Following a serious illness of 4 months' duration, Dr. Francis Xavier Williams died at Fredericka Manor, a retirement home at Chula Vista, California on 16 December 1967, thus closing the career of a distinguished American entomologist.

Dr. Williams was born at Martinez, California 6 August 1882. His early schooling was in San Francisco where he received the degree of A.B. at St. Ignatius College in 1903. He then entered Stanford University where he was granted a Bachelor of Science degree in 1908. During 1908 to 1910 he was employed as an inspector with the California Horticultural Commission, after which he became assistant curator of the Snow Entomological Collections at Kansas University from 1910 to 1913, where he obtained the degree of A.M. in 1912. He was employed as an assistant Entomologist at Harvard University during 1913 to 1914 and was a teacher of economic entomology at Lowthorpe School in Massachusetts in 1914. He served as an assistant entomologist in the Gipsy-Moth Laboratory, U. S. Department of Agriculture during 1915 to 1916. Williams conducted much original research at the entomological laboratory of the Bussey Institution at Harvard and was granted the degree of Doctor of Science at Harvard in 1915. One of his outstanding contributions while at the Institution was the publication of an elaborate paper, thoroughly illustrated, covering his studies on the photogenic organs and embryology of lampyrid beetles. This was published in the *Journal of Embryology*, Vol. 28, No. 1, December, 1916, pages 145-207. While at Harvard, Williams established a close friendship with Dr. W. M. Wheeler, one of the worlds' greatest entomologists, who classed Williams as one of the ablest entomologists known to him.

Dr. Williams participated as entomologist on the expedition to the



Galapagos Islands conducted by the California Academy of Sciences in 1905 to 1906. He made extensive insect collections while there. His studies of the butterflies and hawk moths of the Islands was of special interest, resulting in the publication in the Proceedings of the California Academy of Sciences, 7 October 1911 of a fine, descriptive, 28-page paper with an excellent plate, in color, under the title *The butterflies and hawk moths of the Galapagos Islands*. Another paper of importance by Williams dealt with the bees and aculeate wasps of the Galapagos Islands, which was published in the Proceedings of the California Academy of Sciences, Vol. 2, Part 2, No. 18, 21 May 1926 pages 347-57.

Serious entomological problems in Hawaiian sugar cane fields prompted the Hawaiian Sugar Planters' Association to offer Dr. Williams a position as assistant entomologist on the entomology staff of their Experiment Station in Honolulu. He accepted the invitation and joined the staff on 8 May 1916. In 1929 he was promoted to associate entomologist, which post he held until retirement on 1 December 1949. During over 38 years of service for the sugar planters he accomplished much of economic value and contributed a great deal for the community in the general field of entomology. His work for the sugar planters involved extensive travel in Central and South America, Australia, New Caledonia, mainland United States, the Philippines and 6 months in East Africa investigating natural enemies of the giant African snail (*Achatina fulica* Bowdich), which became established in Hawaii in 1936. Important enemies of the snail were studied by Williams, one of which was later introduced into Hawaii by other investigators.

Insect pests of sugar cane in Hawaii had been so important that there had long been a need by plantation personnel, controlling agencies, and others financially involved for an illustrated and descriptive publication for distribution to the plantations and various interested persons, clearly defining all of the insects commonly seen in the cane fields and their habits and importance, if any, to the sugar cane plant. Dr. Williams undertook this task, and as time permitted from other duties, he labored on this project for a year or more. This resulted in the publication in 1931 of a 400-page book entitled *The insects and other invertebrates of Hawaiian sugar cane fields*, with 41 excellent plates, 190 text figures and an ample bibliography. This is a cloth-bound, hard-cover book and in Hawaii it came to be called "Williams' Blue Book" because of the blue color of the cover. Many of the text figures are ink drawings by the fine hand of Williams, who was a superb artist. They accurately portray insect features far exceeding anything accomplished by the best of photographs. The book was published by the Hawaiian Sugar Planters' Association and is a compilation of years of work by Williams and the other members of the entomology staff at the Experiment Station. The book is widely used by entomologists in Hawaii for reference to the many insects commonly seen in both the

cane fields and elsewhere in the Islands.

In May 1916 shortly after his arrival in Hawaii, Williams was sent to the Philippines to assist Dr. Frederick Muir with the introduction into Hawaii of the scoliid wasp, *Campsomeris marginella modesta* Sm., for control of the rutelid beetle *Anomala orientalis* Waterh. which invaded Hawaii about 1908 and was causing heavy damage to the cane fields on Oahu. Muir had found this parasite common in cane fields near Los Banos parasitizing grubs of several beetles allied to *A. orientalis*. The introduction of this parasite into Hawaii proved highly successful and beneficial. Williams had a large hand in the work.

Williams spent over 2 years in the Philippines. His constant study of the tropical insects confronting him resulted in accumulation of a great deal of original information of permanent value. As an example, his discovery of a larrid parasite of the mole cricket, *Gryllotalpa africana* Beauv., a pest of some importance in Hawaii, formed the basis for the successful introduction of this parasite into Hawaii in 1925 by another HSPA entomologist. The parasite, *Larra luzonensis* Roh., was described as a new species by S. A. Rohwer, U. S. Dept. of Agriculture. It has effected a considerable control of this cricket in Hawaii. Williams introduced other beneficial insects into Hawaii from the Philippines, some of which became definitely established.

One of Williams' finest contributions to science is Bulletin 14, Entomological Series, Experiment Station, HSPA, December 1919 entitled *Philippine wasp studies*. This 186-page bulletin, embellished with 106 remarkably descriptive ink drawings, presents a wealth of facts on the characters and habits of these insects, many of which are beneficial species. The bulletin also includes descriptions of new species by S. A. Rohwer which were collected by Dr. Williams. Another outstanding publication by Dr. Williams is Bulletin 19, Entomological Series, Experiment Station, HSPA, January 1928 under the title *Studies in tropical wasps—their hosts and associates with descriptions of new species*. With 178 pages, 18 text figures and 33 plates, the bulletin is rich in precise data covering the species treated, many of which are of economic value.

During his extended residence in the Philippines, Williams was housed in a typical native building having palm-thatched walls and roof, mostly open spaces for windows and split bamboo strips for flooring, offering an excellent environment for access by many insects and other living creatures. Williams' instinctive interest in all life about him tempted him to prepare a paper under the title *The natural history of a Philippine nipa house with descriptions of new wasps*. This was published in the Philippine Journal of Science, Vol. 35, No. 1, Jan., 1928, pages 53-118. With 8 plates, this charming account of his observations discusses the ants, bees, fleas, roaches, beetles, butterflies, termites, psocids, spiders, flies, wasps, centipedes, lizards, frogs, bats and birds that came to his attention.

In July 1940 Williams was sent to New Caledonia to make a survey of the insects of the Island, with particular attention to pest species that might invade Hawaii via the expanding air traffic in the Pacific. Returning to Hawaii in November, he brought with him living material of the large, metallic blue ampulicid wasp, *Ampulex compressa* (Fab.) which he found parasitizing certain large cockroaches on the Island. He successfully reared it in Honolulu and liberations resulted in establishment. Host roaches in Hawaii being abundant, this flashing and active blue wasp became conspicuous in buildings and other areas where the large roaches breed.

Special mention should be made of Williams' studies of the insect fauna of fresh water in Hawaii, which resulted in the publication of several papers, beautifully illustrated, in the Proceedings of the Hawaiian Entomological Society for the years 1936, 1938, 1939 and 1943, under the title *Biological studies in Hawaiian water-loving insects*.

Williams always took a keen interest in birds and their habits. His home was several blocks from the HSPA Experiment Station and on his regular walk to the Experiment Station in the morning he tossed out bread crumbs to flocks of mynah birds, *Acridotheres tristis* (Linn.), which soon learned to recognize and follow him. He and Mrs. Williams once acquired a baby mynah which had fallen from its nest. This was raised with great care in their home where it ultimately moved freely in and out of their house for an extended period like any common household pet. The life of this bird and its many amusing antics was described in a fascinating book by Williams and his wife entitled *Mike the mynah*. This was published in Honolulu in 1946.

Williams constructed a small pond in his garden, which was kept stocked with ornate water lillies. It was frequently invaded by the tropical American toad, *Bufo marinus* (Linn.), an introduction into Hawaii in 1932, whose activities often damaged the lilies. Williams would occasionally remove the toads and transport them to a cane field at the Experiment Station about a half mile distant. He once noted that one of the male toads had a badly deformed front foot and when moved from the lily pond to a cane field about 1/2 mile distant, would in due time and at great hazard return to the lily pond. This is just another insight into Williams' urge to observe the habits of all wildlife about him. He described many insects and his published papers comprise a long list on a wide variety of entomological subjects.

Shortly after retirement Dr. Williams and his wife Louisa, to whom he was married in Honolulu on 14 April 1939, moved to California, primarily in an effort to improve his wife's failing health. After living in several locations in California, they finally settled in a retirement home at Chula Vista, California. Mrs. Williams died in September 1965 which greatly depressed and saddened Dr. Williams. He was a soft-spoken,

retiring and exceedingly modest man, an absolute naturalist in every sense of the word and a lover of good music as often demonstrated by his masterful flute playing usually accompanied by his wife on the piano. He was completely respected and liked by all who knew him. He is survived by a sister, Mother Louise Williams of the Convent of the Sacred Heart at El Cajon, California, and 3 nephews.

C. E. Pemberton

Publications by Francis Xavier Williams

Compiled by C. E. Pemberton

1905. The larva of *Hepialus sequoiolus* Behrens. Entomol. News January: 19-20.
1905. A trip to Mt. Diabolo in search of Lepidoptera. Entomol. News Sept.: 235-38.
1905. Notes on the synonymy and preparatory stages of *Illice faustinula* Bdv. Entomol. News October: 257-59, 1 fig.
1905. Notes on the life-history of *Hepialus sequoiolus* Behrens. Entomol. News November: 283-86, 4 figs.
1908. A New *Eriocrania* (Lepidoptera) from the Pacific coast. Entomol. News January: 14-15, 1 plate.
1908. The life-history of *Lycaena antiacis* Bdv. with notes on other species. Entomol. News December: 476-83, 2 figs.
1909. Notes on the life-histories of certain wood-boring Lepidoptera. Entomol. News February: 58-62.
1909. The butterflies and some of the moths of the Mt. Shasta region. Entomol. News February: 62-75, 1 plate.
1910. The butterflies of San Francisco, California. Entomol. News January: 30-41.
1910. Anatomy of the larva of *Cecidomyia resinicoloides* Williams. Ann. Entomol. Soc. of America **3**(1):45-57, 3 plates.
1911. Expedition of the California Academy of Sciences to the Galapagos Islands, 1905-06. Proc. California Acad. of Sci. **1**:290-322, 10 plates. (Including the butterflies and hawk-moths of the Galapagos Islands.)
1912. Biological notes on some Kansas Hymenoptera. Entomol. News June: 241-60, 3 plates.
1913. Notes on three Sesidae (Lepidoptera) affecting the "missouri gourd" *Cucurbita foetidissima* H. B. K. in Kansas. The Kansas Univ. Sci. Bull. **8**(5):217-20, 2 plates.
1914. Notes on Coleoptera from Western Kansas. Entomol. News **25**:1-9, 2 plates.

1914. Prothetely in the larva of *Photuris pennsylvanica* De Geer. *Psyche* **21**(4):126-29, 1 fig.
1915. The luminous organ of the New Zealand glow-worm. *Psyche* **22**(2):36-43, 1 plate (Jointly with W.M. Wheeler).
1916. The pupa of *Boreus brumalis* Fitch. *Psyche* **23**(2): 35-39, 1 fig.
1916. Notes on the life-history of *Methoca stygia* Say. *Psyche* **23**(4): 121-25, 1 plate.
1916. Photogenic organs and embryology of lampyrids. *Jour. of Morphology* **28**(1): 145-86, 10 plates, 1 fig.
1917. Notes on the life history of some North American Lampyridae. *Jour. New York Entomol. Soc.* **25**(1):11-33.
1918. Some observations on the leaf-hopper wasp *Nesomimesa hawaiiensis* Perkins at Pahala, Hawaii, Feb. 11-April 25, 1918. *Hawaii Planters' Record* **19**(3): 175-79, 3 figs.
1918. *Dolichurus stantoni* Ashm., a Philippine wasp parasitic on cockroaches. *Hawaiian Planters' Record* **19**(4):251-55, 4 figs.
1918. *Epyris extraneus* Bridwell, a wasp that preys on the larva of the trash-inhabiting beetle, *Gonocephalum seriatum* Bdv. *Hawaii Planters' Record* **19**(6): 418-21, 8 figs.
1919. Some Observations of pipunculus flies which parasitize the cane leaf-hopper at Pahala, Hawaii, Feb. 11-Apr. 25, 1918. *Proc. Hawaiian Entomol. Soc.* **4**(1):68-71, 1 fig.
1919. A note on the habits of *Epactiothynnus opaciventris* Turner, an Australian thynnid wasp. *Psyche* **26**(6):160-62, 2 figs.
1919. Philippines wasp studies, part 2. *Bull. 14, Entomol. Series, Exp. Sta. Hawaiian Sugar Planters' Assn. Descriptions of new species and life history studies.* December: 19-186, 106 figs.
1921. The Hawaiian Sugar Planters' Insectary, Los Banos. *Hawaii Planters' Record* **25**(5):226, 1 fig.
1922. Notes on some enemies of the nut grass in the Philippines. *Hawaii Planters' Record* **26**(2): 95-97.
1922. Entomological work in the Philippines. *Hawaii Planters' Record* **26**(3):173-77.
1922. Some biological notes on Philippine zoology. *Kansas Univ. Sci. Bull.* **14**(11):329-336.
1925. Entomological work in South America, Sept., 1922-July, 1924. *Hawaii Planters' Record* **29**(2):201-29, 19 figs.
1925. A prothetelous larva of *Monocrepidius exsul* Sharp (Elateridae: Coleoptera.) *Proc. Hawaiian Entomol. Soc.* **6**(1):211-12, 1 fig.
1926. The bees and aculeate wasp of the Galapagos Islands. *Proc. California Acad. of Sci.* **2**(2):347-57.
1927. The Philippine mole-cricket wasp (*Larra luzonensis* Rohwer) in Hawaii. *Hawaii Planters' Record* **31**(1):2-6.
1927. A South American ground beetle as a wireworm enemy. *Hawaii*



- Planters' Record **31**(1):7-9, 1 plate.
1927. *Euparagia scutellaris* Cresson, a masarid wasp that stores its cells with the young of a curculionid beetle. Pan-Pacific Entomologist **4**(1):38-39.
1927. The brown Australian lacewing (*Micromus vinaceus*). Hawaii Planters' Record **31**(3):246-49, 1 fig.
1927. Notes on the habits of the bees and wasps of the Hawaiian Islands. Proc. Hawaiian Entomol. Soc. **6**(3):425-64, 2 plates, 15 figs.
1928. Studies in tropical wasps—their hosts and associates, with descriptions of new species. Bull. 19, Ent. Series, Exp. Stat., Hawaiian Sugar Planters' Assn. **19**:33 plates, 16 figs.
1928. The natural history of a Philippine nipa house with description of new wasps. Philippine Jour. of Sci. **35**(1):53-118, 8 plates.
1928. Insects of Samoa. Larridae. British Museum. February: 33-39, 12 figs.
1928. The sphecid wasp *Podalonia violaceipennis* (Lep.). Proc. Hawaiian Entomol. Soc. **7**(1):163.
1928. The Kamehameha butterfly, *Vanessa tameamea* Esch. Proc. Hawaiian Entomol. Soc. **7**(1):164-69, 3 figs.
1928. *Coptotermes formosanus* Shiraki in bags of sugar. Hawaii Planters' Record **32**(4):390-91, 2 figs. (Jointly with R. H. Van Zwaluwenburg.)
1929. The introduction of *Anaphoidea calendrae* Gahan into Hawaii as a possible egg parasite of our sugar cane beetle borer *Rhabdoscelus obscurus* (Boisd.) Hawaii Planters' Record **33**(1):29-33.
1929. Ants, bees, and wasps in the Hawaiian Islands. Jour of the Pan-Pacific Research Inst. **4**(3):3-5.
1929. Notes on the habits of the cockroach-hunting wasps of the genus *Ampulex* Sens. Lat., with particular reference to *Ampulex (Rhinopsis) caniculatus* Say. Proc. Hawaiian Entomol. Soc. **7**(2):315-29, 10 figs.
1930. *Beebea guglielmi* Scgaus, a pyralid moth borer of the *Opuntia* cactus in the Galapagos Islands. Pan-Pacific Entomol. **7**(1):1-4, 5 figs.
1931. A spider eating ant larvae or pupae. Proc. Hawaiian Entomol. Soc. **7**(3):425-26.
1932. Frederick A. G. Muir, Biographical Sketch. Proc. Hawaiian Entomol. Soc. **8**(1):141-52. Jointly with O. H. Swezey.
1932. Notes on a small collection of Philippine weevils that feed in the fleshy receptacles or "fruits" of wild figs. Proc. Hawaiian Entomol. Soc. **8**(1):103-95.
1932. *Exallonyx philonthiphegus*, a new proctotrupid wasp in Hawaii and its host. Proc. Hawaiian Entomol. Soc. **8**(1):205-08, 1 plate.
1932. The sphecid wasps of the Marquesas Islands. Pacific Entomol. Survey, Pub. 1, Art. 15:149-53, 1 fig.
1932. Water-loving insects of Hawaii. Bishop Museum, Special Publication, no. 20: 1 page.

1933. Architecture among wasps. Bishop Museum, Special Publication, no. 21: 1 page.
1935. *Hepialus pharus* Druce, a moth borer attacking sugar cane in Guatemala. Hawaii Planters' Record **39**(4):292-97, 9 figs.
1936. Notes on two oxybelid wasps in San Francisco, California. The Pan-Pacific Entomol. **12**(1):1-6, 2 figs.
1936. Two water beetles that lay their eggs in the frothy Egg-masses of a frog or tree toad. The Pan-Pacific Entomol. **12**(1):6-7.
1936. Notes on some larrid wasps from the British Solomon Islands Protectorate, with description of one new species. Ann. and Mag. Nat. Hist **18**(10):124-30, 6 figs.
1936. Biological studies in Hawaiian water-loving insects—Part 1, Coleoptera or beetles; Part 2, Odonata or Dragonflies. Proc. Hawaiian Entomol. Soc. **9**(2):235-349, 18 plates, 10 text figs.
1937. Notes on the biology of *Gynacantha nervosa* Rambur (Aeschninae), a crepuscular dragonfly in Guatemala. The Pan-Pacific Entomol. **13**(1-2):1-8, 6 figs.
1937. A note on gyrid beetles from Escuintla, Guatemala. Pan-Pacific Entomol. **13**(3):129-30.
1938. Biological studies in Hawaiian water-loving insects. Part 3, Diptera or Flies. Proc. Hawaiian Entomol. Soc. **10**(1):85-119, 9 plates, 1 fig.
1938. *Campsicnemus fumipennis* Parent (Diptera, Dolichopodidae.) Proc. Hawaiian Entomol. Soc. **10**(1):120-26, 1 plate.
1938. *Asyndetus carcinophilus* Parent (Diptera, Dolichopodidae) Proc. Hawaiian Entomol. Soc. **10**(1):126-28, 1 plate.
1939. Biological studies in Hawaiian water-loving insects. Part 3, Asteiidae, Syrphidae and Dolichopodidae. Proc. Hawaiian Entomol. Soc. **10**(2):281-315, 8 plates, 5 figs.
1942. *Ampulex compressa* (Fabr.), a cockroach-hunting wasp introduced from New Caledonia into Hawaii. Proc. Hawaiian Entomol. Soc. **11**(2):221-33, 3 plates.
1942. Insects of Guam—1. Dragonflies of Guam. Bull. 175, Bishop Museum: 1-6.
1942. The New Caledonian cockroach wasp (*Ampulex compressa*) in Hawaii. The Hawaii Planters' Record **46**(2nd quarter):43-47, 6 figs.
1943. Biological studies in Hawaiian water-loving insects. Part 3, Diptera or Flies. Proc. Hawaiian Entomol. Soc. **11**(3):313-38, 6 plates, 8 text figs.
1943. Mosquitoes and some other noxious flies that occur in New Caledonia. The Hawaii Planters' Record **47**(4):205-22, 15 figs.
1944. Biological studies in Hawaiian water-loving insects Part 3. Culicidae, Chironomidae and Ceratopogonidae. Proc. Hawaiian Entomol. Soc. **12**(1):149-180, 6 plates, 7 figs. (Also parts 4 and 5 on Lepi-

- doptera, Hemiptera, Coleoptera, Trichoptera and Odonata, pages 180-97, 2 plates, 9 figs.)
1944. A survey on insect pests of New Caledonia. The Hawaii Planters' Record **48**(2):93-124, 37 figs.
1945. The aculeate wasps of New Caledonia, with natural history notes. Proc. Hawaiian Entomol. Soc. **12**(2):407-52, 10 plates, 18 figs.
1947. Aculeate wasps of Fiji. Occasional papers of the Bishop Museum. **18**(21):317-36, 8 figs.
1950. A new species of *Diploplectron* from California, with a description of the female of *Diploplectron reticulatus* Williams. Hymenoptera: Sphecidae, Astatinae. The Wasmann Jour. of Biol. **8**(3):363-66, 2 figs.
1951. Life-history studies of East African *Achatina* snails. Bulletin of the Museum of Comparative Zool. Harvard College **105**(3): 295-317, 5 plates.

### New Immigrant Records for the Year 1967

Species marked with an asterisk were reported from the Hawaiian Islands for the first time during 1967 on the dates recorded in the text. Those marked with a dagger are considered doubtfully established as the records are based on single collections.

#### CHANCE IMMIGRANTS

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* <b>Strumigenis rogeri</b> Emery.....	5
* <b>Solenopsis (Diplorthoptum)</b> sp.....	5
* <b>Trinoton querquidule</b> (L.).....	5
* <b>Euxesta wettsteini</b> Hendel.....	12
* <b>Herpetogramma licarsisalis</b> (Walker).....	16
* <b>Neoloxotaenia gracilis</b> (Meijere).....	19
† <b>Asteia</b> sp. n.....	2
* <b>Cryptochaetum iceryae</b> (Williston).....	4

#### BENEFICIAL INSECTS PURPOSELY INTRODUCED

* <b>Pachylister lutarius</b> Erichson.....	1
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