Proceedings of the Hawaiian Entomological Society for 1963

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Suggestions for Manuscripts

Manuscripts intended for publication should be submitted in duplicate (original and one carbon), typewritten in double or triple space, with ample margins, on one size of standard-sized (8 ½ by 11 inches) white bond paper; pages should be numbered consecutively. Fragmentary sheets and slips pinned or pasted on are not acceptable. Footnotes should be numbered consecutively and inserted in the manuscript immediately below the citation, separated from text by lines; they should be used only where necessary. Correct names and references are the responsibility of the author and should be checked for accuracy.

Illustrations should be drawn to allow for one-half or one-third reduction to page size (4 ½ by 7 inches). Maps and sketches drawn to scale should have the scale plainly indicated. A complete list of figure legends and a duplicate print of each plate or figure are required to be submitted with the manuscript.

Tables and graphs should be used only where necessary, and omitted if essentially the same information is given in the paper. Graphs and figures should be drawn in India ink on white paper, tracing cloth, or light blue cross-hatched paper.

Proof should be corrected as soon as received and returned to the editor with an abstract on forms provided. Additional costs to the Society for author's corrections in proof may be charged to the author. An order for reprints should be placed with the editor when proofs are returned. Fifty copies of reprints will be supplied by the Society to each author under certain circumstances.

Examination of articles in this issue will help to conform to the style of presentation desired.
JANUARY 14, 1963

The 685th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, January 14, 1963, at Agee Hall, HSPA. Members present: Abramovitz, Beardsley, Bianchi, Chong, Clegg, Davis, Fullaway, Hardy, Harrell, Joyce, Kim, Krauss, Laigo, Look, Madinger, W. Mitchell, Nakao, Nakata, Pemberton, Rainwater, Ross, Rutschky, Sasakawa, Sherman, Shiroma, Sugerman, Suehiro, Strandtmann, Tamashiro, Woolford, Yano, Yoshimoto, and Ziegler.

Visitors: Miss M. Delfinado, Mr. E. Ozaki, Miss D. Pascual, Mr. L. Sholdt, and Dr. I. W. B. Thornton.

Mr. John Harrell was unanimously elected to membership in the Society.

Mr. Nakao, for the pest survey committee, gave a summarized report for 1962 on insects of economic importance as well as beneficial insects introduced for their control. This report will be published and made available at a later date.

Mr. Fred Bianchi gave an interesting account of his experiences both as a tourist and as a consulting entomologist to Guatemala in September and October of 1962.

NOTES AND EXHIBITIONS

The following notes were presented by N. L. H. Krauss:

**Brochymena quadripustulata** (Fabricius): On December 13, 1962, W. Mitchell, George Funasaki, and N. L. H. Krauss visited the Masao Kaneshiro farm in Lualualei Valley, Oahu, and found many adults of this pentatomid bug under and in wooden boxes, cardboard cartons, under boards and in paper fertilizer bags in a shed, and under a nearby mango tree. No nymphs were seen and no bugs were observed on plants.

**Langsdorfsia rufitincta** Dyar: The cossid caterpillar boring in stems and roots of *Lantana scorta* in the Jalapa area of Veracruz state, Mexico, previously listed (PROCEEDINGS\(^1\) 18:135, 1962) as *Langsdorfsia franckii* Hübner, has now been

\(^1\) Throughout this publication, "PROCEEDINGS" refers to Proceedings of the Hawaiian Entomological Society.
identified as *Laconella rufitincta* Dyar by R. W. Hodges, U.S. National Museum. This borer is still under study and has not been released in Hawaii.

Mr. Beardsley presented the following notes:

*Sphenophorus venatus vestita* Chittenden and *S. cariosa* (Oliver): Living adults of the two species of *Sphenophorus* weevils which have become established in Hawaii during recent years were exhibited. Little information is available concerning adult longevity of these weevils. Kelsheimer (1956, *Proc. Florida State Hort. Soc.* 69:415) reports that adults of *S. venatus vestita* seldom live beyond the second day in captivity. I have noticed that adults of both species die within two or three days unless provided with food and suitable moisture conditions.

The *S. cariosa* specimens were collected in mid August of 1962 from around roots of nutgrass near Waipahu, Oahu, and have been kept in large test tubes and supplied biweekly with fresh nutgrass. The beetles were of undetermined age when caught, but only about one-third of the original colony has died. During the time they have been in captivity, the beetles have been observed to mate freely and females have deposited viable eggs in succulent tissue just below the growing point of the nutgrass. The adult weevils feed regularly and frequently upon this part of the nutgrass plant.

The *S. venatus vestita* adults, collected on Molokai early in October 1962, are provided biweekly with split sections of young green sugarcane stems on which they feed regularly and in which they deposit viable eggs.

The following notes were presented by Dr. Joyce:

**Wake Island insects**: During the week of November 13 to 21, 1962, I was able to make some observations and do some intensive collecting in connection with a mosquito survey of the island of Wake. Collecting was good as recent heavy rains caused a lush growth on the atoll. A number of new immigrant insects were noted on Wake for the first time. Some of these were no doubt introduced from Hawaii, whereas others came from the west, probably from Guam or the Philippines. A few of the more obvious recent introductions are as follows:

*Achatina fulica* Bowdich: A heavy infestation of the giant African snail was confined to a very limited area near the west end of the runway. The presence of large specimens with a 3.5 inch shell indicates that the snail has been there for at least a year or two.

*Spodoptera mauritia acronyctoides* (Guenée) has been doing considerable damage to a few lawns in the FAA family housing area.

*Ctenocephalides felis felis* (Bouché), the cat flea, has been troublesome on cats and dogs on Wake during the past year.

*Hoplopleura oenomydis* Ferris, the rat louse, was taken from the rat, *Rattus exulans* (Peale), on Wake.

*Leptocentrus taurus* (Fabricius), a dark distinctive horned membracid, was taken in numbers on sweeping vegetation. It is known from Guam and the Orient.

*Acinia fucata* Fabricius. This tephritid fly, introduced into Hawaii from Guatemala for the biological control of the sour bush, has now appeared on Wake and has been taken in numbers there.
Helicobia morionella (Aldrich). This sarcophagid fly was found to be very common. It is the first record of this genus for the Micronesian area.

Phaenicia cuprina (Wiedemann). This calliphorid blowfly was commonly taken in fly traps. James [B. P. BISHOP MUS., INS. MICRONESIA 13(4), 1962] reports only P. sericata from Wake.

Other apparently new records are: Tubifera aenea (Scopoli), Syrphidae; Holo-plagia guamensis (Johannsen), Scatopsidae; Diploneura cornuta Bigot, Phoridae; and Xylocopa varipuncta Patton, Xylocopidae. Others which have not been reported from Wake in the literature need further study and determination and may perhaps be included in later issues of the Insects of Micronesia.

The following notes were presented by C. J. Davis:

Gymnoscelis pumilata Hübner: Mr. Davis exhibited specimens of a native geometrid reared from the flowers of Myrica faya (fire bush) in 1955. The flowers were collected on the Kukua Island at an altitude of 4,000 to 5,000 feet and used as food material for introduced fire bush insects from Ribeiro Frio, Portugal, and Florida. The moths were identified by D. S. Fletcher, specialist in this family at the British Museum, who commented as follows: "Your form of Gymnoscelis pumilata Hb. is considered to be close to the Madeira sp. insulariata. My personal view is that this may possibly prove to be of deep significance (as paralleling the beetle super family Aglycyderoidea in having a Hawaii–Canary Island distribution) but further examples of similar affinities are needed."

Nezara viridula smaragdula (Fabricius): The southern green stink bug, was first reported on windward Oahu from Waimanalo about six months ago. This was followed by Kaneohe, Kailua, and on January 12, at Lanikai where it was observed breeding on Asystasia coromandeliana (Acanthaceae). On the basis of age levels observed, it appears that the bug has gone through one Lanikai generation.

FEBRUARY 11, 1963

The 686th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, February 11,1963, at Agee Hall, HSPA.


Visitors: Dr. T. C. Allen, University of Wisconsin, and George Funasaki, State Department entomologist, Hawaii.

President Davis reported that the 1962 Pest Survey report has been received in Washington and will be published as a separate report.

Miss M. Delfinado, Mr. E. Ozaki, Miss D. Pascual, Mr. L. Sholdt, and Dr. I. W. B. Thornton were unanimously elected to membership.

Dr. I. W. B. Thornton, visiting entomologist from the University of Hong Kong gave an interesting talk on the contributions of Sir Patrick Manson to medical entomology.
NOTES AND EXHIBITIONS

Dr. Gressitt of the Bishop Museum, just returned from a collecting trip, reported that Dr. Carl Yoshimoto, Mr. N. L. H. Krauss, and Dr. Guillermo Kuschel of the University of Chile are doing some interesting collecting in New Caledonia.

Argiope sp.: Mr. Bianchi exhibited a large spider which had been brought to him from Kailua, Oahu. Both the markings on the spider and the shape of an egg mass which it had produced in the laboratory make it appear that this is a species of Argiope new to Hawaii.

Halobates sericeus Eschscholtz: Mr. Bianchi exhibited a vial of these gerrid water striders which he had collected at the height of the recent Kona storm, January 31, on Diamond Head beach. Many thousands of the insects had been washed above the high-water mark along a sector of beach about 150 feet long and had massed in depressions in the sand and under accumulations of sea weed. When kept in a jar partly filled with moist sand, they showed no inclination to cannibalism and lasted five days in good shape.

Hyperaspis trilineata Mulsant: Mr. Bianchi stated that 1,080 adult beetles of this species of Coccinellidae had been sent to the Department of Entomology, HSPA, by U.S. entomologists working in Barbados. The shipment had arrived in Honolulu on February 8, the nucleus of a breeding program designed to establish the species in the state, where it is expected to help in the control of the pink and gray sugarcane mealybugs.

Giant African snail: Mr. C. F. Clagg reported that on his most recent trip to Wake Island, he found out that the giant African snail has been brought under control by the use of "Buggetta." No snails were seen and unless they were aestivating, they may have been eradicated.

The following notes were presented by J. Kim, state entomologist:

Trichopoda pennipes pilipes Fabricius: Mr. Kim reported that this tachinid fly, introduced to control the southern green stink bug, Nezara viridula smaragdula (F.), may now be possibly established. On February 4, 1963, five adults of Nezara were recovered from the Nuuanu area with a single Trichopoda egg attached to each. The last release of Trichopoda in the Nuuanu area was made on December 7, 1962. As the life cycle of Trichopoda is approximately four weeks, this is strong evidence that the eggs were laid by second-generation flies. However, no adults were seen or observed in the area.

Gonaxis quadrilateralis (Preston): A survey in the Tantalus-Round Top area by Mr. Kim indicates that this carnivorous snail, which was released in 1957 for the control of the giant African snail (Achatina fulica Bowdich), has become well established and widely scattered in an area of approximately 40 to 50 acres.

Brochymena quadripustulata (Fabricius): Dr. W. Mitchell reported that the adults of this pentatomid have been also found in an area 1 to 2 miles away from the original find, under eaves of a house.
Tephritid n. sp.: Mr. Davis exhibited galls on stems of a native composite, *Dubautia* sp., believed to be caused by a tephritid, previously unrecorded. These galls were picked along the Saddle Road, altitude 6,000 feet, on the island of Hawaii, February 7, 1963 in company of Drs. Hardy and Thornton.

**MARCH 11, 1963**

The 687th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, March 11, 1963, at Agee Hall, HSPA.


President Davis reported that the annual survey of insect conditions for Hawaii appeared in the February issue, vol. 13, no. 6, of the Cooperative Economic Insect Report.

A letter from Dr. Goro Uehara, awards chairman, Sixth Hawaiian Science Fair, requested our Society’s participation in granting awards. A motion that the Society appropriate a sum of $10.00 for a “wish” award for the best entomological exhibit was approved unanimously by the membership.

Mr. George Funasaki was unanimously elected to membership in the Society.

Faced with rising costs of publishing our Proceedings, the editorial committee recommended that annual dues be raised to $7.00. This was approved by the membership and carried. This is the first raise in membership dues since the Society was founded in 1905.

It was unanimously voted that the Society pay the annual dues of $2.00 for membership in the Conservation Council of Hawaii.

Mr. Ernest G. Holt gave an interesting color-slide account of the “World of Islands,” of the Trust Territory of the Pacific. Following this, Mr. Robert Owen described his work as an entomologist for the Trust Territory of the Pacific and the problems he encounters.

**NOTES AND EXHIBITIONS**

The following notes were presented by Miss Mabel Chong:

*Cryptophlebia ombrodelta* (Lower): Positive identification of this comparatively new immigrant olethreutid moth in macadamia nuts from the islands of Hawaii and Oahu was recently received from Mr. D. Davis of the U.S. National Museum. Specimens of this moth were reared from macadamia nuts collected on Hawaii in April 1961, and from Oahu in July 1962. Other hosts reported for this pest for the first time are: klu (*Acacia farnesiana*), July 1959, and monkeypod, April 1962, from Oahu; *Cassia* spp. in September 1962 from Hawaii.

*Nezara viridula smaragdula* (Fabricius): On a recent trip to Kauai, C. J. Davis, James Holloway of Berkeley, California, and Stephen Au observed *Nezara*
nymphs feeding on popolo (*Solanum nodiflorum*) fruits at Nonaka Farm, Wailua, on February 28, 1963. Feeding scars and shriveled fruits were noted. This is a new host record for this bug.

*Tetraeuaresta obscuriventris* (Loew): Stephen Au reported "population explosions" of this tephritid on Kauai. This fly was introduced for the control of *Elephantopus mollis*, the noxious weed pest and feeds in the flower heads.

*Microlarinus lareynii* Duval: Mr. Au reported rearing this puncture vine seed from the native nohu, *Tribulus cistoides*. This weevil was introduced from California for the control of *Tribulus terrestris* and appears to be breeding continuously under Hawaiian conditions.

*Pseudoscymnus* n. sp.: Mr. Robert P. Owen, entomologist for the Trust Territory, reported that this interesting coccinellid has been doing a tremendous job there in the biological control of the scale insect *Aspidiotus destructor* Signoret.

**New Molokai records**: Mr. Beardsley presented the following new records for the island of Molokai. Specimens were collected in an alfalfa field near Kaunakakai, on February 14, 1963:

- *Dichomeris* sp. (Gelechiidae), larvae and adults in alfalfa.
- *Chloriona kolophron* (Kirkaldy) (Delphacidae), sweeping grass.
- *Rhinacloa forticornis* Reuter (Miridae), on alfalfa.

All of the above insects apparently have been present in Hawaii for a relatively short time, as all were reported in the state for the first time during the past two years.

*Trupanea* n. sp.: Dr. Hardy exhibited specimens of this tephritid fly which he reared out from galls on *Dubautia* sp. (reported by Mr. Davis last month). This is apparently an undescribed species and the first time a member of this genus has been reported as a stem miner.

*Apanteles bedelliae* Viereck: Dr. Sherman noted that in 1945 this braconid was introduced to control the sweet potato leaf miner, *Bedellia orchilella* Walsingham, and by 1950 had reduced the miner to an extremely low level so that over the years only one or two outbreaks have been recorded. On February 15, 1963, leaf miners attacking sweet potato at Waimano Home Road, Pearl City, were heavily parasitized by *A. bedelliae*, as evidenced by the large number of hymenopterous cocoons.

The following notes were presented by Mr. Fred Bianchi:

**Helicobia sp. attacking lawn armyworms**: On February 25 and 26, Mr. Bianchi observed widely distributed caterpillars of *Spodoptera mauritia acronyctoides* (Guenee) on the greens and fairways of the Kaanapali Golf Course at Lahaina, Maui, and dense accumulations of egg masses on coconut palms and buildings within and near the course. The infestation is said to have appeared on completion of the course about a year ago and to have become progressively worse since then, in spite of intensive and more or less regular applications of chlordane and other insecticides. Of previously recorded parasites none were seen by Mr. Bianchi except a few cocoons of *Apanteles marginiventris* (Cresson) in a weed patch adjacent to the course; but what appears to be a parasite new to
the state was extremely abundant wherever the grass was infested with caterpillars. This, a sarcophagid fly provisionally determined as a species of *Helicobia*, resembles a tachinid and was repeatedly observed searching for and momentarily resting on caterpillars, in the manner of *Eucelatoria armigera*.

**Spenophorus venatus vestita** (Chittenden): Mr. Bianchi stated that several areas of manienie grass have been completely killed by the hunting billbug on the fairways of the Kaanapali Golf Course during the last few weeks.

**Synonymy in Hawaiian Tachinidae:** Mr. Bianchi called attention to the fact that in the collections of the HSPA and of the State Department of Agriculture, the name *Eucelatoria armigera* (Coquillet) and *Achaetoneura* (*Frontina*) *archippivora* (Williston) are attached to specimens which, upon close scrutiny, turn out to belong to a single species. However, which is the proper name to use has not yet been established.

**Xyleborus compactus** Hagedorn: Mr. Kajiwara reported that on January 4, 1963 this coffee twig borer was found on avocado (*Persea americana*) on Keauumoku St., Honolulu, a new host record for this pest. Determination was made by Mabel Chong and confirmed by Dr. Stephen Wood of Brigham Young University.

**APRIL 8, 1963**

The 688th meeting of the Hawaiian Entomological Society was called to order at 2:00 p.m., Monday, April 8, 1963 at the Experiment Station, HSPA, President Davis presiding.


Visitors: Dr. M. A. Ghani, Pakistan; Dr. G. C. Folger; Dr. B. R. Subba Rao, India; Mr. M. C. Thompson.

For the science fair committee, Mr. Kim reported that an exhibit entitled "Ant cows" by Alan Samari and Paul Shimada of Jarrett Intermediate School, Honolulu, was selected as the recipient of the Society's award for the most meritorious Entomology exhibit at the Sixth Hawaiian Science Fair. This exhibit dealt with the effects of temperature on the reproduction of aphid populations. A letter of appreciation from Alan Samori and Paul Shimada, thanking our society for the award, was read by the secretary.

Dr. Wallace Mitchell, for the Entomological Society of America, State Committee for Public Information, requested assistance from society members in analyzing the television program "The Silent Spring of Rachael Carson" which was to be shown over a local station.

President Davis announced the transfer of H Ivan Rainwater to a new post in Washington, D.C. Mr. Rainwater thanked members of the Society for their friendship and cooperation during his 16 years of service here in Honolulu.

Dr. M. A. Ghani of the Commonwealth Institute of Biological Control,
Pakistan, gave an interesting resumé of the work being done in the field of biological control of insects by the Pakistan government.

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Insect trap: Dr. Yoshimoto reported that an experiment was conducted with a commercial electric insect trap called "Spinsect," manufactured by AMPSCO Corporation, Columbus, Ohio, to see whether or not this trap could be used as standard equipment in field work. A week of testing gave favorable results; no damage seemed done to the smaller flying insects, but larger moths were slightly damaged by the rotating plastic screen fixed to the fan blades. The trap works on the principle of a suction trap and night-flying insects are attracted by the black light luminescence; then, as the insects approach the mouth of the trap, which is 10 inches in diameter, the fan draws the insects down into a plastic bag which holds the trapped insects at the bottom of the bag by air pressure created by the fan. The trap is operated on a 115 volt–60 cycle electrical current.

Dichomeris ianthes (Meyrick): For E. C. Zimmerman, J. W. Beardsley reported that the gelechiid moth discovered by Mr. Beardsley [See PROCEEDINGS 18(1):18, 1962] damaging alfalfa at Ewa in July 1961, has been identified as Dichomeris ianthes (Meyrick) (= Hypsolophus ianthes Meyrick, TRANS. ENT. SOC. LONDON, 1887:273). Hawaiian material supplied by Dr. Beardsley has been found by J. D. Bradley to be identical with the lectotype of ianthes in the British Museum (Natural History). The moth is known to be a pest of alfalfa, indigo, pigeon peas, and other legumes. The larvae are leaf rollers, or leaftiers, and their attacks may cause severe defoliation. It is widespread from India, Ceylon and Burma, west and south of Egypt, eastern Africa, various islands in the Indian Ocean, and east and north through Malaysia to Formosa and Japan.

An account of the biology of the moth in India, with a colored plate showing all of the stages and characteristic damage, was published by Fletcher [(1920) 1921, Mem. Dept. Agric. India 6:89–91]. A more detailed report of the species in Hawaii will be included in the forthcoming volume on the Microlepidoptera in INSECTS OF HAWAII.

Corythuca morrilli Osborn and Drake: Dr. Mitchell reported that on March 13 while investigating an Achaea janata infestation on castor bean in the quarry at Moilili, the tingid bug, Corythuca morrilli Osborn and Drake, was found breeding on a sourbush, Pluchea odorata (L.). The tingid is commonly found breeding on cocklebur, Xanthium sp., and the sourbush is a new host record in Hawaii for C. morrilli.

The following notes were presented by James Kim:

Nezara viridula smaragdula (Fabricius): This pentatomid bug was found damaging eggplant in Kaneshiro farm, Waianae Valley. The piercing-sucking effects of this bug cause the eggplant fruit to turn brown inside, leading to soft rot decay in several days.

Telenomus basalis Wollaston: A Nezara egg cluster found on a soybean leaf at McKinley High School, Honolulu, produced the above parasite. As no
release of *T. basalis* was made in this area, it is believed that parasites released in the Department of Agriculture grounds have traveled to this locality. This is the first recovery of *T. basalis* in the state.

**Trichopoda pennipes** var. *pilipes* Fabricius: On April 5, 1963, one adult of this tachinid fly was captured and four others were observed by Mr. Davis at Ewa, Oahu feeding on ilima flowers. This is the first observation of flies that have emerged in the field. Our release of flies in the area was last made on February 20, 1963. A report in February of recovering in the Nuuanu area five parasitized *Nezara* with eggs of *Trichopoda* attached produced three puparia from which two flies emerged. Since then 18 parasitized adults of *Nezara* have been found.

The following notes and exhibits were presented by Harry Nakao:

**Apanteles militaris** Walsh: While investigating a heavy outbreak of cutworms, tentatively identified as *Agrotis dislocata* (Walker), at Waiakoa, Maui, on March 20, 1963, numerous cocoons of *Apanteles militaris* Walsh, determined by J. W. Beardsley, were noted. This is the first record of recovery for the island of Maui. *A. militaris* was released on Hawaii and Kauai in 1960 and recovered on Hawaii a year later. However, as it was not released on Maui, the parasite probably was carried over from Hawaii to Maui by air currents. It is unlikely that *Agrotis dislocata* is the host, since no *Apanteles* has been recovered from material being held in the laboratory. However, this material was heavily parasitized by tachinids.

**Eucelatoria armigera** (Coquillet): Adults of this tachinid fly, from Dr. Gordon Dun, Senior Entomologist, Department of Agriculture, Stock, and Fisheries, Papua, New Guinea, were identified by Dr. Hardy. They were reared from geometrid larvae and attempts are being made to propagate this tachinid from *Achaea janata* (L.) and *Anacamptodes fragilaria* (Grossbeck) here.

Mr. Krauss presented the following notes and exhibitions:

**Tropisternus lateralis binotatus** Walker: An adult of this hydrophilid beetle was collected in a rain puddle on a dirt road at Makua, Oahu, on April 4, 1963, and numerous adults were found in a temporary stream in Lualualei Valley, Oahu in March. The determination was made by Paul J. Spangler, U.S. National Museum.

**Coriscus pilosulus** (Herrich–Schaeffer): An adult of this coreid bug, identified by J. W. Beardsley, was collected on the weed *Bidens pilosa* at Luluku, Kaneohe, Oahu on March 20, by C. J. Davis.

**Scadra rufidens** (Stål): An adult of this reduviid bug, determined by J. W. Beardsley, was collected in Bingham Tract, Honolulu, Oahu on March 26, by Sun Fo Wong, State Department of Agriculture entomologist. This insect, known from the Philippines, Guam, and Palau, is discussed and illustrated by Wygodzinsky and Usinger [B. P. BISHOP MUS., INS. MICRONESIA 7(5):282, fig. 26, 1960].

**Sciara (Lycoriella) hardyi** Shaw: These gnats were abundant and annoying
pests in houses at night in Waianae and on Pamo Road, Manoa, Oahu during March. Identification was made by D. Elmo Hardy.

**Milichiella lacteipennis** (Loew): A dozen or so of these small milichiid flies were noted on and flying about a live nymph of *Nezara viridula smaragdula* (F.) on a plant in Lualualei Valley, Oahu, on March 27. Harry Nakao has observed what was apparently this same fly about adult *Nezara* which appeared to be injured.

**Typhlops braminus** (Daudin): One of these small snakes was found under a stone at Makua, Oahu on April 4. This snake has been found in various parts of Honolulu, at Aitea, near Pearl Harbor, Barbers Point and Lanikai on Oahu. It was taken at Lahaina, Maui in 1956 and Lihue, Kauai in 1960. The first specimens collected in the islands were found by Paul Gantt on B. P. Bishop Museum grounds in January, 1930 (J. Slevin, 1930, COPEIA, 4:158).

**Cryptothlibes aliena** Swezey: Dr. Rutschky reported that he and C. Kawanishi observed a light infestation of larvae of this pyralid in macadamia blossoms on young trees in the seedling orchard of the Waimanalo, Oahu, Experimental Farm of the University of Hawaii. The larvae lightly webbed the blossoms together and fed on them. Exuviae were found in the webs along with scats. Macadamia has not been reported to be a host plant, although the insect, because of its general habits, might be expected to feed upon macadamia blossoms. No aphids or other sucking insects were found associated with the larvae. Identification was made by Dr. D. Habeck.

**Haematopinus quadripertusus** Fahrenholz: According to Dr. Joyce, the "cattle tail louse" has apparently not previously been reported from Hawaii. During the first week in April some specimens from cattle at Waimanalo, Oahu, were submitted to the Hawaii Department of Agriculture which were determined as this species. This louse may have been present in Hawaii for some time but not recognized since it is readily confused with the short-nosed cattle louse, *H. eurysternus* (Nitzsch). The male of the tail louse is distinguished by a row of four large pustulated bristles on the genital plate, whereas *eurysternus* has six much smaller ones. The species was described from *Bos* species from South Africa (Fahrenholz, 1916, ARCHIV NATURGESCH., A, 81:19). In the early fifties it was present in the United States from Florida to Texas.

**Chalybion bengalense** (Dahlboun): E. S. Shiroma reported that K. L. Maehler and Wallace Chun observed a specimen of this sphexid wasp in Hilo, at the old Kokosui brewery, on February 6, a new record for the island of Hawaii.

**Conotelus mexicanus** Murray: In checking through interception records, Wallace Chun, Inspector in Charge, Plant Quarantine Division, Port of Hilo, reports that this nitidulid beetle was first intercepted in Hilo on December 7, 1957 by Inspector James I. Mason. Since that time it has been intercepted on 14 different occasions in cut flowers from Hilo. The first Hawaii island record was reported by Mr. Bianchi on June 21, 1960, from the Pahala area (PROCEEDINGS 18:323, 1961).
MAY 13, 1963

The 689th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:05 p.m., Monday, May 13, 1963, at Agee Hall, HSPA. Members present: Anderson, Chong, Davis, Fullaway, Funasaki, Habeck, Hamilton, Hardy, Huang, Kamasaki, Kawanishi, Kim, Laigo, Look, McKeand, W. Mitchell, Ozaki, Pemberton, Rutschky, Samuelson, Sasakawa, Sherman, Shiroma, Steiner, Strandtmann, Suehiro, Tamashiro, and Thistle.

Visitors: Dr. H. G. Sengbush, New York University, and Mr. W. G. Hart, USDA Fruit Fly Laboratory.

Dr. M. A. Ghani was unanimously elected to membership in the Society.

Dr. Sherman announced that Dr. Dale H. Habeck is leaving Hawaii to join the faculty of the University of Florida, Gainesville, Florida. Dr. Habeck expressed his regrets at leaving the islands and the fellowship of the Society.

Mr. G. A. Samuelson, B. P. Bishop Museum, gave an interesting talk, illustrated with color slides, on his collecting trip to the Kermadec Islands. These islands are located between North Island of New Zealand and Tonga, and are uninhabited except for the main island of Raoul where weathermen are stationed. His collecting of over 10,000 insects was done mainly on Raoul Island.

NOTES AND EXHIBITIONS

Cryptophlebia ombrodelta (Lower): D. C. Hamilton reported that on April 3, an apparently heavy infestation of this olethreutid moth was noted in Bauhinia sp. seeds pods on Iolani Palace grounds, a new host plant record for this moth. Other new state host records for this insect from interceptions made by Federal Plant Quarantine Inspectors are: Euphoria longan, Litchi chinensis, Phaseolus vulgaris, Pithecellobium dulce, and Poinciana pulcherrima.

Cue-lure as fruit fly attractant: Mr. Steiner reported that cue-lure (4-(p-methoxyphenol) 2-butanone), which was synthesized in 1957 by the Pesticide Chemicals Research Branch of the Entomology Research Division, Agriculture Research Service, USDA, has an odor similar to flowers of the orchid Dendrobium superbum, and is the best lure developed to date for the male melon fly (Dacus cucurbitae Coquillet). It was found highly attractive to D. ochrosiae in the Mariana Islands (1960-1963): to D. distinctus Malloch, D. obscurus Malloch, D. psidii Foggatt, to a new species near D. psidii on Tutuila, American Samoa, in August, 1962; and to D. passiflora Foggatt at three locations on Viti Levu, Fiji, in March 1963. All exposures were made in plastic (Steiner) traps. Identities of the Samoa collections were by D. E. Hardy; D. passiflora was identified by B. O’Connor. Dr. Alan W. S. May, Brisbane, Queensland, has advised Mr. Steiner that he has found cue-lure attractive to more than 10 species of Queensland tephritids including the Queensland fruit fly, D. tryoni Foggatt. This lure has been supplied to entomologists working in many fruit fly areas around the world and is proving to be an effective detection tool for a large number of species.

Cactoblastis cactorum (Berg): Dr. Tamashiro observed a cytoplasmic polyhedrosis virus infecting C. cactorum (Berg) on Oahu. This disease was present in epizootic form during April. Collections of C. cactorum made at Waahila
Hill, 16th Avenue, Diamond Head, Punchbowl, Makapuu, Waianae, Kipapa, and Waimea were all found infected with the virus. Although the mortality from this disease in the laboratory was very high, it has not yet been ascertained that there is a correspondingly high mortality in field populations. The infected larvae stop eating, emerge from the pad, and appear to wander aimlessly around. They usually have a clear oral and whitish anal discharge. Upon dissection the gut is found to be opaque white instead of its normal translucent appearance. This is the first report of a virus disease infecting this insect.

The following notes were presented by C. J. Davis:

**Achatina fulica Bowdich**: A new infestation of the African snail, *A. fulica* Bowdich, was discovered at Hakalau, Hawaii on April 16. A single medium-sized specimen was found near the Hakalau Overpass and subsequent investigation disclosed numerous, mostly juvenile snails, concentrated in a strip adjacent to a sugar cane field and a private residence, on the lower side of the highway. Up to the end of April, 106 *Achatina* had been collected and destroyed. This is the second major infestation discovered on the island of Hawaii. The first was discovered at Keaukaha, Hilo in 1958 and successfully eradicated. Eradication of the second infestation is considered economically feasible and is under way.

**Coptotermes formosanus Shiraki**: On April 23, during the treatment of a residence in Wailuku, Maui, for drywood termites, employees of the Fumiseal Company discovered an infestation of the subterranean termite, *C. formosanus*. Up to this date, Maui had been considered free from ground termites. A small infestation in propagative coconuts was discovered over 30 years ago but this was eradicated. Following this recent discovery, three other infestations have been found, two additional in Wailuku and one in Kahului. Since the infestations appear to be localized, eradication measures are in progress.

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**JUNE 10, 1963**

The 690th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, June 10, 1963, at Agee Hall, HSPA.


Visitors: Miss Linda Davis, Mr. Donald H. Lewis, and Dr. Keizo Yasumatsu, Kyushu University, Japan.

Mr. W. G. Hart, with the Fruit Fly Laboratory, was unanimously elected to membership in the Society.

Dr. D. Elmo Hardy announced that he has received a grant from the National Institute of Health (National Science Foundation), for research on evolution and genetics of Hawaiian Drosophilidae, a tremendous long-range project. Participating in the program this summer will be 8 to 10 well-known scientists, and about 12 will come to the islands next summer.

President Davis announced that he and Dr. Wallace Mitchell were scheduled...
to appear on a television program to discuss the problem of the southern green stink bug.

Members enjoyed seeing two interesting movies: "Insect Attractants" which showed research on the use of female cockroach to attract male cockroaches, and "Biological Control of Insects."

NOTES AND EXHIBITIONS

Aradidae: B. D. Perkins, Jr. exhibited an unidentified aradid which was collected by Donald Oatley, an entomology student at the University, in May 1963. These insects are somewhat abundant feeding on fungus under loose bark of trees above Fort Shafter, Oahu. Specimens were sent to the National Museum for identification by Dr. Hardy. This is the first record of this family in Hawaii.

*Tefflus zanzibaricus alluaudi* Sternberg: Dr. Hardy reported that an entomology student at the University collected an adult specimen of this predaceous carabid in the Kaneohe area recently. This carabid was introduced in 1952, 1953, 1957 and 1959 to control the giant African snail. This is the third recovery and the first in two years from this area, indicating that it is probably established.

*Nezara viridula var. smaragdula* (Fabricius): Mr. Davis exhibited young shoots of a navel orange showing severe damage by feedings of the southern green stink bug. In general, the feeding of two pairs of adults produced complete collapsing of the shoots in 24 and 48 hours and there was no recovery of the shoots.

**JULY 8, 1963**

The 691st meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, July 8, 1963, at Agee Hall, HSPA.


Dr. Keizo Yasumatsu of Kyushu University, Japan, was unanimously elected to membership.

Mr. C. J. Davis discussed the discovery of the stink bug, *Nezara viridula var. smaragdula* (F.) on the island of Hawaii, and Dr. Wallace Mitchell made a progress report on the bioecology and use of insecticides for its control.

NOTES AND EXHIBITIONS

The following notes and exhibitions were presented by J. W. Beardsley:

*Pseudencyrtus* sp.: Specimens of this immigrant encyrtid which had emerged

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*This encyrtid has subsequently been determined as *Exoristobia philippinensis* Ashmead by B. D. Burks—J.W.B.*
from puparia of a tachinid fly, *Achaetoneura archippivora* (Williston) were exhibited. The tachinid puparia were found associated with parasitized larvae and pupae of *Polydesma umbricola* Boisduval beneath bark of a partially defoliated monkeypod tree, at Waipahu, Oahu in June. The *Pseudencyrtus* sp. was first reported from Hawaii in 1961 when it was found by D. Wilton as a parasite in puparia of *Parasarcophaga misera* (Walker). The present record of this wasp as a parasite of a beneficial tachinid indicates that it may have a fairly wide host range among muscoid flies, and that it may contribute to a lessened effectiveness of beneficial tachinids here.

**Anthrax distigma** Wiedemann: The empty pupal exuvium of what is believed to be this bombyliid fly was found protruding from a hole in a small mud nest in a keyhole in an unused door at Mapulehu, Molokai, on June 26. When the nest was opened it contained the remains of an adult *Pachyodynerus nasidens*. As this solitary vespid wasp frequently nests in abandoned nests of other wasps and in small cavities, it seems likely that the *Anthrax* larva developed as a predator on a *Pachyodynerus* larva or on the provisions of the nest. Adults of *A. distigma* are often seen investigating small crevices in rocks, walls, or other situations.

**Dysmicoccus boninis** (Kuwana): A culture of the gray sugar cane mealy-bug containing normal gray-colored individuals and an unusual white form of the same species was exhibited. The white form was discovered in a cane field on Waipio Peninsula, Oahu, during March 1963 and, at first, was thought to be a distinct species. However, microscopic examination showed it to be identical with the gray form of *D. boninis* and breeding experiments showed that both forms interbred readily. The white condition is found in adult males as well as in females and immature stages.

**Mezira membranacea** (Fabricius): Dr. Hardy reported that Dr. R. L. Usinger of the University of California has identified the aradid collected by an entomology student at the University of Hawaii in May 1963 as *Mezira membranacea* (Fabricius). According to Dr. Usinger, it is the commonest species throughout southeast Asia, extending all the way from India to New Guinea, and north to Taiwan. He observed that this aradid may become very abundant in the forests.

AUGUST 12, 1963

The 692nd meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, August 12, 1963, at Agee Hall, HSPA. Members present: Beardsley, Chong, Davis, Fullaway, Gressitt, Haas, Hardy, Hart, Huang, Ishii, Kajiwara, Look, Maehler, Matsumoto, S. Mitchell, W. Mitchell, Nakao, Nakata, Ozaki, Pemberton, Sanchez, Sherman, Shiroma, Steiner, Suehiro, Tamashiro, Thistle, Voss, Wilson, Young, and Ziegler.


D. Gubler, R. Young, D. Tsuda, J. A. Tenorio, and W. J. Voss were unanimously elected to membership.

Dr. J. W. Tilden, on sabbatical leave in Hawaii from San Jose State College,
California, gave an interesting talk on the entomology program being carried out at that college.

NOTES AND EXHIBITIONS

**Limax maximus** Linnaeus: Miss Chong reported that the "spotted garden slug" was found for the first time on the island of Maui on July 11. A large specimen, collected by Nobuo Miyahira at Haleakala Acres, was crawling on the outside wall of a building. *Limax maximus* is a European species which is established in the eastern United States and on the Pacific Coast. On Oahu, it was first collected in upper Manoa Valley in 1949. The specimen was identified by Dr. C. E. Pemberton.

**Onthophagus catta** Fabricius and **Copris incertus** Say: H. Nakao submitted the following note. During the early part of July a call was received from a roofing company reporting that a beetle was damaging roofing paper on a home in Pupukea, Oahu. An investigation of the damage showed that two species of dung beetles, *Onthophagus catta* and *Copris incertus* were responsible. About 90 percent of the beetles were *Onthophagus catta*. The section of the roof damaged was part of a sun deck about 10' x 10', railed off and in which was placed a large electrocuting type of light trap. Numerous dead beetles were piled up in the corners. Beetles that were not killed had moved to the corners and chewed through the roofing which was made up of three layers of no. 40 roofing felt and a top of no. 70 fiber glass felt, with an asphalt binder between each layer. Holes 2" to 3" in diameter were chewed open by the beetles exposing the lumber underneath and the roofing material was worked on as though it were dung. The light trap had attracted the beetles to the area, but what caused them to work into the roofing material is not known.

**Acinia fucata** Fabricius on Johnston I.: J. Kajiwara reported that several specimens of *Acinia fucata* were reared from the flower heads of the sourbush, *Pluchea odorata* which were collected in Johnston Island on August 8, 1963. This constitutes a new island record for the species.

The following notes were presented by Dr. Beardsley:

**Arctorthezia occidentalis** (Douglas): One mature female and four nymphal and preadult females of this ensign scale (Ortheziidae), were collected at an altitude of 8,000 feet on the rim of Haleakala Crater, Haleakala National Park, Maui, on July 15. The scales were found associated with roots of a bunchgrass, *Agrostis sandwicensis*, which is common in the area. This is a new insect record for the state. *Arctorthezia occidentalis* is a Nearctic species described from Colorado (Douglas, 1891, Ent. Monthly Mag. 27:246) and known in western North America from New Mexico to Alaska. Several of the recorded collections have been made at high altitudes (the type locality is West Cliff, Custer Co., Colorado, 7,700 ft.). It has been taken around roots of various plants such as grasses, *Rubus*, apple nursery stock and strawberry, and has several times been reported from ant nests. Morrison (1925, Jour. Agric. Research 30:144, fig. 38) redescribes and figures the species, and gives host and distribution records. Additional information is given in a later paper by the same author (1962,
USDA Tech. Bull. 1052:55). This appears to be a temperate climate species and it would be interesting to know how it found its way to Haleakala. Morrison (1952) records that it was once taken in quarantine at Honolulu (in 1944 on strawberries from Washington state) and the species may have arrived here in produce from the west coast of the U.S. mainland. This is the second ortheziid scale known to have established itself in Hawaii. The other is *Orthezia insignis* Browne, the greenhouse orthezia, a species which is widespread in tropical and subtropical areas. *Arctorthezia occidentalis* is a much larger species than *Orthezia insignis*, about 4 mm. long by about 1.5 mm. broad for mature females exclusive of the ovisac which is relatively short and broad. The dorsum of mature *A. occidentalis* females is completely covered by overlapping plates of whitish wax, while in *Orthezia insignis* the wax plates do not entirely cover the dorsum. Determination was made by Dr. Beardsley from the literature. The Ortheziidae have been thoroughly monographed for the world in the two papers by Morrison cited above, and the specimens at hand agree very well with his redescription and figure of *A. occidentalis*.

*Cerosipha subterranea* (Mason): The rice root aphid, *Cerosipha subterranea*, was collected from the roots of the yellow nut sedge, *Cyperus esculentus*, near Pepeekeo, island of Hawaii, on May 23. This is a new island record and a new host plant record for this aphid which previously has been known here only from Oahu.

*Tenodera australasiae* (Leach): An adult and an empty ootheca of this immigrant mantid were collected on Molokai, the first at the airport and the second at Mapulehu, some 25 miles away, during June 1963. An ootheca containing viable eggs which hatched in Honolulu, was collected near Lahaina, Maui, on July 11th. These constitute new island records. It was previously known only from Oahu.

*Diabrotica soror* LeConte (?): Dr. Beardsley exhibited a specimen of a chrysomelid beetle, believed to be this species, which came out of an artichoke purchased in a local market. The specimen appeared to be in fresh condition, but it is not known whether or not it was alive at the time the artichoke (presumably imported from the mainland) was purchased. This species is a common pest of various crops and ornamental plants on the west coast of the U.S., but is not known to be in Hawaii.

*Patasson calandrae* (Gahan): Specimens of this minute mymarid parasite of *Sphenophorus* weevil eggs were exhibited. This parasite is being reared in the HSPA insectary from parasitized eggs received from Mr. Bianchi in Columbia, Missouri. It is hoped that the parasite, if it becomes established here, may help control the hunting billbug, *Sphenophorus venatus vestita* which has damaged Zoysia lawns and sugarcane seedlings here.

*Cicada songs*: Dr. Gressitt presented taped recordings of the songs of three species of cicada, *Meimuna opalifera* Walker (tsukutsukuboshi), *Onotympana maculaticollis* Motsch. (minmin-semi), and *Graptosaltria nigrofusca* Motsch. (abura-semi), from Oku-Tama (Yamanashi Prefecture border), Japan, made on
August 9, 1963 on his recent trip there in connection with a U.S.–Japan, Bi-
national Science Cooperation Program.

U.S.–Japan, Binational Science Cooperation Program: Dr. Gressitt also
described the program which is part of two U.S. programs in entomology, of
which Bishop Museum and the University of Hawaii are respective U.S. counter-
parts. Bishop Museum is concerned with systematics and biogeography and the
first field phase of this program was just completed in the Northern Ryukyu
Islands, with six Japanese entomologists and Drs. Yoshimoto and Gressitt
participating. Work was done on Amami-Oshima, Tokunoshima, and Okinoerabu
Islands. The next three phases (September, October 1963, February 1964) are
to be in the southern Ryukyu Islands. Systematic work will also be done by
Japanese and U.S. specialists on existing Bishop Museum collections.

The following notes were presented by C. J. Davis:

Eublemma anachoresis (Wallengren)?: Specimens of this noctuid moth
were exhibited. They were reared from flower buds and leaves of Waltheria
americana (hialoa), a common lowland weed, collected adjacent to the Kailua–
Keauhou road, Kona, Hawaii on July 10. *Eublemma* was first collected by J. W.
Beardsley in a light trap at Ewa, Oahu on May 10, 1960. The Kona record
constitutes the first host record in the state as well as the first record from the
island of Hawaii. Swezey (1946, B. P. BISHOP MUSEUM, BULL. 189:169) reports
that *Eublemma anachoresis* is known from South Africa, India, Ceylon, Andaman
Islands, Java, Queensland, and Guam. On Guam he reared specimens from
caterpillars feeding on terminal buds of *Waltheria americana* (See PROCEEDINGS
17, 1959).

Octotoma scabripennis Guerin: This lantana leaf-mining chrysomelid was
recovered in the White Sands Beach area, Kailua–Keauhou Road, Kona, Hawaii
on July 13. It was subsequently discovered at Kahauloa, Kona (*Plagiohammus
spinipennis* Thompson release point) where it was the dominant insect observed
on one lantana clump. The presence of this chrysomelid in both localities indi-
cates that it is well adapted to both dry and wet habitats. *Octotoma* was first
released in 1902 but apparently failed to become established. It was reintroduced
in 1954 and 1955 from Mexico and it is interesting to note that its recovery
nine years later is approximately 18 miles from the nearest release point.

Microlarinus lareynii Duval: Riker mounts showing seed damage to native
puncture vine, *Tribulus cistoides*, by the introduced seed weevil, *Microlarinus
lareynii* were exhibited.

Microlarinus lypriformis Wollaston: Specimens of the puncture vine stem
weevil, *M. lypriformis* were exhibited. Shipments of this weevil were received
from N. L. H. Krauss on July 7 from Riverside, California and were released on
Kauai for the control of the weed pest *Tribulus terrestris*.

Nezara viridula var. smaragdula (Fabricius): In addition to the infestations
found between Kailua and Keauhou, Kona, the southern green stink bug was
also found at Napoopoo, Honaunau, and Hookena, Hilo, and Paauhau, Hamakua
coast. Chemical eradication measures were discontinued and a biological control
station was set up at Honaunau through the cooperation of the City of Refuge National Historical Park, National Park Service. Other stations are being organized in Hilo and the Hamakua coast. An appropriation of $13,300 was made from the Governor's contingent fund to the State Department of Agriculture to increase the laboratory production and distribution of parasites of Nezara on Oahu, Hawaii, and Kauai. Maui is also included in the program.

Plagithmysus newelli Sharp: Specimens of this interesting endemic cerambycid from Maui were exhibited. They were reared from Nicotiana glauca collected at Auwahi, Maui by Nobuo Miyahira of the State Department of Agriculture. Mr. Maehler bred Plagithmysus newelli from the same host on Maui in 1948 and this was the first record of this native beetle breeding in an exotic host. The native host for this species is not known.

SEPTEMBER 9, 1963

The 693rd meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, September 9, 1963, at Agee Hall, HSPA. Members present: Bianchi, Chong, C. F. Clagg, Davidson, Davis, Dyson, Gressitt, Harrell, Joyce, Kajiwara, Kim, Look, McKeand, Nakao, Nakata, Ozaki, Pemberton, Samuelson, Shiroma, Suehiro, Sugerman, Tamashiro, Thistle, Tsuda, Voss, Wilson, Woolford, and Yoshimoto.

Visitors: E. D. Burgess, Director, Plant Pest Control Division, USDA, Junichi Yukawa, and Eugene Holzapfel.

Eugene H. Davidson and George W. Dyson were unanimously elected to membership.

Jonathan Kajiwara, who was appointed by President Davis to attend the ISSEC Council meeting of August 21, 1963 reported that an office of the ISSEC Council has been located at the Bishop Museum. He also reported on plans for the next Hawaii Science Fair.

Mr. E. D. Burgess, Director of the Plant Pest Control Division, USDA, here in Hawaii to investigate the southern green stink bug problem gave a short talk on regulatory programs being carried out by his division against plant pests that have entered the United States from other countries.

Mr. F. A. Bianchi, Principal Entomologist, HSPA, gave an interesting account of a search conducted by him in Missouri from May to August 1963 for Patasson calendriae (Gahan), a mymarid egg parasite of billbugs which is wanted in Hawaii to control Sphenophorus cariosa (Olivier) and S. venatus vestita (Chittenden). The mymarid is being propagated now in Honolulu from two successful shipments made in August, and several releases of wasps have already been made on Oahu.

NOTES AND EXHIBITIONS

Dolichurus stantoni (Ashmead): Dr. Yoshimoto reported collecting a female of this ampulicid wasp which was dragging its prey, probably the roach Onychostylus notulatus (Stål) juvenile (so determined by A. B. Gurney, 1963) by its antenna along the banks of the Aiea Heights trail. This roach is widespread in the Pacific area. D. stantoni was introduced from the Philippines in 1917 and
has by now spread through Oahu, Molokai, Kauai, to Midway. F. X. Williams reported (PROCEEDINGS, vol. 6:449–450, 1957) that "according to one observer it has greatly reduced the number of small roaches in the uplands of Oahu, where such species as Cutilia soror (Brunn.) and Allacta similis (Sauss.) serve as its prey."

Araeocorynus cumingi Jekel: Miss Mabel Chong exhibited this anthribid beetle and infested Mucuna sp. seeds which were brought to her attention by a local resident on September 5. The beetles were reared from Mucuna seed leis purchased from a lei seller at the Pali Lookout, Oahu. Besides Mucuna, maunaloa and koa seeds were used in these leis; however, the maunaloa and koa seeds showed no signs of damage by this beetle. Endemic to the Philippines, this anthribid has been collected in Guam, but this is the first report from the state of Hawaii. Specimens were identified by Dr. Gressitt.

Corythuca morrilli Osborn and Drake: For H. Nakao, Miss Chong reported that on September 6, a moderate infestation of adults and nymphs of this tingid was noted on Wedelia trilobata at Koko Head, Oahu. This is a new host record for this insect.

Argiope amoena Koch: Mr. Bianchi reported that the orb-spinning spider found in Kailua on January 20 and exhibited at the February meeting of the society has been identified by Dr. W. J. Gertsch of the American Museum of Natural History as Argiope amoena Koch. The species is known from China, Japan and New Guinea, but it is new to Hawaii.

Nezara viridula var. smaragdula (Fabricius): Mr. C. J. Davis reported that the southern green stink bug is now present on all major islands of Hawaii. In chronological order, these are the latest reports: On August 25 J. R. Blalock, County Extension agent sent in one specimen collected at Tamura’s Farm, Kaunakakai, Molokai. On August 26 one specimen was found on the passion fruit farm of Maui Farm, Inc., Maui, by Shigeo Ajifu, farm foreman. On August 27 one adult and one egg mass were found two blocks below Lanai Avenue, west end of Lanai City, Lanai, by Frank Burgos, on a chayote plant. There is also an unconfirmed report of an infestation in a plantation field. On August 28 a pair of adults and an egg cluster were found at Fuke’s residence, Wailuku, Maui. On August 29 one dead adult was found in a rain gauge at Village 6, Puunene, Maui by Mr. Reddicts of HSPA; 68 nymphs and 3 adults at Endo’s farm in Paia, Maui, on tomatoes, mustard cabbage, daikon, and castor bean; five nymphs and adults from eggplant at Lahainaluna High School submitted by Mr. Kawamura, vocational agriculture instructor.

Dermacentor variabilis Say: Mr. Davis reported that the American dog tick, D. variabilis, was picked up from a dog in quarantine on August 29. This tick is characteristic of species having three serial hosts and is a carrier of Rocky Mountain spotted fever, caused by Rickettsia rickettsii. This tick has previously entered the State but eradication measures have been successful up to the present time.
OCTOBER 14, 1963

The 694th meeting of the Hawaiian Entomological Society was called to order at 2:00 p.m., Monday, October 14, 1963 at the Experiment Station, with President Davis in the chair.


Visitors: President Davis introduced Dr. Van Zwaluwenburg, a long-standing member who has been living on the mainland and now resides on the island of Maui. Other visitors were Miss Yiau Min Huang, Michitaka Chudō, Ernest J. Harris, Eugene Holzapfel, George Kitaguchi, and Kiichi Ohinata.

Junichi Yukawa, of Bishop Museum, was unanimously elected to membership.

President Davis read a letter from Mr. Thistle concerning "colloquim." This meeting to discuss the possibility of forming a World Society of Entomology is to be held during the Entomological Society of America meetings from December 2nd thru the 5th of this year. A representative from the Hawaii State Department of Agriculture was requested and Dr. Hardy volunteered to be the representative since he was already invited to attend.

Dr. A. D. Hinckley gave an interesting talk on the agricultural entomology in Fiji, and exhibited pests of economic importance. He also showed color slides of the islands.

Mr. L. F. Steiner, USDA Fruit Fly Laboratory, showed a very interesting research film on the control of the screw worm in the southeastern United States.

NOTES AND EXHIBITIONS

Termite control contracts: Mr. Clagg, entomologist with the Navy, gave an interesting note on the discrepancies he observed on termite control contracts given out by the Navy in Japan. Contractors are being paid without doing an effective job and the Navy was losing money for repairs, etc. Supervision is necessary to see that the contractors are fulfilling their contracts satisfactorily.

The following notes were presented by James Kim:

Orthodera species: Two males and three females of this small mantid were caught during the latter part of September in the Ewa Beach area, on Ricinus communis (castor bean). Dr. Beardsley first reported this insect when one specimen was taken in a light trap at Waipio in September 1962 [PROCEEDINGS 18(2): 1962]. Since its collection, one female has laid three batches of eggs. This mantid is now probably established in the state. Identification was made by Dr. Beardsley.

Solidago altissima L. The flowers of this goldenrod are a strong attractant for many species of insects. During the latter part of September, approximately 50 adult Trichopoda flies were observed at Ewa on the yellow flowering panicles.
of this plant. Besides Trichopoda, many other dipterous and coleopterous insects were observed.

New journal: Dr. Gressitt announced that the Bishop Museum will publish another journal because of an abundance of information on medical entomology. Titled "Journal of Medical Entomology," the first issue will be published the early part of 1964.

Onthophagus catta and Copris incertus: Harry Nakao read an interesting note from Louis G. Davis of the Plant Pest Control Division and Dr. W. G. Bruce, visiting Professor of Entomology at North Carolina State College regarding unusual feeding of these beetles of the roof of a home as reported at the September 9 meeting. Dr. Bruce recalls that these beetles were brought in to Hawaii to suppress the horn fly population.

Amblyomma cyprium cyprium Neumann: Dr. Hardy reported that one female of this tick biting a man was collected by J. F. Alicata in western Samoa, in August, 1963. This appears to be a new distributional record. Reported hosts are buffalo, cattle, horses, pigs, and man. This species is widely distributed from the Mariana Islands through the Malay Peninsula, New Guinea, to the New Hebrides and the Fiji Islands. Identification was made by Dr. C. R. Joyce.

The following notes were presented by Dr. Mitchell:

Chiracanthium diversum Koch: The clubionid spider, C. diversum, was collected on Kaunakakai, Molokai and Kaumalapau, Lanai on September 25 and 26 respectively. These are new island records.

Trichopoda pennipes var. pilipes Fabricius: This adult parasite of the southern green stink bug, was observed on October 9 at the mauka side of Wahiawa at 1,200 ft. One adult stink bug had 237 Trichopoda eggs on its body.

Nezara viridula smaragdula (Fabricius): Survey of the stink bug infestations on Molokai and Lanai was conducted with Harry Nakao and Dr. John W. Beardsley. The infestations were as follows:

Molokai: August 25, 1963, Tamura Farm, Kaunakakai; confirmed again on September 26, 1963 with the collection of one male specimen on tomatoes. September 18, 1963, Burrows Farm, Palau (Apana 1), one adult collected by Mr. Robert Burrows, infestation confirmed on September 25 by finding numerous nymphs. September 23, 1963, one adult, James Utaichi, Kualapuu. Further investigation of the California Packing Company housing area gardens showed the infestation to be widespread in the village. September 24, 1963, one adult by Clunely Lloyd, Chief of Police, Hoolehua, Molokai; no stink bugs were found in the area September 25. September 24, 1963, Kalua papa, five adults and three nymphs of Nezara on yard-long beans, Vigna sesquipedalis, behind the headquarters office by Mr. Noah Pekelo, Jr.

Lanai: An infestation at Lanai City, August 27, confirmed on September 27. A second infestation at Kaumalapau, Lanai was recorded with a single female taken by Norman Oda on September 5, 1963. The infestation was widespread in the harbor area when surveyed on September 27, 1963.

The following notes were presented for Mr. Bianchi by Dr. Pemberton:
Patasson calendrae (Gahan): Six releases of this mymarid have been made on Oahu thus far: Four between August 16 and August 29 at the Kunia substation of the HSPA; one on August 18 at the Makiki Station, HSPA; one on August 30 at the Waialua Agricultural Co. The last release consisted of 150 wasps; the other five totaled 247 wasps. It is not yet apparent whether Patasson will become established in the state; but the breeding program is to be continued vigorously in the hope that it will, for recent observations in the laboratory have shown that Patasson will not only parasitize the eggs of Sphenophorus cariosa and S. venatus vestita in vitro, but that it is equally effective on the eggs of the sugarcane borer, Rhabdoscelus obscurus (Boisduval), which is the most important pest of sugarcane in Hawaii.

Euprestina verticillata Waterston: Dr. Harold Arnold, Jr. who lives on Kahala Avenue reports that on the morning of October 7, this agaonid wasp was flying in abundance on banyan trees (Ficus retusa) becoming a nuisance to his household and forcing him to have the trees sprayed.

The following notes were presented by Dr. Beardsley:

Kuwanaspis sp.: Specimens of a small, slender, diaspidid scale insect new to the Hawaiian Islands were collected on leaves of ornamental bamboo plants during the latter part of 1962 at two widely separated localities at Hilo, Hawaii on October 3, 1962 by J. Beardsley and at Nanakuli, Oahu on December 8, 1962 by E. Shiroma. A number of species of Kuwanaspis which are confined to bamboos are known from the Orient, and one species, K. pseudoleucaspis (Kuwana) has been established in Hawaii for a number of years. The newly discovered species closely resembles K. takahashii Takagi from Japan, except that the latter lacks the perivulvar pores found in the Hawaiian form. It is possible that the species may be one of several described by R. Takahashi from Formosa, but the pertinent literature and specimens for comparison are not available locally. Identification to genus was made by Dr. Beardsley.

New insect records for Molokai and Lanai:

Chiracanthium diversum Koch: This clubionid spider, the bite of which has caused serious discomfort to humans on Oahu in several recorded instances, was collected at several localities on Molokai on September 25 and 26.

Polistes exclamans exclamans Viereck: This vespid wasp was collected at several places around Kaunakakai and at Paalau on September 25 and 26. This is the first record outside of Oahu.

Scaphytopius loricatus (Van Duzee): This cicadellid leafhopper was taken in the vicinity of Kaunakakai, on September 25 and 26.

Sogatella kolophon (Kirkaldy): This delphacid leafhopper was taken in Lanai City, Lanai on September 27, 1963.

Meliana sp.: This noctuid moth was taken on Lanai City, Lanai on September 27, 1963.

Ectopsocus maindroni Badonnel: Dr. Thornton reported that on October 5, 1963, Dr. Mitchell and he went to Kailua, Oahu, to check on an infestation in a private house. On arrival they found the walls and cupboards covered with
Ectopsocus maindroni Badonnel (Psocoptera: Peripsocidae). This species has not been recorded from Hawaii, although in early 1962 Dr. Mockford of Illinois sent Dr. Thornton specimens of *Ectopsocus* taken by a USDA plant quarantine officer in Honolulu on material originating in Hong Kong, which proved to be this species. *E. maindroni* was originally described from Arabia, and has since been recorded from the Congo, Malaya, Hong Kong, and Taiwan. The species had evidently a wide range of habitats. It has been taken on vegetation, in drawers and closets of private houses, in a breakfast cereal packet, in the cavity of a wild fig, from a young fish owl, and from quite deep inside the Batu Caves of Malaya. The house was on a recently constructed estate, and there had been trouble with mildew in this and neighboring houses, which also harbored the insects. Moldy shoes in a closet were infested with the insects, and it seems likely that the infestation was associated with the presence of mold.

The following notes and exhibits were presented by C. J. Davis:

**Exoristobia philippinensis** Ashmead: Specimens of this encyrtid were exhibited. *E. philippinensis* was reared locally from puparia of the adult *Nezara* parasite, *Trichopoda pennipes* var. *pilipes* Fabricius, the first record of this hyper-parasite attacking the West Indian tachinid. A specimen of *E. philippinensis* was taken in a light trap in Honolulu in June, 1961, according to Dr. B. D. Burks of the U.S. National Museum, who made the identification.

**Trichopoda pennipes pilipes** Fabricius: A number of shipments of this adult stink bug parasite were sent from Gainesville, Florida by Exploratory Entomologist Noel Krauss during September and October for breeding and distribution throughout the State for biocontrol of *Nezara viridula smaragdula* (F.). *T. pennipes* is reportedly very effective on the stink bug in Florida.

**Tarophagus prosERPina** Kirkaldy and **Achatina fulica** Bowdich: These two pests, the taro leafhopper and the African snail were found established on Molokai on September 25, 1963, during a pest survey by Nakao and Mitchell. The taro leafhopper was found at Halawa and Wailua Valleys while the African snail was reported from Kalaupapa Settlement by Fish and Game Warden Noah Pekelo. On October 7, J. Blalock, County agent, reported that a resident of Maunaloa, Molokai collected a living African snail which measured 3 inches, the second locality record for Molokai.

**Ateuchus lecontei** Harold, **Canthon pilularis** (L.), **Onthophagus oklaho-mensis** Brown, **Onthophagus tuberculifrons** Harold and histerid sp.: Shipments of these dung beetles and predators, received from Mr. Krauss from Gainesville, Florida, were exhibited. They were approved for release and liberated on Oahu in August, 1963.

**Bembecia marginata** Harris: *B. marginata* was collected in Oregon by Mr. Krauss and shipped to the State Quarantine Insectary facilities for propagation, study, and liberation for the biological control of blackberry, a serious weed pest of Kokee and similar habitats in the State. Liberations of this aegerid commenced at Kokee in September and a total of 90 adults have been released.
The 695th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, November 4, 1963, at Agee Hall, HSPA. Members present: Abramovitz, Beardsley, Chong, Chûjô, Clagg, Davidson, Davis, Delfinado, Fujimoto, Fullaway, Garcia-Martell, Gressitt, Haramoto, Hardy, Harrell, Harris, Hart, Huang, Joyce, Kajiwara, Kamasaki, Kitaguchi, Look, S. Mitchell, W. Mitchell, Nakao, Nakata, Ohinata, Pemberton, Perkins, Rodriguez-Velez, Shiroma, Steiner, Suehiro, Sugerman, Thistle, Tsuda, Voss, Wilson, Woolford, Yoshimoto and Yukawa.

Visitors: Dr. O. Eichhorn, Kingston Leong, Edward P. McGeough, and Dr. E. W. Valentine.

Miss Yiau Min Huang, Michitaka Chûjô, and Eugene Holzapfel of the Bishop Museum, and Ernest J. Harris and Kiichi Ohinata of the USDA Fruit Fly Laboratory were unanimously elected to membership.

Mr. Thistle announced that the Governor’s office has allocated an additional $11,199.00 to the State Department of Agriculture for further study of control of the southern green stink bug.

Dr. Pemberton introduced guest speakers Dr. Otto Eichhorn from the Commonwealth Institute of Biological Control and Dr. E. W. Valentine, Entomologist from New Zealand.

Dr. Eichhorn of the Commonwealth Institute of Biological Control gave an interesting account of his work on the study of biological control of insect pests and his trips abroad studying parasite situations.

Dr. Valentine, entomologist from New Zealand, gave a brief talk on the entomology program of the New Zealand government and the common problems entomologists there face. They are primarily concerned at present with the control of pasture insects and the biological control of weed pests such as gorse and blackberry.

NOTES AND EXHIBITIONS

Malaise Trap: C. Yoshimoto and other Bishop Museum staff members exhibited a Malaise trap used for trapping insects in jungles and forests, and explained the mechanics of this trap. D. Tsuda and J. Harrell gave an interesting report on the results of the actual operation of this trap at Mt. Tantalus, Oahu. The 20' by 8' trap was set in a 300' by 75' clearing near the power house, at an altitude of 1,800 ft. A bamboo forest was on three sides, with clumps of bushes overlooking the valley on the fourth side. The cleared area was composed of cut bamboo and freshly cut trees with no undergrowth. The weather was clear with a northerly wind up to 3 miles per hour, and the trap was placed at right angles to the wind, and set from 10:30 a.m. to 3:00 p.m. The following were the results by order and number of specimens:

Lepidoptera .................. 9
Odonata ................... 1
Neuroptera .................. 1
Psocoptera .................. 9
Thysanoptera ................ 7
Orthoptera................. 14  
Hemiptera .................. 9 
Homoptera .................. 34 
Diptera ..................... 1,025 
Hymenoptera ............... 252 (77 non parasitic, 175 parasitic) 
Coleoptera ................. 39 
Isopoda ..................... 3  
Acarina ..................... 2  
Arachnida ................... 6  
Total ....................... 1,400

They found that a trap half the size of the one they used would be more practical because of the dense forest on these islands and because of the difficulties encountered in finding a suitable clearing large enough for the 20' net. A smaller net would also be easier to carry and handle on narrow trails.

**Onthophagus sagittarius** (Fabricius): D. Tsuda exhibited specimens of this dung beetle, 10 of which were collected from cow dung in Manoa Valley on July 24. This insect, occurring in India, Indochina and Malaysia (COLEOPT. CAT., 1927), has not been previously reported from Hawaii, but was probably released with *Onthophagus catta* by the State. Identification made by O. L. Cartwright of the U.S. National Museum.

The following notes were presented by Eugene H. Davidson for E. Shiroma, Federal Plant Quarantine:

**Ectomyelois ceratoniae** (Zeller): Two larvae of this phyctid moth were found infesting seeds of *Barringtonia* sp. from Oahu on March 19, by inspector James Toba. Identification was confirmed by D. M. Weisman of the U.S. National Museum. This constitutes a new host record for this insect.

**Ephestiodes gilvescentella** Ragonot: An adult specimen of this phyctid moth taken in a black light trap at Olinda, Maui by Mr. E. Bonsey was sent to Howard Woolford for identification. This is a new record for the island of Maui. Zimmerman (1958, INSECTS OF HAWAII 8:377) records it as only on the islands of Oahu and Molokai. Identification was made by W. D. Duckworth of the U.S. National Museum.

**Graptostethus manillensis** (Stål): On August 31, a specimen of this lygaeid bug was intercepted in Honolulu from a box of assorted cut flowers shipped from Hilo, Hawaii. Although this bug has been reported from the islands of Kauai, Oahu, Maui, and Niihau, it has not been collected on the island of Hawaii, and constitutes a new island record.

**Polididus armatissimus** Stål: A specimen of this reduviid bug was taken by John Gayden on August 29, at light, in Foster Village, the third locality record of this bug on Oahu. The first Oahu report was by Dr. Joyce in October 1961 in Aina Haina and in 1962 from Kailua [PROCEEDINGS 18(1):20]. This bug was reported for the first time in the state from the island of Hawaii by LeMar Chilson in 1953 [PROCEEDINGS 15(2):289].
Microlarinus lypriformis (Wollaston): Mr. Davis presented for Stephen Au the work of the puncture vine stem weevil, *M. lypriformis*. This weevil, the second species introduced for the biological control of *Tribulus terrestris* and *T. cistoides* was sent from California by N. L. H. Krauss and released at Kekaha, Kauai on July 8. Much damage to the native puncture vine species, *T. cistoides* has occurred since the release of this weevil.

Exoristobia philippinensis Adhmead: For Ernest Yoshioka, Hawaii, Mr. Davis reported that this secondary parasite was reared from puparia of *Trichopoda pennipes* var. *pilipes* Fabricius at the Honaunau Insectary, Kona recently and is the first record of this hyperparasite from the island of Hawaii. It was previously reported from Oahu by Beardsley and Davis.

Schreckensteinia festaliella Hubner: Mr. Davis reported that this leaf skeletonizing heliodinid, introduced from California for blackberry control, was approved for release by the Department of Agriculture on October 25, after extensive host range tests indicated it was host specific. First releases were made the following week in Olinda, Maui. *S. festaliella* is of European origin and is found in California and Oregon.

DECEMBER 9, 1963

The 696th meeting of the Hawaiian Entomological Society was called to order by President Davis at 2:00 p.m., Monday, December 9, 1963, in Agee Hall, HSPA.


Kingston Leong, University of Hawaii, was unanimously elected to membership.

Dr. I. W. B. Thornton who is leaving soon to return to the University of Hong Kong spoke briefly on his work at the University of Hawaii on the psocids of Hawaii during the past year. He thanked everyone who made his stay here a most enjoyable one.

Dr. Tamashiro called the attention of the Society to the increase in dues from $5.00 to $7.00 beginning next year.

The Cooperative Economic Insect Reports Annual Summary of Hawaii Insect Conditions will again be prepared by the State Department of Agriculture with the cooperation of various agencies.

The following officers were elected to serve during 1964.

- President: Martin Sherman
- President-elect: Wallace Mitchell
- Secretary: Setsuko Nakata
- Treasurer: Harry Nakao
- Advisor: C. E. Pemberton

Outgoing President Clifton J. Davis gave as his presidential address "The
introduction, propagation, liberation and establishment of parasites to control
the southern green stink bug, *Nezara viridula* var. *smaragdula* (Fabricius) in
Hawaii."

**NOTES AND EXHIBITIONS**

*Nysius coenosulus* Stål: A request was received from Dr. Steiger, Scientist
in Charge, Haleakala Observatory for suggestions to control this bug which
swarms in numbers over the Haleakala observatory across the path of instrument
rays, throwing the readings completely off. Dr. Steiger would appreciate a
solution to this problem.

*Coepotermes formosanus* Shitaki: Dr. Bess reported on a queen of the
subterranean termite which was found on December 2 by Mr. Donald Yara.
The carton nest of about two cubic feet of material was in the false bottom of a
closet directly on the concrete slab near a bathroom. No tunneling was found
leading to the ground. In dissecting away parts of the nest in order to remove
the queen, hundreds of soldiers and small nymphs and many thousands of
workers were present, but no eggs. The queen and a large part of the colony are
being held in the insectary.

*Hyperaspis trilineata* Mulsant: Dr. Pemberton reported that 72 adults of
this ladybird were sent from Honolulu to Mr. Bianchi at Koror, Caroline Islands,
Trust Territory of the Pacific, on November 1, 1963. These reached Koror in
perfect condition and were liberated in the vicinity of Koror on November 4 on
sugarcane infested with sugarcane mealybug, *Saccharicoccus sacchari* (Cockerell),
a natural host of this ladybird. *H. trilineata* was introduced into Hawaii from
Barbados, British West Indies early in 1963.

*Coelotrichus blackburniae* White: Mr. Perkins exhibited two specimens of
this endemic scutellerid bug, on which were visible eggs of the tachinid fly,
*Trichopoda peniptes* var. *pilipes*, a parasite which was recently introduced into
Hawaii for control of the southern green stink bug, *Nezara viridula* *smaragdula*
(F.). The bugs bore 17 and 3 eggs respectively, and were collected on November
3, 1963 at the Tantalus Park area by an entomology student.

*Polidius armatissimus* Stål: Dr. Beardsley reported that while going
through the collection of insects made by general entomology students at the
University of Hawaii, he noted that specimens of this reduviid bug have been
collected on six to eight different occasions from different areas of Oahu and it
is now apparently widespread throughout the island.

*Clasvaspis herculeana* (Doane and Hadden): Mr. Shiroma exhibited a
plumeria cutting infested with this diaspid scale, which was intercepted during
pre-departure baggage inspection on May 18. This scale insect has not been
recorded previously and constitutes a new record for the state. According to
Ferris (*ATLAS OF THE SCALE INSECTS OF NORTH AMERICA* 2:206), this scale
was originally described from an undetermined host from the Society Islands,
and has been recorded from Florida, Texas, Cuba, and Peru. Hosts include
*Acacia*, *Anona*, *Cinnamomum*, *Maclura*, *Spondias*, *Lencocarpus* and *Mangifera*.
The scales are concealed beneath the bark and epidermis of the host and are very
hard to detect. Determination was made by Mr. R. F. Wilkey, Systemic Entomologist, State of California Department of Agriculture.

**Nezara viridula smaragdula** (Fabricius): Dr. Mitchell reported that a local resident complained about an insect attacking his chestnut tree, the Guiana or Malabar chestnut, *Pachira aquatica* Aubl. (Bombacaceae). This constitutes a new host record for *Nezara* which was feeding on the growing tips of the tree.
New Immigrant Records for the Year 1963

Species marked with an asterisk were reported from the Hawaiian Islands for the first time during 1963 on the dates recorded in the text. Species not so marked were reported previously under incorrect or incomplete determinations. The species marked with a dagger is considered doubtfully established as the record is based on a single collection. New species considered to be endemic to the Hawaiian Islands are not included in this list.

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