

PROCEEDINGS
of the
Hawaiian Entomological Society

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FOR THE YEAR 1956

MAY, 1957

JANUARY 9, 1956

The 601st meeting was held at the Experiment Station, H.S.P.A., on Monday, January 9, at 2:00 P.M., with Dr. Pemberton presiding in the absence of the President and Vice-President.

Members present: Adachi, Balock, Beardsley, Bess, Bianchi, Boyle, Carter, Ford, Fullaway, Gressitt, Hardy, Hinckley, Kajiwara, Krauss, Maehler, Nakata, Pemberton, D. Rainwater, Rosa, Steiner, Thistle, Tuthill, Van Zwaluwenburg, and Weber.

Visitor: Donald Awai.

Mr. Donald Awai was unanimously elected to membership in the Society.

Mr. Steiner, just returned from Costa Rica, gave an interesting account of a recent Mediterranean fruit fly survey of that country.

Mr. Krauss gave an account of his recent parasite explorations in Mexico, Florida, and the Antilles.

NOTES AND EXHIBITIONS

MEALYBUG sp.: Mr. Beardsley exhibited specimens of what apparently is an undescribed endemic species of mealybug on tree fern (*Cibotium* sp.), which he collected on Mt. Tantalus, Oahu, on January 2.

OOTETRASTICHUS MEGAMELI Fullaway: Mr. Fullaway exhibited specimens of this eulophid reared from eggs of *Tarophagus proserpina* (Kirkaldy) collected at Kaakepa, Puna, Hawaii, on December 16, 1955, by Messrs. Chock and Davis. This is the first recovery of the parasite since it was introduced from the Philippines and liberated at Kahaluu, Oahu, in 1938.

ERIOPHYID MITES: Mr. Fullaway exhibited leaves of *Stemmadenia*, an ornamental plant, severely galled by these mites. The leaves were collected in Honolulu this month.

EUELMUS CUSHMANI (Crawford): Mr. Fullaway exhibited this eupelmid, bred from *Araecerus levipennis* Jordan in seeds of koa haole from Kahului, Maui, collected December 26, 1955.

PLAGIOLEPIS MACTAVISHI Wheeler: Mr. Krauss mentioned an unusual abundance of this ant in Manoa Valley, Honolulu. They feed on sweets and are a general nuisance.

LATRODECTUS GEOMETRICUS Koch: Mr. Krauss stated that two specimens of this poisonous spider were collected on Eniwetok Atoll, Marshall Islands, during December, 1955, by Dr. T. J. Albert.

FRUIT FLIES: Mr. Krauss spoke of rearing *Ceratitis capitata* (Wiedemann) from *Ludia sessiliflora* Lamarck and *Harrisonia abyssinica* Oliver during July and September, 1951, respectively, at Diani Beach, Kenya. The first of these fruits was also infested by the Natal fruit fly, *Pterandrus rosa* Karsch, and both lots yielded *Opus perproximus* Silvestri. Identifications of the material were made by Dr. H. K. Munro of the South Africa Department of Agriculture.

FEBRUARY 13, 1956

The 602nd meeting was held at the Experiment Station, H.S.P.A., on Monday, February 13, at 2:00 P.M., with President Tanada in the chair.

Members present: Adachi, Awai, Beardsley, Bess, Bianchi, Boyle, Carter, Chilson, Chong, Christenson, Clagg, Clausen, Ford, Fullaway, Gressitt, Hinckley, Ito, Kamasaki, Keck, Look, Maeda, Nakata, Nishida, Pemberton, D. Rainwater, Rathburn, Rosa, Sakimura, M. Sherman, Smith, Steiner, Thistle, Tuthill, and Weber.

Visitor: Jules Fine.

Mr. R. H. Van Zwaluwenburg, retiring from active service with the Experiment Station, H.S.P.A., was elected to honorary membership in the Society.

Dr. Clausen gave an interesting account of recent work on the spotted alfalfa aphid (*Therioaphis maculata* (Buckton)) in California.

Dr. Pemberton reported on the proceedings of the annual meeting of the Insect Control Committee of the Pacific Science Board, held in Honolulu on February 8.

NOTES AND EXHIBITIONS

ITHOME CONCOLORELLA (Chambers): Mr. Fullaway announced that this name had been obtained for the so-called kiawe moth from the Division of Insect Identification and Parasite Introduction. The species is known from Mexico and the southwestern United States.

PSEUDOCOCCUS GALLICOLA Ehrhorn: Mr. Beardsley exhibited galled leaves of *Santalum* which he had collected on the north fork of Kaukonahua Stream, above Wahiawa, Oahu.

SOLENOPSIS GEMINATA RUFA (Jerdon): Dr. Carter stated that this ant has recently appeared in the Naiwa-Apana area of Molokai, where the elevation is about 500 feet and the average rainfall 15.83 inches per year. The infestation is well established in the uncultivated border of a pineapple field, and the colonies have moved infield. This is the first record of the species on Molokai.

COMPERIELLA BIFASCIATA Howard: Mr. Weber spoke of finding an unusually heavy population of this encyrtid wasp on the leaves of a coconut palm at Wailupe Circle, Honolulu, in January. The wasps were probably emerging from *Chrysomphalus ficus* Ashmead, which was present in numbers on the leaves.

HABROLEPIS ROUXI Compere: One specimen of this encyrtid (BULL. ENT. RES. 27:495, 1936) was found by Mr. Weber among the *Comperiella* mentioned above, constituting a new record for the Territory. *H. rouxi* was described from South Africa, as a parasite of *Chrysomphalus aurantii* Maskell.

MARCH 12, 1956

The 603rd meeting was held at the Experiment Station, H.S.P.A., on Monday, March 12, at 2:00 P.M., with President Tanada in the chair.

Members present: Adachi, Barker, Beardsley, Bess, Bianchi, Boyle, Carter, Chilson, Chock, Chong, Clagg, Fullaway, Holway, Joyce, Kamasaki, Keck, Krauss, Look, Maeda, Maehler, Nakata, Namba, Nishida, Pemberton, D. Rainwater, Rathburn, Rosa, M. Sherman, Steiner, Thistle, Tuthill, Van Zwaluwenburg, and Weber.

Visitors: A. N. Rao and S. Miyake.

A short film illustrating the habits of some newly introduced predaceous snails was shown by Mr. Weber.

Mr. Krauss gave an interesting account of his recent trip to Fiji and Tonga.

NOTES AND EXHIBITIONS

CHEIRACANTHIUM DIVERSUM Koch: For Dr. Gressitt, Miss Nakata reported another case of bite by this spider, involving a woman at Mikilua, Waianae, Oahu, on February 26. The woman was bitten on the hand, which became red and swollen and hurt for about three hours.

LATRODECTUS GEOMETRICUS Koch: Mr. Krauss reported that this spider was abundant on Canton Island in March, but that he had failed to find *L. mactans* (F.), previously reported by Van Zwaluwenburg. This is a new distribution record for *L. geometricus*.

VANDUZZEA SEGMENTATA (Fowler): Dr. Tanada stated that he had found soybean plants heavily infested with adults and nymphs of this mem-

bracid at Aiea, Oahu. They were attended by ants. This appears to be a new host record for the species in Hawaii.

BRACHYCARA sp.: Dr. Joyce reported finding a stratiomyiid fly, new to the main islands of the Hawaiian chain, at the Honolulu airport on December 6, 1955. This small dark fly appears to be the species reported by Bryan in 1926 from Laysan Island, from collections by D. T. Fullaway (B. P. BISHOP MUS. BULL. 31:67, 1926). According to Dr. M. T. James, it is a new species of *Brachycara*.

PHENACASPIS COCKERELLI (Cooley): Mr. Beardsley noted that *Phenacaspis sandwicensis* (Fullaway) is a synonym of *cockerelli*, according to Ferris (MICROENTOMOLOGY 20:46, 1955).

ANAGYRUS FUSCIVENTRIS (Girault): Mr. Beardsley noted that *A. nigricornis* Timberlake is a synonym of *A. fusciventris* (MEM. QUEENSLAND MUS. 4:144, 1915), according to Compere (BULL. ENT. RES. 34:129, 1943; UNIV. CALIF. PUB. ENT. 8:21, 1947).

SPODOPTERA MAURITIA (Boisduval): Mr. Bianchi reported the finding of a polyhedral virus disease killing caterpillars of *Spodoptera mauritia* on lawns at Aina Haina, Honolulu, on March 6. According to Dr. Tanada this is the first record of any such disease on *S. mauritia* anywhere in the world.

APRIL 9, 1956

The 604th meeting was held at the Experiment Station, H.S.P.A., on Monday, April 9, at 2:00 P.M., with President Tanada in the chair.

Members present: Adachi, Balock, Beardsley, Bess, Bianchi, Boyle, Chilson, Chock, Chong, Clagg, Ford, Fullaway, Hardy, Ito, Joyce, Kajiwarra, Kamasaki, Keck, Look, Maeda, Mitchell, Nishida, Pemberton, Rathburn, Steiner, Tanada, Thistle, Tuthill, Van Zwaluwenburg, and Weber.

Visitors: S. Miyake, G. N. Rao, and K. Harley.

An excellent colored motion picture on biological control, lent by the University of California Citrus Experiment Station, Riverside, California, was shown, receiving many compliments.

NOTES AND EXHIBITIONS

CAMPSOMERIS MARGINELLA MODESTA (Smith): Dr. Pemberton reported that this scoliid wasp has been found established in Western Samoa by R. A. Cumber, entomologist with the South Pacific Commission, during January, 1956, about 14 miles from the original point of liberation. A consignment of 160 females had been sent from Oahu by H.S.P.A. entomologists during October, 1952, for control of the rutelid beetle *Adoretus versutus* Harold, a defoliator of many plants.

NEW HYDROPHILIDAE: Mr. Ford exhibited three species of hydrophilids determined by H. B. Leech as *Oosternum* spp. One of these was first collected in Manoa Valley, Oahu, by E. M. Ehrhorn on May 14, 1928. None of them had been reported from the Territory previously.

IRIDOMYRMEX HUMILIS (Mayr): Mr. Ito reported that the Argentine ant had been found about one mile south of Lanai City during October, 1955; at Whitmore Village, Wahiawa, Oahu, during December, 1955; and above Lowrey Ave. bridge, East Manoa Road, Honolulu, quite recently.

TOXORHYNCHITES SPLENDENS (Wiedemann): For Stephen Au, Mr. Fullaway reported the finding of one specimen of this predaceous mosquito at Kalaheo, Kauai, on February 29th, 1956. This Philippine species was liberated by the Territorial Board of Health on Kauai on June 15, 1954, and has not been previously reported from that island.

VANDUZZEA SEGMENTATA (Fowler): Mr. Weber reported finding this membracid breeding on branch tips of a *Hibiscus*, a new host record, in Honolulu on March 23. As usual, it was being attended by *Pheidole megacephala* (F.).

AMPULEX COMPRESSA (F.): Mr. Weber reported that in August of 1956 several shipments of this wasp had been sent for release on Aitutaki, Cook Islands, and that recent correspondence reports the observation of adults on more than one occasion.

PECTINOPHORA SCUTIGERA (Holdaway): Mr. Chilson reported this gelechiid moth had been intercepted by plant quarantine inspectors on June 26, 1952, and on August 9, 1955, in Hawaiian material going to the mainland. The species, determined by H. W. Capps of the U. S. National Museum, was described from Australia in commercial cotton plantings during 1926, but its primary hosts are *Thespesia populnea* (L.) Solander and *Hibiscus tiliaceus* L. Up to now it has been known from Australia and New Guinea only (BULL. ENT. RES. 17(1):67-83, 1926.)

MAY 14, 1956

The 605th meeting was held at the Experiment Station, H.S.P.A., on Monday, May 14, at 2:00 P.M., with President Tanada in the chair.

Members present: Awai, Beardsley, Bess, Bianchi, Boyle, Chock, Chong, Fullaway, Haramoto, Joyce, Kajiwaru, Kamasaki, Keck, Look, Maeda, Maehler, Miyake, Nakata, Namba, Pemberton, Rosa, M. Sherman, Tanada, Thistle, Van Zwaluwenburg, and Weber.

Visitor: K. Harley.

An interesting motion picture on the signs used by honey bees in describing the locations of nectar sources to each other was shown by Dr. Bess.

NOTES AND EXHIBITIONS

PHAENICIA SERICATA (Meigen): Dr. Bess reported for Dr. Hardy that maggots of this fly had been sent for identification by C. J. Davis, Hilo, Hawaii. They had been recovered from the right ear of a five-months-old boy at the Honokaa Hospital when they crawled out by themselves, after causing much irritation and bleeding.

STENEOTARSONEMUS PALLIDUS (Banks): Dr. Boyle stated that he and F. H. Haramoto had found a heavy infestation of the cyclamen mite on *Jasminum sambac* (L.) Aitken (pikake) during March in the area between Kaimuki and Kahala. Growers reported a large reduction in flower yield for last year's and the present crop. This is a new host record for the cyclamen mite.

TYPHLOPS BRAMINUS (Daudin): Dr. Pemberton reported that this small burrowing snake had been found by Harold Hall in a garden at Lahaina, Maui, in March, 1956. This is the first record for this snake on the island of Maui.

COPTOTERMES FORMOSANUS Shiraki: It was reported for Noel Krauss that he had found this termite in a telephone pole at Canton Island in March, 1956. This is a new distribution record for the species.

PRISTOMERUS HAWAIIENSIS Ashmead: Mr. Fullaway reported rearing this braconid from larvae of *Ithome concolorella* (Chambers) collected on kiawe at Kihei, Maui, on May 7, 1956. This is a new host record.

AERENICOPSIS CHAMPIONI Bates: It was reported for C. J. Davis that he had made the first recovery of this stem borer of lantana at Kaahepa, Puna, Hawaii, on April 24, 1956. The cerambycid was released at Puna approximately a year ago by the Territorial Board of Agriculture and Forestry. The recovery indicates a life cycle of approximately 10–11 months, with a pupal stage of 14 days.

APOANAGYRUS CALIFORNICUS Compere: Mr. Beardsley reported finding a series of this encyrtid (UNIV. CAL. PUBS. ENT. 8(1):15–20, 1947) in the H.S.P.A. collection. They were collected by O. H. Swezey in the vicinity of Koko Head during February and March, 1943, and constitute the first record for the species in the Territory. It has been reared from *Phenacoccus solani* Ferris in California.

ANTHRIBID BEETLE: Mr. Beardsley reported collecting a species of Anthribidae new to the Territory in a light trap at Waipio, Oahu, on various dates since October, 1955.

HELIX ASPERSA Müller: Mr. Weber reported that a specimen of the European brown snail was found on Round Top Drive on April 5 this year. Another single specimen had been found in Kaimuki in 1952. It has not been determined how the snail obtained entry to Hawaii.

EUGLANDINA ROSEA Férrusac: Mr. Weber reported recovery of one specimen of this predaceous snail at Hauula on April 10 of this year. The species had been liberated a quarter of a mile from the point of recovery during November and December, 1955.

PSEUDALETIA UNIPUNCTA (Haworth): Dr. Tanada reported a fairly severe infestation by this armyworm of about 200 acres of grassland on the Kahua Ranch, Kohala, Hawaii, early in April.

JUNE 12, 1956

The 606th meeting was held at the Experiment Station, H.S.P.A., on Tuesday, June 12, at 2:00 P.M., with President Tanada in the chair.

Members present: Adachi, Beardsley, Bess, Bianchi, Boyle, Chong, Fullaway, Haramoto, Hardy, Ito, Nakata, Namba, Pemberton, Suehiro, and Weber.

Visitors: Richard Warner and Mrs. J. L. Gressitt.

NOTES AND EXHIBITIONS

IRIDOMYRMEX HUMILIS (Mayr): Mr. Ito stated that on June 10 he had found the Argentine ant well established in the western section of the Waimanalo Experimental Farm of the Hawaii Agricultural Experiment Station and in some adjoining areas.

GASTERACANTHA CANCRIFORMIS (L.): Dr. Hardy stated that a professor at the University of Hawaii had reported running into a web of this spider in his own garden and being bitten on the cheek, the bite causing local numbness which lasted about two hours but disappeared without further effect.

CHEIRACANTHIUM DIVERSUM Koch: Dr. Hardy reported another case of bite by this spider. A woman, reaching into a clothes bag, was bitten on the tip of a finger one morning. Following intense pain and some swelling during the morning, she went to her doctor early in the afternoon. He gave her an intravenous injection of calcium gluconate and put her on sedatives for the remainder of the day and that night. The pain lasted until about 10 o'clock in the evening but did not spread beyond the finger and was entirely gone by the next morning.

HELIX ASPERSA Müller: Mr. Weber stated that another probable specimen of the European brown snail had been reported to him recently from the vicinity of the Makiki pumping station in Honolulu. Unfortunately the specimen was not saved for a positive identification.

AGROTIS YPSILON (Rottemburg): Mr. Bianchi spoke of an unusual infestation by this cutworm in an eighty-eight-acre sugar cane field on

Kauai, early in May. As a rule this species has been found only in relatively small numbers among other armyworms and cutworms, but this time it was the only species represented in a population dense enough to harm young cane seriously.

JULY 9, 1956

The 607th meeting was held at the Experiment Station, H.S.P.A., on Monday, July 9, at 2:00 P.M., with President Tanada in the chair.

Members present: Adachi, Awai, Balock, Beardsley, Bess, Bianchi, Bonnet, Boyle, Chilson, Chong, Christenson, Clagg, Fullaway, Hardy, Hinckley, Kamasaki, Keck, Look, Macdougall, Nakata, Pemberton, D. Rainwater, Rosa, M. Sherman, Suehiro, Usinger, and Weber.

Visitors: Mrs. J. L. Gressitt, H. D. Kirschman, James Y. Kim, K. Harley, and R. E. Warner.

Dr. Usinger spoke upon problems related to the world distribution of *Halobates* and *Hermatobates*, which he is presently studying.

Dr. Bonnet gave an account of work he has been conducting during the last three years in Tahiti in connection with a French-American effort to eradicate filariasis there.

Mr. Christenson, recently returned from a trip to Florida, gave an account of the recent finding of the Mediterranean fruitfly in that state and of the present campaign against the pest.

Mr. Clagg spoke briefly on his recent trip to Guam, the Bonins, and other islands of the Pacific.

Mr. Keck spoke of a recent stay on the island of Eniwetok, where he was unable to find any ants, presumably because all the loose top-soil of the island had been completely scraped off by bulldozers during the war.

NOTES AND EXHIBITIONS

Dr. Hardy presented the following notes:

PHYTOBIA MACULOSA (Malloch): Dr. Kenneth Frick has recently identified this agromyzid (ANN. ENT. SOC. AMER. 6:302, 1913) from specimens reared from *Helianthus annuus* L. on the University campus in May, 1956, by Dr. Martin Sherman. It has also been reared from asters, *Zinnia*, *Chrysanthemum*, and *Bidens* in Honolulu and has done serious damage to the first two this spring in the Koko Head area. The larvae form large blotch mines in which several larvae commonly occur. The adults are fairly large, shining black, and are characterized by a black spot on the white halteres. The species is widespread over the United States and is known from Argentina, Uruguay, and Bermuda, but this is a new record for the Territory.

MYCOPHILA FUNGICOLA Felt: Several specimens of this cecidomyiid (JOUR. N. Y. ENT. SOC. 19:33, 1911) have been taken in a light trap at Ewa, Oahu. Previously the species was known only from the type male and allo-type female, reared from mushrooms at San Rafael, California, in 1897. Our specimens have been compared with the type and the determination confirmed by Dr. R. H. Foote of the U. S. National Museum.

ARTHROCNO DAX WALKERIANA Felt: This cecidomyiid (JOUR. N. Y. ENT. SOC. 23:181, 1915) was reared from *Trionymus sacchari* (Cockerell) at Honolulu, Oct. 5, 1915, and July 15, 1930, by O. H. Swezey; *Pseudococcus boninsis* (Kuwana) at Honolulu, Aug. 9, 1930, by O. H. Swezey; *Pseudococcus adonidum* (L.) at Honolulu, February, 1956, by J. W. Beardsley; it was also collected at various times in light traps at Ewa and Waipio, Oahu. It was previously known only from the type series reared from coffee at Peradeniya, Ceylon, in 1914, and from what Dr. Ferris and Dr. Morrison believe might be *Pseudococcus kandyensis* Green. Hawaiian specimens have been compared with the type and the determination confirmed by Dr. Foote.

LESTREMIA CINEREA Macquart; **LESTREMIA LEUCOPHAEA** (Meigen): Both of these cecidomyiids are common at lights on Oahu. The first (INS. DIPT. NORD. FRANCE 1:173, 1826) is widely distributed over Europe and North America; it has been bred from mushrooms in England. The second (SYST. BESCHR. BEKANN. EUR. ZWEIFL. INSEKT. 1:288, 1818) is known from Europe, northern and western United States, and possibly New Zealand and Australia. Both are new records for Hawaii. The determinations were confirmed by Dr. A. E. Pritchard of the University of California.

AUGUST 13, 1956

The 608th meeting was held at the Experiment Station, H.S.P.A., on Monday, August 13, at 2:00 P.M., with President Tanada in the chair.

Members present: Beardsley, Boyle, Chilson, Chong, Gressitt, Haramoto, Hardy, Hinckley, Keck, Look, Macdougall, Maehler, Nakata, Namba, Nishida, Pemberton, D. Rainwater, H. I. Rainwater, Rosa, and Thistle.

Visitors: K. Harley and R. E. Warner.

Mr. R. E. Warner was unanimously elected to membership in the Society.

Dr. Gressitt gave a talk, illustrated with color slides, on his recent trip to New Guinea, the Bismarck Archipelago, and the Solomon Islands.

NOTES AND EXHIBITIONS

DACUS CUCURBITAE Coquillett: Mr. Maehler stated that one gravid female of this species of fruit fly had been captured in a fermented lure trap on the campus of the University of California at Los Angeles on July 24, 1956. No others have been found since.

LEPIDOSAPHES TUBERCULATA Malenotti: Mr. Thistle reported that this diaspidid scale, hitherto unknown in the Territory, had been found infesting *Cymbidium* orchids in two nurseries at Hilo early this year. The species, also known as *L. machili* (Maskell) (ATLAS OF SCALE INSECTS OF NORTH AMERICA 4:397, 1942), was determined by Dr. Morrison of the U. S. National Museum. A program of eradication is being conducted by the Territorial Board of Agriculture and Forestry.

CALENDRA CARIOSA (Olivier): Mr. Beardsley exhibited an adult weevil of this species which was collected by Dr. Hardy on the beach near the Waialeale Boys' School, Oahu, on July 8, 1956. Subsequent search of possible hosts in the area by Messrs. Beardsley and Bianchi failed to yield additional specimens. This is known from grasses, sedges, and sugar cane on the mainland (BULL. AMER. MUS. NAT. HIST. 98(2):146, 1951). This is a new record for the Territory.

BREVICORYNE BRASSICAE (L.): A heavy infestation of the cabbage aphid on English honeysuckle, *Lonicera* sp., at Makiki Heights, Honolulu, was reported by Dr. Tanada.

SYBRA ALTERNANS Wiedemann: Dr. Tanada reported rearing this cerambycid from larvae that had been found attacking the peduncles of passion fruit in Hilo, Hawaii. The damage caused some fruits to drop prematurely.

HELIOTHIS VIRESCENS (F.): Mr. Beardsley exhibited adults and larvae of this phalaenid moth which has recently become established on Oahu. Adults were first taken in the H.S.P.A. light trap at Ewa, Oahu, on April 30, 1956, and larvae have been recently damaging geranium (*Pelargonium*) flowers in Mr. Beardsley's yard in Aina Haina, Honolulu. Mr. Zimmerman determined the species, which is well known as the tobacco bud-worm (DESTRUCTIVE AND USEFUL INSECTS, 3rd edition, pp. 524-525). This is a serious pest of tobacco, cotton, and solanaceous plants, especially in the southeastern U. S., and is also recorded from *Physalis*, pigeonpea, geranium, beans, flax, and *Ageratum*. Several adults of *Chaetogaedia monticola* (Bigot) have issued from pupae collected in Aina Haina, and Mr. Beardsley has observed a *Eumenes campaniformis* (F.) stocking her nest with a caterpillar of the species.

ZETHA SIMONYI (Krauss): Dr. Gressitt read a letter from A. B. Gurney, of the U. S. National Museum, stating that cockroach specimens which had been sent to him from Hawaii under the name of *Holocompsa fulva* (Burmeister) had turned out to be *Zetha simonyi*, a species hitherto unrecorded from the Territory. Our local species apparently was misidentified. *Z. simonyi* was described in 1892 from the Canary Islands (ZOOLOG. ANZ. 15:165) and has since been recorded in the Azores, Madeira, Guatemala, Ecuador, and Peru. It is carried in commerce and is repeatedly intercepted in the U. S. from

those countries. It belongs to the same family (Polyphagidae) as *H. fulva* and has much the same habitus, but the wing venation of the two species is quite different.

SEPTEMBER 10, 1956

The 609th meeting was held at the Experiment Station, H.S.P.A., on Monday, September 10, at 2:00 P.M., with President Tanada in the chair.

Members present: Adachi, Beardsley, Bess, Bianchi, E. H. Bryan, Jr., Chilson, Chock, Chong, Hardy, Joyce, Kajiwara, Look, Macdougall, Maehler, Nakata, Namba, Pemberton, D. Rainwater, H. I. Rainwater, Rosa, M. Sherman, Suehiro, Weber, and Woolford.

Visitor: H. D. Kirschman.

Dr. Paul H. Arnaud was unanimously elected to membership in the Society.

Dr. Bess gave an interesting report on the activities of the Tenth International Congress of Entomology which he recently attended as part of the Hawaiian delegation.

NOTES AND EXHIBITIONS

TARDIGRADA: Mr. Bryan called attention to a paper by Dr. Shinkishi Hatai, of Tohoku University, Sendai, Japan, in which three species of Tardigrada from the Hawaiian Islands are mentioned and illustrated. These are *Macrobiotus hufelandii* Schwartz, from Hilo and Kilauea, Hawaii; *Milnesium tardigradum* Doyere, from Hilo and Kilauea, Hawaii; and *Hypsibius canadensis* Murray, from Honolulu, Oahu, and from Akaka Falls and Hilo, Hawaii. They were all collected by Dr. Yata Haneda in bamboo-leaf ground litter during a brief visit he made to Hawaii in 1955 and constitute the first record of the Tardigrada in the Territory. Dr. Hatai's report is in Japanese, with English summary (SCIENCE REPORT YOKOSUKA CITY MUSEUM 1:1-12, 1956).

ONTHOPHAGUS INCENSUS Say: Dr. Pemberton stated that a number of specimens of this scarabaeid dung beetle were received by him from L. W. Bryan, who collected them in Kona, Hawaii, on September 1, 1956. Mr. Bryan reported that the beetles entered his room at night through the door and open window in swarms and that on the following morning the floor was covered with many he had killed with a flit gun. The insect was introduced into Hawaii from Mexico by Herbert Osborn in 1923 for control of the horn fly, *Siphona irritans* (L.) It was well established in Kona by 1934. When present in such quantities as reported by Mr. Bryan, the beetles disintegrate dung and inhibit the mass development of the horn fly, especially during dry weather.

ACHATINA FULICA Bowdich: Dr. Nishida reported damage to cantaloupes by the giant African snail at Waimanalo, Oahu, on August 15, 1956,

in a commercial field adjacent to a dense growth of *Leucaena glauca* (L.) Benth. Immature and ripe fruits had been fed upon, as well as the bark at the base of the plants.

APHYCUS FLAVUS Howard: Mr. Beardsley reported that this encyrtid (PROC. U. S. NAT. MUS. 50:634-635, 1916) had been reared by him from *Coccus elongatus* (Signoret) collected on *Desmanthus virgatus* (L.) Willdenow at Molokai airport in June, 1956. Specimens were also collected sweeping *Desmanthus* at Ewa, Oahu, in October, 1956. Determination was made by P. H. Timberlake and establishes a new record for the Hawaiian Islands.

PSEUDHOMALOPODA GUAMENSIS Fullaway: Mr. Beardsley stated that he had reared this encyrtid (INSECTS OF GUAM 2:209-210, 1946) from the diaspidid scale *Odonaspis greenii* (Cockerell) collected on bamboo on the University of Hawaii campus, August 1, 1956. The host was determined by isolating individual parasitized scales. This is the first definite host record for this wasp, although Fullaway ("PROCEEDINGS,"¹ 15:9, 1953) reported breeding it from bamboo infested with *Asterolecanium bambusae* (Boisduval). *Odonaspis greenii* is usually hidden beneath the bracts at the nodes of the bamboo stems. The parasite emerges from the scale by cutting a hole through it and the overlying bract, leaving a tell-tale circular hole on the outside of the bract.

SYNGAMIA HAEMORRHODALIS Guenée: Miss Chong reported that this pyralid leaf-feeder had recently been collected on Mt. Tantalus, Oahu, indicating its possible establishment on the island. The species was found by Noel Krauss in Florida in 1955 and had been liberated by the Territorial Board of Agriculture and Forestry on Tantalus between April 20 and May 29, 1956.

ANTHRAX DISTIGMA Wiedemann: Mr. Bianchi stated that this bombyliid has spread to the Diamond Head area of the city and that he has been seeing one or two of the flies every day in his yard in that section. They are extremely difficult to catch, as they react quickly to any movement, but they are rather tame and upon occasion will settle upon one's arm or face. They spend much time investigating *Xylocopa* and other burrows in walls, trees, fence posts, etc., and this is not in keeping with the fact that they are supposed to parasitize the larvae of *Eumenes* wasps, which are housed in mud nests.

OCTOBER 8, 1956

The 610th meeting was held at the Experiment Station, H.S.P.A., on Monday, October 8, at 2:00 P.M., with Vice-President Christenson in the chair.

¹ Throughout this publication, "PROCEEDINGS" refers to the PROCEEDINGS OF THE HAWAIIAN ENTOMOLOGICAL SOCIETY.

Members present: Adachi, Au, Awai, Barker, Beardsley, Bess, Bianchi, Chilson, Clagg, Chock, Chong, Christenson, Ford, Gressitt, Hardy, Kajiwara, Kamasaki, Keiser, Macdougall, Maehler, Namba, Nishida, Pemberton, Rosa, Suehiro, Thistle, Tuthill, Warner, and Weber.

Visitors: James Kim, Asher Ota, Manuel Caldwell, Carl Isenberg, and John Siumo.

Mr. Ford gave an interesting illustrated talk on his recent collecting trip to New Guinea and other islands of the Pacific.

NOTES AND EXHIBITIONS

ARAECERUS LEVIPENNIS Jordan: Dr. Gressitt stated that this recent immigrant had been found breeding in seeds of *Acacia koa* Gray on Mt. Tantalus, Oahu, on September 30, 1956, by C. Brownell, and by E. J. Ford at other localities. Swezey (BISHOP MUS. SPEC. PUB. 44, 1954) mentions no *Araecerus* on koa; but Jordan ("PROCEEDINGS," 12(3):517-524, 1946) lists *fasciculatus* on koa, and Zimmerman took *varians* on koa at Kokee, Kauai, in 1937.

APIS MELLIFERA L.: Dr. Gressitt called attention to a note by Dr. Tanada (NA PUA OKIKA O HAWAII NEI 5(1):4, 1955) stating that honeybees are frequently trapped in the blossoms of *Dendrobium* orchids. Most cases involve hybrids, particularly "Sunda Islands" and "strattokai," as well as other crosses of *stratiotes*.

TOXORHYNCHITES SPLENDENS Wiedemann: Mr. Chock stated that Mr. Stephen Au had found one of these cannibal mosquitoes feeding on a ripe mango in the Lihue Nursery, Kauai, on September 18, 1956. The species was released in the Wailua River basin on June 15, 1954, and this is the second recovery on Kauai, the first having been made at Kalaheo on February 29, 1956.

CULEX QUINQUEFASCIATUS Say: Mr. Clagg stated that this mosquito had been eliminated from Kwajalein Island about two years ago by intensive control measures but had reappeared again in May of this year.

DACUS FRAUENFELDI Schiner: Mr. Clagg reported this tephritid as very common on Kwajalein during September, 1956, but not to be found on Ebeye on the same atoll.

ANOMALA SULCATULA Burmeister: Mr. Clagg said he had collected six of these beetles on Midway Island during August of this year, but that by September none was to be seen.

INSECTS ON RAILLARDIA sp.: Mr. Beardsley stated that he and Mr. Van Zwaluwenburg had found four native insects in abundance on *Raillardia* sp. at the summit of Mt. Haleakala, Maui, on September 1, 1956. These

were *Nysius nigriscutellatus* Usinger, *Cyrtopeltis hawaiiensis* Kirkaldy, *Sarona* n. sp., and *Tephritis cratericola* Grimshaw. The last was reared in numbers from material brought to Honolulu and held in the laboratory.

AGONOXENA ARGAULA Meyrick: Mr. Weber reported finding a specimen of *Eupelmus cushmani* (Crawford) in a pupa of *Agonoxena* collected recently at Kailua, Oahu. This record adds lepidoptera to the host range of this eupelmid in Hawaii, which includes Coleoptera, mantid eggs, and tephritid flies. Fragments of another chalcid which could not be identified were found in another pupa from the same area. The ichneumonid *Gelis tenellus* (Say) was also bred from the same material, but it is not known whether it was a primary parasite.

Parasitism by *Brachymeria agonoxenae* Fullaway was very common on the windward side of Oahu during June and July. On one occasion, 21 adults were collected from three coconut trees in about two hours. Of a sample of 130 pupae of *Agonoxena*, 95, or 73 per cent, had been attacked by the chalcid.

According to Mr. Stephen Au, *Agonoxena argaula* was first observed on Kauai at Lawai-Kai in December, 1952. On January 5, 1953, the first *Brachymeria agonoxenae* was bred from material collected in this area, indicating that the parasite had arrived with its host. Now the parasite has spread to all coastal areas, and in some of them parasitism is estimated at 85 per cent.

BUPRESTIS AURULENTA L.: Mr. Weber reported a fairly heavy infestation of this beetle in the floors and walls of a 10-year-old house in Kaimuki, Honolulu. In the fall of 1955 the occupants captured a live specimen crawling across the floor. Since then exit holes have appeared at intervals, none having been noticed previously during cleanings. During some recent renovating, three dead specimens were dug from their burrows in the floor, where they presumably were killed by insecticides applied to the overlying rugs. Approximately 50 holes have been observed since the capture of the live specimen.

TRACHYPHLOEOSOMA ADVENA Zimmerman: Mr. Bianchi called attention to an article (THE COLEOPTERISTS' BULLETIN 10(2):27-31, 1956) in which E. C. Zimmerman describes this curculionid from material collected by Bianchi in 1954 on Mt. Tantalus, Oahu. Only two other species have been described in the genus: *T. alternatum* Marshall, from India, and *T. setosum* Wollaston, from Japan and St. Helena. A third species, from Tonkin, Indo-China, is undescribed and may be the same one now reported from Hawaii. The Hawaiian specimens were collected from litter under a koa tree by means of a Berlese funnel.

NOVEMBER 13, 1956

The 611th meeting was held at the Experiment Station, H.S.P.A., on Tuesday, November 13, at 2:00 P.M., with Vice-President Christenson in the chair.

Members present: Adachi, Beardsley, Bess, Bianchi, Boyle, Chilson, Chong, Christenson, Clagg, Fullaway, Gressitt, Hardy, Joyce, Keck, Keiser, Nakata, Namba, Nishida, Pemberton, D. Rainwater, Rosa, Thistle, Tuthill, and Warner.

Visitors: Asher Ota and James Y. Kim.

NOTES AND EXHIBITIONS

OOTETRASTICHUS MEGAMELI Fullaway: Mr. Fullaway reported that Stephen Au had reared this parasite from eggs of the taro leafhopper at Waimea, Kauai. This eulophid was introduced from the Philippines in 1938 and was known heretofore to be established only on Oahu and Hawaii, having been liberated only on Oahu.

ANACHAETOPSIS TORTRICIS (Coquillett): Dr. Hardy stated that he had received this determination from the U. S. National Museum for a larvaevorid fly which had been reared in Honolulu from the gelechiid moth *Anarsia lineatella* Zeller found in store-bought peaches, probably from California.

NEW PTINID BEETLE: Mrs. Rainwater reported collecting three specimens of a species of Ptinidae on the beach at the foot of Haeleele Valley, Kauai, on June 18, 1955. These had been sent for identification to Mr. Hugh Leech, California Academy of Sciences, who states the species is unknown to him and is not found in the Academy collections.

ACHETA DOMESTICUS L.: Mr. Beardsley exhibited specimens of the common house cricket of Europe and America which had been taken in numbers in light traps at Ewa and Waipio, Oahu, during October and November of this year. This is the first record of the establishment of this species in Hawaii, although Chilson ("PROCEEDINGS," 15:269, 1954) reported one specimen collected at the Honolulu Airport in 1952 on plant material being sent from Honolulu to California.

Specimens from Waipio were determined by Dr. Ashley B. Gurney, who pointed out that the gender of *Acheta* is masculine and that therefore the trivial name is properly *domesticus*, not *domestica*, as it appears in the list of common names (BULL. ENT. SOC. AMERICA 1(4):8 and 16, 1955). Dr. Gurney states that the species has been spread widely by commerce, and that although commonly found indoors in temperate regions, it becomes established outdoors in warm climates. In cool regions it can maintain itself in rubbish dumps and other places which furnish shelter and food.

ANOMALA ORIENTALIS (Waterhouse): Mr. Bianchi reported that on November 5 Mr. Beardsley had captured two adults of this scarabaeid in field 6A Helemano of Waialua Sugar Plantation, and that the find extended the northern limit of *Anomala*'s range several miles beyond the town of Wahiawa, where it has been thought to lie for several years.

NEW IMMIGRANT MITES: Dr. Boyle reported that four species of economically important mites have been discovered for the first time in Hawaii.

These are: (1) *Eotetranychus sexmaculatus* (Riley), on avocado leaves, Waipio, Oahu, August 10, 1955, F. H. Haramoto. Baker and Pritchard (A REVISION OF THE SPIDER MITE FAMILY TETRANYCHIDAE) state that this species has long been known as a serious pest of citrus in Florida and southern California, and more recently as a pest of avocado in California. (2) *Metatetranychus citri* (McGregor), on tangerine leaves, Waiakoa, Maui, July 19, 1955, F. H. Haramoto. Baker and Pritchard (*op. cit.*) state that this, the citrus red mite, occurs in most citrus growing areas of the world and attacks a number of broadleaved evergreen trees and shrubs. (3) *Tuckerella ornata* (Tucker), on mango stem, Honolulu, September, 1956, F. H. Haramoto. Baker and Pritchard (ANN. ENT. SOC. AMERICA 46:251, 1953) state that this species was originally described from orange fruits in Western Cape Province and Transvaal, Africa. They specify a number of other plant hosts, but not mango. (4) *Brevipalpus australis* (Tucker), on leaves of *Jasminum sambac* (L.) Aitken, Kaimuki, Oahu, October 25, 1956, W. W. Boyle. Pritchard and Baker (UNIV. CAL. PUB. ENT. 9(1):30, 1951) synonymize *B. confusus* Baker with *australis* and state it is a serious pest of orchids, presumably in California.

CALENDRA CARIOSA (Olivier): A second specimen of this beetle, reported at the August meeting, has been captured by Mr. Rosa in a cane field at Waipio, Oahu, indicating that the species is definitely established on the island and should soon begin to appear in local collections.

DECEMBER 10, 1956

The 612th meeting was held at the Experiment Station, H.S.P.A., on Monday, December 12, at 2:00 P.M., with Vice-President Christenson in the chair.

Members present: Adachi, Awai, Barker, Beardsley, Bess, Bianchi, Boyle, Carter, Chong, Christenson, Fullaway, Gressitt, Hardy, Kajiwarra, Kamasaki, Keck, Keiser, Look, Maeda, Mitchell, Nakata, Nishida, Pemberton, D. Rainwater, Schmidt, Steiner, Suehiro, Tuthill, Warner, and Weber.

Visitors: John R. Einmo, M. S. Harapat, Carl Isenberg, James Y. Kim, Asher Ota, and F. Sicar.

Messrs. Carl Isenberg and Asher Ota were unanimously elected to membership in the Society.

The following officers were elected for 1957:

<i>President</i>	L. D. Christenson
<i>President-elect</i>	L. D. Tuthill
<i>Secretary</i>	W. W. Boyle
<i>Treasurer</i>	J. W. Beardsley
<i>First Advisor</i>	C. E. Pemberton
<i>Second Advisor</i>	J. W. Balock

Mr. Steiner, just returned from Florida, gave an excellent illustrated lecture on the current campaign of extermination against the Mediterranean fruit fly in that state.

NOTES AND EXHIBITIONS

MELIANA sp. near *scotti* (Butler): Mr. Beardsley exhibited specimens of this phalaenid moth, a recently arrived immigrant which has apparently become established on Oahu. First taken in a light trap at Waipio, Oahu, early in September, it has recently become more plentiful there. A single specimen was found in light-trap material from Ewa, Oahu, on December 3. Dr. E. L. Todd of the U. S. National Museum furnished the determination.

ACARINA NEW TO HAWAII: Dr. Joyce stated that *Radfordia affinis* (Poppe) and *Myocoptes musculus* (Koch) commonly occur on the house mouse, *Mus musculus* L., in Hawaii, along with *Myobia musculi* (Schrank). Zimmerman ("PROCEEDINGS," 16(1):18, 1956) first recorded *M. musculi* from Hawaii. The other two mites have not been recorded. Dr. Joyce has taken *R. affinis* from mice a number of times during the last four years, dating from the first record on April 16, 1952. *Myocoptes musculus* was taken from a number of mice from April to September of 1956. It is thought that these mites have been here for some time along with their host but have not been recognized. An account of their biology and taxonomy is given by W. W. Smith (ANN. ENT. SOC. AMER. 48(3):196-202, 1955).

MACROSIPHUM GRANARIUM (Kirby): Dr. Hardy stated that numerous males of the English grain aphid (determined by Miss Louise M. Russell of the U. S. National Museum) had been collected recently resting on silver-sword plants, *Argyroxiphium macrocephalum* A. Gray, at Haleakala Crater, Maui, at an elevation of about 9,000 feet. The species was previously reported from Haleakala on a grass, *Deschampsia hawaiiensis* (Skottsberg) St. John, by Zimmerman (INSECTS OF HAWAII 5:110, 1948), but the new record is of interest because no male aphids of any species have ever been recorded heretofore in the Territory.

ACHAEA JANATA (L.): Mr. Clagg exhibited larvae of this phalaenid moth that had defoliated poinsettia plants at Maloelap Housing in Pearl Harbor.

TAPINOMA MELANOCEPHALUM (F.): Mr. Clagg exhibited specimens of this ant collected recently at Navy Housing Area I. The species was formerly a common household pest in Honolulu, but the present collection is the first since 1949 in the Pearl Harbor area.

AMPULEX COMPRESSA (F.): Mr. Clagg stated that this ampulicid parasite of cockroaches had been identified by Mr. Beardsley among insects recently collected on Midway Island. This is a new locality record for the species.

SPODOPTERA MAURITIA (Boisduval): Dr. Bess reported that Mr. Ota and he had uncovered new information regarding control of this phalaenid pest of lawns. The following points were emphasized: (1) DDT gave much better control than chlordane. DDT, at the rate of approximately 4 lbs. actual in 200 to 225 gallons of water per acre, was applied with a power sprayer and three different types of hose-on attachments. Both wettable powder and emulsifiable concentrate thus applied gave 100% larval mortality in all tests. On the other hand, chlordane emulsion, applied at the rate of approximately 2 lbs. actual in 200 to 225 gallons of water per acre, gave an average kill of only 60%. (2) Flooding of lawns with water to cause larvae to come to the surface was found an unsatisfactory sampling and detection technique. Placing boards or boxes on the grass overnight and checking for larvae under them the following morning proved to be a superior method. (3) It was found that heavily defoliated areas of lawns may support a heavy population of larvae for weeks and that weeds generally became a problem in them. Therefore, browned areas should be treated along with the rest of the lawn.

Copies of the revised constitution are now available and may be obtained from the Secretary.