

PROCEEDINGS
OF THE
Hawaiian Entomological Society

VOL. V, No. 1.

FOR THE YEAR 1921.

OCTOBER, 1922.

JANUARY 6th, 1921.

The 184th meeting of the Hawaiian Entomological Society was held in the entomological laboratory of the experiment station of the Hawaiian Sugar Planters' Association, President Timberlake presiding. Other members present: Messrs. Giffard, Ehrhorn, Muir, Osborn and Whitney, and Dr. L. O. Kunkel, visitor.

In the absence of the Secretary, Mr. Osborn was appointed Secretary pro tem.

The minutes of previous meeting were read and approved with corrections.

The Executive Committee reported the selection of Mr. Muir as Librarian, Mr. Timberlake, Custodian of Collections, and Mr. Swezey, Editor for 1921.

The resignation of the Secretary, Mr. Fullaway, was received, he being absent on foreign insect work. Mr. Willard was elected to fill the vacancy for the balance of the year.

PAPERS READ.

"Observations on *Xylocopa* and *Lithurgus* (Hymenoptera)."

BY W. M. GIFFARD.

"Synonymy of the Carpenter Bee, *Xylocopa varipuncta* (Hymenoptera)."

BY P. H. TIMBERLAKE.

NOTES AND EXHIBITIONS.

Mr. Muir exhibited some specimens of weevils that had been determined by Dr. Marshall of the British Museum, from

specimens sent him by Mr. Swezey, and read Dr. Marshall's letter in regard to them. The species were as follows:

Stenommatius musae, recently described by Dr. Marshall from the specimens sent by Mr. Swezey, collected by him in banana corms at Kaimuki and thought to be an immigrant, but according to Dr. Marshall, not necessarily to be considered as an introduced species.

Stenotrupsis sp., a small Cossonid which has been found a few times in sugar cane on Oahu. It is not represented in the British Museum, and is probably undescribed.

Lithurgus albofimbriatus Sich. (*Megachilidae*) and *Xylocopa varipuncta*.—Mr. Giffard exhibited portions of a tree-trunk fence post, collected at Waimea, Oahu, December 27, 1920, showing channels and cocoons constructed by *Lithurgus*, and *Xylocopa*; also a cut section of the same post about 2½ feet long and 8 inches in diameter from which, in 7 days, 19 males and 25 females of *Lithurgus* and 22 males and 27 females of *Xylocopa* issued. Also were exhibited slide mounts of mouth parts and genital organs of both sexes of *Lithurgus*.

Alphitobius piceus.—Mr. Giffard exhibited a number of these Tenebrionid beetles taken from the above sections of fence post.

New Miscogasterid.—Mr. Timberlake exhibited a single specimen of a parasite reared by Mr. Swezey from flower heads of *Dubautia* collected on Mt. Kaala, Oahu, September 26, 1920. A large number of *Tephritis dubautiae* Bryan were reared from these flower heads, but there was only one specimen of the parasite, which is a new species of the Miscogasteridae, and is also a representative of an undescribed genus. As no other insects were reared from the material, the host of the parasite is probably the *Tephritis* that issued so abundantly. So far as known, no other Miscogasterid has been reared in these islands (except the common introduced *Tomocera*), although the family is one of the few groups of the Chalcidoidea represented in the endemic fauna. The species are rather numerous and fall into several genera, but specimens are infrequently met with, and the accumulation of mate-

rial becomes a slow process. Mr. Timberlake also exhibited another specimen strictly congeneric with Mr. Swezey's, which he collected from a *Raillardia* tree on Haleakala, Maui, at an elevation of about 5800 feet, July 22, 1919. The association of this unnamed genus with Compositae is therefore more assured, and this is easily explained if the species are really parasitic in *Tephritis*, as species of the latter breed in the flower heads of both *Dubautia* and *Raillardia*.

Insects on Chinese cabbage.—Mr. Whitney exhibited three species of insects intercepted in quarantine, on Chinese cabbage from San Francisco.

Syrphidae: *Melanostoma stegnum* (Say) and *Syrphus* sp.

Anthomyiidae: *Phorbia fusciceps* (Zett.), commonly known as the seed-corn maggot.

FEBRUARY 3, 1921.

The 185th meeting of the Hawaiian Entomological Society was held at the experiment station of the H. S. P. A., with Mr. Timberlake presiding. Other members present were Messrs. Crawford, Ehrhorn, Giffard, Muir, Osborn, Swezey, Whitney, and Willard. Mr. T. L. Bissell and Dr. L. O. Kunkel were visitors.

The minutes of the previous meeting were approved as read and corrected.

Mr. Swezey gave an interesting report on his attendance of the meetings of the American Association for the Advancement of Science, American Association of Economic Entomologists, and Entomological Society of America, held at Chicago University, December 27 to 31, 1920.

Mr. T. L. Bissell was nominated for active membership in the Society.

NOTES AND EXHIBITIONS.

Mitrastethus bituberculatus (Fabr.).—Mr. Swezey exhibited a specimen of this weevil, identified by Dr. Marshall of the British Museum, who stated that it was a New Zealand species. A letter from Commander J. J. Walker, President of the Entomological Society of London, states that he has found this

insect very commonly in several localities in the North and South islands of New Zealand. Also, that it appears to be practically confined to the native and imported conifers, occurring under the bark and in the decaying wood of old logs, and not in the living tree. It is the weevil from rotten wood, mentioned on pages 374 and 382 of Proceedings Haw. Ent. Soc., III, No. 5, 1918.

Metamasius ritchiei Marshall.—Mr. Ehrhorn exhibited a specimen of this pineapple weevil, which came from Jamaica. He stated that it does extensive damage to the fruits, stems, and the roots of pineapple plants, and that a living larva of this species had been found in some pineapple plants that were imported into Honolulu from Mexico.

Gitonides perspicax Knab.—Mr. Timberlake exhibited four specimens of this Drosophilid, reared from a mealy bug on sugar cane at Halifax, Queensland, by Mr. Muir in March and April, 1920. The species is apparently widely distributed, as Knab records it from Manila, Philippine Islands, and Pusa, India, as well as from Honolulu. Mr. Muir states that it occurs in Java.

Itopectis immigrans Timb.—Mr. Timberlake called to attention that Dr. Perkins, in a recent letter to the Experiment Station, states that this "is the species which I referred to in the Fauna as commonplace—no doubt without justification, but at the same time the only species of the subfamily I had specially studied were the fine '*Rhyssa*' group and other conspicuous tropical things, and I must have been thinking of these at the time. Of this *Itopectis*, I took a female with much broken wings in 1901 in Honolulu. This differs from several later caught ones (1904) in having only the small apical segment black and the propodeum reddish, but it is clearly the same species. It is even possible it may have become darker since its introduction."

In another letter, Dr. Perkins mentioned that he had once seen this species in large numbers, and curious enough all his specimens except one were from Oahu.

Mr. Timberlake remarked that the species must have become much rarer in recent years on Oahu, as it has not been

found recently, although much collecting of Hymenoptera has been done by Fullaway, Bridwell, Williams, and others. He also remarked that it is possible that some of the introduced Hymenoptera do become darker after being in the Islands for a period of years, and this is possibly the case also in *Cremastus hymeniae* Viereck., some specimens of which have considerable black on the thorax. But it is rather unsafe to generalize on the subject as the insects may vary to the same extent in their native habitat.

MARCH 3, 1921.

The 186th meeting of the Hawaiian Entomological Society was held at the H. S. P. A. Experiment Station, with President Timberlake presiding. Other members present were Messrs. Bissell, Ehrhorn, Giffard, Muir, Osborn, Swezey, and Willard.

Minutes of the previous meeting were read and approved.

Mr. T. L. Bissell was elected to active membership in the Society.

PAPERS READ.

"Insects Attacking Ferns in the Hawaiian Islands."

BY O. H. SWEZEY.

"Insect Collecting in Zero Weather in Illinois."

BY O. H. SWEZEY.

NOTES AND EXHIBITIONS.

Dermestes vulpinus damaging lead lining of acid-tank.—
Mr. Timberlake exhibited specimens and the work of this Dermestid. These were brought in by Mr. C. C. James, manager of the Pacific Guano and Fertilizer Company. The damage was done by the larvae, which bored their way between the wooden work beneath the tank and the lead lining, in preparation of their pupal chambers. In many instances they had gnawed grooves in the lead, and had in a few cases perforated the lining so that the tank had to be relined.

Insects from figs of Ficus retusa at Hongkong, China.—
Mr. Timberlake exhibited 22 species of chalcid-flies, all reared from figs of *Ficus retusa* collected by Mr. Fullaway at Hong-

kong in January, 1921. These are divided into several distinct groups: First, a species of Agaonidae, the true caprifier of the figs; second, a group of 6 species, representing 5 genera, which probably are all inquiline and forming galls of their own inside the figs. These do not fall at all well in any of the subfamilies or tribes recognized by Ashmead, but numbers of the group probably were included by him under the Idarninae, although the more correct position apparently would be a new subfamily of the Callimomidae; third, 5 species of Idarninae, representing 3 genera; fourth, 3 species of the genus *Ormyrus*; fifth, 7 species of *Decatoma*.

* *Undetermined Cricket from Honolulu*.—Mr. Timberlake exhibited specimens of a small peculiar cricket found in rubbish in old boxes stored in a shed at Kaimuki. This species has been collected before, by Mr. Terry at Kekaha, Kauai (May, 1906), and about Honolulu, by Messrs. Ehrhorn and Swezey.

** *New Ichneumonid*.—Mr. Swezey exhibited specimens of an Ichneumonid recently collected by him in a weedy lot at Kaimuki, which is apparently a new immigrant here, not previously recorded.

Nesotocus giffardi.—Mr. Swezey reported having seen borings of this beetle in branches of a *Cheirodendron* tree on a ridge above Hauula. This is the farthest record for this weevil, and now makes its range extend throughout the whole Koolau mountains of Oahu.

Ptinus villiger Reit.—Mr. Swezey exhibited a specimen of this beetle of the family Ptinidae, which was taken with three others from a box of butterflies at Rockford, Illinois. It is a museum pest which he had not seen before, and one which museum collections in the Hawaiian Islands are not troubled with.

Kelisia paludum Kirk.—Mr. Muir exhibited a specimen of

* *Cycloptiloides americanus* (Sauss.), as determined later by Morgan Hebard. [Ed.]

** *Casimaria infesta* (Cress.), as determined later by R. A. Cushman. [Ed.]

this insect from Jamaica, and remarked that this extends the distribution of this Hawaiian species to the Atlantic.

Machilis heteropus.—Mr. Muir exhibited a specimen of *Machilis heteropus*, with drawings showing the likeness between the first maxillae, palpus, mandibles, and antennae.

APRIL 7th, 1921.

The 187th meeting of the Hawaiian Entomological Society was held at the experiment station of the Hawaiian Sugar Planters' Association, with Mr. Timberlake in the chair. Other members present were Messrs. Bissell, Crawford, Ehrhorn, Muir, Osborn, Swezey, and Willard. Visitors present were Messrs. Geo. C. Roeding, a prominent fruit grower from Fresno, California; H. L. Lyon, L. O. Kunkel, and E. L. Caum of the Hawaiian sugar planters experiment station, and Q. C. Chock of the Territorial Board of Agriculture and Forestry.

Minutes of the previous meeting were read and approved.

Mr. Swezey reported that the Hawaiian Sugar Planters' Association had donated an additional \$300 to the Society to help defray printing expenses.

Upon motion of Mr. Crawford, it was voted that the secretary, upon receipt of the donation, write a letter to the Trustees of the H. S. P. A., expressing the appreciation and thanks of the Society.

Upon motion of Mr. Muir, it was voted to suspend the regular program to enable Mr. Geo. C. Roeding to talk on fig insects.

Mr. Roeding outlined the life history of the *Blastophaga*, gave an account of its introduction into California, and related interesting experiences and anecdotes connected with his trip to Smyrna, undertaken to investigate the habits of *Blastophaga*, and the methods of caprifigation employed there by the natives.

JUNE 2d, 1921.

The 188th meeting of the Society was held in the entomological laboratory of the Experiment Station, H. S. P. A., with President Timberlake presiding. Other members present:

Messrs. Ehrhorn, Muir, Fullaway, Bissell, Osborn, Swezey, Crawford, and Wilder.

Minutes of previous meeting were read and approved.

PAPER READ.

"A New Hawaiian Delphacid (Homoptera)."

BY F. MUIR.

NOTES AND EXHIBITIONS.

Ischiogonus sp.—Mr. Muir exhibited specimens of this parasite of the Australian fern weevil (*Syagrius fulvitaris*), sent by Mr. Pemberton from New South Wales, Australia. Cocoons of the parasite arrived on May 21, and since then 40 females and 30 males have issued. Most of them have been liberated on Mt. Tantalus, where there are *Sadleria* ferns infested with the weevil.

Mitrastethus bituberculatus and *Dryophthorus distinguendus*.—Mr. Ehrhorn exhibited these two weevils obtained from the wood of propagating boxes. The former is a New Zealand beetle and was found in the sound wood; the latter was in the rotted wood.

Vanessa callirhoea.—Mr. Swezey exhibited a set of wings of this butterfly sent him by Mr. Charles E. Hempel from Funchal, Madiera Islands. They have markings more nearly like *Vanessa tammeamea* than has any other species. Each species is similarly confined to an isolated group of islands, which are separated by many thousand miles.

Platyedra gossypiella.—Mr. Swezey exhibited a specimen of the pink boll-worm moth reared from the seed capsule of *Hibiscus youngianus* collected by Mr. McEldowney, April 1, 1921, on the ridge at Waimalu, Oahu.

Vanessa tammeamea.—Mr. Swezey stated that Mr. Caum reported to him the finding of 6 chrysalids of this butterfly attached to the leaves of the awa (*Piper methysticum*) in Pukoo Valley, Molokai, February 15, 1921. Butterflies issued from 5 of the chrysalids, and a *Chalcis obscurata* from the remaining one. This is the first record of this as a host for this parasite.

Frontina archippivora.—Mr. Swezey reported rearing this

Tachinid fly from a chrysalis of *Lycaena boetica* in Kaimuki, March 19, 1921. It is the first record of this fly from this host. The maggot issued from the butterfly chrysalis March 11, and the adult fly emerged from puparium March 19.

Aloha ipomoeae.—Mr. Swezey reported that Dr. Lyon had handed him specimens of this leafhopper taken at light in his office at the Experiment Station, March 12, 1921.

Hieroxestes omoscopa Meyrick.—Mr. Swezey stated that in a letter from Mr. Meyrick, this name is given for the Tineid moth described as *Opogona apicalis* by Swezey in Bull. 6, Exp. Station, H. S. P. A., p. 17, pl. III, figs. 4, 5, 1909.

Amaranth Jassid.—Mr. Swezey reported taking this immigrant Jassid on amaranth at Lahaina, Maui, May 20, 1921. This is the first record of its capture on any other island but Oahu, where it was first taken by Mr. Ehrhorn in October, 1918, on *Amarantus spinosus* near his office on the waterfront in Honolulu.

Oxaxis collaris.—Mr. Swezey reported this beetle as coming abundantly to lights at the waiting station at Pawaa Junction, Honolulu. Sixty-five of them were counted running on the wooden walls near an electric light in a sheltered place, and sixteen were counted similarly near another light.

Eupatorium macrophylla.—Mr. Swezey reported having found some clumps of this foreign weed growing up at the head of one of the valleys at Maunaloa at the dry end of the island of Oahu, April 17, 1921. Some of them were in flower. This is the pest that has become so widely spread on the island of Maui, and is overrunning some of the cattle ranches on the upper slopes of Haleakala. It is called "paumakani" by the Hawaiians. This patch of this weed was reported to the Territorial Forester, who has taken measures towards having the patch eradicated.

Simplicia robustalis.—Mr. Swezey reported rearing this moth from caterpillars which were quite abundant feeding on the dead leaves of chayote vine at Kilauea, Kauai, May 4, 1921. The first record of this immigrant moth on that island.

Telenomus.—Mr. Timberlake exhibited two females of a

probably introduced species of *Telenomus*, apparently not hitherto recorded. The specimens were taken on windows, the first May 10, 1916, at Kaimuki, the other by Mr. Ehrhorn in Manoa Valley, March 29, 1921. It is easily distinguished from the rest of the Hawaiian species by its brown color.

Eulophus.—Mr. Timberlake exhibited specimens of an introduced species of this genus, reared by Mr. Swezey from the lantana leaf-miner collected at Makaha, Oahu, March 27, 1921. The species may be recognized by the extremely coarse reticulation of the scutellum, and by the entirely pale legs, in which characters it differs from all other Hawaiian Eulophidae.

Hunterellus hookeri Howard in India.—Mr. Timberlake exhibited a series of females of this Encyrtid collected by Messrs. Fullaway and Ballard from a dog at Coimbatore, South India, on February 20, 1921. Mr. Fullaway observed that the parasites, when disturbed, did not fly or jump away more than a couple of inches, and directly returned to rest on the dog, much in the same manner that the horn-fly returns to its host after being disturbed. This Encyrtid is known to be parasitic in dog ticks of the genus *Rhipicephalus* and has been found previously in Texas, California, Mexico and Portuguese East Africa.

Ox warble.—Mr. Swezey reported observing the ox warble (*Hypoderma lineata*) on imported cattle at Kilauea and Lihue, Kauai, May 4, 1921. As many as half a dozen of the warbles were observed in the back of one cow.

Draeculacephala mollipes.—Mr. Osborn exhibited specimens of this Jassid collected on small plant sugar cane at Ewa Plantation, Oahu, June 1, 1921. Fifteen individuals were noticed on the cane in about two hours' search. No immature stages were observed.

Mr. Ehrhorn exhibited a collection of economic insects from Porto Rico.

Clytus annularis Fab.—Mr. Fullaway exhibited specimens of this Cerambycid beetle, received from Brother Matthias Newell of Hilo, with the information that it has established itself at Hilo, and can be readily obtained in dry bamboo. This beetle was taken in Honolulu as early as 1905. As but a single

example was found on that occasion, in an insectary at the Experiment Station, H. S. P. A., where some sake tubs were stored, it was believed to have come from the Orient in the tubs. Brother Matthias states, however, that he collected the first specimen taken in the islands many years ago, the specimen having been given to Dr. Perkins. The species has a wide distribution in the Orient, being recorded from India, Assam, Burmah, Siam, China, Japan, Malacca, Java, Timor, Molucca, Aru, New Guinea and Port Jackson, Australia. As far as can be ascertained, this is the first published record of its presence in Hawaii.

Micromus vinaceus.—Brother Matthias Newell of Hilo states in a letter to Mr. Fullaway that this introduced Australian lace-wing fly, which was liberated in Hilo in 1920, has become established and is active on plants infested with aphids.

Insects Collected at Waimea, Hawaii.—Mr. Fullaway furnished a list of insects collected or observed at Waimea, Hawaii, in May, 1921, with notes on particular species, as follows:

COLEOPTERA.

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| <i>Diachus auratus</i> on rose-bushes. | <i>Eriopygodes euclidias</i> . |
| <i>Pantomorus fulleri</i> . | <i>Cirphis unipuncta</i> . |
| <i>Gonocephalum seriatum</i> . | <i>Agrotis ypsilon</i> . |
| <i>Monocrepidius exsul</i> . | <i>Agrotis dislocata</i> . |
| <i>Coelophora inaequalis</i> . | <i>Agrotis crinigera</i> . |
| <i>Cryptolaemus montrouzieri</i> . | <i>Spodoptera mauritia</i> . |
| <i>Scymnus notescens</i> . | <i>Plusia chalcites</i> . |
| <i>Hister bimaculatus</i> under cow- | <i>Lycæna blackburni</i> . |
| dung. Other Histers not pres- | <i>Pontia rapae</i> . |
| ent. | <i>Omiodes accepta</i> . |
| <i>Philonthus scybalarius</i> . | <i>Hymenia recurvalis</i> . |
| <i>Lispenodes hawaiiensis</i> . | <i>Amorbia emigratella</i> . |
| <i>Aphodius lividus</i> . | |

HEMIPTERA.

- Oechalia grisea*.
Nysius sp.
Siphanta acuta.

LEPIDOPTERA.

- Anosia erippus*.
Herse cingulata.
Vanessa atalanta.
Vanessa cardui.
 on *Cirsium lanceolatum* so-called
 Scotch thistle.

NEUROPTERA.

- Anomalochrysa* sp.
Chrysopa microphyta.

HYMENOPTERA.

- Apis mellifica*.
Polistes sp.
Sceliphron caementarium.
Crabro sp.
Odynerus sp.
Chalcis obscurata.
Echthromorpha fuscator.
Ichneumon koebelei.

Ichneumon purpuripennis.
Bassus laetatorius.
Angitia hawaiiensis.
Pheidole megacephala.
Trichogramma sp.

DIPTERA.

Psychoda sp.
Eristalis tenax.
Xanthogramma grandicornis.

Allograpta obliqua.
Frontina archippivora.
Chrysomyia dux.
Sarcophaga pallinervis.
Stomorkhina pleuralis.
Lyperosia irritans.
Musca domestica.

SIPHONAPTERA.

Sarcopsylla gallinacea.

JULY 7th, 1921.

The 189th meeting of the Society was held in the usual place, President Timberlake presiding. Other members present: Messrs. Bissell, Crawford, Ehrhorn, Fullaway, Grinnell, Muir, Swezey and Wilder, and Dr. Kunhi Kannan of Bangalore, India, visitor.

In the absence of the secretary, Mr. Swezey was appointed secretary pro tem.

Minutes of the previous meeting were read and approved, with a few corrections.

NOTES AND EXHIBITIONS.

Amblyteles purpuripennis.—Mr. Fullaway reported that specimens of this *Ichneumon* forwarded to the U. S. National Museum for determination, have been identified with *purpuripennis* (Cresson), a California species, by Mr. Cushman. This is one of the species introduced by Mr. Koebele about twenty-five years ago, probably at the same time that *koebelei* was introduced.

Buprestid larva.—Mr. Ehrhorn reported finding Buprestid larvae in bamboo, imported from Japan, at a Japanese store, the bamboo being so much eaten as to be readily crushed.

Pleistodontes froggatti.—Mr. Muir reported the establishment of this fig wasp on the Moreton Bay fig tree at Emma Square. A large number of the insects were liberated on the tree in February, and just recently a crop of figs has matured on the tree for the first time in its history, and when the fallen figs were examined they were found to have the exit holes where the insects had issued.

Nitidulid beetles in pineapples.—Mr. Crawford called atten-

tion to the problem that the pineapple companies have with this beetle in the canneries. Great numbers of the beetles come in with the pineapples from the fields, and have become a nuisance by getting into the open cans of pineapples before they are sealed up. It is reported that the finding of these in cans on being opened in the States has given rise to stories of young cockroaches being found in Hawaiian canned pineapples. The canneries are greatly concerned in preventing the beetles from getting into the cans. Mr. Fullaway reported having advised the companies in regard to methods of preventing the production of these beetles where they have increased so greatly on account of the pineapple refuse from the canneries which has been hauled to the fields for use as fertilizer. Liming of refuse piles has been tried to prevent the breeding of the beetles in this refuse.

Lantana insects.—There was a general discussion of the work of the introduced lantana insects and the effect that they have had on checking the lantana, and comparisons were made of the present conditions of the lantana with its much greater abundance at the time these insects were introduced from Mexico in 1902. The discussion was introduced by Dr. Kunhi Kannan of Bangalore, India, who stated that lantana had become established some time ago in India and that it is now spread throughout the country. He has been on an extended tour of Europe and the United States, having spent a year in study for the Doctor's degree at Leland Stanford University, and now on returning home was desirous of taking with him some of the lantana insects to try establishing them in India. He particularly wished to try the *Agromyzid* fly whose maggot feeds in the berries.

Sternochaetus mangiferae.—Mr. Swezey exhibited three pupae of the mango weevil taken from a seed of a mango on which thirty-one egg-punctures were counted on the surface of the fruit when it ripened and fell from the tree June 6. He stated that egg-punctures had been observed numerous on many of the mangoes, but on examination of the seeds usually not more than two weevils were found to have developed in each seed. In three instances only had he found as many as

three weevils per seed. He was unable to account for the failure of so large a proportion of the weevil eggs. Mr. Wilder commenting on the prevalence of the mango weevil this season, stated that in his propagation work he had a germination of but 4 per cent of the seeds.

Nesoprosopis anomala.—Specimens of this rare native bee were exhibited by Mr. Swezey, who reported the finding of a nest in a borer hole in the dead trunk of a *Pipturus* tree on Tantalus, June 19, 1921. There were 8 pupae in a series of cells in a single row. From these, 3 females and 5 males appeared a few days later. In the tin box where the pupae had been kept there was a strong odor somewhat resembling citronella. A female and 2 males of the same bee were caught at flowers of *Straussia* very near to where the nest was found.

Nesoprosopis unica.—Mr. Swezey reported finding a nest of this bee in the pith cavity of a dead *Pipturus* twig on Tantalus, June 19, 1921. From this nest one male bee issued, while the other 4 larvae in the nest each had a larva of *Eupelmus* feeding on it. These matured July 5 to 7. They were 1 male and 3 females, coming near to Dr. Perkin's species *euprepes*.

Dictyophorodelphax mirabilis.—Mr. Swezey reported collecting one male specimen of this strange leafhopper on *Euphorbia* at Wahiawa, June 3, 1921. Also two nymphs which were parasitized by a Dryinid. It is the first time that he has found specimens of this leafhopper that were parasitized. This is a new locality record, and extends the known range of the species.

Apomecyna pertigera.—This beetle was exhibited by Mr. Swezey, who reported having reared 66 of them from a length of eight feet of a gourd vine (*Sicana odorifera*) growing on a fence at the Vineyard St. Nursery, May 10, 1921. The vine had made an extensive growth on the fence, and was very badly infested by larvae of this beetle. There must have been thousands of them. The beetle has been known to attack melon and cucumber vines, but not to such an extent as in the present instance. Other insects breeding from the same eight-foot piece of vine as above, while in a decaying condition were:

30 *Achritochaeta pulvinata*, 2 Oscinids, 1 *Araeocerus fasciculatus*, 1 small Anthribid with long antennae (*Lawsonia* sp.), 5 *Opogona aurisquamosa*, 1 *Opogona purpuriella* (it is not certain about this species, but the specimen was found dead on the table near the breeding jar containing the material, and as the cover had been off accidentally several times, it could have come from this. This is the first record of this moth from Oahu, it being previously known only on Hawaii), 5 *Ereunetis minuscula*, 1 *Pyroderces rileyi*, 3 *Cremastus hymeniae*, 1 banded-winged *Apanteles*. The two latter were parasitic on one or more of the Tineids.

Cirrospilus sp.—Mr. Timberlake exhibited specimens of a previously unrecorded parasite evidently belonging to this genus. It was reared by Mr. Swezey from the lantana leaf-miner collected at Lihue, Kauai, May 6, 1921, and at Sprecklesville, Maui, May 18, 1921. Mr. Swezey believes that he reared the same parasite on Oahu some years ago, but the specimens have been misplaced. It is easily distinguished from all the rest of the Hawaiian Eulophidae by its bright yellow color and greenish black markings, and is unquestionably an introduced species.

Tenebrionidae.—Mr. Timberlake exhibited a specimen of *Ammophorus insularis* Boh. found beneath a wooden box on bare ground at Kaimuki, June 8, 1921, only a few rods from the locality where it was rediscovered about a year previously; also a single specimen of an undetermined Tenebrionid quite distinct from all others in the local collections. This was taken in Honolulu, June 23, 1919, but the details of capture were not remembered.

Megachile fullawayi.—Mr. Timberlake exhibited a female specimen of this bee collected on a *Gaillardia* flower at Kaimuki June 5, 1921.

Megachile timberlakei.—Mr. Timberlake exhibited a nest and specimen of this bee collected by Mr. Ehrhorn in a crevice about his house at Kahala, June 26, 1921. The nest was made out of the leaves and colored bracts of the *Bougainvillea*.

Oecanthus sp.—Mr. Ehrhorn reported having secured from

a Japanese passenger on a steamer, specimens of singing crickets being used as pets.

Dichocrocis punctiferalis Gn.—Mr. Ehrhorn exhibited 7 Pyralid moths of this species, reared from pupae found on five-leaved pine in conservatory of the Japanese steamer "Tenyo Maru" while in port June 8, 1921. This was on the return trip of the steamer from San Francisco. Infestation must have occurred while the steamer was at some Oriental port, the moth having a range all the way from Japan to India and to Australia. The moths issued four days after the pupae were collected on the steamer, and well illustrates how insects infesting plants on steamers could mature while the steamer was in port and come ashore. Probably a number of our introduced pests have arrived here in just this way. Some specimens of a Xylorictid moth (*Ptochoryctis tsugensis* Kear.) were reared from the same material as the above.

AUGUST 4th, 1921.

The 190th meeting of the Hawaiian Entomological Society was held at the usual place, with President Timberlake in the chair. Other members present were Messrs. Bissell, Fullaway, Muir, Osborn, Whitney, Wilder, and Willard. Dr. Kunhi Kannan of Bangalore, India, was a visitor.

Minutes of the previous meeting were read and approved.

PAPERS READ.

"Description of a Cuckoo-Wasp from the Hawaiian Islands (Hymenoptera)."

BY S. A. ROHWER,

Bureau of Entomology, United States Department of Agriculture,
Washington, D. C.

"Conditions of Entomological Work in India."

BY DR. K. KUNHI KANNAN,

Government Entomologist, Bangalore, India.

NOTES AND EXHIBITIONS.

Ptinus brunneus Dufts.—Mr. Timberlake exhibited a specimen of this beetle collected in Honolulu November, 1909, by Mr. D. B. Langford. This is an imported species that has never been recorded from the Islands.

Uscana semifumipennis, in Texas and India.—Mr. Timberlake reported on identifying this common Bruchid parasite from Brownsville, Texas, from the eggs of *Mylabris sallaei*, in the material collected by Mr. Bridwell and brought to Honolulu by Mr. Willard. Mr. Fullaway also obtained the same species in India, the specimens having been given to him by Mr. Subramaniam. These were reared from eggs of *Mylabris chinensis* in stored cajanus at Bangalore, July 8, 1920.

Megachile timberlakei.—Mr. Timberlake reported on another nest of this bee collected by Mr. Ehrhorn at Kahala on July 10. The nest was built inside the frame of a door lock, and was made of Bougainvillea leaves and colored bracts, the female using the keyhole as the natural entrance and exit. On about July 31 to August 3, four females and eight males issued from the nest.

Correction of records of Plagithmysine beetles.—Mr. Timberlake called attention to the following lapses in recent numbers of the Proceedings.

In the Proceedings, vol. 3, p. 384, 1918, Mr. Bridwell recorded a *Plagithmysus acuminatus*, taken in Wailupe Valley, Oahu, on *Sapindus*. This name is a clerical error for *P. cuneatus* Sharp. In vol. 4, p. 50, a *Clytarlus vestitus* was recorded from Olinda, Maui, by Fullaway and Giffard. This is another clerical error, and the species in question is *Neoclytarlus modestus* (Sharp).

SEPTEMBER 1st, 1921.

The 191st meeting of the Hawaiian Entomological Society was held at the experiment station of the H. S. P. A., with President Timberlake presiding. Other members present were Messrs. Bissell, Fullaway, Ehrhorn, Giffard, Grinnell, Muir, Whitney, and Willard. Dr. Kunhi Kannan and A. H. Soon were visitors.

The minutes of the last meeting were read and approved as corrected.

Mr. Albert H. Soon was nominated for membership by Mr. Grinnell.

It was brought to the attention of the society that Mr.

Albert Koebele, an honorary member of the society, was having considerable trouble in getting proper recognition from American consuls in Europe in his attempt to return from Europe to the United States. Mr. Fullaway moved that a committee be appointed to formulate resolutions which would draw the attention of those in authority to the great value of Mr. Koebele's services to the United States, especially in Hawaii and on the Pacific Coast; and to ask that special consideration be given him in his request for passports. This motion, after being amended by Mr. Muir to the effect that the committee consist of Mr. Fullaway, Mr. Swezey, and Mr. Giffard, was passed.

NOTES AND EXHIBITIONS.

Mr. Timberlake exhibited a cockroach,* which is apparently new to the Islands. Found by him in his house at Kaimuki.

Mr. Giffard exhibited a small representative collection of Kauai insects, principally Coleoptera, collected in April, 1920, by J. A. Kusche. Among these are species of *Lucanidae*, *Plagithmysus*, *Clytarlus*, *Rhyncogonus*, etc., from the mountain regions back of Waimea and Makaweli.

The following notes on "Insect Observations on the Island of Hawaii," were given by Mr. Ehrhorn.

On July 25, on the Volcano road six miles from Hilo, *Pseudococcus montanus* was found very abundant on Ieie vine. *Pseudococcus straussiae* was found plentiful on *Straussia* and showed some parasitism. *Pseudococcus bromeliae* was found on twigs of *Straussia* covered over with soil by the ant *Pheidole megacephala*, as well as on Hilo grass roots and roots of large sedge. A mantis egg mass was also found in this locality.

August 2, at the Parker ranch, the following observations were made: At Waiki, Olinda bugs, or Fuller's rose beetle, were found very abundant in the orchard, where they seemed to be especially fond of the leaves of plum trees. The woolly-aphis was observed on the apple trees, and was no doubt introduced when the trees were imported. At an altitude of 4750

* *Supella supellectilium* (Serv.), as determined later by Morgan Hebard. [Ed.]

feet, a large ant lion, *Formicaleo wilsoni* McLach. was caught. These were plentiful flying about over pasture lands. At the old Purdy place, *Odonaspis ruthae* Kotinsky, were feeding on the roots of Manienie grass. At the new dairy, altitude 3200 feet, Olinda bugs were attacking and seriously damaging the foliage of a native tree, *Sophora chrysophylla*. It is claimed that many of these trees are killed by this defoliation. At an altitude of 3000 feet, *Heliorthrips hemorrhoidalis* was damaging the young leaves of Eucalyptus trees. This species is quite abundant in the forest areas of the various islands, and has probably been here many years.

On August 4, with Mr. Swezey, in cane field at Olaa (above Mountain View), were observed many nymphs of *Cyrtorhinus mundulus*, which was introduced last year by Mr. Muir, and which has spread considerably since liberation.

August 6, Mr. Swezey found Hilo grass at Kapapala ranch badly infested with *Trionymus insularis*. The Tahiti coconut weevil *Diocalandra taitensis* (Guer.), previously reported by Mr. Swezey from the Kona section, was also found. These were in the husk near base of nut. The nuts were from the coast at Punaluu.

On August 9, indications of the work of the Tahiti coconut weevil were found at Puuiki and near the shore at Kalapana. The trees were so high that no weevils were found. The cane borer was found in the heart of a coconut tree, the stump of which had rotted.

It was noted that the Mediterranean fruit fly was not serious at Wainaku, there being good amounts of strawberry guavas, coffee, and other small fruits there.

At the Hilo Hotel a number of the Australian lacewings were captured, and Mr. Swezey collected a number of the new green grasshopper, which is very abundant about the lights on the hotel lanai. No males were observed, although some young were seen on plants in the garden.

OCTOBER 6th, 1921.

The 192d meeting of the Hawaiian Entomological Society was held in the usual place, with President Timberlake in the chair. Other members present were Messrs. Bissell, Bryan,

Ehrhorn, Fullaway, Giffard, Illingworth, Muir, Swezey, Soon, and Willard.

The minutes of the last meeting were read and approved.

Mr. Albert H. Soon was elected to active membership in the society.

The committee appointed to draft a resolution showing the entomological services of Mr. Albert Koebele to this country, submitted the following resolution, together with a memorandum of Mr. Koebele's services.

Upon motion by Mr. Muir, it was unanimously voted to accept the committee's report, and that after the resolution had been signed by the president and secretary, that it be forwarded to Mr. E. K. Taylor of Alameda, California, who is Mr. Koebele's attorney.

**Resolution of Appreciation of the Entomological Services of
Mr. Albert Koebele.**

Whereas, it has come to the notice of the Hawaiian Entomological Society that Mr. Albert Koebele, septuagenarian entomologist, former employe of the U. S. Department of Agriculture, and agent in co-operation with the California State Board of Horticulture, also Superintendent of Entomology for the Board of Agriculture and Forestry under the Republic of Hawaii and later consulting entomologist for the Territory of Hawaii and an honorary member of this society since its organization in 1904, also a naturalized American citizen since 1880, has been and is still detained against his will in Germany, whither he went previous to the outbreak of the War to secure special treatment for tropical fever and a disease of the eyes, and at the same time to collect beneficial insects for the Territory of Hawaii; and

Whereas, It is believed that Mr. Koebele merits special consideration from the Government of the United States of America through its representatives because of the invaluable services he has rendered to the country in saving threatened agricultural industries in California and Hawaii by his energy and skill in entomological field research work and particularly in discovering and introducing the natural enemies of certain insects which were at that time destroying the principal crops

of these countries; and were causing incalculable losses to agriculture; therefore, be it

Resolved, that the following memorandum of the conspicuously important services of Mr. Koebele be placed on record with this testimonial of the society's high appreciation of his merit and belief in the worthiness of his claim on the interest of the Government in his desire to return to the land of his adoption and to his home in the State of California.

MEMORANDUM OF KOEBELE'S SERVICES TO AMERICAN
AGRICULTURE.

1888-9. As agent for the U. S. Department of Agriculture and for the State of California. Introduced the *Vedalia* ladybird from Australia and saved the citrus industry in California, which was threatened by the cottony cushion scale. This single exploit saved the orange growers, it is estimated, twenty million dollars.

1890-93. In the same capacity. Visited Australia, New Zealand and the Fiji Islands twice and secured many beneficial insects, principally ladybird beetles which were introduced into California to prey on scale pests.

1893-1910. Traveled in different countries in the interest of the Republic and later the Territory of Hawaii as Superintendent of the Division of Entomology, Board of Agriculture and Forestry and consulting entomologist, collecting beneficial insects to be introduced into the islands for the purpose of destroying injurious insects, thus relieving agricultural and horticultural industries of the severe losses so occasioned. In these years he visited Ceylon, Australia, Fiji, China, Japan, Mexico and Europe. His great work—discovering and introducing the natural enemies of the sugar cane leaf hopper—in co-operation with Dr. R. C. L. Perkins, earned him lasting fame in the Territory of Hawaii, and saved an industry now worth fifty million dollars yearly.

In 1910 Koebele was relieved from active duty and retained as Consulting Entomologist, on account of ill-health brought on by fever contracted during his exploration and research work in fever-infested regions of the tropics.

The following detailed account of Koebele's work was pub-

lished in 1911 by Dr. L. O. Howard, Chief Entomologist of the United States Department of Agriculture. (Bul. 91, U. S. Bureau of Entomology. July 29, 1911.)

"The Australian Ladybird (*Novius Cardinalis* Muls.) in United States."

"But all previous experiments of this nature were completely overshadowed by the remarkable success of the importation of *Vedalia (Novius) cardinalis* Muls., a coccinellid beetle, or ladybird, from Australia into California in 1889. The orange and lemon groves of California had for some years been threatened with extinction by the injurious work of the fluted or cottony cushion scale (*Icerya purchasi* Mask.), a large scale insect which the careful investigations of Professor Riley and his force of entomologists at the United States Department of Agriculture had shown to have been originally imported, by accident, from Australia or from New Zealand, where it had originally been described by the New Zealand coccidologist, the late W. M. Maskell. The Division of Entomology had been for several years engaged in an active campaign against this insect, and had discovered washes which could be applied at a comparatively slight expense and which would destroy the scale insect. It had also in the course of its investigations discovered the applicability of hydrocyanic acid gas under tents as a method of fumigating orchards and destroying the scale. The growers, however, had become so thoroughly disheartened by the ravages of the insect that they were no longer in a frame of mind to use even the cheap insecticide washes, and many of them were destroying their groves. In the meantime, through some correspondence in the search for the original home of the scale insect, Professor Riley had discovered that while the species occurred in parts of Australia it was not injurious in those regions. In New Zealand it also occurred, but was abundant and injurious. He, therefore, argued that the insect was probably introduced from Australia into New Zealand, and that its abundance in the latter country and its relative scarcity in Australia were due to the fact that in its native home it was held in subjection by some parasite or natural enemy, and that in the introduc-

tion into New Zealand the scale insect had been brought in alone. The same thing, he argued, had occurred in the case of the introduction into the United States. He therefore, in his annual report for 1886, recommended that an effort be made to study the natural enemies of the scale in Australia and to introduce them into California; and the same year the leading fruit growers of California in convention assembled petitioned Congress to make appropriations for the Department of Agriculture to undertake this work. In February, 1887, the Department of Agriculture received specimens of an Australian parasite of *Icerya* from the late Frazier S. Crawford, of Adelaide, South Australia. It was a dipterous insect known as *Lestophonus iceryae* Will., and for some time it was considered, both by Professor Riley and his correspondents and agents, that the importation of this particular parasite offered the best chances for good results.

Neither the recommendations of Professor Riley nor of the then commissioner of agriculture, Hon. Norman J. Colman, nor the petitions of the California horticulturists gained the needed congressional appropriations, and, since there appeared at that time annually in the bills appropriating to the entomological service of the Department of Agriculture a clause preventing travel in foreign parts, it became necessary to gain the fund for the expense of the trip to Australia from some other source. A movement was started in California to raise these funds by private subscription, but it was never carried through. In an address given by Professor Riley before the California State Board of Horticulture at Riverside, Cal., in 1887, he repeated his recommendations. During the summer of 1887 he was absent in Europe, and the senior author, who was at that time the first assistant entomologist of the department, by correspondence secured from Mr. Crawford numerous specimens of *Icerya* infested by the *Lestophonus* above mentioned. During the winter of 1887-88 preparations were being made for an exhibit of the United States at the Melbourne Exposition, to be held during 1888, and Professor Riley, after interviewing the Secretary of State, who had charge of the funds appropriated for the Exposition, was enabled to send an assistant, Mr. Albert Koebele, to Australia at the expense of

this fund. This result was hastened, and Mr. Koebele's subsequent labors were aided by the fact that the Commissioner-General of the United States to the Exposition was a California man, Mr. Frank McCoppin, and his recommendation, joined to that of Professor Riley, decided the Secretary of State in favor of the movement. In order to partially compensate the Exposition authorities for this expenditure, another assistant in the Division of Entomology, Professor F. M. Webster was sent out to make a special report to the commission on the agricultural features of the Exposition. Mr. Koebele, who sailed from San Francisco August 25, 1888, was thoroughly familiar with all the phases of the investigation of the cottony cushion scale, and had for some time been stationed in California working for the Department of Agriculture. His salary was continued by the department and his expenses only were paid by the Melbourne Exposition fund. He made several shipments of the *Lestophonus* parasite to the station of the Division of Entomology of the Department of Agriculture at Los Angeles, where, under the charge of Mr. D. W. Coquillett, a tent had been erected over a tree abundantly infested with the scale insect; but it was soon found that the *Lestophonus* was not an effective parasite.

On October 15, Mr. Koebele found the famous ladybird (*Vedalia*) *Novius cardinalis* in North Adelaide, and at once came to the conclusion that this insect would prove effective if introduced into the United States. His first shipments were small, but others continued from that date until January, 1889, when he sailed for New Zealand and made further investigations. Carrying with him large supplies of *Vedalia cardinalis*, the effective ladybird enemy, he arrived in San Francisco on March 18, and on March 20, they were liberated under the tent at Los Angeles, where previous specimens which had survived the voyage by mail had also been placed.

The ladybird larvae attacked the first scale insect they met upon being liberated from the packing cages. Twenty-eight specimens had been received on November 30 by Mr. Coquillett, 44 on December 29, 57 on January 24, and on April 12 the sending out of colonies was begun, so rapid had been the breeding of the specimens received alive from Australia. By

June 12 nearly 11,000 specimens had been sent out to 208 different orchardists, and in nearly every case the colonizing of the insect proved successful. In the original orchard practically all of the scale insects were killed before August, 1889, and, in his annual report for that year, submitted December 31, Professor Riley reported that the cottony cushion scale was practically no longer a factor to be considered in the cultivation of oranges and lemons in California. The following season this statement was fully justified, and since that time the cottony cushion scale, or white scale, or fluted scale, as it is called, has no longer been a factor in California horticulture. Rarely it begins to increase in numbers at some given point, but the Australian ladybirds are always kept breeding at the headquarters of the State Board of Horticulture at Sacramento, and such outbreaks are speedily reduced. In fact, it has been difficult for the State horticultural authorities to keep a sufficient supply of scale insect food alive for the continued breeding of the ladybirds."

* * * *

Other Introductions by Koebele Into California

"Mr. Koebele took a second trip to Australia, New Zealand, and the Fiji Islands while still an agent of the Department of Agriculture, but at the expense of the California State Board of Horticulture, and in 1893 he resigned from the United States Department of Agriculture and was employed by the State Board of Horticulture of California for still another trip to Australia and other Pacific Islands. He sent home a large number of beneficial insects, nearly all of them, however, coccinellids. Several of these species were established in California, and are still living in different parts of the State. The overwhelming success of the importation of *Novius cardinalis* was not repeated, but one of the insects brought over at that time, namely, the ladybird beetle *Rhizobius ventralis* Er., an enemy of the so-called black scale (*Saissetia oleae* Bern.), was colonized in various parts of California, and in districts where the climatic conditions proved favorable its work was very satisfactory, notably in the olive plantations of Mr. Elwood Cooper, near Santa Barbara. Hundreds of

thousands of the beetles were distributed in California and in some localities kept the black scale in check. Away from the moist coast regions, however, they proved to be less effective."

* * * *

"A similar lepidopterous insect, *Thalpochares cocciphaga* Meyrick, was brought over from Australia in the summer of 1892 by Koebele and left by him at Haywards, Calif., but the species evidently died out."

THE HAWAIIAN WORK.

"In 1893 Koebele resigned from the service of the State of California and entered the employment of the then newly established Hawaiian Republic, for the purpose of traveling in different countries and collecting beneficial insects to be introduced into Hawaii for the purpose of destroying injurious insects. Before leaving California he had introduced a very capable ladybird, *Cryptolaemus montrouzieri* Muls., which feeds upon mealy bugs of the genus *Pseudococcus*. This insect flourished, especially in Southern California, and on arrival in Hawaii he found that coffee plants and certain other trees were on the point of being totally destroyed by the allied scale insect known as *Pulvinaria psidii* Mask. He at once introduced this same *Cryptolaemus*, which is an Australian insect, with the result that the *Pulvinaria* was speedily reduced to a condition of harmlessness.

It may be incidentally stated that within the past year efforts have been made by the Bureau of Entomology to send the *Cryptolaemus* to Malaga, Spain, for the purpose of feeding upon a *Dactylopius*. The first attempt was unsuccessful, and the results of the last attempt have not yet been learned.

Another importation of Koebele's into Hawaii was the ladybird *Coelophora inaequalis* from Ceylon, Australia, and China, which was successful in destroying plant lice upon sugar cane and other crops. Writing in 1896, Mr. R. C. L. Perkins stated that Koebele had already introduced eight other species which had become naturalized and were reported as doing good work against certain scale insects. Among other things he introduced *Chalcis obscurata* Walk. from China and Japan, which multiplied enormously at the expense of an injurious lepidop-

terous larva (*Omiodes blackburni* Butl.), which had severely attacked banana and palm trees.

Koebele's travels from 1894 to 1896 were through Australia, China, Ceylon, and Japan. In 1899 he left for Australia and the Fiji Islands, and sent many ladybirds and parasites to Hawaii, especially to attack the scale *Ceroplastes rubens* Mask. The Hawaiian Sugar Planters' Association, an organization which was responsible for Koebele's appointment, subsequently employed Mr. R. C. L. Perkins, Mr. G. W. Kirkaldy, Mr. F. W. Terry, Mr. O. H. Swezey, and Mr. F. Muir. By the close of 1902, sugar planters were especially anxious concerning the damage of an injurious leafhopper on the sugar cane, *Perkinsiella saccharicida* Kirk. This insect had been accidentally introduced from Australia about 1897, had increased rapidly, and by 1902 had become a serious pest. Koebele had made an effort to introduce parasites of leafhoppers from the United States into Hawaii, with unsatisfactory results and consequently in the spring of 1904 Koebele and Perkins visited Australia and collected all possible parasites of different leafhoppers. Altogether they succeeded in finding more than one hundred species. Of these the following hymenopterous parasites are said to have become acclimated in Hawaii: *Anagrus* (two species), *Paranagrus optabilis* Perk. and *P. perforator* Perk. and *Ootetrastichus beatus* Perk. These species are all parasitic upon the eggs of the leafhopper. By the end of 1906 observation upon a certain plantation indicated the destruction of 86.3 per cent of the eggs by these parasites. In addition to these egg parasites certain Dryimid parasites of hatched leafhoppers have apparently become established, namely, *Haplogonatopus vitiensis* Perk. *Pseudogonatopus* (two species), and *Echthrodolphax fairchildii* Perk. Three predatory beetles, namely, *Verania frenata* Erichs., *V. lineola* Fab., and *Callineda testudinaria* Muls., were also distributed in large numbers.

The practical results of these importations seem to have been excellent. There seems to be no doubt that the parasites have been the controlling factor in the reduction of the leafhoppers.

The good work in Hawaii is still continuing. Koebele is now on a visit to Europe to import the possible parasites of

the horn fly (*Haematobia serrata* Rob.-Desv.), Muir is trying to find an enemy to a sugar-cane borer (*Rhabdocnemis obscurus* Boisd.), and other similar work is under way."

PAPERS READ.

"Notes on Immigrant Coleoptera."

BY D. T. FULLAWAY.

"Notes and Observations on *Parandra puncticeps* Sharp. (Coleoptera)."

BY W. M. GIFFARD.

Mr. Swezey read a paper entitled, "Notes on the Isopod Known as *Geoligia perkinsi*, Dollfus." By Chas. Chilton, Professor of Zoology, Canterbury College, New Zealand.

NOTES AND EXHIBITIONS.

Supella supellectilium.—This cockroach, exhibited by Mr. Timberlake, was first captured by him about April or May, 1921, and sent to Mr. Morgan Hebard of Philadelphia for determination. Mr. Hebard states that it is a cosmopolitan species previously unknown in Hawaii.

Parandra puncticeps Sharp.—Mr. Giffard exhibited thirty-eight adult specimens, and a number of preserved larvae and pupae of this beetle, which were collected at twenty-nine miles, Olaa, Hawaii, at an elevation of 3800 feet.

Dirhinus giffardii.—Mr. Fullaway exhibited a specimen of this parasite collected on a manure pile at Waialae in September, 1921. He stated that this parasite, introduced as a parasite of the Mediterranean Fruit Fly, is undoubtedly established here, and is probably a general parasite of Diptera.

Dermestid larva.—Mr. Fullaway exhibited a living Dermestid larva feeding on a pinned insect specimen. Mr. Giffard stated that he had noticed holes made by these larvae through the sides of cardboard insect boxes, in which the supply of naphthalene had become low, but that a good supply of naphthalene was sufficient to prevent their entry.

Caccodes debilis.—Mr. Swezey reported having collected a specimen of this Malacodermid beetle from *Euphorbia* in Iao Valley, Maui, July 8, 1920. This is the first record of this

insect anywhere except on Oahu. It was collected in houses by Blackburn. Perkins collected it outside as well. Mr. Swezey has collected two specimens at the experiment station of the H. S. P. A. (one on a vine), and one at Kaimuki, all of which were collected in 1911.

Oxydema fusiforme Woll.—Mr. Swezey called attention to Dr. Marshall's paper on Samoan Curculionids in the last issue of Proc. Haw. Ent. Soc., vol. IV, where, on page 596, the weevil described as *Pseudolus hospes* by Perkins in the Fauna Hawaiiensis, is determined as *Oxydema fusiforme* Woll., originally described from Ceylon, but known also from Seychelles, Rodriguez and Marquesas, and now from Upolu Island, Samoa.

Micromus vinaceus.—Mr. Swezey exhibited a specimen of this Australian Hemerobiid, collected by him in Manoa Valley at the cane plots of the experiment station, H. S. P. A., at the back part of the valley, August 9, 1921. This is the first specimen to be recovered on the island of Oahu since their liberation in large numbers in 1919 and 1920. He reported also, finding all stages of this Hemerobiid on aphid-infested okra in the garden of the Hilo Hotel, Hilo, Hawaii, July 25, 1921. Brother Matthias Newell had previously observed this insect established in Hilo.

Platyedra gossypiella.—Mr. Swezey reported breeding three specimens of this moth from the flower buds of *Hibiscus youngianus*, found growing along the Volcano Road about six miles south of Hilo, Hawaii, July 25, 1921. Quite a large proportion of the buds on the plants were attacked by the larvae. A female *Pristomerus hawaiiensis* was bred from one larva of the lot. He reported also finding this same plant with flower buds attacked by larvae of *P. gossypiella* in Wai-mea Canyon, Kauai, September 4, 1921. It thus seems that this plant is one of the common hosts of the pink boll-worm.

Parandra puncticeps.—Mr. Swezey exhibited a chip from a standing dead koa tree at Halemanu, Kauai, showing the egg in situ of this Prionid beetle. The tree from which this was taken was a large dead trunk from which the bark had loosened, but not yet fallen away. Fourteen beetles were found beneath the bark of this and other similar trees nearby. The

females had been ovipositing directly into the solid wood, making an excavation, about 4 mm. deep and slanting downward, into which the egg was placed. The egg is white, cylindrical with rounded ends, 3 mm. long and 1 mm. in diameter. The opening of the egg cavity is blocked by the torn-apart fibers of wood. Many of these were to be seen on the surface of the tree trunks, after it had been discovered how to recognize them. These were placed at an elevation of from near the ground to six feet high. It was not learned whether oviposition took place at a higher elevation up the trunk than one could see conveniently; but it is likely that it did.

Casinarina infesta.—Mr. Swezey reported rearing this Ichneumonid from a larva of *Phlyctaenia ommatias* collected in the Alakai Swamp, Kauai, 4000 feet, August 22, 1921; and from a larva of *Phlyctaenia argoscelis* collected at Kokee, Kauai, 3500 feet, August 18, 1921. This immigrant Ichneumonid was first noticed at Kaimuki in February and March of this year when it was abundant in a weed lot, where many caterpillars were abundant, especially *Hymenia recurvalis*, but the host was not determined at that time.

Dolichurus stantoni.—Mr. Swezey reported collecting a few specimens of this Philippine roach parasite in the forest at Kokee, Kauai, August, 1921. They were abundant, being noticed along all trails of the vicinity.

Amaranth Jassid.—Mr. Swezey reported collecting this little Jassid on amaranth weeds growing at Nawiliwili, Lihue, and Waimea, Kauai, September 9, 7, and 3, respectively. It is the first record of this immigrant Jassid on Kauai, and it is quite abundant in the places mentioned.

Microbracon pemptoni.—Mr. Swezey reported rearing this Braconid from lantana berries, collected at Nawiliwili, Kauai, September 9, 1921. Its host is probably *Crocidosema lantana* or *Platyptilia pussilidactyla*, as the larvae of both these moths were present in the material collected. This is the first record of this Braconid from Kauai.

Leucostoma atra.—Mr. Swezey reported a recent determination of this little Tachinid fly by Dr. Aldrich, from specimens sent a short time ago. It is a common American insect, and

is the fly parasitic on *Corisus hyalinus*, as mentioned in Proc. Haw. Ent. Soc., IV, p. 467, 1921. Dr. Aldrich, in his letter, stated that there were no published records as to the host of this fly, but that there was a manuscript note of its having been reared from *Reduviolus ferus*. Mr. Swezey further reported catching two specimens of it at Kokee, Kauai, 3500 feet, in August, 1921, which is the first record of its occurrence on that island.

Labidura icterica Serv.—Mr. Swezey reported the capture of a specimen of this earwig at Grove Farm, Kauai, September 9, 1921. This immigrant earwig was first recorded in the Fauna Hawaiiensis (II, Pt. VI, p. 690, 1910) by Perkins, as occurring at Honolulu and in the country. The present instance is apparently the first record of its occurrence on Kauai.*

Mylabris sallaei.—Mr. Swezey reported finding this weevil very abundant in pods of *Acacia farnesiana* and algaroba at Mana and Waimea, Kauai, August 17, and September 3, 1921. As many as a dozen exit holes were frequently to be found in one pod of *A. farnesiana*. This is the first record of this insect on Kauai.

Mylabris pruininus.—Mr. Swezey reported collecting this weevil in the garden at the Hilo Hotel, July 25, 1921; and at Kokee, Kauai, 3500 feet, August, 1921; and in Waimea Canyon, Kauai, September 4, 1921. These are the first records of this insect on each of these islands.

Diocalandra taitensis.—Mr. Swezey reported finding this coconut weevil in coconuts from Mr. Monsarrat's beach place at Punaluu, Hawaii, August 5, 1921. The adult beetles were found beneath the bracts at the base of mature coconuts, and larvae were found feeding within the shuck. Dried gum on the surface of the shuck indicated where there were larvae inside. The nuts themselves were not injured. This indicates the probability of this pest having been brought to Hawaii in coconuts from the South Seas at some time.

* This insect has recently been recorded from Kauai as *L. riparia* (Pallas) by Morgan Hebard. Bishop Museum, Occasional Papers, vol. vii, No. 14, p. 314, 1922. [Ed.]

NOVEMBER 3d, 1921.

The 193d meeting of the Hawaiian Entomological Society was held at the experiment station of the H. S. P. A., President Timberlake presiding. Other members attending were Messrs. Bissell, Bryan, Crawford, Ehrhorn, Fullaway, Giffard, Illingworth, Muir, Soon, Swezey, Whitney and Willard.

The minutes of the last meeting were approved as read.

A communication from Mr. E. K. Taylor of Alameda, Cal., was read, in which he stated that favorable action had been taken by the State Department at Washington in the matter of issuing passports which would enable Mr. Albert Koebele to return immediately to the United States.

PAPER READ.

"An Interesting New Derbid Genus (Homoptera)."

BY F. MUIR.

NOTES AND EXHIBITIONS.

Stigmaeus floridanus.—Mr. Ehrhorn exhibited a pineapple sucker showing this mite, commonly called the Florida pineapple mite, and stated that a fortnight ago a severe outbreak of it was reported in the Moanalua section of Oahu. It was thought at that time to be new to the islands, but after investigation, it was found that in 1908 Mr. Van Dine reported it on pineapple plants in the grounds of the U. S. Experiment Station, and that the record had been either forgotten or overlooked.

Mr. Ehrhorn exhibited also three earwigs found feeding on woolly aphids at Waiki, Parker Ranch, Hawaii. He stated that woolly aphids, feeding on apple trees there, had been destroyed by some enemy, and took some of the twigs with the aphids in a tin can to his office. Upon opening the can, he found the aphids had been destroyed and found the three earwigs on the galls of the apple twig. The earwigs were presented to the Hawaiian Entomological Society.

Zorapteron on Kauai.—Mr. Swezey exhibited a slide mount of a minute insect, which he had collected in a rotten log at Kokee, Kauai, August 20, 1921. Mr. Muir had cleared and mounted it, and endeavored to determine it. It appeared to

be a peculiar form of Orthoptera.* As Mr. Morgan Hebard has recently been revising the Hawaiian Orthoptera, the remainder of the specimens of this insect collected at the same time, have been sent to him for study.

Tenodera sinensis.—Mr. Swezey reported that Mr. Meinecke, of the Territorial Normal School, had reported to him of the occurrence of this preying mantis at Hilea, Kau, Hawaii, in 1920. This is believed to be the first record of its occurrence in that section of Hawaii.

Arrhenophagus chionaspidis Aurivillius.—Mr. Timberlake exhibited specimens of this parasite reared from the males of *Phenacaspis eugeniae*, collected at Kohala, Oahu, October 23, 1921, by Mr. Ehrhorn. This species, although it has never been collected here before, has been in the islands probably for many years, as Mr. Ehrhorn has observed exit holes of a parasite in the male scales of *Phenacaspis* at various times since arriving in Honolulu in 1909.

Euscepes batatae.—Mr. Swezey stated that some pieces of dead Japanese morning glory vine, containing larvae, which were brought in by Mr. Ehrhorn, produced ten adults of the sweet potato weevil and three adults of *Oxydema fusiforme*.

Pseudococcus swezeyi Ehrhorn.—Mr. Whitney reported that this scale insect had been found on *Dianella odorata* by O. H. Swezey at Kokee, Kauai, August 19, 1921; and on the Ilima plant by Mr. Ehrhorn at Waikapu Gulch, Wailuku, Maui, October 12, 1921. These are the first records of this species from these two islands. He stated that it was first described by Ehrhorn from specimens collected between folded leaves of *Acacia koa* from Mt. Tantalus, Oahu, by Swezey, December 5, 1915.

Pseudococcus maritimus Ehrhorn, on various garden crops.

Pseudococcus comstocki Kuwana, on apple and pear.

Mr. Whitney reported that specimens of these scales had been sent from Nelson, New Zealand, by Mr. R. J. Tillyard, and that this is the first record of their occurrence there. He

* This insect proved to be a representative of the Order Zoraptera, and this is the first record of any such occurring here. [Ed.]

stated also that the determinations had been verified by Ferris.

Rhipicephalus sanguineus.—Mr. Fullaway reported that this dog tick had been very abundant about Honolulu during the past summer, and that there were apparently two species. Specimens were sent to Mr. G. W. F. Nuttall, who determined them to be all one species. Mr. Fullaway stated that this is the first time the dog ticks from Hawaii have been definitely determined by an authority.

Formicaleo wilsoni McLachl.—Mr. Bryan exhibited six specimens of this ant lion collected by W. H. Meinecke at Puukamaoa, Kau, Hawaii, September 2, 1921, 1950 feet elevation. He stated that they were comparatively common but hard to catch. They were previously collected by Swezey in 1919 near Kawaihae, Hawaii (Proc. Haw. Ent. Soc., v. IV, p. 338); Giffard, five specimens at Kau, Hawaii, December, 1911 (v. II, p. 228); and by Ehrhorn, Perkins and others in Kau. Also seen by Swezey just below Pahala Mill, Kau, 1905 (v. II, p. 228).

Xystrocera globosa Oliver.—Mr. Bryan exhibited a female specimen of this borer, caught by Robert Plunkett in the Kamehameha School grounds November 3, 1921. A discussion of its habit of attacking only injured or dying parts of the monkey pod tree followed.

North American Syrphidae.—Mr. Bryan read a list of a representative collection of North American *Syrphidae* which has been received by the Bishop Museum from W. M. Davidson of Vienna, Virginia. They were collected both in the East, and southern and central California.

Prosbole hirsuta, a fossil *Homopteron*.—Mr. Muir showed Handlirsch's figure of the upper Permian fossil *Prosbole hirsuta* and specimens of *Homoptera* of the family *Tropiduchidae*, pointing out the similarity both in the venation and in the heteropterus condition of the tegmen of many species belonging to the family *Tropiduchidae*. In *Prosbole* the anal furrow is behind the cubitus, as it is in *Homoptera*, whereas in *Hemiptera*. Comstock and Needham consider that it is before the cubitus; there is no sign of the median furrow which is present in so many *Heteroptera*. These points are all in favor of its being a

Homopteron. On the same plate of Handlirsch's work is the restoration of *Eugereon*, which Mr. Muir called attention to, and stated that if the restoration be correct, the mouth parts are on a totally different system to *Hemiptera* and it can have nothing to do with that order, a conclusion also drawn from the wing venation.

NOVEMBER 16th, 1921.

A special meeting was held at the Bishop Museum for the purpose of viewing a large and very interesting collection of Australian insects, which were collected and exhibited by Mr. J. F. Illingworth. Of special interest was the large number of specimens representing many different species of insects attacking sugar cane. Many species were represented by large numbers of specimens, and Mr. Illingworth very kindly offered to supply members of the society with any of these in which they were interested.

The meeting was well attended by both members and visitors, the following being present members: Messrs. Bissell, Bryan, Carter, Crawford, Ehrhorn, Fullaway, Giffard, Holmes, Illingworth, Muir, Swezey, Soon, Timberlake, and Willard. Visitors: Professor Herbert E. Gregory, Director of the Bishop Museum, Dr. Stanley C. Ball, of the museum staff, Mr. A. F. Judd, a trustee of the museum, and Mr. Q. C. Chock, of the Board of Agriculture and Forestry.

DECEMBER 1st, 1921.

The 194th meeting of the Hawaiian Entomological Society was held at 2:30 p. m. in the usual place. Members present, besides President Timberlake, who presided, were Messrs. Bissell, Bryan, Ehrhorn, Fullaway, Giffard, Illingworth, Muir, Rosa, Soon, Swezey, Whitney, Wilder, and Willard. Mr. E. W. Rust from California, who was returning from South Africa, where he has been collecting parasites of scale insects, was a visitor.

Minutes of the previous regular meeting were read and approved, as well as those of the special meeting held November 16.

Report of the treasurer showed a balance on hand December 1, 1921, of \$252.05.

Officers were elected as follows for the year 1922:

President.....	H. T. Osborn
Vice-President.....	D. T. Fullaway
Secretary-Treasurer.....	H. F. Willard
Additional Members of Executive Committee.....	W. M. Giffard D. L. Crawford

ANNUAL PRESIDENTIAL ADDRESS.

"Observations on the Phenomena of Heredity in the Ladybeetle, *Coelophora inaequalis* Fabricius."

BY P. H. TIMBERLAKE.

PAPERS READ.

"New and Little Known Hawaiian Delphacidae (Homoptera)."

BY F. MUIR.

"Tables of Distribution and Food-Plants of Hawaiian Delphacidae (Homoptera)."

BY WALTER M. GIFFARD.

"A Study of the Lucanid Coleoptera of the Hawaiian Islands."

BY EDWIN C. VAN DYKE,
University of California.

"A New species of *Rhyncogonus* from the Hawaiian Islands (Coleoptera-Rhynchophora)."

BY E. C. VAN DYKE.

"Descriptions of New Genera and Species of Hawaiian Encyrtidae (Hymenoptera), III."

BY P. H. TIMBERLAKE.

"Descriptive and Biological Notes on *Blepyrus insularis* Cameron (Hymenoptera)."

BY P. H. TIMBERLAKE.

NOTES AND EXHIBITIONS.

Anthomyia vicariens Schiner.—Mr. Whitney exhibited specimens of this fly collected October 2, 1921, by Mr. Ehrhorn in his chicken yard in Manoa Valley. They were referred to Dr. Aldrich of the U. S. National Museum, who states that they belong to this Australian species.

Goniodes stylifer.—Mr. Swezey exhibited one specimen of this turkey louse, collected from a turkey by Dr. H. L. Lyon. The only previous record was by Van Dine, collected on Molokai in 1908.

Lariophagus texanus Crawford.—Mr. Willard exhibited specimens of this Pteromalid, which were reared from *Mylabris sallaei* in pods of *Acacia farnesiana*, collected at Ninth avenue, Kaimuki, and near the Wailupe wireless station at Waialae. He stated that this parasite, which was introduced into Hawaii from Brownsville, Texas, by the Federal Bureau of Entomology, was liberated in these two localities on the 6th and 19th of October, 1921. From pods collected at these two places in the latter part of November, 1921, eight males and forty-eight females were reared, showing that it had established itself in a very short time.

Immigrant Records for 1921.

BY THE EDITOR.

In this list of immigrant insects, those marked with an asterisk were first observed in 1921. The others have been known to be present for from a few to several years, but either unrecorded or their identity not known. Determinations of these are now recorded for the first time. For details of records, etc., refer to the pages given.

	Page
* <i>Stenommatius musae</i> Marshall (Col.).....	2
<i>Stenotrupsis</i> sp. (Col.).....	2
<i>Mitrastethus bituberculatus</i> (Fabr.) (Col.).....	3
<i>Cycloptiloides americanus</i> (Sauss.) (Orth.).....	6
* <i>Casinaria infesta</i> (Cress.) (Hymen.).....	6
* <i>Telenomus</i> sp. (Hymen.).....	9
* <i>Eulophus</i> sp. (Hymen.).....	10
<i>Clytus annularis</i> Fab. (Col.).....	10
<i>Amblyteles purpuripennis</i> (Cress.) (Hymen.).....	12
* <i>Cirrospilus</i> sp. (Hymen.).....	15

	Page
<i>Ptinus brunneus</i> Dufts (Col.).....	16
* <i>Supella supellectilium</i> (Serv.) (Col.).....	28
<i>Leucostoma atra</i> Towns. (Diptera).....	30
<i>Arrhenophagus chionaspidis</i> Aur. (Hymen.).....	33
<i>Anthomyia vicariens</i> Schiner (Diptera).....	37
? <i>Lawsonia</i> sp. (Col.).....	75
<i>Sybra alternans</i> Weid. (Col.).....	76
<i>Ananca</i> ? <i>sinensis</i> Gemm. (Col.).....	76
<i>Anthicus floralis</i> L. (Col.).....	76
<i>Xylophilus</i> sp. (Col.).....	76
<i>Platydemia subfascia</i> Walker (Col.).....	77
<i>Blapstinus</i> ? <i>dilatatus</i> Lec. (Col.).....	77
<i>Conibius</i> sp. near <i>brunnipes</i> Champ. (Col.).....	77
<i>Telopes undulata</i> Motsch. (Col.).....	77
<i>Trixagus</i> sp. (<i>Throscus</i> sp.) (Col.).....	78
<i>Osorius rufipes</i> Motsch. (Col.).....	78
<i>Lithocharis ochracea</i> Er. (Col.).....	78
<i>Hydrovatus confertus</i> Sharp (Col.).....	78
<i>Bembidium</i> sp. (Col.).....	79
<i>Perigona nigriceps</i> Dej. (Col.).....	79
<i>Cercyon</i> sp. (Col.).....	79
<i>Lophacateres pusillus</i> Klug. (Col.).....	79
<i>Thaneroclerus buqueti</i> Lef. (Col.).....	79
<i>Imaliodes pusillus</i> Karsch (Col.).....	80
<i>Gnathocerus maxillosus</i> Fabr. (Col.).....	80
<i>Anthrenus thoracicus</i> Melsh. (Col.).....	80
<i>Stethorus vagans</i> Blackburn (Col.).....	80
<i>Pullus</i> sp. (Col.).....	81
<i>Coninomus constrictus</i> Gyll. (Col.).....	81
<i>Silvanus planatus</i> Germ. (Col.).....	81
<i>Silvanus bidentatus</i> (Fabr.) (Col.).....	81
<i>Aleochara puberula</i> Klug. (Col.).....	81
<i>Gibbium psylloides</i> (Czemp.) (Col.).....	81