

PROCEEDINGS
of the **HAWAIIAN**
ENTOMOLOGICAL
SOCIETY for 1973

VOL. XXII NO. 1
August 1975

Information for Contributors

Manuscripts for publication, proof, and other editorial matters should be addressed to:

Editor: Hawaiian Entomological Society
c/o Department of Entomology
University of Hawaii
2500 Dole Street, Honolulu, Hawaii 96822

Manuscripts should not exceed 40 typewritten pages, including illustrations (approximately 20 printed pages). Longer manuscripts may be rejected on the basis of length, or be subject to additional page charges.

Typing—Manuscripts must be typewritten on one side of white bond paper, 8½ x 11 inches. Double space *all* text, including tables, footnotes, and reference lists. Margins should be a minimum of one inch. Underline only where italics are intended in body of text, not in headings. Geographical names, authors names, and names of plants and animals should be spelled out in full. Except for the first time they are used, scientific names of organisms may be abbreviated by using the first letter of the generic name plus the full specific name.

Submit original typescript and one copy. Pages should be numbered consecutively. Place footnotes at the bottom of the manuscript page on which they appear, with a dividing line.

Place tables separately, not more than one table per manuscript page, at end of manuscript. Make a circled notation in margin of manuscript at approximate location where placement of a table is desired. Use only horizontal lines in tables.

Illustrations—Illustrations should be planned to fit the type page of 4½ x 7 inches, with appropriate space allowed for captions. Number all figures consecutively with Arabic numerals. If figures are to be subdivided, use capital letters (A, B, C, etc.) to designate subdivisions. Where possible, figures should be grouped compactly into page-size plates. Photographic prints should be cropped to eliminate unnecessary margins. All figures should be securely mounted on stiff posterboard with identifying information (author, title of paper, and figure number(s)) placed on the back.

If possible, do not submit original drawings, but reduce photographically and submit prints (glossy or matte) no larger than 9 x 14. *The Editor cannot be held responsible for lost art work.* Two copies of all illustrative material should be submitted.

Figure captions should be typewritten, double-spaced, on a separate page, headed "Captions for Figures," and placed in the manuscript following the list of references. Do not attach figure captions to illustrations.

References—Citations in the text should be by author and date. Beginning on a separate page at the end of the text, list references cited alphabetically by author. List titles of articles as well as journal citations. See articles in this issue for proper style in listing references.

Examination of articles in this issue will help in conforming to the style of presentation desired. The editorial style of the PROCEEDINGS essentially follows the *Council of Biology Editors Style Manual* (Third Edition, A.I.B.S., 1972).

Manuscripts which fail to adhere to the above standards, although they may be otherwise acceptable, will be rejected or returned to authors for correction.

Proofs and Reprints—Proofs should be corrected and returned as soon as received, with an abstract on the form provided. All changes in proof, except printers and editorial errors, will be charged to authors. Reprints may be purchased by contributors. A statement of the cost of reprints and an order form will be sent with the proof.

Page Charges—All regular papers will be charged at the rate of \$12.00 per printed page. These charges are in addition to reprints. Papers in excess of 20 printed pages may be charged full cost of publication for the excess pages (about \$25.00 per page). Member authors who are retired or not affiliated with an institution may request to have page charges waived.

Acceptance of papers will be based solely on their scientific merit, without regard to the author's financial support.

PROCEEDINGS
of the
Hawaiian Entomological Society

VOL. XXII, No. 1

FOR THE YEAR 1973

AUGUST, 1975

JANUARY

The 805th meeting of the Hawaiian Entomological Society was convened by President Ota at 2:00 p.m. on January 8, 1973, at Agee Hall, HSPA Experiment Station, Honolulu, Hawaii.

Members Present: Beardsley, Bess, Bowman, Davis, Delfinado, Gagné, Hardy, Haramoto, Howarth, Joyce, LaPlante, Lauret, Leeper, Look, Madinger, Morrill, Nakahara, Ota, Sakimura, Shiroma, Steiner, Sugarman, Tsuda, Woolford, and Yoshioka.

Visitors Present: Mrs. Janet LaPlante and Mrs. Ercell Woolford.

NOTES AND EXHIBITIONS

Oncocephalus pacificus Kirkaldy: A single specimen of this reduviid bug was collected in a blacklight trap at the Hilo Airport on December 19, 1972. This constitutes a new distribution record for *O. pacificus* which was previously reported only for the island of Oahu ("Proceedings," 20 (3): 488-489, 1970). **E. Shiroma.**

Melormenis antillarum (Kirkaldy) and ***Siphanta acuta*** (Walker): Several adults and nymphs of these two flatid bugs were noted feeding on mulberry (*Morus* sp.) at Kaumana on the Big Island on November 25, 1972. These are new host records for both species. A heavy infestation of *M. antillarum* was reported on new growth of eggplants and tangerine trees in the Nuuanu area of Honolulu by inspector Taguma (AQI, USDA) who submitted two vials of specimens for identification. Inspector Taguma reported that the infestation was so heavy that the growth of the plants was affected. **E. Shiroma.**

Tricentrus albomaculatus Distant: Several specimens of this membracid also were noted feeding on mulberry (*Morus* sp.) at Kaumana on the Big Island on November 25, 1972. This constitutes a new host, as well as a new distribution, record for this membracid which was previously reported only from the island of Oahu (Zimmerman, *Insects of Hawaii*, Vol. 4, 1948). Other hosts listed are: pigeon pea, ylang ylang, *Cassia* sp., *Eucalyptus*, *Sesbania* and *Acalypha* ("Proceedings 16 (3): 335, 1958). **E. Shiroma.**

Cheiloneuromyia javensis Girault: Specimens of an encyrtid wasp which were reared from the soft scale, *Coccus acuminatus* (Signoret), were determined by Dr. B. D. Bunks of the U. S. National Museum as

Cheiloneuromyia javensis Girault. The parasite has been reared from several lots of *C. acuminatus* collected at various localities on Oahu. The earliest collection was made in November, 1965. This is a new insect record for the state. **J. W. Beardsley.**

Psylla uncatoides (Ferris & Klyver): This psyllid has been in the Hawaiian Islands since March, 1966 ("Proceedings" 19(3): 334). The species breeds and feeds on new flush of *Acacia* spp., and high populations can cause extensive twig dieback. The *Acacia koaia* Sanctuary at Kawaihae-uka, Kohala Mts. is one of the most heavily infested areas. The numbers of adult psyllids taken in 3-minute D-Vac samples on four successive occasions between Jan. 1 and April 29, 1972 were estimated at 2200, 9000, 14,400, 7500, and 3500, respectively. A D-Vac sample taken on January 4, 1973 shows that psyllid populations are again on the increase. Plans are in effect, in cooperation with the State Department of Agriculture, to introduce coccinellid predators in an effort to control the psyllid. **J. R. Leeper.**

Chrysopa comanche Banks: This green lacewing was treated by Zimmerman (Insects of Hawaii, Vol. 6) as *Chrysopa lanata* Banks and the name later corrected to *C. comanche* by Adams ("Proceedings" 18(2): 221). Zimmerman listed the presence of *C. comanche* on the Island of Hawaii as questionable, as no specimens from that island were available. Eight *C. comanche* adults were collected at the *Acacia koaia* sanctuary between April 4 and July 1, 1972, therefore establishing its presence in the Waimea (Kamuela) area of the Big Islands. **J. R. Leeper.**

Program: Dr. A. A. LaPlante presented a discussion, illustrated with color slides, on the status of economically significant insects on the island of Guam during a recent sabbatical leave which he spent there. He noted significant changes in population levels of certain species which had occurred since the time of a similar survey he had conducted on Guam eight to ten years ago.

FEBRUARY

The 806th meeting of the Hawaiian Entomological Society was called to order by President Ota at 2:00 p.m., February 12, 1973 at Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, Funasaki, Gagné, Gressitt, Haramoto, Harris, Howarth, Joyce, Kawamura, Kobayashi, LaPlante, Lee, Leeper, Madinger, Mitchell, Miyashita, Namba, Ohinata, Ota, Petersen, Paul Schroeder, William Schroeder, Shiroma, Steffan, Tenorio, and Tsuda.

Visitor Present: Mr. George Manikas, Entomologist and Fellow of the International Atomic Energy Agency, Athens, Greece.

New Business: Dr. Haramoto moved that \$25.00 be appropriated to defray a Science Fair award. The motion was seconded and passed without objection.

NOTES AND EXHIBITIONS

Oryzaephilus mercator Fauvel: The merchant grain beetle, *Oryzaephilus mercator* Fauvel, although previously unrecorded, has been present in Hawaii for at least 67 years under what was considered its synonymy, *O. surinamensis* (L.). According to Howe (1956, Ann. Appl. Biol. 44: 341-55) *O. mercator* and *O. surinamensis* (L.) are distinct species which do not interbreed. They can be differentiated by the relative lengths of eye and temple, and by the male genitalia. The former is usually found associated with oilseed products, while the latter is found chiefly on cereal products. Both of these grain pests were described as separate species under the genus *Silvanus* prior to 1889. However, in 1889, the genus *Silvanus* was divided by Ganglbauer into two subgenera *Oryzaephilus* and *Silvanus*; Reiter, in 1911, then raised these to the status of genera. In 1912 Gouvelle expressed the opinion that *O. mercator* and *O. surinamensis* were not distinct, and evidently workers in Hawaii and elsewhere accepted his opinion. In the Hawaiian collections, all beetles covered by these names were identified as *O. surinamensis*. It should be pointed out that some of the existing records of *O. surinamensis* probably refer to *O. mercator*. **D. M. Tsuda.**

Oxya japonica (Thunberg): In a preliminary revision of the genus *Oxya* Audinet-Serville, D. Hollis (Bull. Mus. Nat. Hist. 26 (7): 269-343, 1971) considered the earlier record of *Oxya chinensis* (Thunberg) in Hawaii as a misidentification. The correct identification of this grasshopper in Hawaii should then be *Oxya japonica* (Thunberg). **B. Napompeth.**

Cryptoblabes gnidiella (Milliere): The name of the phycitid moth, *Cryptoblabes aliena* Swezey, has been synonymized with *Cryptoblabes gnidiella* (Milliere) by E. C. Zimmerman (Pacific Insects 14 (2): 433, 1972). **W. C. Mitchell.**

Black Scale Complex in Hawaii: At the November 1972 meeting I presented a note on the black scale complex in Hawaii. At that time I called attention to the fact that what was formerly considered to be a single species, the so-called black scale, *Saissetia oleae* (Olivier), in North and Central America, is now recognized to be a complex of three distinct species. In November it was evident that two of these species, *S. miranda* (Cockerell and Parrott) and *S. neglecta* De Lotto, were established in Hawaii. Since November I have examined several additional collections of black scale and have determined that all three of the presently recognized species of the black scale complex apparently are established in Hawaii. The distribution and host records of these species within the State of Hawaii, based on specimens I have examined, are as follows:

Saissetia miranda (Cockerell and Parrott): Oahu, on *Erythrina sandwicensis* and *Erythrinia* sp.

Saissetia neglecta De Lotto: Oahu and Hawaii, on *Telosma cordata*, "orchid" and "tree fern."

Saissetia oleae (Olivier): Hawaii, on *Vaccinium* sp. and *Acacia koa*.

True *S. oleae*, for which the common name "Mediterranean black scale" has been proposed, was collected by me during February 1973 at 4,500 ft elevation near the Saddle Road on native ohelo (*Vaccinium* sp.) and at 4,700 ft on the Mauna Loa Strip Road on koa. Mr. Sueo Nakahara, a scale insect specialist with the U. S. Plant Protection and Quarantine Program, Animal and Plant Health Service at Beltsville, Maryland, also collected this species on Hawaii on *Dodonaea* during 1971. Mr. Nakahara, who has examined black scale material from Hawaii in the U.S.D.A. collection, also has recorded *S. miranda* from Oahu and Molokai, and lists *Agave sisilana*, *Amaranthus spinosus*, *Crotalaria*, *Dianthus caryophyllus*, *Diospyros ferrea*, *Erythrina*, *Nerium*, and *Schinus terebinthifolius* as hosts. **J. W. Beardsley.**

Psylla uncatoides (Ferris and Klyver): Adults and nymphs of the introduced acacia psyllid, *P. uncatoides*, were found on young terminal growth of *Acacia koa* growing near Lanai City, Lanai, on February 6, 1971. This collection, previously unreported, constitutes a new island record. **J. W. Beardsley.**

Wallacea albiseta de Meijere: Eight males of this stratiomyid fly were collected on Oahu: Waahila Ridge, 400 m elevation, swarming in small sunny patches in forest, on December 3, 1973 by myself. Two additional males were subsequently found in W. C. Gagné's collection. These were taken on Oahu on September 1, 1970: hills behind Dillingham Air Force Base, hovering about 5 feet above a talus slope in a patch of sunlight in a protected area. They were under a swarm of about 20 males of a milichiid fly which was 10 feet off the ground. *W. albiseta* is similar to *Gobertina picticornis* Bigot, first reported in Hawaii by J. Vockeroth ("Proceedings" 19 (3): 346, 1967). *W. albiseta* is smaller than *G. picticornis*, has a distinctly conical scutellum, and a terminal arista on the antenna. In *G. picticornis* the scutellum is rounded and the antenna terminates in a flattened style. *W. albiseta* was described from Java and subsequently recorded from Taiwan, Singapore, Okinawa, and Guam. This is the first record from Hawaii. A subspecies, *W. a. borealis* was described by James (Insects of Micronesia 13 (4): 101, 1962) from the Bonin and Mariana Islands in Micronesia. The identification was made by Dr. M. T. James, Pullman, Washington. **F. G. Howarth.**

Campylomma hawaiiensis (Kirk.): The supposedly immigrant mirid bug, *C. hawaiiensis*, has only been reported from Oahu and Wake Islands. It appears to be much more widespread in Hawaii where ilima (*Sida* spp.), its native malvaceous host plant, occurs at lower elevations. Material has been collected which extends its range to Molokai (Makolelau Valley, 100 ft, 4.III.72, on *Sida* sp., Gagné coll.); Maui, E. (5 mi. Kula side Ulupalakua, 5.III.56, on *Sida* sp., J. W. Beardsley coll.); Maui, W. (Malawaiiaole Gulch, 1000 ft, 12.IV.71, Gagné coll., on *Sida*); and Hawaii (Puu Waawaa, 670 m, 29.IV.72, car window, Howarth coll.). However, material collected from *Sida* sp. on Lanai by J. W. Beardsley (Kaunolu Bay Heaiiau, 20 ft, 7.II.71) contained only the endemic mirid,

Cryptopeltis (Engytatus) sidae Gagné, which occurs sympatrically with *C. hawaiiensis* on E. Maui and was known previously only from the type series collected at the E. Maui site mentioned above. **W. C. Gagné.**

Cryptochaetum iceryae (Williston): Adults of *C. iceryae*, (det. J. Tenorio), the dipteran parasite of cottony cushion scale, have been encountered in pyrethrum spray samples on an altitudinal transect in Hawaii Volcanoes National Park (Gagné coll.) along the Mauna Loa Strip Road. It was found in samples from the foliage of *Acacia koa* at 6,600 ft (6.VIII.71). Also, it was taken from foliage samples of ohia, *Metrosideros collina*, in the Kalapana area of the Park, elevation 50 ft (1.III.72), and at 7,000 ft on the Mauna Loa Summit Trail (25.IV.72). **W. C. Gagné.**

Halticus chrysolepis Kirkaldy: The grass fleahopper, *H. chrysolepis* (det. Gagné), has once previously been reported from Kauai (PHES 21: 24) at Kokee. It has now been found to occur in lowland situations there.

H. chrysolepis was exceedingly abundant on pasture grasses near Koloa (200 ft, 21.VI.72, Gagné, coll.) causing noticeable chlorosis to the leaves.

W. C. Gagné.

Lygus sp.: There appears to be a second species of *Lygus* bug in the State. This is a new State record (det. Gagné). One male was caught in flight in Honolulu near the State Capitol Building on 12.I.73 (Gagné, coll.). It is a predominantly blackish species with yellow dorsal and abdominal markings, indistinct pronotal punctures, and a black scutellum with a yellow apex and a median pair of yellow spots, thereby differing from the predominantly greenish *L. elisus*. The *Lygus* bugs are exceedingly difficult to differentiate and it was not possible to fully inflate the aedeagus of the specimen for a positive determination. It is entered in the record in the hopes that entomologists will be on the lookout for it. There has been a long-standing controversy over the generic placement of the pale legume bug (*L. elisus*) and its relatives; some maintain *Liocoris* Fieber is the proper generic designation, while a majority maintain *Lygus* Hahn is correct, which seems in the best interest of nomenclatural stability. **W. C. Gagné.**

Nesidiolestes insularis Kirkaldy and related reduviid bugs: Wgodzinsky has monographed the emesine (thread-legged bugs) Reduviidae of the world (Bull. Amer. Mus. Nat. Hist. 133) and has brought the systematics of our two apterous, endemic genera, *Nesidiolestes* Kirkaldy and *Saicella* Usinger, up to date. He has resurrected *N. selium* from synonymy under *N. insularis* where it had been placed by Zimmerman (Ins. Haw. 3: 129) and described *N. roberti* from Kauai (p. 402). He considered *N. insularis* to be an Oahu endemic and *N. selium* to be an Island of Hawaii endemic. Recent collections extend the range of *Nesidiolestes* to E. Maui (Kipahulu Valley, Camp 2, 1250 m, VIII.1967, N. Wilson) and Molokai (Waiakuilani Gulch, 1100 m, 25.I.73, sifting moss from tree trunks, W. Gagné), but the material is inadequate to further determine these exceedingly cryptic bugs which are poorly represented in collec-

tions. To the monotypic *Saicella*, Wgodzinsky added *S. usingeri* (p. 408) from Kauai. He placed both genera in the *Ploiariolini*, the only genera in the tribe to "have suffered a reduction or loss of wings" (p. 408) and which, however, "descended from two different immigrants" (p. 400). **W. C. Gagné.**

***Psallus sharpianus* Kirkaldy:** The endemic plant bug *Psallus sharpianus* has been discovered to be predaceous on the exotic acacia psyllid, *Psylla uncatoides*, on *Acacia koa*. Material was collected at 6,000 ft on the Mauna Loa Strip Road, Hawaii Volcanoes National Park in early January 1973. In the laboratory, adults of the bug were observed preying on nymphs, and possibly also on eggs, of the psyllid. Endemic *Psallus* spp. were suspected to be wholly or partially predaceous and this is the first documentation of this fact. **W. C. Gagné.**

Program: Mr. Ernest Harris, U.S.D.A. Fruit Fly Laboratory, Honolulu, Hawaii, spoke on the program and problems related to United States-North Africa cooperative efforts for the suppression of the Mediterranean fruit fly in North Africa. Mr. Harris illustrated his talk with color slides.

MARCH

The 807th meeting of the Hawaiian Entomological Society was called to order by President Ota at 2:00 p.m., March 12, 1973, at Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, Davis, Funasaki, Haramoto, Hardy, Howarth, Joyce, Kawamura, Leeper, Look, Madinger, Mitchell, Morrill, Nakahara, Ota, Shiroma, Sugarman, Tenorio, Topham, Woolford, Yoshioka.

Visitors Present: Mr. Daniel Sprenger, Graduate student from New York, and Mr. William E. Rose, Exploratory Entomologist for the Hawaii Department of Agriculture.

President Ota reported that the HSPA had again contributed \$1500.00 to the Society to help defray the cost of publishing the "Proceedings". The Society voted to have the Secretary address a letter of appreciation to the HSPA for this generous gift.

President Ota also read a letter from Dr. C. E. Pemberton, Past President and Honorary Member of the Hawaiian Entomological Society, in which Dr. Pemberton expressed his appreciation to the Society for the dedication of the "Proceedings" for 1971 in his honor.

NOTES AND EXHIBITIONS

***Stethorus siphonulus* Kapur:** This determination was received from Dr. E. B. Britton of the Entomology Division, CSIRO, Canberra, Australia, for specimens of the mite-feeding coccinellid beetle which has been known in our literature as *Stethorus vagans* Blackburn. Dr. Britton wrote that *S. siphonulus* was described in 1948 (Bul. Entomol. Res. 39: 314)

on the basis of a single male from Penang, Malaysia, and until now it was apparently unknown elsewhere. The species apparently has been present in Hawaii for many years. It was first recorded, misidentified as *S. vagans*, by Fullaway in 1922 ("Proceedings" 5: 80) who stated that it was first collected here in August, 1904. Although impossible to verify due to lack of voucher specimens, it seems likely that this beetle may have been among the species of Coccinellidae sent by Albert Koebele during 1896. **J. W. Beardsley.**

Saissetia miranda (Cockerell and Parrott): Specimens of the Mexican black scale, *Saissetia miranda* (det. J. W. Beardsley) were collected at Hana, Maui, on February 12, 1973, by Nobu Miyahira on twigs of *Erythrina* sp. This is a new island record. **J. W. Beardsley.**

Euvespivora sp. prob. **decipiens** Walker: One ♀ specimen of this tachinid fly, det. by Roger Crosskey, British Museum (Nat. Hist.) was collected in Honolulu, June 1972 (F. G. Howarth). This is a new state record. *E. decipiens* is a parasite of larvae of *Polistes* wasps. **D. E. Hardy.**

Desmometopa spp.: *Desmometopa singaporensis* Kertesy and *D. tristicula* Hendel are two species of milichiid flies which have been confused in our literature under the name *D. palpalis* de Meijere. The first species has been recorded from Oahu and Hawaii and the second from Oahu and Kauai. They are both probably widespread. Determinations by C. W. Sabrosky, U. S. National Museum. **D. E. Hardy.**

Neophyllomyza sp.? possibly **quadricornis** Melander: This determination was received from Dr. C. W. Sabrosky for two specimens of a chloropid fly collected on Oahu. This is a new state record. **D. E. Hardy.**

Rhodesiella sauteri (Duda)?: Dr. Sabrosky also gave the above determination for three specimens for another chloropid collected in a light trap in Honolulu during 1966 and 1967 by C. R. Joyce. This also is a new state record. **D. E. Hardy.**

Coccinellid Predators of Psylla uncatoides (Ferris and Klyver): The Australian coccinellid beetle *Harmonia conformis* (Boisduval), also known in literature as *Leis conformis* (Boisduval), *Callineda conformis* (Boisduval), and *Coccinella conformis* Boisduval, was first introduced into Hawaii before 1894, and again in 1904. In 1906 Kirkaldy reported it feeding on the brown citrus aphid, *Toxoptera citricida* (Kirkaldy), in Honolulu ("Proceedings" 1: 101). Swezey (1925, Hawaiian Planters' Rec. 29: 370) stated that the species disappeared here after 1906. The reasons for its disappearance are unknown. However, in Australia this species is an important predator of *Psylla* spp. on acacias, and psyllids appear to be its preferred prey.

During January, in cooperation with the Hawaii State Department of Agriculture, we obtained a shipment of about 60 *H. conformis* adults from the University of California, Division of Biological Control insectary at Albany, California. These were released on Hawaii at the *Acacia koaia* sanctuary at Kawaihae-uka, Kohala Mts. (3,200 ft) where *P. uncatoides* was extremely abundant. Second generation adults recently

were collected at this site and released on psyllid-infested *Acacia koa* trees along the Mauna Loa Strip Road, Hawaii Volcanoes National Park. *H. conformis* appears to be established at the *A. koa* sanctuary.

We also obtained a shipment of a second Australian coccinellid, *Diomus* sp., from the U. C. Division of Biological Control. Larvae and adults of this species prey principally on the eggs of *Psylla* spp. *Diomus* adults were released on psyllid infested koa trees along the Mauna Loa Strip Road. To date this species has not been recovered. **J. R. Leeper** and **J. W. Beardsley**.

Callosobruchus pulcher Pic: During 1972 Dr. J. W. Beardsley recognized a *Callosobruchus* sp. in the University of Hawaii collection as being new to Hawaii. Specimens were sent to J. M. Kingsolver, USNM, and were determined as *Callosobruchus pulcher* Pic. The earliest specimen in the University of Hawaii and Hawaii Department of Agriculture collections is dated January 1965; collected by N. L. Krauss at Haiku, Maui. Additional specimens were subsequently collected at light at the University of Hawaii campus by J. W. Beardsley and at Ewa, Oahu on pigeon pea by G. Funasaki. **K. Kawamura**.

Parasites of diamondback moth: Three species of parasites were purposely introduced into Hawaii in December 1972 by the Hawaii Department of Agriculture and are currently being released at Poipu, Kauai and Kula, Maui to aid in the control of the diamondback moth, *Plutella xylostella* (L.), a serious pest of crucifers. The three species, *Thyraeella collaris* Gravenhorst (Ichneumonidae), *Apanteles vestalis* Haliday and *Apanteles plutellae* Kurdjumov (Braconidae) were received through the cooperation of Dr. F. D. Bennett, Commonwealth Institute of Biological Control, Trinidad, West Indies. Although *Thyraeella collaris* is being released in Hawaii for the first time, this is the second introduction and release of *Apanteles vestalis* and *Apanteles plutellae*. They were previously released on Kauai and Maui in late 1971 and early 1972. **G. Funasaki**.

Spoladea recurvalis (Fabricius): According to J. F. Gates Clarke in "Lepidoptera of Rapa Island" (Smithsonian Contrib. Zool. 56: 69, 1971) the Hawaiian beet webworm, previously known as *Hymenia recurvalis* (Fabricius) should now be *Spoladea recurvalis* (F.). **G. Funasaki**.

Azya orbigera Mulsant: It seems likely that the coccinellid beetle known in Hawaiian literature as *Azya luteipes* Mulsant is in fact *A. orbiger*a. Swezey (1942, Insects of Guam I, B. P. Bishop Mus. Bul. 172: 160) listed *A. luteipes* in Guam as probably having been purposely introduced from Honolulu at the same time as *Cryptaেলাemus montrouzeri* Mulsant, in 1926, although it was not recorded at the time. Chapin (1965, Insects of Micronesia 16 (5): 247) listed *A. orbiger*a from Guam, indicating that the record of *A. luteipes* there was due to a misidentification. Although Gorham (1895, Biol. Centr. Amer. 7: 211) had synonymized *A. orbiger*a with *A. luteipes*, Chapin indicates that the two are distinct.

Assuming that Chapin was correct and that the Guam population originated from Hawaii, we can infer that the species present here also should be known as *A. orbigera*. **G. Funasaki and J. W. Beardsley.**

Elimaea punctifera (Walker) and **Conocephalus saltator** Saussure: On February 16, 26 adults and nymphs of these two katydids were observed at night feeding on the new terminal growth, buds and blossoms of macadamia nuts at Pahala, Hawaii. During the day these katydids were found resting on leaves, with forelegs extended forward, the back legs extended backward, and the antennae extended forward parallel to the forelegs. The damage to the blossoms and buds was due to the chewing off of the pistil or tip of the bud rather than devouring the whole floret. Often the tettigoniids would also chew off the tip of the raceme.

These katydids are known to feed at times on aphids and caterpillars but may change their food habits. They are good predators on aphids on sorghum up until the heads reach the doe stage when they switch and feed on the seed. The Pahala area was experiencing a drought at the time of these observations. Rainfall for the period of November to February 26 was 2.61 in at 850 ft elevation and 1.48 in at 550 ft elevation. Macadamia trees appeared dry and in need of water. Other trees in the area, such as Java plum (*Eugenia cuminii* (L.)) were not flowering and lacked new terminal growth because of the dry conditions. **W. C. Mitchell.**

Toxoptera aurantii (Boyer de Fonscolombe): Populations of the black citrus aphid were very high in the macadamia orchards at Pahala, Hawaii, during February. The aphids were feeding on racemes. Populations were higher at 550 ft elevation than at 850 ft. Copious quantities of plant exudations were evident on the leaves. Much of the exudation was from the aphid feeding punctures that continued to bleed after feeding ceased. Considerable damage in fruit set is expected because of the combined effect of drought and aphid feeding. The predators (ladybird beetles, lace-wings and syrphid flies) and parasites (Braconidae) were just starting to develop in the area. **W. C. Mitchell.**

Oedaleus abruptus Thunberg: Several adults of this small banded-wing grasshopper were submitted for identification in February by Richard Onzuka, who collected them by sweeping in his yard in Pearl City, and by John Graffam, who collected several in his yard in the Kalaheo area of Kailua. These collections indicate that this grasshopper is spreading on the island of Oahu. Previously it had been reported only from Hickam Air Force Base and Barbers Point Naval Air Station. **E. Shiroma.**

Program, Dr. J. W. Beardsley, Department of Entomology, University of Hawaii, gave a very interesting account of his recent entomological work in Australia where he did research on scale insects (Coccoidea) and on the biological control of Acacia psyllid, *Psylla uncatoides* (Ferris and Klyver). The talk was illustrated with colored slides of Australian insects.

APRIL

The 808th meeting of the Hawaiian Entomological Society was called to order by President Ota at 2:00 p.m., April 9, 1973, in Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, Chang, Davis, Gagné, Gubler, Haramoto, Hardy, Howarth, Joyce, Krauss, Loo, Mau, Montgomery, Morrill, Nakahara, Ota, Radovsky, Rose, Sakimura, P. Schroeder, W. Schroeder, Shiroma, Steffan, Sugerman, Tsuda, Woolford, and Yoshioka.

Visitors Present: Mr. James Jacobi, Mr. Kent Kobayashi, and Dr. David Miller, a hydrophilid specialist from City College of New York who is visiting the Bishop Museum.

Reports of Officers and Committees:

Membership Committee: Dick Tsuda, Chairman of this committee, proposed the following names for membership ratification: Mr. Michael Muraoka and Mr. Daniel Sprenger, University of Hawaii Entomology Department; Mr. William Rose, State of Hawaii Department of Agriculture; and Mr. Hideo Makino, Inspector with Agriculture Quarantine Inspection, USDA. All of the above unanimously elected to membership.

Science Fair Committee: Dr. Vincent Chang, Chairman, reported that the 16th Hawaiian Science and Engineering Fair was held at the HIC Exhibition Hall on April 5-7, 1973. Ten exhibits out of total 227 were entomological in nature. Mr. Jason Daide of Kahului School, Maui, was awarded a \$25 U. S. Savings Bond, a book, "To Know a Fly," and a letter of commendation for his winning project, "The Predatory Habits of the Spider, *Hasarius adansonii*."

Liaison Committee: Mr. Frank Howarth, Chairman, announced that a hearing on the Northwestern Hawaiian Islands National Wildlife Refuge wilderness proposal will be held on Saturday, April 14, 1973, at the Holiday Inn Motel, Honolulu International Airport. The Society adopted a motion that Mr. Howarth be sent to this hearing as its official representative. Mr. Howarth read a letter affirming the Society's support of the wilderness proposal which he had prepared for presentation at the hearing.

Mr. Howarth read another letter which he had prepared for transmittal to the Department of Land and Natural Resources concerning re-leasing of certain grazing lands on the Big Island. This communication recommended that the Department of Land and Natural Resources withhold leasing a portion of these lands for the purpose of studying silviculture of the native hardwood tree, *Acacia koa*. Transmittal of the letter was approved unanimously by the members present.

Mr. Howarth also proposed that the Society submit a "Position Paper" to the Environmental Council which would outline the aims of the Society and areas of expertise represented within the membership. The Society adopted a motion that a committee be appointed for this purpose.

NOTES AND EXHIBITIONS

Euvespivora sp. prob. *decipiens* Walker: Dr. Hardy exhibited a second female specimen of this new tachinid fly which was picked up from Halawa, Oahu, by George Funasaki. More specimens are needed for specific identification, especially males. **D. E. Hardy.**

Sepsis thoracica Robineau-Desvoidy: Dr. Hardy exhibited specimens of this sepsid fly (*Essai sur les Myodaires* (Ser. 2) 2: 742, 1830) which were collected on Kahua Ranch, Honouliuli, Oahu, on March 2, 1973, by G. Toyama. This is the first record of *S. thoracica* from Hawaii. The species is widespread over the Palaearctic, Ethiopian and Oriental regions. **D. E. Hardy.**

Clausenia purpurea Ishii: During March 1973, Mr. John Leeper collected citrus twigs infested with an introduced mealybug, *Pseudococcus citriculus* Green, at a residence in Manoa Valley, Honolulu. This rarely collected mealybug has been present in Hawaii since 1929 but has not been reported outside of Manoa Valley. Zimmerman (*Insects of Hawaii*, Vol. 5, p. 211) reported rearing "a small wasp" from *P. citriculus*, but the parasites apparently were never identified and the specimens appear to be lost.

Mr. Leeper's specimens were held in our laboratory and several mummified mealybugs each yielded an adult of a small encyrtid parasite. These were determined as *Clausenia purpurea* Ishii, a species which is native to Japan where it parasitizes both *P. citriculus* and *P. comstocki*. *C. purpurea* has been introduced both to the Mainland U. S. and to Israel to combat the Comstock mealybug. Sakimura ("*Proceedings*" 13: 9, 1947) reported that this parasite and several others were imported for trial against the pineapple mealybug but failed to develop on that host. There is no indication that it was liberated in the field here, and the present record probably represents an accidental introduction. This is a new insect record for the State. **J. W. Beardsley.**

Arctorthezia occidentalis (Douglas): This immigrant ortheziid scale insect has been previously reported in Hawaii only once when it was collected at 8,000 ft elevation on Haleakala, Maui, in July, 1963 ("*Proceedings*" 18: 339, 1964). On March 9, 1973, Steve Montgomery collected a series of five adult females and several immatures of *A. occidentalis* at Eke Crater, 4,300 ft, in the West Maui Mountains. These were taken on moss-covered roots of a silversword (*Argyroxiphium* sp.). *A. occidentalis* occurs at high latitudes and high elevations in Western North America. **J. W. Beardsley.**

Vespa vulgaris (L.): A single male vespid wasp collected on E. Maui, above Olinda, 1200 m, 23 Jan. 1973, by F. G. Howarth, has been determined as *V. vulgaris* (L.) by A. S. Menke of the USDA Agricultural Research Service, Maryland. This is the first report in the state of this potentially pestiferous wasp. *V. vulgaris* is widespread in the Holarctic Region. In North America it is known mostly from the Canadian and

transition life zones. It has also been introduced into New Zealand. **F. G. Howarth.**

Program: Dr. Radovsky introduced co-speakers Austin Morrill and Ronald Mau who spoke on "Economic Insect Problems on the Northwest Cape, Australia." Both Mr. Morrill and Mr. Mau gave interesting accounts of their trip to the Northwest Cape, illustrated with slides concerning their study of the Australian bush fly.

MAY

The 809th meeting of the Hawaiian Entomological Society was called to order by President-Elect Steffan at 2:00 p.m., May 11, 1973, at Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, Chang, Funasaki, Gubler, Haramoto, Hardy, Harris, Howarth, Lauret, Look, Madinger, Morrill, Olson, Radovsky, W. Schroeder, Sprenger, Steffan, Sugarman, Tenorio, Tsuda, Watanabe, Darwin Yoshioka.

Visitors Present: Dr. Robert Tesh, Pacific Research Section, U. S. Public Health Service, National Institute of Health.

Reports of Officers and Committees:

President-Elect Steffan read a letter addressed to Professor Agatin Abbot, Department of Geology and Geophysics, The University of Hawaii, which (1) affirmed the Hawaiian Entomological Society's interest in the U. S. Natural Landmarks Program; (2) offered technical assistance by the Society; and (3) pointed out current active participation by some Society members in the delineation of potential "Natural Area Reserves" in Hawaii.

Announcements: Secretary Madinger announced that Agricultural Quarantine and Inspection Program of the Animal and Plant Health Service, U. S. Department of Agriculture, was moving to permanent quarters in the new International Arrivals Facility at Honolulu International Airport. He extended an invitation to the Society's members, their families, and other interested persons, on behalf of the Inspector in Charge, Mr. Stanley S. Miyake, to attend an open house at the new facility on May 18, 1973.

NOTES AND EXHIBITIONS

Sepsis thoracica (Robineau-Desvoidy): *Sepsis thoracica* (Robineau-Desvoidy), which was first recorded last month (April) from Kahua Ranch, Oahu, has since been collected at Waimanalo, Oahu; Haleakala Ranch, 5,000 ft, Maui; and Kalualoha Gulch and Kahanui, Molokai (April 18, 1973, W. Ibara and C. Whittle). This species seems to have replaced *Sepsis biflexuosa* Strobl on horse and cattle dung in areas which have been checked on Oahu, Maui and Molokai. A sampling was made on the Keahou Ranch, Kilauea Forest, Hawaii, 5,000 ft, April 15, 1973 (D. E. Hardy) and only *S. biflexuosa* was present. It appears that *S.*

thoracica has not yet reached the Island of Hawaii. **D. E. Hardy.**

Sepsis lateralis Wiedemann: This sepsid fly (Aussereur. Zweifl. Ins. 2: 468, 1830) was first observed in Hawaii on the University of Hawaii campus, April 17, 1973, by Dick Tsuda and Jack Fujii who found the flies attracted to a dead kukui tree stump. The tree had been killed by termites and was being chopped up to recover the queen. The wet sections of the wood gave off a strange, rather foul odor which was obviously very attractive to this species. It has since (April 20-24) been reared from and observed on dog feces in Palolo and Manoa valleys, Oahu. *S. lateralis* is widespread over Palaearctic, Ethiopian and Oriental Regions. We have no idea how it reached Hawaii. **D. E. Hardy.**

Pachysomoides stupidus (Cresson): Several adult specimens of *Pachysomoides stupidus* (Cresson), an ichneumonid parasite of *Polistes* wasps, were collected on May 4, 1973 on mustard cabbage leaves at Kahului, Maui by N. Miyahara. *P. stupidus* was first reported in the state by J. W. Beardsley in 1970, from specimens collected on Oahu ("Proceedings" 21 (1) : 20). **G. Funasaki.**

Penthelispa rufipennis Montrouzier: Fifteen adult specimens of a colydiid beetle new to Hawaii were collected under bark of a *Eucalyptus* tree at Honouliuli Forest Reserve, Oahu on February 10, 1972 by C. J. Davis. Specimens sent to Dr. R. D. Pope, British Museum, were determined as *Penthelispa* sp., prob. *P. rufipennis* Montrouzier. In a recent communication Dr. Pope stated that he is now certain that the species is *Penthelispa rufipennis*. Dr. Pope stated that this beetle is fairly common in New Caledonia. **G. Funasaki.**

Program: Dr. Robert Tesh provided a very interesting talk on the biology of Panamanian Phlebotomine Sandflies. He illustrated his talk with slides and sandfly specimens.

JUNE

The 810th meeting of the Hawaiian Entomological Society was called to order by President-Elect Steffan at 2:00 p.m., June 18, 1973 at Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, Davis, Gagné, Gressitt, Howarth, Lauret, Madinger, Mitchell, Montgomery, Morrill, Radovsky, Samuelson, Steffan, Tenorio, Tsuda, Darwin Yoshioka.

Visitors Present: Mr. Wm. P. Mull, President, Hawaii Audubon Society; Mrs. Mae Mull, Secretary, Hawaii Audubon Society; Mr. David C. Miller, Consultant to the office of the Governor; Mr. Alan D. Hart, Artist, Bishop Museum; Dr. Klaus Sattler, microlepidopterist with the British Museum (Natural History), London; and Mr. John Obata, biologist and teacher, Kawananakoa School.

Reports of Officers and Committees:

Liaison Committee: The Chairman, Mr. Howarth, read a draft letter to Governor Burns in which the committee (1) noted that the Society

had not received a reply to its previous letter of April 17, 1973 relating to recommendations for setting aside certain state grazing lands for Koa silviculture; (2) reaffirmed the Society's recommendations contained in the April letter; and (3) congratulated the Governor on the recently announced establishment of the Ahihi-Kinau Natural Area Reserve on Maui. The Society approved the forwarding of this letter to Gov. Burns.

Mr. Howarth also presented a draft letter from the Society to Mr. Fred Erskine, Chairman, Hawaii State Board of Agriculture, in which the Committee noted (1) the potential danger to Hawaii from introductions of fruit and seed-eating birds and (2) the recent passage of Legislative Act 69 (1973) which contains the basic legislation needed to exclude such potential pests.

Announcements: President-Elect Steffan announced that an open symposium on "Natural Areas, Ecological Reserves and Wildlife Areas in Hawaii, the U. S. and the Pacific Basin" will be held at the State Capitol Building, June 19, 1973.

President-Elect Steffan announced the retirements of Dr. C. R. Joyce, Science Director, U. S. Public Health Service, Honolulu, effective July 1, 1973; and of Mr. Austin Morrill, Entomologist, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii, also effective July 1, 1973. Dr. Steffan noted valuable contributions of both men to the Hawaiian Ent. Soc., as well as to the science of entomology, and extended to both the Society's best wishes in their retirement.

NOTES AND EXHIBITIONS

***Aulacaspis rosarum* Borchsenius:** Mr. Steve Nakahara, scale insect specialist of the U.S.D.A., A.R.S., Beltsville, has written that all Hawaiian specimens in the A.R.S. collection formerly identified as *Aulacaspis rosae* (Bouché) are in fact *A. rosarum* Borchsenius. I have examined *Aulacaspis* specimens in the slide collection of the University of Hawaii, Department of Entomology, and find that all those from hosts of the family Rosaceae (*Rosa* spp. and *Rubus* spp.) are *A. rosarum*, not *A. rosae* as previously identified. Therefore, it appears that Hawaiian records of *A. rosae* are based on misidentifications and that this species probably does not occur here. The material examined by Mr. Nakahara and myself included nine individual collections, seven from Oahu and one each from Kauai and Maui, collected during the period from December 1905 to January 1965. *Aulacaspis rosarum* was described from specimens collected in China (Borchsenius 1958, Ent. Obozr. 37 (1): 165) and occurs also in Japan, Philippines, Java, New Guinea, Australia, New Zealand and Fiji, according to Mr. Nakahara. **J. W. Beardsley.**

Anacamptodes fragilaria Grossbeck and **Papilio xuthus** L.: Mr. John Obata, who lives at the mouth of Moanalua Valley, Oahu, has a hobby growing native plants at his home. He reports problems with two species of defoliating exotic lepidoptera. He reared and submitted a specimen

to the Bishop Museum of the koa haole looper, *A. fragilaria* (det. by Howarth), from the phyllodes of potted koa, *Acacia koa*. He also reported removing larvae of the citrus swallowtail, *P. xuthus*, from an endemic species of alani, *Pelea* sp., a rutaceous genus with over 60 spp. in the Hawaiian Islands. The potted seedlings were adjacent to some citrus trees which also were being fed on by larvae of this species. These appear to be new host records. **W. Gagné.**

Antianthe expansa (Germar): The solanaceous treehopper, *A. expansa*, was found attacking tobacco, *Nicotiana tabacum*, which was growing wild in the hills behind Dillingham Air Field, Oahu. The treehoppers were attended by the big-headed ant, *Pheidole megacephala* (Fabricius). *A. expansa* has been found to attack a wide range of species in the Solanaceae, so this apparently new record is not unexpected. The specimens (Gagné, det. & col.) were taken on 24.IV.1973. **W. Gagné.**

Heliothrips haemorrhoidalis (Bouché): Heavy infestations of the greenhouse thrips, *Heliothrips haemorrhoidalis* (Bouché), were found on leaves of *Protea exima* plantings at the Kula Experiment Station, 4,000 ft elevation, Kula, Maui, during June. This is a new host record. **W. C. Mitchell.**

Program: Mr. Steve Montgomery, University of Hawaii graduate student, and Mr. William P. Mull, President of Hawaiian Audubon Society, presented an excellent account of the entomophagous geometrid larvae, *Eupithecia* spp., recently discovered by Mr. Montgomery on Hawaii. Mr. Mull's color slides of these and other Hawaiian insects provided examples of insect photography at its best.

JULY

The 811th meeting of the Hawaiian Entomological Society was called to order by President Ota at 2:00 p.m., July 16, 1973, in Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, V. Chang, Conant, Davis, Funasaki, Gressitt, Gubler, Hardy, Harris, Look, Madinger, Mau, Morrill, Muraoka, Ohinata, Ota, Po-yung Lai, Radovsky, P. Schroeder, Steffan, Sugerman, Tamashiro, Tenorio, Woolford, and Yoshioka.

Visitors Present: Dr. James L. Eschle, Research Entomologist, USDA-ARS; Mr. Brian Taylor, former Entomologist, Honiara, British Solomon Islands; Dr. Joseph A. Beatty, Southern Illinois University, Carbondale, Ill., Dr. Fumio Matsumura, University of Wisconsin, Dr. JoAnn Tenorio.

Old Business: Dr. Beardsley reintroduced the subject of the exclusion of exotic pests under Act 69 and of the Society's approval of the recommendation, presented as a motion by the Liaison Committee, to Mr. Erskine, Chairman, Hawaii State Department of Agriculture at the June 1973 meeting. Dr. Beardsley felt that the Society had approved the Liaison Committee's recommendation regarding the enforcement of Act 69 without consideration of the implications that literal "across the board"

enforcement of this Act might have on Hawaii's biological control programs. Specifically, the act, as written, excludes all exotic animals, not just exotic species of birds. While the Society may well approve prohibition on further importation of exotic birds, it might not wish to lend its approval to the exclusion of beneficial insects. There ensued a great deal of discussion regarding (1) the impact that Act 69 could have on biological control activities in Hawaii; (2) resubmission of the draft recommendation by the Liaison Committee, and (3) the appropriate action by the Society in view of this additional information regarding the broad, prohibitive aspects of Act 69. The members present voted to resubmit the draft recommendation (see June, 1973 minutes) to the Liaison Committee for revision so as to incorporate a more accurate sense of the Society's feelings with regard to importation of exotic species of animals.

NOTES AND EXHIBITIONS

Actia eucosmae Bezzi: One specimen of this tachinid fly, collected in the Kilauea Forest, 5200 ft, "MLSR, Malaise Tr. #3, 26.VII.1971 (Steffan and Goff), WAS 71-105," was identified by Dr. Roger Crosskey, British Museum (Nat. Hist.). A known host of this species is *Crocidosema plebeiana* (Lepidoptera, Tortricidae). *A. eucosmae* occurs in Queensland, N. S. Wales and South Australia in addition to the Philippines. This is a new state record. **D. E. Hardy.**

Lynxacarus sp.: In October 1972, Dr. Frank Haramoto reported an apparently undescribed species of *Listrophorus* (Acari: Astigmata) as a new state record; numerous specimens of these fur mites had been collected in September by R. Pierson in Kaneohe, Oahu from a cat. We now report a second observation of the same species on another island. In May 1973, Robin Rice collected many individuals of a fur mite from the fur of his cat on Kipu Ranch, Kauai. Mr. Rice indicated that the cat showed external signs of infestation, appearing very scruffy and mangy. At least one other cat of several on the ranch was also infested.

Dr. Haramoto kindly made available to us specimens of the *Listrophorus* sp. which had been collected in Kaneohe. The Kaneohe individuals are conspecific with those from Kauai, and we agree with his conclusion that they represent a new species. According to recent European literature revising generic concepts in the Listrophoridae, the new species belongs to the genus *Lynxacarus*. Members of the family Listrophoridae are found primarily on hosts of the orders Rodentia, Lagomorpha and Carnivora. In the entire super-family Listrophoroidea, only *Lynxacarus morlani* Radford has heretofore been reported from a host belonging to the family Felidae (Carnivora).

The two collections of independent origin, on two islands and only about 6 months apart, suggest that infestation of cats may not be infrequent and, in the absence of earlier records, that the incidence may

be increasing. While cats may acquire the mite from other hosts such as rodents, the two heavy infestations indicate that the mite can be maintained as a parasite of cats. It is also intriguing that this is the second instance in the Hawaiian Islands of a new species of fur mite being described from an introduced mammalian host. *Afrolistophorus musculus* (Wilson and Lawrence, 1967) was described from *Mus musculus* on the island of Hawaii. This fur mite has subsequently been reported from the same host in Puerto Rico. **F. J. Radovsky** and **J. M. Tenorio**.

Ornithonyssus sylviarum (Canestrini and Fanzago): Mr. Winston Banko of the U. S. National Park Service collected numbers of a macronyssid mite from a recently taken fledgling of the Hawaiian Crow, *Corvus tropicus* Gmelin, that is being held in captivity at Hawaii Volcanoes National Park. The crow was taken in the South Kona District on Hawaii on June 23, 1973, under permit to attempt salvage of individuals of this endangered species. This mite is the northern fowl mite, *Ornithonyssus sylviarum* (Canestrini and Fanzago). The species is widely distributed through the world and in Hawaii and is known from a wide range of wild birds as well as domestic fowl. This is the first record on the Hawaiian Crow. The related tropical fowl mite, *Ornithonyssus bursa* (Berlese), was recorded from nests of the Hawaiian Crow by Tomich (1967, "Proceedings" 19: 431-432). These species of blood-sucking mites increase to very high population levels in nests occupied by young birds. It is conceivable that they are affecting the nesting success of the crow and have been a factor in reducing it to its present level believed to be well below 100 individuals of the species.

Ornithonyssus sylviarum was also referred to me for identification in an instance where it was producing severe dermatitis of humans in a new residence in Kailua, Oahu, during June. The mites were dispersing into the house from the nest of a Common Mynah beneath the eaves. The frequency with which similar cases have come to my attention indicates that the bird mites are a common cause of annoyance to humans and frequently of dermatitis in humans in Hawaii, typically associated with the presence of active bird nests on or in dwellings. *O. bursa* and *Dermanyssus gallinae* (DeGeer) may also be involved, but *O. sylviarum* appears to be the species most commonly present in such cases. Similarly mynahs appear to be the bird host most frequently involved. The nesting season of the Common Mynah in Hawaii is from March to late July (Berger, 1972, Hawaiian Birdlife, University of Hawaii Press), but mites may continue to disperse from nests around buildings after that time. Removal of nests is the obvious and chief remedy. **F. J. Radovsky**.

Program: The Society was treated to a very interesting discussion by Dr. Fumio Matsumura, University of Wisconsin, dealing with his research on the isolation of pheromones in subterranean termites and problems associated with this work. Dr. Matsumura is a visiting professor at the University of Hawaii.

AUGUST

The 812th meeting of the Hawaiian Entomological Society was called to order by President Ota at 2:05 p.m., August 13, 1973, in Agee Hall, HSPA Experiment Station.

Members Present: Beardsley, Davis, Funasaki, Haramoto, Harris, Ikeda, Jayce, Kawamura, Kitagawa, Komatsu, Look, Morrill, Montgomery, Muraoka, Namba, Ohinata, Olson, Ota, W. Schroeder, Shiroma, Tenorio, Tsuda, and D. Yoshioka.

Visitors Present: Dr. James L. Eschle and Dr. JoAnn M. Tenorio.

Reports of Officers and Committees:

Membership Committee: The Chairman, Mr. Tsuda, moved and the membership concurred that Dr. James L. Eschle be granted membership.

Mr. Tsuda reported that no more honorary members could be elected unless the constitution was amended to remove the 12% of total membership restriction.

Old Business: President Ota reported that Mr. Howarth was unavailable for action related to Act 69. The President sought a concensus of opinion from concerned parties and then drafted a paragraph which he proposed be added to the letter being sent to Fred Erskine, Chairman of the Hawaii Dept. of Agriculture. After discussion of the issue, the members present voted that the letter be sent with the paragraph drafted by President Ota inserted in the appropriate place.

NOTES AND EXHIBITIONS

Antianthe expansa (Germar): Moderate numbers of adults of the solanaceous treehopper, *Antianthe expansa* (Germar), were found infesting poha (*Physalis peruviana*) at Keeau, Hawaii during November 1972. Moderate numbers of nymphs and adults were also noted in a backyard planting of eggplant at Pakala, Kauai in late June 1973. These both constitute new island records. *A. expansa* was previously reported only from the island of Oahu. **K. Kawamura.**

Bitoma near parallela (Sharp): This determination was received from the U.S.D.A., A.R.S., Plant Pest Survey and Detection Service for specimens of a previously unidentified beetle of the family Colydiidae. A series of specimens were collected from light trap catches on Oahu beginning in June, 1961, by J. W. Beardsley. Determination by Dr. J. M. Kingsolver. No information on the habits of this beetle is available. **J. W. Beardsley.**

Program: Mr. Harris introduced Dr. James L. Eschle, who gave an interesting presentation on the horn fly eradication pilot project on Molokai.

SEPTEMBER

The 813th meeting of the Hawaiian Entomological Society was con-

vened by President Ota in Agee Hall at 2:00 p.m., HSPA Experiment Station, September 17, 1973.

Members Present: Beardsley, Conant, Davis, Funasaki, Gagné, Haramoto, Hardy, Joyce, Kawamura, Kitaguchi, Lauret, Look, Madinger, Mau, Mitchell, Montgomery, Olson, Ota, Sakimura, W. Schroeder, Shiroma, Sprenger, Steffan, Sugerman, Tenorio, Tsuda, and Woolford.

Visitors Present: Robert Burkhart, graduate student at the University of Hawaii, and Dr. Francisca C. do Val, visiting entomologist from Brazil.

Unfinished Business: President Ota read a letter from Mr. Fred Erskine, Hawaii State Department of Agriculture, in which Mr. Erskine expressed pleasure with the Hawaiian Entomological Society's active interest in Act 69 and assured the Society that the special problems associated with the introduction of biological control organisms would be carefully considered in the promulgation of rules and regulations needed to implement this Act.

NOTES AND EXHIBITIONS

Anabrolepis bifasciata Ishii: Several specimens of an encyrtid wasp, determined by Dr. Beardsley as *Anabrolepis bifasciata* Ishii, were reared from scale-infested ohia twigs which he collected at Keaiwa Heiau State Park above Aiea, Oahu on June 26, 1973. The host scale was determined as *Duplaspidiotus claviger* (Comstock) (Family Diaspididae). *A. bifasciata* was described from Japan and is known also from India. It has not been reported previously in Hawaii. **J. W. Beardsley.**

Two New Aphid Records for Hawaii: Attention was called to two new aphid records for the State of Hawaii which were published in the USDA Cooperative Economic Insect Report of August 10, 1973. These records were based on specimens collected on Haleakala, Maui, June 27, 1960 by Harold H. Shepard of Arlington, Virginia and were determined by Dr. M. D. Leonard, a USDA, ARS collaborator. The two new aphids reported were the following:

1. *Dactynotus pseudambrosia* Olive collected at 10,000 ft on *Hypochaeris radiata*.
2. *Aphis oestlundii* Gillette at "above 7,500 ft" on *Oenothera* sp.

J. W. Beardsley.

Herpetogramma licarsisalis (Walker): Approximately four acres of California grass (*Brachiaria mutica*) pasture at Waimanalo was heavily damaged by the grass webworm, *Herpetogramma licarsisalis*, during August 1973. Extensive defoliation occurred in the four acres. This is a new host record. **W. C. Mitchell.**

Noteworthy litter-dwelling arthropods on Oahu: The litter niche, especially on the older islands in the main Hawaiian chain, appears to be comparatively unexplored. Several remarkable apparent endemic arthropods have been discovered while sifting mossy leaf litter in the Koolau Mountains of Oahu for amphipods. The Hawaiian amphipods are now being revised by Dr. E. L. Bousfield of the National Museum, Ottawa,

Canada. A surprisingly large endemic fauna in this group is now being uncovered, both on Oahu and on the other islands, with the notable exception of the Island of Hawaii. The richest collecting on Oahu appears to be in wet leeward situations near the summit of the Koolau Mountains that are sheltered from the prevailing trade winds under dense thickets of predominantly native shrubs and ferns in moss-covered litter. The arthropods were collected by sprinkling handfuls of the mosses and litter on a white plastic sheet.

Other than the amphipods, two species of insects have been discovered that appear to merit special attention from zoogeographic and evolutionary standpoints; one is a true bug and the other is a fly, and both are flightless. The bug, which has a decidedly caraboid appearance, represents our first endemic element for the enormous subfamily Rhyparochrominae of the family Lygaeidae. Dr. Peter Ashlock of the University of Kansas considers it to be an undescribed genus in the tribe Ozophorini. Its only extant relatives are in the Marquesas, the Juan Fernandez Islands and Chile. This peculiar distribution is paralleled by a few other elements in the native biota, for example, the liliaceous genus *Astelia*. This poses a fascinating, unresolved zoogeographic problem. I found these bugs sparingly in areas near the summit of the Poamoho Trail.

Near the summit of the Bowman Trail which runs along the ridge paralleling the west side of Kalihi Valley, I recently found a pair of subapterous craneflies in a situation similar to that of the lygaeid. While other subapterous Diptera are known in Hawaii, notably in the Dolichopodidae and Sciaridae, this appears to be the first instance of extreme wing reduction in the Hawaiian Tipulidae. The male and female both have wings reduced to about the size of the halteres.

Byers examined the evolution of wing reduction in Tipulidae (Evolution 23: 346-51, 1969) from a world standpoint finding that it most frequently occurred in cold temperate or in high alpine areas. He postulated that wing loss or reduction in one or both sexes was evolved in response to low annual temperature to maximize certain aspects of survival such as fecundity. To support his theory he pointed out that no instance of extreme wing reduction or loss were known from tropical island tipulids and Hawaii was especially mentioned. The occurrence of these apparently endemic, cryptic insects here gives cause for reexamination of Byers' theories. **W. Gagné.**

Megopis reflexa (Karsch) on Oahu: No specimens of this prionine cerambycid, the largest native Hawaiian beetle, appear to have been taken on Oahu in over 20 years (Ford, "Proceedings" 15: 287 and Davis, 1973, pers. comm.). It has been taken more frequently on the other main islands but only a few times in this century on Oahu. On 15 Sept. 1973, S. Guest, A. Hart and I found a single live female at about 2,000 ft elevation on the Poamoho Trail, Koolau Mts., Oahu. She was sitting on a dry sap flux on the trunk of a large *Acacia koa* tree and appeared to

be feeding on the exudate there. The specimen was brought back alive for photography but expired within 24 hours. **W. Gagné.**

Vespula vulgaris (L.): Several hundred specimens of a vespid, *Vespula vulgaris* (L.), were taken in August from a ground nest at Olinda, Maui by Nobuo Miyahira, substantiating the establishment of this species in the State. A single male specimen of this wasp was taken at this site during January 1973 by Frank Howarth. Mr. Miyahira reports that no further wasps have been found in lure traps sent to him by a California vespid specialist. **K. Kawamura.**

New Catalogue: Dr. D. Elmo Hardy exhibited a copy of Volume 1 of "A Catalog of the Diptera of the Oriental Region" by Mercedes Delfinado and D. E. Hardy. Dr. Hardy noted that Volume 2 is currently being set in type and Volume 3 should be out by year's end.

Erionota thrax L.: During late August, a resident at Hickam Air Force Base, Oahu, collected some unusual caterpillars on banana leaves and turned them over to Mr. Bill Takabayashi, a sanitation service supervisor at the base. Adult specimens which subsequently emerged were submitted to Mr. Funasaki who determined them as the banana skipper, *Erionota thrax* L., also known in literature as *Hidari thrax* (L.). This hesperiid butterfly is a notorious pest of bananas in South and East Asia, Indonesia, the Philippine Islands and Guam. It has not previously been collected in Hawaii.

Initial surveys conducted by entomologists from the University of Hawaii, Hawaii State Department of Agriculture and APHIS indicated that the pest was confined to the Pearl Harbor area. Before eradication measures could be initiated the skipper was discovered to be more widely spread than originally believed, and eradication was deemed to be unfeasible. Arrangements have been made to import known natural enemies of this pest from Guam and S.E. Asia.

For a description of the banana skipper and its damage see Damerman, K. W. 1929, The Agricultural Zoology of the Malay Archipelago, pp. 179-180. **C. J. Davis and K. Kawamura.**

Program: Dr. J. W. Beardsley, Dept. of Entomology, University of Hawaii, gave a very fine talk on scale insects of Hawaii, and illustrated his talk with some equally fine color slides.

OCTOBER

The 814th meeting of the Hawaiian Entomological Society was called to order by President Ota in Agee Hall at 2:00 p.m. October 9, 1973, HSPA Experiment Station.

Members Present: Beardsley, Funasaki, Gagné, Haramoto, Hardy, Higa, Howarth, Joyce, Lauret, Lind, Look, Madinger, Mitchell, Montgomery, Morrill, Nakao, Ota, Radvosky, Samuelson, Sprenger, Steffan, Sugerman, Tenorio, Tsuda, and Woolford.

Visitors Present: Dr. JoAnn M. Tenorio, Bishop Museum; Dr. Eugene

Davenport, Church College of Hawaii; and Mrs. Nancy Howarth.

Reports of Officers and Committees:

Membership Committee: Mr. Tsuda proposed and the members concurred that Dr. Eugene Davenport, Church College of Hawaii, and Mr. Robert Burkhart, University of Hawaii, be elected to membership.

Annual Dinner Meeting Committee: Mr. Sugerman reported that the annual dinner is scheduled for the evening of December 12, 1973, at Tripler Officers' Open Mess. Cocktail hour at 6:30 p.m.; Dinner at 7:30 p.m.; Cost per person: \$8.00.

Nominating Committee: The Chairman, Mr. Funasaki, proposed the following slate of candidates for 1974:

President-elect:	Mr. Ernest J. Harris USDA Fruit Fly Lab. Mr. Thomas H. Lauret U. S. Navy, Pacific Division
Secretary:	Dr. Franklin Chang University of Hawaii Mr. James K. Ikeda Hawaii Department of Health
Treasurer:	Mr. Dick M. Tsuda University of Hawaii Mr. Ronald Mau University of Hawaii
Advisor:	Dr. Charles R. Joyce U. S. Public Health Service (retired) Dr. Vincent Chang Hawaii Sugar Planters' Association

There being no additional nominations from the floor, nominations were declared closed.

NOTES AND EXHIBITIONS

Eulachnus sp.: Specimens of an aphid new to Hawaii were found on a pine plant by a homeowner in Honolulu on April 6, 1973. Additional specimens were subsequently collected at a garden shop in Honolulu from the Japanese black pine, *Pinus thunbergii*. The aphid was placed in the genus *Eulachnus* by George Y. Funasaki, Hawaii Dept. of Agriculture. Specimens were submitted to Miss L. M. Russell, U. S. National Museum, for species determination. In a letter dated June 4, 1973, Miss Russell stated "I have tried unsuccessfully to place the species of *Eulachnus*. . . . It resembles *americanus* Takahashi and *bielawskii* Szelegicwicz . . . but differs from them in being much smaller and having longer acute rather than blunt or capitate setae." The genus *Eulachnus* is recorded from North America and East Asia. **G. Y. Funasaki.**

Announcements: Dr. Ota called members' attention to Mr. Harris' invitation to attend the Open House for the new USDA-ARS Fruit Flies Investigations labs and facilities on the upper Manoa Campus of the University of Hawaii.

Program: Mr. F. C. Howarth, Bishop Museum Entomology Dept., gave an excellent talk, illustrated with color slides, on the very unusual life forms and adaptations of insects and spiders found in Hawaiian caves and lava tubes.

NOVEMBER

The 815th meeting of the Hawaiian Entomological Society was called to order by President Ota in Agee Hall at 2:00 p.m., November 12, 1973, HSPA Experiment Station.

Members Present: Beardsley, Burkhart, V. Chang, Funasaki, Gagné, Gressitt, Haramoto, Hardy, Howarth, Joyce, Kaneshiro, Lind, Look, Madinger, Mitchell, Montgomery, Morrill, Nishida, Ota, Samuelson, Shiroma, Tenorio, Tsuda, Woolford, and D. Yoshioka.

Visitors Present: Dr. J. C. E. Riotte, entomologist from the Royal Ontario Museum, Toronto, Canada, and Dr. Donald Denning, field research representative for Chemagro Co. of California.

NOTES AND EXHIBITIONS

Spilomicrus sp.: Specimens of a diapriid wasp, *Spilomicrus* sp., emerged in large numbers from several puparia of a syrphid fly, *Eristalis arvorum* (F.) on July 19, 1973. The puparia were collected by G. Toyama, State Department of Health, near a water trough at a dairy at Kawailoa, Oahu. This is the first record of the genus *Spilomicrus* in Hawaii. Determination by G. Y. Funasaki; confirmed by P. M. March, U.S.N.M. **G. Y. Funasaki.**

Cladius difformis (Panzer): The bristly rose-slug, *Cladius difformis* (Panzer) (= *isomerus* Norton) (determination by G. Y. Funasaki) was collected in abundance on October 6, 1973 by C. J. Davis. The "slugs" were feeding on the terminal foliage of many rose plants in the Volcano area of the Big Island. This is the first report of the establishment of a sawfly (Tenthredinidae), and first known representative of the Hymenoptera suborder Symphyta in Hawaii. *Cladius difformis* is one of three species of rose defoliating sawflies common in the continental U. S. It also occurs in Europe. **G. Y. Funasaki.**

Leucania loreyi (Duponchel): This determination was received from Dr. G. P. Brooks, U. S. National Museum, Washington, for a male specimen of a noctuid moth recently submitted for identification. The specimen was collected in a light trap at the Honolulu International Airport on April 3, 1972. Previous to the submission of the male specimen, two females had been submitted which were determined as "*Leucania* sp., possibly *loreyi* (Dup.), but need ♂♂ to be certain" by Dr. E. L. Todd of the U.S.N.M. The female specimens were found in two separate Gen-

eral Entomology student collections at the University of Hawaii during June, 1973. One specimen was labeled "Portlock Road" and the other "Honolulu Airport." They had been collected in April and February, 1973, respectively. Several additional specimens of both sexes were recently collected in light traps at Hickam Air Force Base by Mr. E. Shiroma. This is a new State record.

L. loreyi (also known in literature as *Cirphis loreyi*) is an armyworm moth of wide distribution in the subtropics and tropics of the Old World. It has been recorded from Southern Europe and North Africa; across southern Asia to Indonesia; Philippines; Formosa; Japan; Queensland, Australia; Fiji; and Guam. The caterpillars apparently feed primarily on grasses, and the species has been recorded as a pest on sugarcane, rice and maize (Dammerman, K. W. 1929, The Agricultural Zoology of the Malay Archipelago, p. 170). The adult moth is very similar to the cosmopolitan armyworm, *Pseudaletia unipuncta* Haworth, but has much paler hind wings. **J. W. Beardsley.**

Erionota thrax (L.): A specimen of this banana skipper was caught in a black light trap operated at Hickam Air Force Base, on October 23, 1973. This is the first record of this skipper being attracted to light in Hawaii. **E. Shiroma.**

Rhytidoporus indentatus Uhler: Several specimens of this cydnid were collected in a black light trap located at Hickam Air Force Base on November 1, 1973. According to George Funasaki, State Dept. of Agriculture entomologist, specimens were also collected at the Honolulu International Airport in black light trap on May 5, 1973. This constitutes a new locality record for this cydnid which had been collected previously only on the Island of Hawaii. Determination by R. C. Froeschner of the U. S. National Museum. **E. Shiroma.**

Program: Dr. W. A. Steffan, Bishop Museum, presented results of his studies on various aspects of polymorphism in Hawaiian species of Sciaridae.

DECEMBER

The 816th meeting (Fifth Annual Dinner meeting) of the Hawaiian Entomological Society was held at Tripler Officers' Club at 7:30 p.m. on December 12, 1973.

Dr. Wallace C. Mitchell served as Master of Ceremonies for the evening.

Members Present: Beardsley, F. Chang, V. Chang, Davis, Hale, Hardy, Harris, Haramoto, Joyce, Ikeda, Lauret, Look, Madinger, Mitchell, Morrill, Nishida, Olson, Ota, Park, Sakimura, Sherman, Shiroma, Sugerman, Raros, Tamashiro, Tenorio, Tsuda, Pemberton, Steffan.

Visitors Present: Mesdames Lynn Beardsley, Cheryl Chang, Amelia Hale, Agnes Hardy, Bettye Harris, May Haramoto, Dorothy Joyce, Pauline Ikeda, Leta Lauret, Helen Look, Beth Madinger, Sue Mitchell,

Mr. Stanley and Mrs. Helen Miyake, Mesdames Josephine Morrill and Ellen Nishida, Mr. George and Mrs. Helen Okumura, Mesdames Zenaides Olson, Ruth Ota, Judith Park, Bertha Sakimura, Ruth Sherman, Jane Shiroma, Joslyn Sugerman, Perlita Raros, Polly Tamashiro, JoAnn Tenorio, Cassy Tsuda, Mildred Pemberton, and Sylvia Stegan.

The regular order of business was suspended for this meeting.

Dr. Mitchell announced that the elected officers for 1974 are:

- President.....Dr. Wallace A. Steffan
- President Elect.....Mr. Ernest Harris
- Secretary.....Mr. James Ikeda
- Treasurer.....Mr. Dick M. Tsuda
- Advisor.....Dr. Ray Joyce
- Advisor (outgoing President)Dr. Asher K. Ota

The Society was pleased to give special recognition and places of honor to the following retired or retiring members present: Dr. Cyril Pemberton, Dr. Ray Joyce, Mr. Cliff Davis, Mr. Wm. Look, and Mr. Austin Morrill. Dr. Mitchell called attention to the significant contributions each of these members have given, both to the Society and to Hawaiian entomology, in the course of their respective careers.

Dr. Mitchell introduced President Ota who gave his presidential address entitled "Origin of insect pest management in Hawaiian sugarcane fields."

Installation of New Officers: Following his address, Dr. Ota introduced the incoming officers of the Society for 1974 and passed the gavel in formal ceremony to the new President, Dr. Wallace A. Steffan.

Following his acceptance of the office, President Steffan relinquished the chair to Dr. Mitchell for the conclusion of the evening's program.

Door prizes were given out to guests and honorary members.

**This
Publication
is Available in
MICROFORM
from...**



Xerox University Microfilms

300 North Zeeb Road
Ann Arbor, Michigan 48106

Xerox University Microfilms

35 Mobile Drive
Toronto, Ontario,
Canada M4A 1H6

University Microfilms Limited

St. John's Road,
Tyler's Green, Penn,
Buckinghamshire, England

PLEASE WRITE FOR COMPLETE INFORMATION

**NAME CHANGES AND CORRECTIONS RECORDED IN
NOTES AND EXHIBITIONS SECTION**

Previous name	Changed to	Reason*	Page
<i>Oxya chinensis</i> (Thurnberg)	Oxya japonica (Thurnberg)	M	3
<i>Cryptoblabe aliena</i> Swezey	Cryptoblabe gnidiella (Millere)	S	3
<i>Stethorus vagans</i> Blackburn	Stethorus siphonulus Kapur	M	6
<i>Hymenia recurvalis</i> (Fabricius)	Spoladea recurvalis (Fabr.)	N.C.	8
<i>Azya luteipes</i> Mulsant	Azya orbigera Mulsant	M	8
<i>Aulacaspis rosae</i> (Bouché)	Aulacaspis rosarum Borchsenius	M	14

* M = misidentified; S = synonym; N.C. = new combination.

CHANCE IMMIGRANTS

The following species were recorded from the Hawaiian Islands for the first time during 1973 on the dates recorded in the text.

	Page
<i>Cheiloneuromyia javensis</i> Girault (Encyrtidae).....	1
<i>Oryzaephilus mercator</i> Fauvel (Cucujidae).....	3
<i>Wallacea albisetata</i> de Meijere (Stratiomyidae).....	4
<i>Lygus</i> sp. (Miridae).....	5
<i>Euvespivora</i> sp. prob. decipiens Walker (Tachinidae).....	7
<i>Desmometopa tristicula</i> Hendel (Milichiidae).....	7
<i>Neophyllomyza</i> sp. ?, possibly quadricornis Melander (Chloropidae)	7
<i>Rhodesiella sauteri</i> (Duda)? (Chloropidae).....	7
<i>Callosobruchus pulcher</i> Pic (Bruchidae).....	8
<i>Sepsis thoracica</i> Robineau-Desvoidy (Sepsidae).....	11
<i>Clausenia purpurea</i> Ishii (Encyrtidae).....	11
<i>Vespula vulgaris</i> (L.) (Vespidae).....	11
<i>Sepsis lateralis</i> Wiedemann (Sepsidae).....	13
<i>Penthelispa rufipennis</i> Montrouzier (Colydiidae).....	13
<i>Actia eucosmae</i> Bezzi (Tachinidae).....	16
<i>Bitoma</i> sp. nr. parallela Sharp (Colydiidae).....	18
<i>Anabrolepis bifasciatus</i> Ishii (Encyrtidae).....	19
<i>Dactynatus pseudambrosia</i> Olive (Aphididae).....	19
<i>Aphis oestlundii</i> Gillette (Aphididae).....	19
<i>Erionota thrax</i> L. (Hesperiidae).....	21
<i>Eulachnus</i> sp. (Aphididae).....	22
<i>Spilomicrus</i> sp. (Diapriidae).....	23

<i>Cladius difformis</i> (Panzer) (Tenthredinidae).....	23
<i>Leucania loreyi</i> (Duponchel) (Noctuidae).....	23
<i>Danothrips trifasciatus</i> Sakimura Thripidae).....	125
<i>Chaetanaphothrips signipennis</i> (Bagnall) (Thripidae).....	130

OFFICERS FOR 1973

<i>President</i>	A. K. Ota
<i>President-elect</i>	W. A. Steffan
<i>Secretary</i>	F. L. Madinger
<i>Treasurer</i>	D. M. Tsuda
<i>Advisor (Past President)</i>	W. C. Look
<i>Advisor</i>	C. J. Davis

STANDING COMMITTEES FOR 1973

<i>Editorial Committee</i>	M. Tamashiro, Editor J. W. Beardsley, G. Y. Funasaki E. J. Harris, G. A. Samuelson
<i>Finance Committee</i>	F. J. Olson, Business Manager S. H. Au, M. Tamashiro, D. M. Tsuda
<i>Membership Committee</i>	D. M. Tsuda, Chairman J. T. Kajiwara, G. Komatsu T. H. Lauret, J. A. Tenorio
<i>Program Committee</i>	F. J. Radovsky, Chairman
<i>Science Fair Committee</i>	F. Chang, Chairman N. K. Lind, W. J. Schroeder
<i>Liason Committee</i>	F. G. Howarth, Chairman S. L. Montgomery, A. W. Morrill, Jr.
<i>Common Names Committee</i>	W. C. Gagne, Chairman G. Y. Funasaki, D. E. Hardy, J. K. Ikeda A. A. LaPlante, Jr., E. S. Shiroma

HONORARY MEMBERS

S. Au	Q. C. Chock	E. P. Mumford
J. W. Balock	M. Chong	C. E. Pemberton
H. A. Bess	C. F. Clagg	K. Sakimura
F. A. Bianchi	C. P. Clausen	L. F. Steiner
E. H. Bryan, Jr.	C. B. Keck	P. H. Timberlake
E. McC. Callan	N. L. H. Krauss	H. A. Woolford*
W. Carter	K. L. Maehler	K. Yasumatsu

MEMBERSHIP 1973

Andersen, D. M.	Kashiwai, S. T.	Olson, F. J.
Andrews, W. B., Jr.	Kaya, H.	Ota, A. K.
Au, S. H.	Khoo, B. K.	Ozaki, E. T.
Barendregt, C. E.	Kim, S. K.	Park, R.
Bartlett, Blair, B. R.	Kitaguchi, G.	Perkins, B. D., Jr.
Beardsley, J. W., Jr.	Kobayashi, R. M.	Peterson, G. D., Jr.
Bellingr, P. F.	Koga, R. E.	Radovsky, F. J.

- Bowman, B. K.
 Brennan, B. M.
 Burkhart, R.
 Chang, F.
 Chang, V.
 Chilson, L. M.
 Conant, M.
 Cunningham, R. T.
 Davis, C.
 Delfinado, M. D.
 Devenport, E. C.
 Eschle, J. L.
 Esguerra, N. M.
 Farias, G. J.
 Fluker, S.
 Fujii, J. K.
 Fujii, W. K.
 Fujimoto, M. S.
 Funasaki, G. Y.
 Furumizo, R. T.
 Gagne, W. C.
 Gillogly, A. N.
 Girard, D. H.
 Gressitt, J. L.
 Gubler, D. J.
 Haas, G.
 Hagen, K. S.
 Hale, D.
 Haramoto, F. H.
 Hardy, D. E.
 Harris, E. J.
 Hart, W.
 Higa, S.
 Hinckley, A. D.
 Hirashima, Y.
 Howarth, F. G.
 Hoyt, C. P.
 Ikeda, J. K.
 Jackson, E. W.
 Joyce, C. R.
 Kajiwara, J. T.
 Kamasaki, H.
 Kaneshige, W. K.
 Kaneshiro, K. Y.
 Kohn, M. A.
 Komatsu, G. H.
 Kumabe, H. T.
 Lai, P.
 LaPlante, A. A., Jr.
 Lauret, T. H.
 Lee, C. Y. L., Sr.
 Leech, R.
 Leeper, J. R.
 Lind, N. K.
 Look, W. C.
 Loui, W.
 Maa, T. C.
 Madinger, F. L.
 Makino, H.
 Manoto, E. C.
 Matayoshi, S.
 Matsumoto, B.
 Mau, R. F. L.
 McMahan, E.
 Messenger, P. S.
 Middleton, C. R.
 Mitchell, W. C.
 Miyahira, N.
 Miyashita, D. H.
 Montgomery, S. L.
 Morrill, A. W., Jr.
 Murai, K. T.
 Muraoka, M. K.
 Murphy, J.
 Nakagawa, P. Y.
 Nakagawa, S.
 Nakahara, L. M.
 Nakahara, S.
 Nakamura, G.
 Nakao, H.
 Namba, R.
 Napompeth, B.
 Navvab-Gojrati, A.
 Newell, I.
 Nishida, T.
 Nowell, W. R.
 Oda, C. S.
 Ohinata, K.
 Rainwater, H. I.
 Raros, E. S.
 Richardson, T. E.
 Rodriguez-Velez, J.
 Ross, M. M.
 Rutschky, C. W.
 Samuelson, G. A.
 Schaefer, P. W.
 Schneider, E. L.
 Schroeder, P. H.
 Schroeder, W. J.
 Sharp, J. L.
 Sherman, M.
 Shiroma, E.
 Sieker, W. E.
 Spadoni, R. D.
 Sprenger, D. A.
 Steffan, W. A.
 Suda, D. Y.
 Sugawa, D. T.
 Sugerman, B. B.
 Takabayashi, W. T.
 Takei, G. H.
 Tamashiro, M.
 Tanabe, A.
 Tanada, Y.
 Tanaka, N.
 Tanimoto, V. M.
 Tenorio, J. A.
 Topham, M. R.
 Tsuda, D. M.
 Urago, T.
 Watanabe, W. H.
 Williams, R. N.
 Wirth, W. W.
 Wolfenbarger, D. O.
 Yano, K.
 Yates, J. R. III
 Yoshimoto, C. M.
 Yoshinaga, M. T.
 Yoshioka, D. S.
 Yoshioka, E. R.
 Zimmerman, E. C.

*deceased Dec. 1973.