PROCEEDINGS

OF THE

Hawaiian Entomological Society

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JANUARY 9, 1950

The 529th meeting was held at the H.S.P.A. Experiment Station on Monday, January 9, at 2:00 p.m., with President Pemberton in the chair.

Members present: Bess, Bonnet, Bryan, Clancy, Fullaway, Hardy, Inada, Keck, Look, Marucci, Newell, Pelot, Pemberton, Peterson, Rosa, Martin Sherman, Tanada, Thomsen, Tuthill, Van Zwaluwenburg and Weber.

Visitors: T. C. Lawrence and W. C. Mitchell.

Francis Rathburn was elected an associate member, and W. C. Mitchell was nominated for membership. Mr. Lawrence, en route to India to collect parasites of fruit flies, was introduced by Dr. Clancy.

NOTES AND EXHIBITIONS

PROTAETIA FUSCA (Herbst)—Mr. Peterson reported observations which indicate that this cetoniine beetle feeds both by day and by night. On mango blossoms, attention seems first to be directed to stamens and pistils; the individual flowers are sheared off at the juncture of calyx and peduncle. Considerable damage is done to blossoms of candle bush (*Cassia alata*), the individual flowers being sheared from the bloom spike and the petals eaten.

CONTROL OF EARTHWORMS—Mr. Keck reported success in killing earthworms in lawns with applications of one-fourth of 1 per cent chlordane.

LIMAX MAXIMUS L.—Mr. Pemberton exhibited a specimen of this slug, new to the Territory, collected December 20, 1949, by H. W. Brodie at the H.S.P.A. substation in upper Manoa Valley. It is a European species which is established in the eastern United States and on the Pacific Coast. Identification was confirmed by Dr. A. R. Mead.

FEBRUARY 13, 1950

The 530th meeting was held at the H.S.P.A. Experiment Station on Monday, February 13, at 2:00 p.m., with President Pemberton in the chair.

Members present: Balock, Bess, Chilson, Clancy, Finney, Fullaway, Haramoto, Hardy, Hinman, Marucci, Mitchell, Pelot, Pemberton, Peterson, Ritchie, Rosa, Schwabe, Martin Sherman, G. L. Smith, H. S. Smith, Steiner, Swezey, Tanada, Thomsen, Tuthill, van den Bosch, Van Zwaluwenburg and Weber.

Visitors: Edgar Dresner, E. J. Ford, Jr., C. E. Graves, K. S. Hagen and D. L. Lindgren.

W. C. Mitchell was elected a member of the Society, and the following were nominated for membership: E. J. Ford, Jr., K. S. Hagen and Dr. Edgar Dresner.

NOTES AND EXHIBITIONS

SPHAEROPHORIA SULPHURIPES (Thomson)—Dr. Swezey exhibited a specimen of this syrphid fly which matured from a green larva found, December 24, on celery from California. The larva pupated January 2, and the fly issued January 9. It was identified from specimens determined by P. H. Timberlake in the H.S.P.A. collection. The species is not established in Hawaii.

RECENT DEVELOPMENTS IN FRUIT FLY WORK—Mr. Hagen told of the increased egg production obtained with *Ceratitis* and the two local species of *Dacus,* by improved nutrition. The addition of a yeast hydrolysate (under the trade name, MRT) shortened the preoviposition period of all these flies materially. However, it was difficult to get fertile eggs early in the flies' life, due, it is thought, to immaturity of the males. Addition of protein to the diet is essential for egg production, for when honey-water mixture alone is fed, no eggs are laid.

Mr. Steiner spoke of the progress made in lures for *Dacus dorsalis.* Methyleugenol has proved to be most attractive to male *dorsalis,* and, because the flies actually feed on this chemical, it is possible to poison large numbers of males by mixing methyleugenol with a slurry of parathion. By killing large numbers of males in this way, the percentage of female *dorsalis* taken in fermenting-bait traps in the vicinity rose from about 62 per cent, to over 90 per cent in a recent experiment. He also told of a male *dorsalis* which had ridden for some 20 miles on the outside of the windshield of an automobile at speeds ranging from 20 to 70 miles an hour.

Mr. Finney said that both *Dacus cucurbitae* and *D. dorsalis* oviposit readily in punctured, raw Irish potatoes. The typical quick-healing property of potatoes caused a "corking-over" of the egg cavity, sealing out the very low percentage of hatching larvae. This encysting of the eggs did not occur in potatoes boiled for 1 minute and punctured with a needle. However, no hatching was observed in the latter case, although the eggs were immersed in the juices of the potato. Eggs have been observed to hatch when submerged in other liquid media. One pocket of eggs was removed on the 5th day; one egg hatched within a few hours, the others turned dark but failed to hatch. Kona pumpkin, cut into sections, proved to be an excellent medium for culturing *D. cucurbitae.*

The new *"Opius* No. 5" from India, oviposits readily in maggots developing in these pumpkins.

MOTH EGGS ON PLANE—Mr. Pemberton reported that an instrument attached to the outside of an airplane in flight between British Samoa and Tonga was recently found to have on it eggs of what was probably *Spodoptera mauritia* (Boisduval). These eggs later hatched, according to Dr. L. J. Dumbleton, who reported the incident. Dr. Ritchie commented that within the past year many cases were reported of moth eggs attached to airplanes based at Miami, Fla., but that comparatively few of them hatched. He added that within the past year regular quarantine inspection of arriving planes has been inaugurated in New Zealand.

CAENIS NIGROPUNCTATA Klapalek—A note from Mr. Zimmerman reports that Dr. D. E. Kimmins of the British Museum has studied specimens of the mayfly first found on Oahu in 1944, and has identified it as this species. Described from Java (Mt. Mus. Hamburg, 22:105, 1905), it is known also from Sumatra, Bali and the Philippines. Ulmer (Arkiv. Hydrobiol., Suppl. 16:520 & 635, figs. 86-88. 322-329, 1939) gives illustrated descriptions of nymphs and adults. Records of this species in Hawaii can be found in these "PROCEEDINGS" (12:228, 1945; 12:465, 1946; 13:332, 1949).

MARCH 13, 1950

The 531st meeting was held at the H.S.P.A. Experiment Station on Monday, March 13, at 2:00 p.m., with President Pemberton in the chair.

Members present: Balock, Bess, Bonnet, Clancy, Dresner, Finney, Ford, Fullaway, Hagen, Haramoto, Hardy, Inada, Keck, Lewis, Look, Marucci, Mitchell, Newell, Nihei, Pelot, Pemberton, Peterson, Rathburn, Ritchie, Schwabe, Martin Sherman, Swezey, Tanada, Thomsen, Tuthill, van den Bosch, Van Zwaluwenburg and Weber.

Visitors: D. L. Lindgren and Charles Yasuda.

Elected to membership in the Society were Dr. Edgar Dresner, Everett J. Ford, Jr., and Kenneth S. Hagen. Charles Yasuda was nominated for associate membership.

NOTES AND EXHIBITIONS

PARECTOPA HIBISCELLA (Swezey)—Mr. Look exhibited hibiscus leaves severely damaged by this tineid leafminer, which was identified by Dr. Swezey. The damage was first noted on March 7, at the Ala Moana quarantine station, but apparently had been going on for some time. This insect was first bred from hibiscus by Dr. Swezey in 1911, and was described as a species of *Gracilaria* ("PROCEEDINGS," 2:279, 1913). Three eulophid parasites were bred by Mr. Look from the Ala Moana material; they were identified by Mr. Fullaway as *Pseudopheliminus vagans* Timberlake, *Achrysocharis fullawayi* (Crawford) and (a male) *Diaulinus* sp.

Dr. Swezey commented on *Pseudopheliminus vagans.* Described from Oahu, Kauai, Maui and Nihoa (Bishop Mus. Bull. 31:37-41, fig. 5, 1926),

it was later found on Molokai also. It has been reared from the following lepidopterous hosts:

Parectopa marginestrigata (Walsingham) in *Sida cordifolia*
Parectopa hauicola (Swezey) in *Hibiscus tiliaceus*
Parectopa naenaeiella Swezey in *Dubautia laxa*
Cremastobombycia lantanella Busck in *Lantana camara*
Swezeyula lonicerae Zimmerman and Bradley in *Lonicera japonica*

as well as from *Parectopa hibiscella.* Although Timberlake considered it to be an immigrant species, so far it is known only from the Hawaiian Islands.

APANTELES BEDELLIAE Viereck—Dr. Swezey reported rearing this braconid parasite from *Bedellia orchilella* Walsingham, a leafminer in *Ipomoea tuberculata,* growing as a roadside weed in the Waianae district, February 20. The leafminer was scarce there, as though it were under control. The same parasite, identified by Mr. Fullaway, was bred recently by Dr. Swezey from *Parectopa hauicola* (Swezey). Mr. Pemberton reported finding *A. bedelliae* at Molokai airport, February 23, 1950, a new island record. Large numbers of adults and cocoons of this parasite were seen there on *Ipomoea tuberculata* infested with leafminers. The parasite, introduced from Kansas by Mr. Krauss in 1945, was liberated on the main islands of this group, including Molokai. Inspectors of the Board of Agriculture & Forestry earlier reported its establishment on Kauai.

DACUS DORSALIS Hendel—Mr. Maehler submitted the following new host fruit records for the oriental fruit fly:

Diospyros ferrea. The native persimmon, or "lama," near Kanaio, Hawaii, November 15, was observed to have many fly stings, and both sexes of *dorsalis* were seen on the foliage; no puparia were recovered. However, on February 24, C. J. Davis obtained one adult fly from fruit collected at Puuwaawaa, North Kona (1,900-2,000 ft.).

Feijoa sellowiana. Fruit collected November 7 at Kula, Maui (4,000 ft.) yielded 104 puparia from which emerged 1 male *D. dorsalis,* 2 *Opius longicaudatus* (Ashmead) and 25 *Ceratitis capitata* (Wiedemann).

Juglans hindsii. Ten puparia obtained from fruit, Kula, Maui (3,500 ft.), November 8. Issued: 2 male *D. dorsalis,* 1 *D. cucurbitae* Coquillett and 3 *C. capitata.*

Passiflora mollissima. C. J. Davis recovered *D. dorsalis* from this fruit collected September 8 near Keanakolu, Hawaii.

Santalum paniculatum. Mr. Davis obtained 28 *D. dorsallis* and 2 *C. capitata* from native sandalwood, Puuwaawaa, Hawaii, July 30.

Vaccinium reticulatum. Reported by Mr. Davis as a new host for *D. dorsalis* and a new altitude record; ohelo berries collected at 6,200 ft. on Mauna Loa truck trail, February 9, yielded 4 puparia and 1 adult female.

Wikstroemia phillyreaefolia. Mr. Davis recovered 6 male and 6 female *D. dorsalis* and 2 parasites from this native fruit.

Wikstroemia uva-ursi. Four puparia of *D. dorsalis* were obtained from this fruit February 3, Kakauloa, east Maui, and yielded 2 male and 2 female *D. dorsalis.*

ERIOSOMA LANIGERA (Hausmann)—Miss Pelot reported that Dr. Bess recently collected the wooly apple aphid on apple at Waiakoa, Maui. This is a new local record, the species having been known previously only from the island of Hawaii.

COMPERIA FALSICORNIS (Gomes)—Mr. Keck reported that specimens of this encyrtid, identified by Mr. Pemberton, were taken recently at Pearl Harbor. It is a parasite of the eggs of the cockroach, *Supella supellectilium* (Serville), and this is the first evidence of its occurrence locally so far from Honolulu.

CRYPTOTERMES BREVIS (Walker)—Mr. Keck reported that a large ¾-inch board, heavily infested by the drywood termite, was put in cold storage at 0° F. for 24 hours. Examination 48 hours after removal from the cold chamber showed all the termites to have been killed.

SALMONELLA spp.—Dr. Bonnet reported that a recent survey on Oahu by the Board of Health revealed the presence on house flies of three species of *Salmonella,* a bacterium commonly causing enteritis in man.

NEW SPIDER RECORDS—Dr. Hardy reported that two species of spiders recently collected on Oahu, prove to be new to the Territory. Identified by Dr. W. J. Gertsch, they are, *Menemerus bivittatus* (Dufour) (family Attidae) and *Scytodes fusca* Walckenaer (family Scytodidae).

ACHAEA JANATA (L.)—Dr. Sherman spoke of the abundance, on February 16, of larvae of this phalaenid moth at Waimanalo, Oahu. From a feeding area of *Ricinus* the larvae had apparently moved into the village, where they were feeding on *Pedilanthus tithymaloides* (slipper flower), Philippine pole beans, roses, croton (heavy feeding), sweet potato, chile pepper, daikon and *Poinsettia* (voracious feeding). Other members spoke of the present, widespread abundance of *Achaea* in all parts of Oahu and on Molokai.

Dr. Bess commented on features of a recent trip. On Molokai numerous adults of *Dirhinus* sp. were seen on *Pithecellobium* and feeding on blossoms of *Nicotiana glauca.* On Maui an abundance of adult *Opius longicaudatus* (Ashmead) was noted. On Hawaii the warble fly, *Hypoderma lineatum* (De Villers), appears to have increased in recent years at 3,000 ft. elevation; it seems to be absent near sea-level. He remarked on the abundance of the introduced cactus mealybug, *Dactylopius opuntiae* (Cockerell), at Waimea, Hawaii, and with it the unwelcome presence in large numbers of *Cryptolaemus.*

Mr. Pemberton commented on the dearth of weeds and of *Scolia* adults on sugar plantations where 2,4-D is used in weed control. Mr. Thomsen reported that a survey in March 1949 showed American foul brood present on Molokai in 42 per cent of the colonies inspected.

APRIL 10, 1950

The 532nd meeting was held at the H.S.P.A. Experiment Station on Monday, April 10, at 2:00 p.m., with Vice-president Tanada in the chair.

Members present: Balock, Bess, Bonnet, Chilson, Dresner, Finney, Ford, Fullaway, Hagen, Haramoto, Hardy, Inada, Keck, Look, Marucci,

Mitchell, Nihei, Pelot, Rathburn, Rosa, Sakimura, Schwabe, Martin Sherman, Swezey, Tanada, Thomsen, Tuthill, van den Bosch, Van Zwaluwenburg, Weber and Yasuda.

Visitors: M. A. Kubota and D. L. Lindgren.

Charles Yasuda was elected an associate member.

NOTES AND EXHIBITIONS

PARECTOPA HAUICOLA (Swezey)—Dr. Swezey exhibited a large leaf of hau (*Hibiscus tiliaceus*) with an unusually large number of mines (56) of various sizes, made by this tineid. In most localities visited lately this leafminer is scarce. This heavy infestation was found at Punaluu, Oahu, on April 2.

STEPHANODERES MACULICOLLIS (Sharp)—Dr. Swezey showed specimens of a small scolytid beetle reared abundantly from dead twigs of *Acacia spadicigera* brought in by Dr. H. L. Lyon from Foster Garden, Honolulu, April 6. At first it was thought to differ from the species known here. However, on later examination it was found to agree with specimens determined by Dr. Karl E. Schedl as *Stephanoderes maculicollis,* a common insect in Hawaii.

CALLIPHORID FLIES IN WOOL—Dr. Hardy reported that *Phormia regina* (Meigen) and *Phaenicia sericata* (Meigen) had been bred from soiled wool brought from Hawaii by Dr. Bess last month.

BRONTISPA CHALYBEIPENNIS (Zacher)—Dr. Hardy said that H. S. Barber of the U. S. National Museum had written him that he considers the chrysomelid beetle, *Brontispa namorikia* Maulik, to be a synonym of *B. chalybeipennis.*

PARASITES OF BEET WEBWORM—Dr. Hardy reported that adults bred from webworms on beet foliage were recently identified by H. W. Capps as *Phlyctaenia* sp., and that parasites bred from this material were identified by B. D. Burks as the ichneumonids, *Zaleptopygus flavo-orbitalis* (Cameron) and *Charops* sp. (*infesta* group). The generic name *Charops* Holmgren should, according to H. K. Townes, be used instead of its more familiar synonym, *Casinaria* Holmgren.

TELEONEMIA SCRUPULOSA Stål—Mr. Fullaway reported seeing complete defoliation of ornamental lantana (*Lantana montevidensis*) by this tingid at Kalihi, Honolulu, on March 21. The next day he saw this same insect breeding on cocklebur (*Xanthium*) at Kahuku. These observations are believed to be previously unrecorded.

RUSSELLIA sp.—Mr. Fullaway stated that two rare braconids taken in August, 1947 in a light trap operated by the H.S.P.A. Experiment Station at Iroquois Point, Oahu, have been identified by C. F. W. Muesebeck as belonging to a new genus, *Russellia* Muesebeck. A description of the genus, based on two other species from West Virginia, Texas and Arizona, was recently published (Proc. Ent. Soc. Washington, 52:78, 1950).

EUMENES CAMPANIFORMIS (F.)—Mr. Thomsen reported observing this immigrant wasp at Kaunakakai, Molokai, on January 13, 1950. First found on Oahu in October, 1944, this species was not known until now to occur on any of the other islands.

AEDES ALBOPICTUS (Skuse)—Mr. Marucci reported the unusual behaviour of a female mosquito of this species. It was feeding on a rose apple fruit (*Eugenia jambos*), and in spite of the preferred inducement of a finger, could not be diverted from the fruit, on which it continued to feed until fully engorged.

OPIUS PERSULCATUS (Silvestri)[1]—Dr. van den Bosch reported that this braconid was recovered from *Dacus dorsalis* Hendel collected on Lanai, February 22, 1950. This recovery is of special interest because there have been no liberations of this parasite on Lanai; it demonstrates the ability of certain insects to move from island to island unaided by man. Collections on Maui and Hawaii in late February and early March reveal an increase in spread and abundance of this parasite; this has been especially rapid on Hawaii.

VANDUZEA SEGMENTATA (Fowler)—Mr. Tanada reported this membracid breeding on pigeon pea (*Cajanus indicus*), subterranean clover (*Trifolium subterraneum*) and alfalfa (*Medicago sativa*) at the University of Hawaii campus, Honolulu. Messrs. Van Zwaluwenburg and Rosa said they had seen this insect in all stages on *Pluchea indica* and on *Bidens pilosa* in the Ewa coral plain region.

PHYLLOCOPTRUTA OLEIVORUS (Ashmead)—Mr. Tanada said that the citrus rust mite was collected on citrus at Poamoho, Oahu, November 30, 1949; it was identified by H. H. Keifer. The mite attacks young foliage near the growing point, and causes distortion. The species was known from Hawaii, but this is its first record from Oahu.

ACERIA FICUS (Cotte)—Mr. Tanada reported that this eriophyid mite, identified by H. H. Keifer, was first found on October 5, 1949, infesting young leaves of edible fig at Poamoho, Oahu. This is a new mite record for the Territory.

ANACAMPTODES FRAGILARIA (Grossbeck)—Mr. Tanada reported feeding by this geometrid on young foliage of litchi (*Litchi chinensis*) and macadamia (*Macadamia ternifolia*) at Poamoho during the past two months. Larvae were reared to adults on both hosts.

ENTOMOGENOUS FUNGI—Mr. Tanada reported that on April 5 he found some dead flies attached to foliage in a gulch near Poamoho, which were covered with fungal growth. The flies were *Homoneura hawaiiensis* (Grimshaw) (identified by Dr. Hardy), *Dacus dorsalis* Hendel and *Eutreta xanthochaeta* Aldrich.

Mr. Weber told of a fungus attacking purple scale, *Lepidosaphes beckii* (Newman), on orange at Wailua, Kauai, in February. This was identified by Dr. E. A. Steinhaus as *Myiophagus* sp., probably *ucranicus* (Wize), a

[1] The identity of this insect is at present in doubt.

species being studied in Florida to determine its value against scales on citrus. It is known from the Ukraine, Canada, Bermuda and the United States.

MAY 8, 1950

The 533rd meeting was held at the H.S.P.A. Experiment Station on Monday, May 8, at 2:00 p.m., with President Pemberton in the chair.

Members present: Dresner, Finney; Ford, Fullaway, Hagen, Haramoto, Inada, Keck, Marucci, Mitchell, Newell, Pelot, Pemberton, Peterson, Rathburn, Sakimura, Martin Sherman, Swezey, Tanada, Thomsen, Tuthill, van den Bosch, Van Zwaluwenburg, Weber and Yasuda.

Visitor: George Angalet.

Mr. Angalet, en route to Siam to collect parasites of fruit flies, was introduced by Dr. Dresner.

Dr. Pierre Lepesme of the Paris Museum was nominated for corresponding membership.

NOTES AND EXHIBITIONS

COCCOTRYPES PYGMAEUS (Erichson)—Dr. Swezey exhibited specimens of this scolytid beetle, 100 of which issued from 17 seeds of red palm, *Dictyosperma alba,* collected April 15 by Dr. H. L. Lyon at Foster Garden. This is a new host record for this beetle here. It was earlier known from various other palms and from stored almonds ("PROCEEDINGS," 9:202, 1936).

CYLAS FORMICARIUS F.—Mr. Hagen reported finding adults of this weevil abundant near the blow-hole on windward Oahu on beach morning-glory; 25 were collected in half an hour. Adults of *Anthicus oceanicus* Laferté also were present.

PROCECIDOCHARES UTILIS Stone—Mr. Pemberton told of the extent to which this tephritid fly was observed to be controlling pamakani (*Eupatorium glandulosum*) at Ulupalakua ranch, Maui, on April 28. The ranch occupies about 65,000 acres, of which 25,000 are covered by pamakani. This weed pest is not eaten by stock, and available grazing land is greatly depleted. Areas have been so densely covered that it was impossible to ride into them on horseback; however, during the past year the fly has made such headway that the weed appears to be dying out over large areas, which are again accessible on horseback. The ranch is engaged in restoring these areas by sowing grass seed. During the past several months everything that will grow is green from abundant rains. In spite of this, there are great brown areas of dead pamakani foliage on the mountainside. It was impossible to find a single pamakani plant not heavily attacked by the fly.

Dr. Swezey, in an illustrated talk, discussed some of the native moths and beetles which affect Hawaiian forests.

JUNE 13, 1950

The 534th meeting was held at the H.S.P.A. Experiment Station on Monday, June 13, at 2:00 p.m., with Vice-president Tanada in the chair.

Members present: Bess, Bonnet, Chilson, Dresner, Finney, Hagen, Haramoto, Hardy, Hu, Keck, Marucci, Mitchell, Newell, Pelot, Rosa, Martin Sherman, H. S. Smith, Steiner, Swezey, Tanada, Thomsen, Tuthill, van den Bosch, Van Zwaluwenburg, Weber and Yasuda.

Visitors: Miss Marian Adachi, G. A. Barker, Dr. G. S. Fraenkel, Hanyoshi Okawa, Hitoshi Kamasaki, M. A. Kubota and Dr. C. C. Roan.

Dr. Pierre Lepesme was elected a corresponding member; Marian Adachi and Hitoshi Kamasaki were nominated for membership.

PAPER

Dr. Swezey presented his paper entitled, "Tinea despecta Meyrick, a hitherto unrecorded case-moth in Hawaii (Lepidoptera: Tineidae)."

NOTES AND EXHIBITIONS

FRUIT FLY PARASITES RELEASED ON GUAM—Mr. Weber said that the following parasites of fruit flies sent from Hawaii, were liberated on May 6, 1950, at Adelupe, Guam, by M. M. Ross of the U. S. Bureau of Entomology & Plant Quarantine: *Opius persulcatus* (Silvestri), *O. longicaudatus* (Ashmead), *O. incisi* Silvestri (both the Malayan and Indian strains), the "*Opius* No. 5" from India which attacks *Dacus cucurbitae* Coquillett, and *Dirhinus giffardii* Silvestri. The two first-named had been released on Guam earlier, in December, 1949.

BAMBOO INSECTS—Mr. Weber reported that several varieties of bamboo being tested for resistance to insect attack at the Board of Agriculture in Honolulu, were found to be infested by *Dinoderus minutus* (F.), a bostrichid beetle hitherto recorded here only in imported articles of bamboo and rattan; apparently this beetle is well established. A live specimen of a cerambycid, *Chlorophorus annulatus* (F.), was also found in one culm, and other bamboo pieces showed evidence of its work.

CONODERUS (HETERODERES) CAIRNSENSIS (Blackburn)—For Mr. Pemberton four specimens of this elaterid beetle, identified by Mr. Van Zwaluwenburg, were exhibited. They were taken in a light trap at Waialua, Oahu, by Itaka Kozawa of the Waialua Agricultural Co. staff, the first on May 24, 1950, and others on May 28 and June 5. This insect is new to the Territory. It was described from Queensland (Trans. Royal Soc. So. Australia, 17:296, 1893) where it is sometimes abundant in sugar cane fields, but does no damage; it is believed to be predaceous. All three species of *Conoderus* now known in Hawaii are immigrants from Australia.

PLATYCOCCUS TYLOCEPHALUS Stickney—This interesting scale, Miss Pelot reported, was collected by Dr. Tuthill on *Pritchardia* palm on the Waikane trail, Oahu, in March. According to Zimmerman ("Insects of Ha-

waii," 5:434-436, 1948) this scale has been found only once before this, on a single *Pritchardia* palm on this same trail.

LAPHYGMA EXEMPTA (Walker)—Dr. Bess reported on an outbreak of the nutgrass armyworm on Molokai, seen on May 5. Several hundred acres of range land of the Molokai Ranch Co. near sea-level between Kaunakakai and Kamalo were affected; earlier, about March 1, a similar outbreak had been reported some miles to the east, at Pukoo. Dr. Bess saw no larvae in the latter area, but it is possible that the May outbreak was caused by progeny of the earlier one. Near Kaunakakai thousands of large *Laphygma* larvae were crossing the highway, and were massed along the roadside. Several adults of the tachinid, *Chaetogaedia monticola* (Bigot) were seen ovipositing in the vicinity of larvae, but none of the caterpillars inspected contained parasites. Larvae brought to Honolulu later produced 14 *Chaetogaedia* adults, 1 *Eucelatoria armigera* (Coquillett) and 2 *Meteorus laphygmae* Viereck, a total parasitism of only 17 per cent. No evidence of disease was found in spite of the crowded population. A strip 75 to 100 feet wide, next to the infested paddocks, was sprayed with DDT at the rate of 4 lbs. of 50 per cent wettable DDT per 100 gallons. This was to eliminate the larvae present, and to lay down a residual protection sufficient to kill any that might later migrate into the strip; according to later reports this treatment was successful. The rearing of *Meteorus* from Molokai material is a new island record.

Mr. Van Zwaluwenburg said he saw an outbreak of the same armyworm on Bermuda grass at Mapulehu, Molokai, on June 7. Its prompt control seemed certain because of the great numbers of *Apanteles marginiventris* Cresson which were present in all stages. Numerous *Polistes* wasps were actively engaged in butchering *Laphygma* larvae; several cocoons of *Meteorus* also were seen.

VANDUZEA SEGMENTATA (Fowler)—Miss Inada reported this membracid in great numbers and in all stages on cup-of-gold (*Solandra guttata*), *Cassia bicapularis, Emilia sonchifolia* and *Bidens pilosa,* in Manoa Valley.

A CASE OF APPARENT HUMAN MYIASIS—Dr. Hardy presented the following: A sample of a very foul smelling, purulent fluid containing fly larvae and adults was sent to my laboratory on April 17, 1950, from Queen's Hospital with a request for an identification of the insects therein. The information accompanying the sample stated that it had been aspirated from the thoracic cavity of a patient in the hospital. Eight or ten dead specimens of adult Phoridae were taken off the surface of the fluid. These were partially decomposed and appeared to have been in the liquid for twenty-four hours or more. About a dozen larvae in all stages of development were also taken from the sample, some larvae were still living but most were dead. The adult specimens were identified tentatively as *Megaselia scalaris* (Loew) but the larvae could not be determined without comparative material. The specimens were sent to Dr. W. W. Wirth at the U. S. National Museum who reported that "both the larvae and adults appear to be *Megaselia scalaris* (Loew)."

I investigated the case and the following is a brief resumé of the medical history: The patient was a Filipino man who had been operated on about a year before for some sort of a chest or lung condition. The details of this earlier operation were not given in the case history. Since this operation the patient had suffered from chest and back pains, headaches, dizziness and nausea. He was admitted to Queen's Hospital the 2nd of April and on the 4th of April it was discovered that the site of the old operation was swollen and discolored. A thoracentesis was performed the 5th of April and two quarts of pussy fluid was drained off (no maggots were seen at this time). The wound was examined frequently following the recovery of these specimens but no evidence of them was found. No more specimens were recovered in the subsequent exudation from the wound.

The nurses in attendance claim that the operation site was kept covered and protected at all times and that it would have been impossible for a fly to have oviposited near the wound. They also said that the sample bottle was kept tightly stoppled and that the flies should not have been able to enter the fluid after it had been drawn from the man's body. I strongly suspect that the adult flies did, however, gain access to the fluid after it had passed from the aspirator tube. The malodorous liquid would have been highly attractive to *Megaselia*. It is not probable that the larvae were developing inside the pus in the thoracic cavity. They would not be able to survive in the liquid itself but probably were infesting the tissue around the site of the wound. The live specimens of larvae which I recovered from the fluid soon died and did not complete their development; all of the specimens present were evidently drowned in the liquid.

JULY 10, 1950

The 535th meeting was held at the H.S.P.A. Experiment Station on Monday, July 10, at 2:00 p.m., with President Pemberton in the chair.

Members present: Adachi, Balock, Bess, Bianchi, Bonnet, Bryan, Clancy, Dresner, Finney, Ford, Hagen, Hardy, Hu, Ito, Keck, Look, Marucci, Nihei, Pelot, Pemberton, Rosa, Sakimura, H. S. Smith, Steiner, Swezey, van den Bosch and Weber.

Visitors: Dr. F. C. Bishopp, Dr. Walter Ebeling, A. J. Flebut, Dr. G. S. Fraenkel, Dr. P. S. Messenger, Dr. C. C. Roan and L. S. Schoening.

Miss Adachi was elected a member of the Society; Dr. C. C. Roan was nominated for membership.

PAPER

Dr. Swezey presented his paper: "The seed corn maggot, Hylemyia cilicrura (Rondani), from the silversword plant (Diptera: Anthomyiidae)."

NOTES AND EXHIBITIONS

ARGIOPE AVARA Thorell—Dr. Bess reported that this spider, identified by Dr. W. J. Gertsch, was conspicuously abundant in March in the Kona, Waimea and Kohala areas of Hawaii. It was especially numerous on cactus on the Parker ranch, where as many as 6 or 8 females with their egg sacs were seen on individual plants. The species is recorded from Squally Island (Bismarck Archipelago), the Hawaiian Islands, California and Arizona. Of 16 egg sacs collected on March 2, 10 contained larvae of an ichneumonid later identified by B. D. Burks as *Tromatobia rufopectus* (Cresson); 78 cocoons of this parasite were obtained from 10 egg sacs. The maximum number of *Tromatobia* from a single egg sac was 14, and the minimum, 4. Two unparasitized egg sacs produced 946 and 685 young spiders, whereas only 285 hatched from a sac containing 6 *Tromatobia;* this suggests a destruction of close to two-thirds of the eggs. Of the 78 *Tromatobia* cocoons, 48 were parasitized by the eulophid, *Pleurotropis wilderi* (Howard). One sac produced a specimen of the mymarid, *Anagrus armatus* var. *nigriventris* Girault (both these identifications were made by A. B. Gahan).

ARGIOPE APPENSA Walckenaer—Dr. Hardy reported that this spider, a species new to these Islands, was taken some months ago in Honolulu, and identified by Dr. Gertsch. According to F. C. Denison, it has been known for about three years in the vicinity of Waipio, Oahu. It occurs elsewhere in Java, Celebes, the Moluccas and the New Hebrides. Mr. Van Zwaluwenburg recently bred *Tromatobia rufopectus* (Cresson) from its egg sacs.

LATRODECTUS GEOMETRICUS Koch—Dr. Hardy reported on a melanistic phase of the false black widow spider. A female specimen which appeared to be a typical *L. mactans* (F.) but which produced an egg case characteristic of *geometricus,* was turned over, with her eggs, to Dr. Hardy, to see if the progeny showed evidence of hybridization. After the eggs had hatched the female was sent to Dr. Gertsch; he identified it as *L. geometricus,* and commented as follows: "Perhaps it is not generally known that black individuals are not too rare in the species. In certain parts of the world, for instance in South Africa, completely black individuals are quite common. The small wavy, white lines on the dorsum of the abdomen are rarely, if ever, seen in *mactans.* . . . Incidentally, it is quite possible that there could be hybridization between any of the species of *Latrodectus* inasmuch as few real differences of consequence distinguish the species from each other. . . . In the case of *geometricus,* however, the differences are somewhat more prominent than in the other species."

CEROCEPHALA AQUILA (Girault)—Mr. Weber reported this pteromalid, new to the Territory, found associated with, and probably parasitic upon, the bostrichid, *Dinoderus minutus* (F.), in culms of dry bamboo at the Board of Agriculture nursery, Honolulu, June 7, 1950. The insect was identified by A. B. Gahan. Described from beetle-infested twigs from Brisbane, Australia (Ins. Insc. Men., 8:143, 1920), it is known also from

Fiji, the Philippines, Cuba, and in bamboo imported from Mexico. The genus was recently reviewed by Gahan (Proc. U. S. Nat. Mus., 96:357-363, 1946).

ERIOPHYES SHELDONI Ewing—Attention was called to the citrus bud mite, overlooked in these "PROCEEDINGS" until now. According to A. M. Boyce (Journ. Econ. Ent., 34:746, 1941), specimens collected by Dr. Holdaway in Honolulu in 1939 on mandarin orange were identified as a variation of this species by H. H. Keifer. The species was described from California (Proc. Ent. Soc. Washington, 39:193, 1937) on lemon, a plant sometimes severely affected by it.

NEOCLYTARLUS EUPHORBIAE Bridwell—Mr. Ford presented notes on this plagythmysine beetle. The species was described ("PROCEEDINGS," 4:314, 1919) from a long series of both sexes bred from *Euphorbia multiformis* on the Ewa coral plain, Oahu. In 1922 and again in 1926, Dr. Swezey collected additional specimens. Although the area suitable for this *Euphorbia* is probably considerably smaller than it was 30 years ago, the plant can still be found quite commonly in parts of the coral plain. Due probably to nutritional causes, *E. multiformis* is today thriving perhaps even better than in 1919; for example, a plant in the partial shade of a kiawe tree (*Prosopis*) was found which measured five and one-half feet in height, as compared with Bridwell's maximum of three feet. *Neoclytarlus euphorbiae* prefers to oviposit soon after the plant has died, but must compete with other cerambycids, among them, *Lagocheirus obsoletus* (Thomson) and *Prosoplus bankii* (F.). The last-named is common on the coral plain, but was not found by Mr. Ford associated with *Euphorbia*. Between May 5 and July 2, 1950, 56 dead *Euphorbia* plants, in varying stages of decay, were examined. The following insects were found:

7 **Neoclytarlus euphorbiae**
1 **Lagocheirus obsoletus** (pupa)
3 **Exillis lepidus** (Jordan)
8 **Stephanoderes maculicollis** (Sharp)
4 **Hypothenemus** sp.
Sybra alternans (Wiedemann) (numerous larvae and adults)

Of these 56 plants, 20 showed old borings and exit holes of *E. euphorbiae*; 2 contained living adults of that beetle; and 34 contained the immigrant, *Sybra alternans,* which seems to prefer the host plant thoroughly dried, and therefore does not interfere with *N. euphorbiae* which prefers the host in a moister condition. In conclusion, *Euphorbia multiformis* is still a common and thriving plant on the Ewa coral plain. *Neoclytarlus euphorbiae* is a common endemic lowland species which may be collected at any time of year; as its food plant, *E. multiformis,* increases, so does the beetle.

Dr. F. C. Bishopp extended greetings to the Society from the entomologists in Washington, and from the Washington Entomological Society. He addressed the members briefly and spoke of his interest in the entomological work being done in Hawaii.

AUGUST 14, 1950

The 536th meeting was held at the H.S.P.A. Experiment Station on Monday, August 14, at 2:00 p.m., with President Pemberton in the chair.

Members present: Adachi, Bess, Bianchi, Bonnet, Bryan, Carter, Clancy, Dresner, Finney, Ford, Hagen, Haramoto, Hinman, Hu, Kamasaki, Keck, Look, Marucci, Mitchell, Newell, Nihei, Pelot, Pemberton, Rathburn, Rosa, Schmidt, Martin Sherman, Steiner, Swezey, Thomsen, van den Bosch and Van Zwaluwenburg.

Visitors: Hamiyoshi Ikawa and Dr. P. S. Messenger.

Hitoshi Kamasaki and Dr. C. C. Roan were elected to membership. Proposed for membership in the Society were Susumu Nakagawa of Hilo, and Dr. P. S. Messenger.

All preliminaries prescribed by the Constitution having been complied with, it was formally voted to eliminate all forms of membership in the Society except active and honorary membership.

Dr. Hardy was appointed Vice-president by the Executive Committee, to fill the vacancy caused by the prolonged absence of Mr. Tanada from the Territory.

NOTES AND EXHIBITIONS

APIARY INSPECTION—Mr. Thomsen stated that three apiaries on Hawaii examined for disease in July were found to be infected with American foul brood. Seven of 10 colonies at Spencer Park (near Kawaihae) were found infected; 4 of 6, at an apiary 3 miles south of Kawaihae; and 2 of 8, at Kawaihae. In all, 24 colonies were examined, of which 13, or 54 per cent, had American foul brood.

COSMOLYCE BOETICA (L.)—Mr. Van Zwaluwenburg reared this lycaenid butterfly from gorse (*Ulex europaeus*) collected at Olinda, Maui, July 27. The caterpillars were fairly common, and fed on the blossoms.

METIOCHE VITTATICOLLIS Stål—Mr. Van Zwaluwenburg reported finding this immigrant cricket in a meadow at Olinda, Maui, July 27. This is a new island record.

Mr. Keck remarked on the apparent scarcity of *Pheidole* ants at Pearl Harbor. Dr. Carter said that in areas adapted to *Solenopsis, Pheidole* cannot successfully compete with the fire ant. Mr. Pemberton remarked that the Argentine ant has not seriously hampered biological control of mealybugs on sugar cane, even in fields where the ant is numerous. Mealybugs are more numerous in *Iridomyrmex*-infested cane fields, than where this ant is absent, but are not injuriously abundant.

SEPTEMBER 11, 1950

The 537th meeting was held at the H.S.P.A. Experiment Station on Monday, September 11, at 2:00 p.m., with Vice-president Hardy in the chair.

Members present: Adachi, Bianchi, Bryan, Clancy, Dresner, Finney, Hagen, Haramoto, Hardy, Keck, Look, Messenger, Mitchell, Newell, Rathburn, Roan, Rosa, Sakimura, Martin Sherman, Swezey, Thomsen, van den Bosch, Van Zwaluwenburg, Weber and Yasuda.

Visitors: J. W. Beardsley, C. F. Clagg, M. A. Kubota and N. E. Morton.

P. S. Messenger and Susumu Nakagawa were elected members of the Society, and C. F. Clagg was nominated for membership.

NOTES AND EXHIBITIONS

ELAPHRIA NUCICOLORA (Guenée)—Dr. Swezey exhibited a specimen of this agrotid (phalaenid) moth which issued from a jar containing watermelon vines infested with the cerambycid stem-borer, *Apomecyna saltator* (F.), from Paauhau, Hawaii. Two caterpillars also were found, the first time the larva of this immigrant moth has been recognized in Hawaii; they apparently fed on the watermelon foliage. In Florida this moth is said to have assumed cutworm-like habits in sugar cane. Previous records in the Territory were confined to trap light catches as follows: Oahu in 1945 and 1946, and Hawaii National Park, Kilauea, Hawaii, in 1947.

The *Elaphria* caterpillar is similar to that of *Elydna nonagrica* (Walker), another immigrant moth, known here since 1906 and present on all the islands. The *Elaphria* larva is nearly uniform dark fuscous, variegated with black. There is a fine, pale, middorsal line; the dorsal setae are minute and situated in minute, pale, black-ringed spots. There is a distinct, small, yellow lateral spot on either side of the first abdominal segment. The head is dark and distinctly narrower than the prothorax. The spiracles are oval, black and pale-ringed. Length about 16 mm., but the specimen was probably a starved individual.

A *Meteorus laphygmae* Viereck issued from the same jar, and may have parasitized an *Elaphria* larva. A feeding test with its caterpillars indicate that *Elaphria* is polyphagous; they fed on the leaves of *Euphorbia hirta, Emilia flammea, Portulaca oleracea* and *Synedrella nodiflora.*

HAEMATOPINUS EURYSTERNUS (Nitzsch)—Dr. Sherman reported a severe outbreak of the short-nosed ox louse on a dairy herd at Kaneohe; the insects were identified by Dr. Hardy. The tails were the site of the heaviest infestation; clipping the hair was without effect. The use of 0.03 per cent lindane was recommended. The infestation probably came from contact with cattle recently imported from the mainland. This louse has been known in the Territory since 1933.

CACTUS INSECTS—Mr. Weber recorded the recent introduction by the Board of Agriculture & Forestry of four insect species to feed on *Opuntia megacantha.* All liberations were on the island of Hawaii:

A strain of the mealybug, *Dactylopius opuntiae* (Cockerell), from Pomona, Calif., which attacks *Opuntia cordobensis,* but does not develop on *O. megacantha,* was liberated in Kohala in May, 1949. Another strain of the mealybug, imported from Australia, but originating in Mexico, which does feed on *megacantha,* was liberated at Kawaihae and Waimea in August, 1949. *Melitara prodenialis* Walker, a phycitid moth from

Texas, was released near Waimea in October, 1949. *Cactoblastis cactorum* (Berg), another phycitid, imported from Australia, and a cerambycid beetle from Texas, *Moneilema crassa* LeConte, were released May 25, 1950, near Waimea.

RHABDOSCELUS ~~SPHENOPHORI~~ (Boisduval)—For Mr. Pemberton it was reported that the sugar cane beetle borer was reared from larvae and pupae found, August 18, in corms of the bird-of-paradise plant, *Strelitzia reginae,* in Honolulu. This is a new host plant record.

CYRTORHINUS MUNDULUS (Breddin)—Messrs. Van Zwaluwenburg and Rosa reported the rearing of this egg-sucking mirid bug on eggs of the green sharpshooter, *Draeculacephala* sp. From 39 *Cyrtorhinus* nymphs, confined with no food other than *Draeculacephala* eggs, 26 adults were obtained over a period of 10 days. All but three of the nymphs were originally in early or intermediate instars. This suggests that eggs of the green sharpshooter are acceptable to *Cyrtorhinus* nymphs, at least in the absence of eggs of *Perkinsiella* or of other leafhoppers. *Draeculacephala* eggs are sometimes numerous in young cane.

APOMECYNA SALTATOR (F.)—For Mr. Pemberton it was reported that a watermelon vine received on August 14 from Paauhau, Hawaii, infested by cerambycid larvae, produced 65 adults of this species. Usually this insect is found in old vines. Earlier references to it, under the name *Apomecyna pertigera* Thomson, are in these "PROCEEDINGS" (5:14, 1922; 9:144, 1936).

DACUS (STRUMETA) LATICAUDUS Hardy—Dr. Hardy said that this species (described in these "PROCEEDINGS," 14:87, 1950) is a synonym of *Dacus (Strumeta) fuscatus* (Perkins & May) (Univ. Queensland Dept. Biol. Papers, 2:5, 1949). However, the latter name is preoccupied by *Dacus fuscatus* Wiedemann (Zool. Mag., 1:28, 1819). Therefore the name *laticaudus* is available for this fly.

HYPOSMOCOMA SACCOPHORA Walsingham—Mr. Mitchell reported that in upper Manoa Valley Miss Adachi and he found case-bearing lepidopterous larvae on rocks in the stream, feeding on lichenous growths. Some were on wet rocks where spray could reach them; others were crawling about on dryer rocks. The larval case resembles a stout thorn, and is 8 to 10 mm. long, and 1.0 to 1.2 mm. wide at the base. It is whitish, mottled with gray, and has a straight opening at the larger end, fitted with a lid. Dr. Swezey identified an adult which issued from a pupa, as this species. This insect has been known from Kauai, Molokai, and on Oahu, from Waimano gulch, Kawailoa gulch and Mt. Kaala (Fauna Haw., 15:604, 1907; "PROCEEDINGS," 3:5, 1914). This is the first record from the Koolau range on Oahu.

After adjournment the members inspected glass houses in which sugar cane was being grown in nutrient solutions by Dr. G. O. Burr of the Department of Physiology & Biochemistry, H.S.P.A. Experiment Station. In one, kept at a temperature lower by 9° F. than outdoor temperatures,

the cane was heavily infested by *Aphis sacchari* Zehntner. Coccinellids (*Coelophora inaequalis* F.) colonized in the house some weeks earlier, were breeding in great numbers, but were not controlling the aphids. In contrast, in an identical house in which temperatures were kept at 9° F. above outdoor temperatures, aphid control was promptly and satisfactorily effected by introducing *Coelophora*. Apparently the lower temperature level was more nearly the optimum of the aphids than of the coccinellids. Note—Two months later complete control of the aphids in the cooler unit had been accomplished by the ladybird beetles.

OCTOBER 9, 1950

The 538th meeting was held at the H.S.P.A. Experiment Station on Monday, October 9, at 2:00 p.m., with Vice-president Hardy in the chair.

Members present: Adachi, Bess, Bianchi, Bryan, Chong, Clagg, Defibaugh, Finney, Fullaway, Hagen, Haramoto, Hardy, Hinman, Kamasaki, Keck, Look, Messenger, Mitchell, Newell, Rathburn, Ritchie, Rosa, Martin Sherman, Steiner, Swezey, Thomsen, van den Bosch, Van Zwaluwenburg, Weber and Yasuda.

Visitor: Dr. Walter H. Wellhouse.

Dr. Bess introduced Dr. Wellhouse of the Department of Entomology of Iowa State University at Ames, who is a visiting professor at the University of Hawaii. Dr. Hardy reintroduced a member, Betty Lou Pelot, who has by marriage become Mrs. Defibaugh.

Philip H. Timberlake, a member of the Society since 1916, was unanimously elected an honorary member. C. F. Clagg was elected to active membership and Dr. Walter Wellhouse was nominated for membership.

PAPER

Dr. Edward S. Ross' paper, "A new species of Embioptera from Oceania," was presented.

NOTES AND EXHIBITIONS

TEREDO DAMAGE—Mr. Keck exhibited a piece of untreated fir piling riddled by teredo worms in the sea off Sand Island, Honolulu. It had collapsed 70 days after being put in the water.

AMORBIA EMIGRATELLA Busck—Mr. Steiner reported a destructively heavy population of this moth in guavas in experimental plats sprayed with aldrin and dieldrin, two chlorinated hydrocarbons. Six weeks earlier, 15 replicates were treated on a 25-acre area above the new Tripler Hospital. The two insecticides apparently were ineffective against *Amorbia* in its several stages, but were effective against the Argentine ant, which, in untreated areas, effectively controlled *Amorbia* larvae. Incidentally, this is an area not previously known to be infested by the Argentine ant.

ARGENTINE ANT—Mr. Thomsen reported that on September 29 he found a well established infestation of *Iridomyrmex humilis* Mayr on Route

212, about one-half mile south of Mauna Kapu, a peak on the southeast ridge of the Waianae range, Oahu. From this center the infestation extends about one-quarter mile in either direction along the road; the elevation is 2,300 ft. The ant was identified by comparison with material named by Dr. M. R. Smith.

This is the first time this ant has been found in the Territory above low elevations, and indicates that it can maintain itself under a variety of conditions. Mean temperature at this elevation is about 9° F. below that at sea-level, and greater variations in temperature occur at the higher elevation. The area is on a 40-inch isohyet, as compared with 20 inches of rain in the Ewa Plantation infestation and 75 inches in Nuuanu Valley. The Mauna Kapu area is covered with a mixed growth of native and introduced trees (koa and ohia-lehua; *Eucalyptus* and Monterey cypress). There is an abandoned Army camp nearby, and the ant was probably brought there in freight from Ft. Shafter, in the same way that it is believed to have been brought to Ewa. In the Mauna Kapu infestation the displacement of *Pheidole megacephala* (F.) by the Argentine ant can already be observed.

TENEBRIONIDS INJURING CUCURBITS—Mr. Mitchell reported that on September 25 Dr. Newell had observed adult tenebrionid beetles feeding on young cucumber plants at Waimanalo. These insects were identified by Dr. Hardy as *Gonocephalum* sp., not *seriatum* (Boisduval).[2] Usually such beetles feed on organic matter, but a case of damage to seed potatoes is reported by Fullaway & Krauss ("Common Insects of Hawaii":86, 1945). The infestation at Waimanalo was on land which had lain idle for some months after a watermelon crop, and had been covered with weeds for months; it was plowed in May or June. The beetles hid during the day beneath numerous clods; one clod concealed some 300 *Gonocephalum*. The beetles fed on leaves and stems at night; about 5 per cent of the field was damaged.

LASIODERMA SERRICORNE (F.)—Mr. Clagg exhibited adults of the cigarette beetle, and said its larvae had recently been found damaging nylon stockings at Pearl Harbor.

HYPODERMA LINEATUM (De Villers)—Dr. Bess stated that a recent survey to determine the damage caused by the warble fly, indicated that this insect is restricted on the island of Hawaii to regions between 1,500 and 6,000 feet; on Maui there have been no reports of it, and possibly it does not exist on that island.

EUMENES LATREILLEI PETIOLARIS (Schulz)—Dr. Swezey exhibited what appeared to be a 2-celled nest of this immigrant wasp (see Fig. 1) which Dr. H. L. Lyon had watched in the course of construction, attached to a slender twig of crepe jasmine, or "Nero's crown" (*Tabernaemontana coronaria* Willd.) on the H.S.P.A. Experiment Station grounds. It illustrates a deviation in nest-building for this species, which usually builds

[2] A description of this beetle, a new species, has been prepared by Z. Kaszab, and will appear in Annals & Magazine of Natural History.—Ed.

on a flat surface. On October 2, two large flies issued from two holes, each from a different cell. It is presumed that they developed on caterpillars stored by the wasp.

On October 10 the nest was opened and found, surprisingly, to consist of 6 cells which contained the following:

1 cell with white wasp cocoon.
1 cell with fungicized wasp larva and remains of *Anacamptodes* larvae.
1 cell with 2 dried *Anacamptodes* larvae.
1 cell empty; apparently had never contained anything.
2 cells with 4 and 5, respectively, empty dipterous puparia and caterpillar remains.

Fig. 1. Nest of *Eumenes latreillei petiolaris* on twig of *Tabernaemontana coronaria,* crepe jasmine or Nero's crown. (About natural size.)

The flies which issued on October 2 may have come from the same cell, or from different cells as first thought. The other flies must already have issued before the nest was collected, or before it was put into a jar. The two flies were sent by Dr. Hardy to C. W. Sabrosky, who reported as follows: "The tachinid-like fly is a sarcophagid, *Amobia* sp. (*Pachyophthalmus*) of the group known as the Miltogrammidae (*Metopia, Senotainia,* etc.). The species may be new; at least, it is unlike any of our American forms." This is a new record for Hawaii.

TINEA GRANELLA L.—Miss Adachi exhibited a jar of dried mushrooms from Japan, purchased locally, which were heavily infested by a small moth.

Dr. Swezey, to whom the material was turned over, later reported that the jar was fumigated and the adult moths within counted; they totalled 436. Examination of the 25 mushrooms available showed that the larvae fed inside the tissues of the mushrooms, without cases or silken tunnels, except that in some instances they had fed on the upper surface beneath a slight webbing. The pupae were found in the tunnels without cocoons, and were extruded upon emergence of the moths, often protruding from the margin of the mushroom.

Dr. Swezey identified the moth as *Tinea granella,* known as the European grain moth; the identification was later confirmed by Dr. J. D. Bradley of the British Museum. This moth has been reported in several of the eastern United States on corn, buckwheat and stored grain products, and in Canada in grain elevators. No mention is to be found of its attacking dried mushrooms. It does not damage sound material to any great extent. In 1939 it was intercepted in dried mushrooms from Japan by Board of Agriculture inspectors in Honolulu.

NOVEMBER 13, 1950

The 539th meeting was held at the H.S.P.A. Experiment Station on Monday, November 13, at 2:00 p.m., with President Pemberton in the chair.

Members present: Adachi, Bess, Bianchi, Bryan, Chong, Clagg, Clancy, Defibaugh, Dresner, Finney, Fullaway, Hagen, Hardy, Kamasaki, Keck, Look, Marucci, Messenger, Mitchell, Newell, Nihei, Pemberton, Ritchie, Rosa, Swezey, Thomsen, Van Zwaluwenburg, Weber, Wellhouse and Yasuda.

Visitors: Dr. J. E. Eckert, E. E. Hooser and Miss Shizuko Maeda.

Dr. Wellhouse was elected a member of the Society.

PAPERS

The following papers were presented: "Additional notes on the bees of the Solomon Islands," by Karl V. Krombein, and "Some elaterid beetles from New Guinea," by R. H. Van Zwaluwenburg.

NOTES AND EXHIBITIONS

SURVEY OF BEE-KEEPING IN HAWAII—Dr. J. E. Eckert, introduced by Mr. Thomsen, summarized the results of his recently completed survey of bee-keeping in these islands. The present number of colonies is less than 10,000, with the greatest number on the island of Niihau. Of some 1,300 colonies inspected, 55 were found infected with American fowl brood. This disease was found on Kauai, Molokai, Maui and Hawaii, and is probably present on Oahu also. It is serious enough to constitute a threat to the industry. Resistance to American foul brood was demonstrated in Molokai bees, the tests having been made at Molokai and at Davis, Calif.

ARGENTINE ANT—Dr. Eckert reported finding the Argentine ant at Kamuela, Hawaii, near the Waimea Hotel, on November 9, and said it is well established there. He also found this ant on the property of W. E. Bonsey, at Makawao, Maui, on November 12. This latter location was overrun by the ants, which are thought to have been brought in by troops quartered in the area during the recent war. These findings on Hawaii and Maui are new locality records for the Argentine ant.

NEW HOST RECORDS—For Dr. Sherman the following new host records were reported: The coccid, *Coccus viridis* (Green) on Surinam cherry; and the anthribid beetle, *Araecerus fasciculatus* (DeGeer) from tubers of sweet potato. It was not clear if the beetle-infested sweet potatoes were otherwise sound.

CORISCUS PILOSULUS (Herrich-Schaeffer)—Mr. Rosa exhibited a specimen of this immigrant coreid bug, recently taken at Kahala, Honolulu. This is a local extension of the known range of the bug, which previously had been taken only about the south side of Mt. Kaala. Mr. Thomsen added that he had found *C. pilosulus* near Kawailoa on the north shore of Oahu.

ANASTATUS BLATTIDARUM Ferrière—Mr. Weber reported that this eupelmid wasp, identified by A. B. Gahan, was first collected in Hawaii by K. S. Hagen in Honolulu, in September 1950. Described from the Anglo-Egyptian Sudan (Bull. Ent. Res., 21:33, 1930), it is also known from Arizona (Brooklyn Ent. Soc. Bull., 36:178-181, 1941). Reared elsewhere on eggs of the cockroach, *Supella supellectilium* (Serville), it probably will be found to attack that species here. *A. blattidarum* has an orange-yellow thorax and a complete band across the forewing, whereas our local *Anastatus koebelei* Ashmead has only the middle lobe of the mesonotum and the scutellum orange, and the band on the wing is interrupted.

BRACHYMERIA DISCRETA Gahan—Mr. Weber reported that this chalcid, identified by A. B. Gahan, was first taken by him at Heeia, Oahu, July 17, 1950. Later Mr. Hagen took other specimens at window on the grounds of the Board of Agriculture in Honolulu. Described from Mexico (Proc. U. S. Nat. Mus., 92:44, 1942), it greatly resembles *B. fonscolombei* (Dufour), from which it may be separated as follows: *discreta* has a polished, impunctate spot on the disc of the scutellum, and the hind margin of the second abdominal tergite is arcuately emarginate; in *fonscolombei* the bare spot on the scutellum is lacking, and the hind margin of the second tergite is but slightly curved. In *discreta* the hind margin of the scutellum is entire, while in *fonscolombei* it is indented, producing a more or less bidentate effect. Rau (Ann. Ent. Soc. of America, 34:365, 1941) records this insect (then undescribed) as a parasite of *Polistes instabilis.*

DIASPIS BOISDUVALII Signoret—Dr. Swezey exhibited this scale, identified by Mr. Fullaway, found in considerable numbers on the trunk and petiole of coconut palm. It has usually been considered an orchid scale, but according to Dr. Ferris, coconut trees in southern California are commonly infested by it. Larvae of the coccinellid, *Telsimia nitida* Chapin, were feeding on the scales; one adult later emerged. An encyrtid, parasite, *Plagiomerus diaspidis* Crawford, was bred from the scale.

LEUCOSPIS AFFINIS Say—Mr. Bianchi showed a specimen of this wasp recently collected on a window on the seaward slopes of Diamond Head, Honolulu. Another was seen feeding on honeydew on a nearby shower tree. The species was first recorded here by Williams and Rosa from Nanakuli, Oahu, in 1947.

CACCODES DEBILIS Sharp—Mr. Bianchi exhibited a specimen of this cantharid beetle, collected by him at a light in Manoa Valley, Honolulu. This insect, described from Oahu in 1885, is rare; it is usually taken singly and at long intervals of time. All but one of the dozen specimens in the H.S.P.A. collection are from Oahu, the exception being one from Iao Valley, Maui.

AGROMYZID LEAFMINERS—Mr. Mitchell reported a heavy infestation of leafminers on China aster (*Callistephus chinensis*) at the University on September 11. Thirty agromyzid flies and some hymenopterous parasites were bred from this infestation. The flies were identified by C. W. Sabrosky as *Agromyza* sp. (*jucunda* van der Wulp of authors). Some American authors have referred to this as *Calycomyza artemisiae* (Kaltenbach), but a European monographer doubts the synonymy because of a difference in food habits. *C. artemisiae* was listed as a chance immigrant on Oahu during 1946; it was taken on Mt. Tantalus, in a light trap at Hickam Field in July 1945, and later in a light trap at Lanikai.

In addition to the above material, 1 specimen of *Liriomyza pusilla* (Meigen) was reared from China aster; this is a new host record. From African marigold (*Tagetes erecta*) the following, identified by Dr. Hardy, were reared: 1 *Liriomyza pusilla* and 1 *Agromyza virens* (Loew); the latter is a new host record.

NEW TETRANYCHIDAE—Dr. Newell called attention to "Mites of the family Tetranychidae," by E. A. McGregor (Amer. Midland Nat., 44:257-420, 1950) which lists six species of this family from Hawaii. Four are described as new: *Septanychus deviatarsus* on greenhouse plants on Maui and Oahu; *Paratetranychus hawaiiensis* on litchi and loquat, Oahu; *P. insularis,* on mango, Oahu; and *Tetranychus equatorius,* which has a wide range in other countries besides occurring on Oahu. In addition, *T. bimaculatus* Harvey and *Tuckerella pavoniformis* (Ewing) (=*Eupalopsis*) are listed.

DACUS DORSALIS Hendel—Mr. Hagen reported that adults of the oriental fruit fly lived longer and produced a higher percentage of fertile eggs when fed a solid enzymatic protein hydrolysate of soy diet, than when fed on a solid enzymatic protein hydrolysate of yeast diet. In addition to the hydrolysates, sugar cubes (sucrose) were furnished separately as a carbohydrate source. Although the flies deposited more eggs per female when fed the yeast hydrolysate, the soy hydrolysate diet was more effective, since 85 to 100 per cent of the eggs hatched, as compared with 40 to 60 per cent fertility with the yeast hydrolysate diet.

DECEMBER 11, 1950

The 540th meeting was held at the H.S.P.A. Experiment Station on Monday, December 11, at 2:00 p.m., with President Pemberton in the chair.

Members present: Adachi, Balock, Bess, Bianchi, Bonnet, Chong, Clagg, Clancy, Defibaugh, Finney, Fullaway, Hagen, Haramoto, Hardy, Hu, Kamasaki, Krauss, Look, Messenger, Mitchell, Newell, Nihei, Nishida, Pemberton, Peterson, Rathburn, Ritchie, Rosa, Sakimura, Martin Sherman, H. S. Smith, Swezey, Thomsen, van den Bosch, Van Zwaluwenburg and Yasuda.

Visitors: Dr. Walter Ebeling and Miss Shizuko Maeda.

The following were elected to serve as officers in 1951:

President.....D. Elmo Hardy
Vice-president.....Henry A. Bess
Secretary-Treasurer.....R. H. Van Zwaluwenburg
Additional Members of Executive Committee.....C. E. Pemberton, C. L. Ritchie

Mr. Pemberton relinquished the chair to his successor, Dr. Hardy, and read the annual presidential address: "The Hawaiian Entomological Society, a community asset."

PAPERS

Papers by the following were presented for publication: D. T. Fullaway; D. D. Bonnet and Stephen Hu; Robert van den Bosch and Frank Haramoto; E. C. Zimmerman; R. L. Usinger; D. Elmo Hardy; P. W. Weber; L. H. Weld; and Irwin M. Newell, Robert van den Bosch and Frank H. Haramoto.

NOTES AND EXHIBITIONS

CHRYSOMELIDS INTERCEPTED ON AIRCRAFT—Mr. Peterson exhibited two chrysomelid beetles taken alive during August and September, 1950, from aircraft arriving at Barber's Point Naval Air Station and at Hickam Field, Oahu. One species, of which only one specimen was taken, remains unidentified. The other, taken on six different planes, he identified by comparison with material in the H.S.P.A. collection, named by H. S. Barber, as *Metriona circumdata* Herbst subsp. *trivittata* F. Specimens from Luzon, Malaya and Formosa are in the H.S.P.A. collection. Schulze, who gave *trivittata* species status, worked out its biology and described the immature stages (Phil. Journ. Sci., 3:267, 1908). He records *Ipomoea triloba* as the host plant for the beetle; its congeners in North America feed largely on plants of the morning glory family, and are destructive to foliage of sweet potato.

In every case the planes in which the beetles were intercepted had been sprayed while aloft, in accordance with regulations. They originated at Haneda airport, Kyushu, Japan, and had stopped at Kwajalein and Guam, en route to Oahu; hence it is impossible to say where the insects boarded them. Schulze states (l.c.) that *trivittata* is common throughout the year near Manila. Possibly the species is established in Japan, but it seems more likely that it is established on Kwajalein or, most probably, on Guam, where it may have been introduced during recent years. The number of beetles in the planes suggests a high population in the area

of origin, often a characteristic of a species newly established. It is suggested that the insect may have escaped from planes here, and may be already established on Oahu.

CORISCUS PILOSULUS (Herrich-Schaeffer)—Mr. Thomsen reported this coreid bug to be well established in Waiahole Valley, on windward Oahu. This is a new locality record, previous captures having been made at Kahala, Poamoho and Kawailoa, all on Oahu. It was taken by sweeping *Cassia leschenaultiana* DC (also known as *Cassia mimosoides* L.), a weed with the common names, partridge pea, "lauki" and Japanese tea. Although no feeding was observed on this plant, the insect was abundant on it, and obviously has a definite affinity for it.

RADIONASPIS INDICA (Marlatt)—Mrs. Defibaugh reported that Miss Adachi had found this scale insect in cracks of mango bark near the Chinese cemetery, Manoa Valley, Oahu, on December 1, 1950. It was identified by comparison with Ferris' "Atlas," and identification was later confirmed by Dr. Ferris. As recently as 1948 it was not known to be established here, according to Zimmerman ("Insects of Hawaii," 5:376).

SWEZEYULA LONICERAE Zimmerman & Bradley—Dr. Swezey reported that he has observed this honeysuckle leafminer breeding continuously throughout the year. He added that it is evident it will not become a pest here.

MORGANELLA LONGISPINA (Morgan)—Dr. Swezey reported that as his avocado tree begins its annual shedding of leaves, this scale can be found on the fallen foliage, as in the two previous years. Infestation likewise continues on kukui (*Aleurites*), as shown by examination of fallen leaves in Manoa Park (triangle). As in the case of the avocado, infestation on kukui is so light that the welfare of the trees is not affected.

PHILAENUS SPUMARIUS (L.)—Mr. Krauss reported collecting this spittle insect on *Eupatorium riparium* plants at Kilauea, Hawaii, recently. This is a new host plant record.

METIOCHE VITTATICOLLIS Stål—Mr. Krauss found this small immigrant cricket numerous in grass and low vegetation at the City of Refuge, Honaunau, Kona, Hawaii, November 29. This species, first collected in 1944 on Oahu, was not known from Hawaii until now.

LATRODECTUS MACTANS (F.)—Mr. Krauss reported collecting black widow spiders at Pohakuloa, on the slopes of Mauna Kea, Hawaii, in December, at an elevation of 6,500 ft., and at Hale Pohaku, 9,400 ft. elevation.

VANDUZEA SEGMENTATA (Fowler)—This membracid, previously unrecorded from the island of Hawaii, was collected by Mr. Krauss at Alae, Kona, on *Cassia* sp., on November 30, 1950.

TOXORHYNCHITES BREVIPALPIS Theobald—Dr. Bonnet exhibited living "cannibal" mosquitoes of this species in all stages, bred from material

recently imported by Dr. Bonnet and Dr. Hu. During August and October, 1950, 121 living larvae were received from shipments totalling 196. They were sent by J. Muspratt of Natal, Union of South Africa. Thirty mated females and 15 males were released in Nuuanu Valley, Honolulu, on December 7.

ANAPHOTHRIPS CORBETTI Priesner—Mr. Bianchi reported that this pest of orchids, new to the Territory, was first found by Dr. H. H. Lyon in Honolulu in November, 1950, and has since been found at various points in the city. It was described from *Vanda joaquim,* in Kuala Lumpur, Malaya (Proc. Royal Ent. Soc. London, ser. B, 5: 209, 1936).

AGROMYZA SIMPLEX Loew—Dr. Hardy reported that celery plants received from Kamuela, Hawaii, were heavily infested by this stem miner. It is often a serious pest of asparagus, but has not previously been recorded as damaging celery. The larvae mine inside the stalks and cause a rapid breakdown of the tissues, making infested stalks unsalable. The county agent reported extensive losses in the Kamuela area. This insect was first reported in the Territory in 1938 by Dr. Swezey and Mr. Bianchi who found it in asparagus at Pupukea, Oahu; later it was found in other areas.

FRANKLINIELLA SULPHUREA Schmutz—Stephen Au reported by letter that a severe outbreak of this thrips (identified by Mr. Bianchi) occurred late in October at Waimea and Kekaha, Kauai. Damage was severe on *Cattleya,* but negligible on other orchids. Blossoms of "koa haole" contained large numbers of the thrips. By mid-November the infestation had subsided.

BRONTISPA YOSHINOI Barber—Attention was called to the recent description of this chrysomelid pest of coconut palms, from the Palau Islands (Journ. Washington Acad. Sci., 40:246, 1950). This has been confused with another blue species, *Brontispa chalybeipennis* (Zacher) (a synonym of which is *B. namorikia* Maulik), which similarly attacks coconut palms in Ponape, Kusaie and certain atolls in the Marshalls. The adult and immature stages of *B. yoshinoi* are described and figured in an excellent paper by Hagen and Doutt (Ann. Ent. Soc. America, 43: 311-319, 1950).

Mr. Krauss gave an interesting account of his work in Malaya, Queensland, New Caledonia and Fiji, where, for the past two years or more, he has been collecting parasites of fruit flies.