PROCEEDINGS
OF THE
Hawaiian Entomological Society

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JANUARY 4, 1940

The 409th meeting was held at the H.S.P.A. Experiment Station, January 4, 1940, at 2:30 p.m.

Members present: Miss Ethel Lucas, Messrs. Bianchi, Browne, Ehrhorn, Illingworth, Look, McBride, Pemberton, Rosa, Sakimura, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

Vice-President Zimmerman in the chair.

The minutes of the preceding meeting were read and approved.

Mr. O. H. Swezey proposed Mr. R. G. Oakley for membership in the Society.

Mr. C. E. Pemberton reported that he had audited and found correct the financial report of the treasurer for the year ending December 6, 1939.

In view of the inconvenience to some members of Thursday for the monthly meetings of the Hawaiian Entomological Society, the Secretary-treasurer was appointed to find out what day would be more suitable for these meetings.

PAPER PRESENTED

On behalf of Dr. R. L. Usinger, Mr. O. H. Swezey presented by title a paper entitled "The genus Oechalia (Hemiptera: Pentatomidae)".

NOTES AND EXHIBITIONS

Mr. E. M. Ehrhorn described how a large specimen of the land planarian, *Bipalium kewense,* overcame and engulfed an active earthworm, hardly a vestige of the latter remaining.

On behalf of Dr. F. G. Holdaway, Miss Ethel Lucas exhibited a copy of the Indian Journal of Entomology, a new publication.

Dettopsomyia formosa Lamb.—Mr. Zimmerman reported the capture of a specimen of this drosophilid fly at light in Kaimuki in December. The species was first found in Honolulu by Dr. Williams in 1936. Malloch redescribed the species and recorded it from the Territory for the first time in these "Proceedings", vol. 10, no. 1, p. 54, 1938.

Elimaea punctifera (Walker).—Mr. Swezey reported a 71% parasitism of eggs of this large green grasshopper. Mr. Ehrhorn had brought in 7 of the eggs in one leaf found in his garden October 15, Manoa Valley. *Ufens elimaeae* Timb. issued from 3 of the eggs; and *Anastatus koebelei* Ashm. issued from 2 eggs.

Signiphora aspidioti Ashm.—Mr. Swezey exhibited mounted specimens of this scale parasite which had issued from scales on leaves collected from "orchid vine" (*Stigmaphyllon ciliatum*) at the Waialua Club House, Dec. 13, 1939. A large proportion of the scales showed exit-holes of the parasite. The scale may be *Aspidiotus hederae* (Vall.). This parasite was collected by Mr. Koebele years ago, but it has not been again reported for quite a number of years.

Uscana semifumipennis Girault.—Mr. Swezey exhibited an algaroba pod with numerous bruchid eggs on the surface. By actual count, there were 125 of the eggs, 72% of which were parasitized by the trichogramatid *Uscana semifumipennis*. The pod was one among others sent from Puako, Hawaii, by Leslie Wishard, Jan. 4, 1940.

Mr. Ashley C. Browne submitted the following notes: On December 27, 1939 egg masses and large numbers of individuals of all sizes of *Murgantia histrionica* (Hahn) the harlequin cabbage bug were collected from old, neglected broccoli plants on a farm in the Lualualei Valley. Nearby string bean plants did not seem to be infested.

On January 2, 1940 larvae of *Listroderes obliquus* (Gyll.) were collected at Kula, Maui by Assistant County Agent James Shigeta where they were reported doing considerable damage on Chinese cabbage and turnips. This is believed to be the first report of their attacking turnips. In 1939 Dr. Holdaway collected the insect from potatoes on Maui.

Protoparce quinquemaculata blackburni (Butl.)—Tobacco horn worms were seen to be doing extensive feeding on egg plant foliage at Keopu, Molokai. Damage was severe and the infestation was heavy. Also found on eggplant at Nawiliwili, Kauai.

Following was a discussion of the status of the introduced crayfish on Oahu.

FEBRUARY 1, 1940

The 410th meeting was held at the H.S.P.A. Experiment Station, February 1, 1940, at 2:30 p.m.

Members present: Miss Ethel Lucas, Messrs. Bianchi, Bishop, Browne, Bryan, Ehrhorn, Fullaway, Holdaway, Illingworth, Keck, Look, Marlowe, Mason, McBride, Pemberton, Rosa, Sakimura, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

Visitors: Miss Bernice Harper, Mr. Lyle Stephenson and Drs. A. C. Baker and P. N. Annand.

President Marlowe in the chair.

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

Mr. R. G. Oakley was elected to active membership.

The Secretary reported that at the Executive Committee meeting held ten minutes before this present 410th regular meeting, it was voted to accept a paper on Hawaiian Oechalia (Hemiptera) that had been slightly delayed, for Proceedings Hawaiian Entomological Society, X, No. 3, 1939. The bill from Science Press Printing Company, Lancaster, Pa., amounting to $716.24 for printing the 500 copies of the Proceedings, No. 2, was submitted and accepted. It was also approved that the acting-director of the Pineapple Experiment Station be approached for funds from his institution to help liquidate the above printing bill.

At the regular meeting Mr. E. C. Zimmerman proposed that a vote of thanks be extended to the editorial committee for their considerable work on publishing the "Proceedings". Seconded and passed.

Following a considerable discussion, Mr. E. H. Bryan, Jr., made a motion that the day of the regular monthly meetings be changed from the first Thursday to the first Monday of each month. Mr. E. C. Zimmerman seconded the motion. Passed.

Mr. E. C. Zimmerman introduced Miss Bernice Harper, new member of the entomological staff at the Bishop Museum. F. X. Williams introduced Mr. Lyle Stephenson, visitor from Kansas City, Mo., who was interested in entomology and natural sciences generally.

PAPER PRESENTED

Mr. Swezey presented a paper entitled: "Notes on Food-Plant Relations of Scolytidae and Platypodidae in the Hawaiian Islands".

NOTES AND EXHIBITIONS

Miss Ethel Lucas presented the following communication: Record of the Cabbage Looper, *Autographa brassicae* Riley, in Hawaii.

Autographa brassicae, the cabbage looper found throughout the United States, is here recorded for the first time in Hawaii. Four separate records were obtained during the survey of parasites of *Pontia rapae* conducted by the Entomology Department of the Hawaii Experiment Station.

First on December 6, 1939 from Kamalo, Molokai, when four pupae obtained from cauliflower were sent by D. Akana, county agent.

Next on December 7, 1939, when four larvae were collected on head cabbages growing on the University of Hawaii campus.

Then on January 6, 1940, when N. Kawakami, county agent, sent in four larvae on head cabbages from Kokee, Kauai.

And again on January 18, 1940, H. F. Willey, county agent, sent in three larvae on cauliflower from Waiakoa, Maui.

An attempt is being made to determine whether the insect occurs also on Hawaii, and to secure additional records from the other islands.

Specimens of the moth and of the related *Plusia chalcites* were exhibited. Mr. D. T. Fullaway remarked that *A. brassicae* has been reaching the Territory during the last several years on mainland vegetables.

Dr. F. G. Holdaway and Mr. Wm. Look presented the following note: Fire ant (*Solenopsis geminata*) attacking young crop plants. Young plants of three different crops have been attacked and damaged by *Solenopsis geminata* at or below ground level: tomato plants at Lualualei, cucumber seedlings at Waipahu and young egg plants at Koko Head. The tender stem is gnawed and the plant wilts, becomes unthrifty and may die. Damage caused by the ant has been responsible for sections of fields of cucumbers at Waipahu being replanted.

During the past month this species of ant has been found gnawing into the midrib of leaves of Chinese cabbage at Lualualei. Examples of damage to cucumber seedlings are exhibited.

Mr. O. C. McBride introduced Drs. A. C. Baker and P. N. Annand, of the Bureau of Entomology, U.S.D.A. Mr. C. B. Keck was welcomed from his sojourn on the mainland.

MARCH 4, 1940

The 411th meeting was held at the H.S.P.A. Experiment Station, Monday, March 4, 1940, at 2:30 p.m.

Members present: Miss Bernice Harper, Miss Ethel Lucas, Messrs. Bianchi, Bryan, Carter, Ehrhorn, Illingworth, Look, Marlowe, McBride, Oakley, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

President Marlowe in the chair.

The minutes of the previous meeting were read and approved as corrected. Miss Bernice Harper was unanimously elected to membership.

The second Monday of each month appearing more suitable than the first Monday, for meetings of the Hawaiian Entomological Society, it was moved by Mr. R. H. Van Zwaluwenburg and seconded by Mr. E. C. Zimmerman that, beginning in April, the meeting be held on the second Monday of each month. Passed.

PAPERS PRESENTED

On behalf of Mr. William H. Anderson, U.S.D.A., Mr. O. H. Swezey presented a paper entitled: *"On Some Larvae of the Genus Proterhinus (Coleoptera: Aglycyderidae)"*. Mr. C. E. Pemberton gave a book review of "Fleas of Eastern United States", by Irving Fox, Feb. 1940, VI + 191 pp., 166 figs., 31 pls., published by the Iowa State College Press. The volume was particularly recommended as being easily workable not only for the specialist but for the general entomologist. The clear cut figures are of considerable assistance.

NOTES AND EXHIBITIONS

Mr. F. A. Bianchi exhibited male and female specimens of an *Amblyteles* wasp taken by him at Waialua, Oahu. It is apparently new to the Islands and constitutes the fourth species now known here.

Onthophagus incensus Say.—Mr. Swezey exhibited a specimen of this scarabaeid beetle which was collected from cowdung in Makua Valley, Feb. 22, 1940. It was found to be quite abundant there. Its presence was indicated by the little heaps of soil appearing at the deposits of cowdung along the trail. A half dozen specimens were obtained at one place. The beetle was introduced from Mexico in 1923, and the first record of its having become established was on the island of Hawaii in 1934. Apparently it had not yet been recorded from Oahu.

Cryptolucilia caesarion (Meigen).—Mr. Swezey reported observing two of this green fly on cowdung in Makua Valley, Feb. 22, 1940. They were not captured. It is the immigrant fly first reported in 1934 on the island of Hawaii, and later collected on Oahu at Kawela Bay, Dec. 16, 1934, and at Koko Head, Jan. 13, 1935.

Poecilips persicae (Hopkins).—Mr. Swezey pointed out that this scolytid which was determined by Dr. Schedl last year from material obtained from *Pipturus* on Tantalus in 1930, is the same that he had reported as a possible new immigrant reared from old avocado seed in 1937, and reported in Proceedings Hawn. Ent. Soc., X, No. 2, p. 176, 1939 as a "New Scolytid".

Iso-amylamine as an Attractant for Syrphid Flies.—Mr. Van Zwaluwenburg reported that while preparing a highly dilute mixture of iso-amylamine with diatomaceous earth in the laboratory, he noted a sudden influx of dozens of *Lathryophthalmus arvorum* (Fabr.) adults through the open windows. Even when the mixture was taken outside on the lawn, numbers of this syrphid were attracted to the general vicinity of the chemical. It is not known if the flies were all of one or both sexes. Travis, in Iowa, has reported (Jl. Econ. Ent. 32, p. 692, 1939) that iso-amylamine stimulated activity among males of *Phyllophaga lanceolata* (Say).

Mr. C. E. Pemberton reported finding the pink sugar cane mealybug (*Trionymus sacchari*) abundant just underground on the stalks and stool mass of "Johnson Grass" (*Holcus halepensis*). None of its enemies was seen.

Dr. Walter Carter spoke of mass movements of sowbugs (Isopoda, Crustacea) in the Diamond Head area, Honolulu, into new houses. He mentioned E. O. Essig's recommendation of trapping sowbugs under wet sacks. Mr. Pemberton said that he had found sowbugs common under stones, in this region and not concentrated during wet weather and that in dry spells they move about seeking moisture.

Syagrius fulvitarsus Pascoe.—Mr. Zimmerman reported a severe infestation of the Australian fern weevil in *Asplenium nidus* (bird nest fern) in Nuuanu Valley, Oahu. The weevil has not been reported damaging this species of fern heretofore. Large ferns were attacked and all fronds riddled with mines. The adult weevils fed at night on the young, curled fronds at the base of the plant.

A discussion followed on measures against the weevil, which seemed particularly bad of late. Among the remedies suggested were the use of Pyrethrum extract to drive out the adults, Chinese hair soap (made of *Sapindus saponaria*) for the same purpose, the use of tangle foot, etc.

Dr. F. X. Williams exhibited the third specimen taken in Hawaii of the sclerogibbid wasp (*Mystrocnemis embiidarum* Kieffer) which he took on some paper on his desk. Mr. O. H. Swezey spoke of how it parasitized some *Oligotoma* offered it, although none of its eggs developed.

APRIL 8, 1940

The 412th meeting was held at the H.S.P.A. Experiment Station, April 8, 1940, at 2:30 p.m.

Members present: Miss B. Harper, Miss Ethel Lucas, Messrs. Bianchi, Bryan, Ehrhorn, Fullaway, Holdaway, Illingworth, Krauss, Look, Marlowe, McBride, Oakley, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Williams, Zimmerman.

Visitor: John T. Moir, 3rd.

President Marlowe in the chair.

The minutes of the preceding meeting were approved as read.

Dr. F. G. Holdaway stated that three meetings of the Committee on common names of insects had already been held and that the list should be completed in the near future.

PAPER PRESENTED

Dr. J. F. Illingworth presented a paper entitled "Feeding Habits of Bufo".

NOTES AND EXHIBITIONS

New Host Plant Records for Corn Earworm in Hawaii.—Miss Ethel Lucas stated that corn earworm, *Heliothis armigera* (Hub.), was severely infesting head lettuce in North Kohala, Hawaii, during October of 1939. Six larvae were obtained in material submitted to the Entomology Department H.A.E.S. Four of these larvae died in a wilted condition; two pupated, one of these rotted and the other shrivelled so that no adults emerged.

These observations are in keeping with a recent paper by N. Stahler in California (Journ. Econ. Ent. 32 (1) : 151). He found that corn earworms were very difficult to rear on lettuce due to a high mortality from what he considered was a wilt disease.

The following are additional host plant records:

Eggplant fruits were found being attacked by corn earworms at Waipahu in June 1938, by F. G. Holdaway and A. C. Browne.

In January 1939, George Marvin found corn earworms infesting the foliage of carrots in North Kohala, Hawaii. Corn earworm was found infesting pods of lima beans at Waimea, Hawaii in October of 1939, by George Marvin.

Corn earworm has also been noted during March 1940 feeding on Chinese peas and string beans at Waipahu School Gardens, and was bred on Italian squash from that locality.

Corn Earworm Attacking Irish Potato.—Mr. William C. Look stated that a number of corn earworms, *Heliothis armigera* (Hub.), were found attacking the foliage of Irish potato last year about the time when Mr. Van Zwaluwenburg reported its presence on potato at Waipahu. Eggs and larvae were found on January 12, 1939 at Poamoho. On March 6, 1939 Mr. Norman King collected this species on potato at Hoolehua, Molokai. A number of eggs and larvae were again collected on the last winter crop in every month from November 1939 to March 1940, inclusive, at Poamoho.

Though this caterpillar has in the past been assumed to be uncommon on potato, these records show that it can occur commonly on potato foliage.

Mr. Look also presented a note as follows: *Entomophthora* sp., a Parasitic Fungus on *Pycnoderes quadrimaculatus* Guerin.

A species of parasitic fungus identified by Dr. E. A. Bessey as *Entomophthora* sp. has been found on the bean capsid, *Pycnoderes quadrimaculatus* at Lualualei. Parasitized adults have been collected from the lower surface of old leaves of pumpkin (*Cucurbita* sp.), dishcloth gourd (*Luffa acutangula*), white mustard cabbage (*Brassica chinensis*), and the wild spiny-cucumber (*Cucumis dipsaceus*). Although this bug is also very abundant and injurious on beans,

parasitized individuals have not yet been found associated with the bean plant. Specimens of parasitized adults are exhibited.

Dr. F. G. Holdaway presented notes as follows: Datura Beetle *Lema trilineata* var. *californica* Schaeffer Attacking Eggplant and Irish Potato. Records. Datura beetle, *Lema trilineata californica* attacking eggplant at Koko Head, June, 1938, and at Honaunau, Kona, Hawaii, Sept. 6, 1938. Since we obtained these records Mr. Look has recorded it on eggplant at Lualualei, Oahu, June 22, 1939 and breeding on eggplant at Lualualei, July 13, 1939. He also recorded it on eggplant at Koko Head, Sept. 21, 1939 and on eggplant at Puuloa, Oahu, Jan. 15, 1940. More recently, March 13, 1940, he has recorded it breeding on Irish potato at Poamoho. We are informed that the insect attacks Irish potato at Kona, also. We have also taken it from corn, papaya and tomatoes. Further observations will determine whether these crops should be added to the list of hosts.

Occurrence of *Opius fletcheri* Silv., parasite of melon fly, *Chaetodacus cucurbitae* (Coq.).

Recorded the occurrence of *Opius fletcheri* ovipositing in melon fly-attacked flowers of pumpkin at Waipahu School Gardens, April 3, 1940. About a dozen adults were observed active in an area of 2-3 square yards, about 3 p.m.

Mr. A. C. Browne listed Jarvis & Enderbury Insects as follows:

Jarvis Id., March 17, 1940.

12 *Petrochroa dimorpha* Busck (very abraded)
17 " n. sp. (not *neckerensis*)
3 *Reduviolus capsiformis* Germar
9 *Trichoptilus oxydactylus* (Walker)
13 *Hecamede albicans* Meigen (*persimilis* Hendl.) (Ephydridae)
1 *Nysius* sp. (not *pacificus* China)
3 Tenebrionid: *Alphitobius laevigatus* (F)
1 Nymph: *Oechalia consocialis* Boisd.

Enderbury Id., March 13, 1940.

Tetramorium simillimum (Smith)

Polistes olivaceus (De Geer).—Mr. Swezey exhibited a large nest of this wasp, which was collected from beneath an eave of a residence at the Waipio Substation, H.S.P.A., March 24, 1940. It was 5 inches in diameter and contained 337 cells, many of them occupied with young larvae of various sizes. About a hundred wasps were present on the nest at the time of capture. It is remarkable for so large a colony to occur at this season of the year when usually new nests are only being started. This nest is as large as the maximum which are to be found late in summer after the colony has had time to build up its maximum population.

Mr. D. T. Fullaway exhibited specimens of the coprid beetle, *Ataenius pacificus* Sharp taken at Kaimuki, Honolulu; the ginger weevil, *Elytroteinus subtruncatus* (Fairm.), bred in quarantine from the trunk of a *Marattia* fern from Tahiti; and *Nesopimpla naranyae* Ashm. (Ichneumonidae), found on a quarantine room window and having perhaps issued from caterpillars in dried fruits from Japan.

Dr. F. X. Williams spoke of the rather extended distribution of one of our little dolichopodid flies, *Chrysotus pallidipalpus* V.D. (= *C. elegans* Parent). It has already been recorded from France, Holland and England. Its hothouse habits probably helped its dispersal.

Mr. E. C. Zimmerman mentioned that the Bishop Museum had published as No. 32 Dr. Blair's paper on the weevils of the genus *Araucaricola.*

MAY 13, 1940

The 413th meeting was held at the H.S.P.A. Experiment Station, on Monday, May 13, 1940, at 2:30 p.m.

Members present: Miss Bernice Harper, Miss Ethel Lucas, Messrs. Bryan, Carter, Ehrhorn, Fullaway, Hadden, Holdaway, Krauss, Look, Marlowe, Pemberton, Rosa, Sakimura, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

Visitor: W. P. Naquin, Jr.

President Marlowe in the chair.

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

Dr. F. G. Holdaway presented the completed list of common names of insects used in Hawaii and revised April, 1940. After some discussion, Dr. Walter Carter moved that the committee's report be received and submitted to the Society for comment; seconded and passed.

NOTES AND EXHIBITIONS

Miss Ethel Lucas presented an additional note on occurrence of *Opius fletcheri* parasite of the melon fly as follows: A handful of 11 hyacinth beans (*Dolichos lablab* L.), collected on April 21, 1940 at the U. H. Nutrition plot, were found to be infested with melon fly larvae. Sixty adult melon flies and 39 adults of *Opius fletcheri* emerged. All the pods were attacked by the fly and the infestation represents a high average of 9 larvae per pod. Parasitism of approximately 39% is particularly high for *Opius fletcheri;* perhaps the very flat pod of the hyacinth bean is a factor. Specimens of bean pods and parasites exhibited.

Mr. E. M. Ehrhorn exhibited two species of orb-spinning spiders he found in his garden. *Cyclosa* sp. arranges her cocoon vertically bead-like, herself being stationed at the lower end. *Uloborus,* probably *geniculatus,* a pantropic species spins a squarish nest and forms a star-shaped egg sac. The specimens were determined by F. X. Williams.

Mr. Ehrhorn also reported that some *poha* in his garden had been attacked by the chrysomelid, *Lema trilineata* but that half of these beetle larvae had been eaten by an undetermined predator.

Mr. N. L. H. Krauss submitted the following notes:

Lema trilineata californica Schaeffer.—Adults abundant on Jimson Weed (*Datura stramonium* Linn.) at Makena, Maui April 14, 1940. One adult collected on Tree Tobacco (*Nicotiana glauca* Graham).

Pepper Weevil, *Anthonomus eugenii* Cano. One adult collected on Jimson Weed, Makena, Maui, April 14, 1940.

Painted Lady, *Vanessa cardui* (Linn.).—Larvae abundant on Tree Tobacco on road between Kula Sanitarium and Makena, Maui, April 14, 1940.

Sphingid eggs, probably of *Protoparce quinquemaculata blackburni* (Butl.) fairly abundant on leaves of Tree Tobacco, on road between Kula Sanitarium and Makena, Maui, April 14, 1940.

Ereunetis flavistriata Walsm.—Mr. Swezey reported that of 19 cocoons of this moth collected on cane at Waipio, Oahu, April 13, 1940, 10% had been parasitized by *Melittobiopsis ereunetiphila* Timb., and 16% by an undetermined chalcid, not previously known about.

Chalybion caeruleum (Linn.).—Mr. Swezey exhibited a female of this wasp which had matured April 26 from a cocoon formed in October, 1939. The larva had fed on blackwidow spiders stored in a cell of *Sceliphron caementarium* found on under surface of a loose coral stone, Oct. 12, at Lualualei, Oahu. An egg was attached to one of the spiders. It hatched and finished its growth, consuming the spiders, and made its cocoon before Oct. 30, in a vial. Some time in March the cocoon was opened and it was found that the larva was still in the hibernating condition. However, it pupated about March 30, after about 5 months hibernating as a larva.

Sclerodermus polynesialis Saunders (?).—Mr. Swezey exhibited what appeared to be this species of bethylid. He had obtained a large number of them from a dead branch of *Poinciana,* 15 inches by 1½ inch in diameter, brought in by Mr. J. P. Martin, from Rocky Hill, February 19, 1940. The branch was infested with longicorn larvae, and was retained for the issuing of the adult beetles. On May 10, 1940, on being examined a number of the *Sclerodermus* had already issued. The whole branch was cut up, and 4 adult beetles (*Ceresium unicolor*) were found dead. Also

207 adult *Sclerodermus* were found dead. They were: 14 winged males; 95 winged females; 98 wingless females. An unknown number had escaped. There were 12 clusters of empty *Sclerodermus* cocoons, from which no doubt all of the adults had issued. One cluster was composed of 52 cocoons. Each cluster of cocoons were of the larvae which had fed on a single longicorn larva.

Dactylosternum hydrophiloides M'Leay.—This hydrophilid beetle was introduced from Los Banos, Philippine Islands, 1925, to be used as a predator on the sugar cane beetle borer *Rhabdocnemis obscura,* and liberated at Honokaa, Hawaii. Recovered by C. E. Pemberton in decaying banana stumps in a cane field at Honokaa, April 27, 1940.

Mr. Pemberton called attention to flight of *Coptotermes formosanus* that was taking place in the station grounds and alongside the meeting room window. This flight was noted from early morning and was in its second day. Such a diurnal flight in this exact locality had also taken place May 7 and 8, 1939. Feasting on the termites were mynah birds, sparrows and the two dragonflies *Anax junius* and *Pantala flavescens.* Mr. Pemberton placed a *Bufo marinus* on the lawn and it immediately commenced feeding on the termites.

Telsimia nitida Chapin.—Mr. Swezey stated that he had recently had from Dr. E. A. Chapin the determination of a tiny black lady-beetle under the above name. It is the beetle which occurs in Guam and holds in check the coconut scale *Aspidiotus destructor.* This beetle is the one for which we have been using the name *Cryptogonus nigripennis* on account of specimens having been previously erroneously determined.

Mr. F. C. Hadden being called upon by the president, gave an interesting account of some of the faunal aspects of Midway and Wake Islands.

JUNE 10, 1940

The 414th meeting was held at the H.S.P.A. Experiment Station on Monday, June 10, 1940, at 2:30 p.m.

Members present: Messrs. Browne, Bryan, Ehrhorn, Krauss, Mason, Oakley, Pemberton, Rosa and Van Zwaluwenburg.

In the absence of both the president and vice-president, Mr. Pemberton was chosen to preside; Mr. Van Zwaluwenburg served as acting secretary.

The minutes of the previous meeting were read and approved.

Mr. Ehrhorn made remarks on some of the coccid common names chosen by the committee which compiled the common names list.

NOTES AND EXHIBITIONS

Dipterous larvae in celery.—Mr. Krauss exhibited for Mr. Fullaway a pupal case of a fly collected at Honolulu in celery from Kekaha Plantation, Kauai, in May, 1940 by Mr. Tem F. Chong, Plant Inspector. All of the larvae collected were parasitized by a pteromalid wasp, specimens of which were also exhibited.

Lema trilineata californica Schaeffer.—Mr. Krauss reported that this chrysomelid beetle was collected at the Nonaka farm, Hanapepe, Kauai, May 18, 1940 on eggplant by Robert C. Eckart, County Agent. Mr. Eckart states that he first saw this species on the same farm in March or April, 1939, and has found it nowhere else on the island. This is the first record of the species from Kauai.

Cryptorhynchus mangiferae (Fab.).—Mr. Ehrhorn mentioned the severe loss of small fruits of mango, particularly of the Pirie variety, this year, due to their dropping as a result of the work of the larvae of this beetle.

Hermetia illucens (L.).—Mr. Pemberton exhibited a specimen of this large stratiomyid fly which he collected from a window screen at 2216 Manoa Road, Honolulu, on June 7, 1940. This is the first record of its occurrence on the island of Oahu. Its first appearance in the Territory was on the island of Hawaii, where Dr. Williams collected specimens during 1932.

Chlorophorus annularis (Fab.).—Mr. Pemberton exhibited a specimen of this cerambycid collected that day by Mr. J. P. Martin in cane on the H.S.P.A. Experiment Station grounds. It is an oriental species and is known to issue here from the bamboo of screens imported from Japan.

Bythoscopus robustus (Uhler).—Mr. Van Zwaluwenburg exhibited a specimen of this cicadellid taken by a school boy, Jack Larsen, in a lighted room in Kaalawai in May, 1940. This is a new locality record for Oahu. First taken by Mr. Swezey in 1933 at Kawela Bay on this island, it was later collected by him on an automobile windshield in Manoa Valley.

Bufo marinus (L.) *fatal to lizards.*—Mr. Oakley reported experiments conducted at his suggestion on Guam, which tend to confirm the opinion that the introduced giant toad is at least partially responsible for the reduction in numbers of the large iguana or monitor lizard on that island. Lizards all died after a few days' confinement in a pen with the toads, and eye-witnesses stated that repeatedly, after attacking toads, lizards went into convulsive spasms and expired shortly afterwards. The result was the same whether the toad was consumed or only bitten. In the opinion of Guam residents the iguana has become noticeably less numerous since the introduction of Bufo to that island in 1937.

JULY 8, 1940

The 415th meeting was held at the H.S.P.A. Experiment Station on Monday, July 8, 1940, at 2:30 p.m., with President Marlowe in the chair.

Members present: Miss Suehiro, Messrs. Bianchi, Callaghan, Ehrhorn, Keck, Krauss, Marlowe, McPhail, Oakley, Rosa, Van Zwaluwenburg and Pemberton.

The minutes of the previous meeting were read and approved.

PAPER PRESENTED

Mr. F. A. Bianchi read a paper entitled "Thysanoptera and Aphididae new to the Island of Midway".

NOTES AND EXHIBITIONS

Hermetia illucens (L.).—Mr. Ehrhorn exhibited a specimen of this fly, which he caught in the basement of his residence in Manoa Valley. Mr. Rosa stated that he captured one specimen during June, 1940 at the H.S.P.A. Experiment Station.

Puliciphora sp.—Mr. Pemberton exhibited adults and larvae of this wingless phorid, together with a culture plate of nutrient agar in which the larvae of this fly were actively feeding and developing. The sterile culture medium was prepared by the Pathology department of the H.S.P.A. Experiment Station on July 3, 1940. On July 5 many adults of this fly were noticed in the covered culture dish and had deposited eggs over the surface of the agar nutrient. Larvae were abundant in the dish by July 7. Owing to its minute size this very active fly can penetrate small crevices around the edges of covered culture dishes and seriously contaminate bacterial and other cultures in the laboratory.

Several members participated in a general discussion of the possible causes for the definite reduction in numbers of *Bufo marinus* during the past year. It was suggested that subsidence has resulted following destruction by mongooses and rats, upset in sex ratio with great reduction in the proportion of females to males, the large consumption of young by old toads and the general scarcity of readily available food around breeding places.

There was also a considerable discussion on insect quarantines with respect to trans-Pacific airplanes, control of *Adoretus sinicus* through hand-picking of adults at night and the use of spray repellants against the melon fly.

AUGUST 12, 1940

The 416th meeting was held at the H.S.P.A. Experiment Station on Monday, August 12, 1940 at 2:30 p.m., with President Marlowe in the chair.

Members present: Messrs. Bianchi, Look, Ehrhorn, Krauss, Rosa, Carter, Marlowe, Mason, McBride and Pemberton.

Visitor: P. W. Weber.

The minutes of the previous meeting were read and approved.

Mr. F. A. Bianchi, reporting for the editorial committee, stated that he had read and corrected the final proof on the Proceedings of the Society for the year 1939 and that it had been returned to the publishers with the expectation that the printed Proceedings would be ready for distribution at an early date.

NOTES AND EXHIBITIONS

Agromyza simplex and *Adoretus sinicus* on Asparagus.—Mr. Bianchi spoke of a visit made by him on August 7 to a large planting of asparagus at Pupukea Ranch, Oahu. He stated that the crop is in very poor shape, due apparently to unusually severe damage by the fly *Agromyza simplex* and the beetle *Adoretus sinicus*. It is difficult to find, in an area of some 20 acres, a single stalk of asparagus that has not been attacked by the fly. Though only a few living larvae are left in the borings and no adult flies were seen, it was ascertained through a count of puparia from which flies had already emerged that from one to twenty larvae had bored into each stalk; the average number of empty puparia left in 20 stalks collected at random being 5.5 Since many puparia disintegrate "in situ" in the course of time and many are lost in the process of gathering the asparagus stalks, these figures are probably considerably below the true average.

With asparagus material injured by the fly, Mr. Bianchi also exhibited slide mounts of a parasite which he had found on *Agromyza simplex*. This appears to be the aphelinid *Centrodora xiphidii* (Perk.), which is already known in the Territory as a parasite in the eggs of the locustid *Conocephalus saltator* and in the cocoons of the dryinid *Haplogonatopus vitiensis*. Presumably this same parasite had attacked many eggs of *Conocephalus* on the asparagus plants examined by Mr. Bianchi, but, in contrast, only 5 out of 111 puparia of *Agromyza simplex* showed evidence of having been parasitized. One of these puparia contained about 20 parasites which though fully developed had failed to emerge.

The harm done to the asparagus plants by the borings of *Agromyza,* according to Mr. Bianchi, is even more difficult to estimate in this case than usual because it is obscured by the more severe damage due to the work of *Adoretus*. More apparent in the S. W.

half of the field, the work of the beetle extends to all portions of it and consists of extensive defoliation and decortication of the plants, the decortication resembling very much the work of the beetle roach, *Diploptera dytiscoides,* on certain plants. Due to this damage to the plants, large areas of the field are now brown rather than green and it is obvious that such damage must be the result of an unusually heavy infestation of *Adoretus,* which by now, to judge from the great abundance of the parasite *Scolia manilae,* should be considerably reduced from its original intensity.

Euscepes postfasciatus (Fairm.).—Mr. Bianchi stated on behalf of Mr. Ashley Browne that sweet potatoes had been sent to him from Halawa Valley, Hawaii, infested with the West Indian sweet potato weevil, *Euscepes postfasciatus* (Fairm.). This is a new locality record for that pest.

Adoretus sinicus Burm. and *Anomala orientalis* (Waterh.).—Dr. Carter stated that at Kunia, Oahu he had observed *Adoretus* to be more prevalent in first plantings of pineapples than in old fields, whereas *Anomala* infestations were in the reverse order. He was of the opinion that the weed complex in young plantings of pineapples accounted for the abundance of *Adoretus* there at that time.

Oxya chinensis (Thun.).—Mr. Bianchi reported seeing this grasshopper feeding heavily on a pineapple plant at his Honolulu home.

Rhagoletis sp.—Mr. Krauss exhibited larvae of the Cherry Fruit Fly found infesting a box of cherries shipped from Seattle, Washington on the S.S. Makiki arriving in Honolulu July 31, 1940. Owing to the great variety of fruits grown in Hawaii at various elevations, there was some discussion of the possibility of this fruit fly ultimately becoming established in the Islands through the importation of infested cherries. Mr. Krauss called attention to an account in the Entomologist's Monthly Magazine (Vol. 76, No. 912, p. 112, 1940) of the rearing of Mediterranean Fruit Flies *Ceratitis capitata* Wied. from apples grown in a garden in Middlesex, England.

Lema trilineata californica Schaeffer.—From data supplied by Ashley C. Browne and Earl Nishimura of the Hawaii Agricultural Extension Service, Mr. Krauss stated that the datura beetle had been collected from eggplant at lower Keopu, North Kona, Hawaii on July 3, 1940 and also from poha plants at Waiaha, North Kona, on July 10.

Copris incertus var. *prociduus* (Say).—Mr. Marlowe stated that at about 11 a.m. on August 1, 1940, he observed a great abundance of this Mexican dung beetle at an avocado grove on the Pupukea Trail, Waimea, Oahu. The beetles were concentrated in some horse manure and the soil beneath to a total depth of 5 to 6 inches; the area occupied being about 28 inches square. The manure covered the surface of the area to a depth of about 2 inches. A sample lot of

beetles, 350 in number, was collected in a few minutes. It was conservatively estimated that there were about 4,000 beetles massed in this spot. Very seldom are there more than a dozen beetles found in such situations. This beetle was introduced into Hawaii from Mexico in 1922 to help in the control of the horn fly. It is quite common on the islands of Maui and Molokai and has been found in the vicinity of Honolulu. This is the first record of the occurrence of this beetle at Waimea and on windward Oahu.

Mr. Ehrhorn called attention to the 20th Annual Report of the California Department of Agriculture and remarked particularly on the thoroughness and magnitude of the work conducted by the State on Plant Quarantine.

Dr. Carter exhibited and demonstrated the operation of an instrument used by the entomologists of the United States Bureau of Entomology and Plant Quarantine at their Japanese Beetle laboratory at Moorestown, New Jersey, in propagating a bacterial disease of the grubs of this beetle known as the "milky" disease. He also showed a slide mount of the "milky" disease bacteria. Dr. Carter stated that the disease can be propagated only within the bodies of live grubs and that infection takes place in surface wounds on the body. Since the organism is highly resistant to drying, grubs which have died from infection can be ground up and mixed with a dry carrier such as talc and the contaminated dust spread in the soil where grub control is desired. He stated that he had evidence leading him to believe that both *Adoretus sinicus* and *Anomala orientalis* are susceptible to infection by this disease.

SEPTEMBER 9, 1940

The 417th meeting was held at the H.S.P.A. Experiment Station on Monday, September 9, 1940 at 2:30 p.m., with Vice-President Zimmerman in the chair.

Members present: Miss Bernice Harper, Messrs. Keck, Mason, Swezey, Ehrhorn, Krauss, Browne, Bryan, Bianchi, Callaghan, Rosa, McBride, Sakimura, Zimmerman, Fullaway, Holdaway and Pemberton.

Visitors: August Busck and G. B. Stewart.

The minutes of the previous meeting were read and approved.

NOTES AND EXHIBITIONS

Mr. Ehrhorn exhibited some stems of "poha", *Physalis peruviana* Linn., collected in Manoa Valley, Honolulu on September 7, 1940, which were infested with *Pulvinaria psidii* Mask. or *P. urbicola* Ckll. These coccids were heavily parasitized by *Ameristus ceroplastae* How.

Cycloptilum sp.*—Mr. Pemberton exhibited specimens of a cricket not previously collected in the Territory. A dozen specimens were caught in a house on Alewa Heights, Honolulu, by Mrs. E. D. Brown.

Messrs. Swezey and Zimmerman gave an extremely interesting account of a three months' collecting trip which they had just completed in British and American Samoa. Mr. Swezey exhibited several boxes of Lepidoptera collected on the trip and showed some examples of typical leaf damage to various plants by a number of different insects. It was estimated by Mr. Zimmerman that their joint collecting resulted in obtaining from 30 to 40 thousand specimens and that a large number of new species are represented in the collection. The expedition clearly demonstrated an unexpected richness in the insect fauna of the Samoan group and the need for additional surveys. The work was accomplished under unusually wet conditions. They were particularly impressed with the large number of Samoan insects not in Hawaii, which are destructive to economic and ornamental plants.

Mr. Swezey presented a paper entitled "Some Injurious Insects in Samoa, which do not occur in the Hawaiian Islands".

Mr. Zimmerman introduced Mr. August Busck, the distinguished Micro-Lepidopterist from the U.S. National Museum, who has come to Hawaii to spend several months at the Bishop Museum working on the Micro-Lepidoptera at that institution. Mr. Busck brought greetings and good wishes to the Hawaiian Entomological Society from Dr. L. O. Howard, who has several times in the past also honored this Society with his presence.

OCTOBER 14, 1940

The 418th meeting was held at the H.S.P.A. Experiment Station on October 14, 1940, at 2:30 p.m., with President Marlowe in the chair.

Members present: Miss Ethel Lucas, Messrs. Bianchi, Bryan, Callaghan, Fullaway, Holdaway, Illingworth, Keck, Look, Marlowe, Mason, McPhail, Oakley, Pemberton, Rosa, Swezey, Van Zwaluwenburg and Zimmerman.

Visitors: Messrs. August Busck and Leith F. Hitchcock.

The minutes of the previous meeting were read and approved.

The Acting Secretary reported that the Executive Committee had passed the following resolution: That the Hawaiian Entomological Society type collection of Hawaiian Micro-Lepidoptera be trans-

* Later determined as *Cycloptilum bimaculatum* (Shiraki) by A. B. Gurney of the U. S. National Museum. [Ed.]

ferred on loan to the Bishop Museum for purposes of study by Mr. August Busck.

Mr. Warren C. Goolsby was nominated for membership by Mr Oakley.

After a discussion led by Mr. Keck, showing the desirability of modifying the existing quarantine regulations governing the importation of queen bees as a precaution against the introduction of American foul brood, a disease now generally spread throughout the Territory, it was moved and unanimously passed: That the Hawaiian Entomological Society go on record as favoring the modification of the existing quarantine regulations to permit the direct importation of queen bees from the mainland United States, without being subject to quarantine. The Secretary was instructed to notify the Board of Commissioners of Agriculture and Forestry of this action.

PAPERS PRESENTED

Mr. Zimmerman presented a short paper on the "Argentine Ant".

Mr. Bryan, on behalf of H. de Souza Lopes, presented a paper entitled: "Hawaiian Sarcophagidae".

Mr. Zimmerman presented another paper with the title: "A New Amblycnemus from the Caroline Islands".

NOTES AND EXHIBITIONS

Zaischnopsis sp.—Mr. Swezey exhibited a living specimen of this egg-parasite of *Holochlora japonica,* which had issued from an egg in hibiscus twig collected in his garden in Manoa, Oct. 22, 1939. The eggs when found were already parasitized, and two parasites issued in January 1940, another in May, and now this one nearly a year from the time the material was collected. It is a case of delayed development, or an extraordinary length of time in the prepupal stage.

Beetle attacking Eucalyptus.—Mr. Bianchi reported that Mr. Hitchcock and he had observed several trees of *Eucalyptus citriodora* at Waialua which had excessive quantities of gum exuding from the trunk. Examination revealed numerous small (⅛ inch in diameter) holes beneath the bark and into the wood, which had every appearance of having been caused by Coleoptera. He suggested that the entomologists be on the watch for the insect causing this damage.

Siricid from Redwood.—Mr. Fullaway exhibited a large blue siricid obtained alive at the Lewers & Cooke lumber yard in Honolulu, where it had issued from one piece of redwood and was boring into another when found late in September. This is probably a Californian species, and may be the same as the one recorded by the late W. M. Giffard in 1908 (Proc. Hawn. Ent. Soc., Vol. 2).

Tetrastichus hagenowii (Ratz.).—Mr. Pemberton exhibited the remains of an egg capsule of the roach *Neostylopyga rhombifolia* (Stoll) from which had emerged 73 specimens of this parasite. It was collected in Manoa Valley, Aug. 15, 1940.

Termites from British Columbia.—Dr. Illingworth exhibited winged forms of an unidentified termite collected in Vancouver on August 18. The insects were active despite the coolness of the weather.

Mr. Leith Hitchcock, returning to Australia after several years in the United States where he had been studying insects attacking *Xanthium,* exhibited a case of insects attacking cactus (*Opuntia*) and another of cocklebur insects. Of the latter the most important Mr. Hitchcock said was a trypetid fly which breeds in the seeds of this plant.

Mr. Van Zwaluwenburg made a few remarks on his recent stay on Canton Island. Both the native flora and native insect life are comparatively simple, there being only some 20 native species of plants, and between 60 and 70 known insects and related forms known up to the present time. A striking thing is the apparent absence of any parasite complex, the only parasitic species known being a *Baeus,** the host of which is as yet unknown.

NOVEMBER 18, 1940

The 419th meeting was held at the H.S.P.A. Experiment Station on Monday, November 18, 1940 at 2:30 p.m., with President Marlowe in the chair.

Members present: Miss Ethel Lucas, Messrs. Bianchi, Browne, Fullaway, Holdaway, Illingworth, Krauss, Look, Marlowe, Oakley, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Williams and Zimmerman.

Visitor: Mr. August Busck.

The minutes of the preceding meeting were read and approved.

It was voted that the Secretary tender the thanks of the Society to the Hawaiian Sugar Planters' Association and to the Pineapple Producers' Cooperative Association for defraying the expenses of printing the Proceedings of the Hawaiian Entomological Society, X, No. 3, 1940.

The name of Dr. L. O. Howard was proposed and formally nominated by Mr. R. H. Van Zwaluwenburg as an honorary member of the Society. Seconded, approved and duly elected.

Mr. Warren C. Goolsby, nominated for full membership into the Society at the October meeting, was elected by unanimous ballot cast by the Secretary.

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* The reported presence of *Baeus* on Canton is now believed to be erroneous. [Ed.]

PAPERS PRESENTED

Mr. E. C. Zimmerman presented papers entitled as follows: "The Rhynchophorinae found in Hawaii" and "The Bostrichidae found in Hawaii".

Dr. F. G. Holdaway and Mr. William C. Look presented a paper entitled: "Insects of the Garden Bean in Hawaii".*

NOTES AND EXHIBITIONS

Latrodectus geometricus Koch. — Mr. Van Zwaluwenburg reported the finding of an adult female of this spider in a box of fruit received in Honolulu from the island of Lanai. It seems very probable that the spider originated on Lanai, and that the known range of the species can be extended to that island.

Mr. F. A. Bianchi reported that a specimen of the ichneumonid wasp, *Ecthromorpha fuscator* had flown into his automobile and had stung him and his wife.

Mr. R. H. Marlowe spoke of the rather bad cockroach situation. As a remedy he mentioned tartar emetic—one grm. into 25 c.c. of honey being 95 per cent effective.

Mr. C. E. Pemberton stated that sodium fluoride dusted on floors, etc., was also very effective.

A discussion of ant poisons followed.

Dr. F. X. Williams spoke briefly of his four-months stay in New Caledonia where insects, largely of an economic nature were studied.

DECEMBER 9, 1940

The 420th meeting was held at the H.S.P.A. Experiment Station, on Monday, December 9, 1940 at 2:30 p.m., with President Zimmerman in the chair.

Members present: Miss Bernice Harper, Miss Ethel Lucas, Messrs. Bianchi, Browne, Carter, Fullaway, Keck, Look, Mason, McPhail, Pemberton, Schmidt, Swezey, Van Zwaluwenburg, Williams, Zimmerman.

Visitors: Mr. August Busck and Dr. W. E. Hoffmann.

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

At the meeting of the Executive Committee—members attending Messrs. Zimmerman, Pemberton, Marlowe and Williams—held a few minutes before the present meeting, the following slate of officers was proposed: President, E. C. Zimmerman: Vice President, O. H. Swezey; Secretary Treasurer, F. X. Williams; additional members of Executive Committee, D. T. Fullaway and F. G. Holdaway.

* Not available for publication. [Ed.]

The following officers were appointed by the Executive Committee: Editor, O. H. Swezey; Assistant Editors, C. E. Pemberton and Walter Carter; Librarian, J. S. Rosa; Custodian of Collections, F. X. Williams.

It was moved and seconded and carried that the secretary cast the ballot for the slate of officers.

On behalf of Mr. E. P. Mumford, corresponding member, Mr. O. H. Swezey proposed Dr. G. D. Hale Carpenter, Hope Professor of Entomology, Oxford University, Oxford, England, for corresponding member of the Society.

The Secretary read a communication from the Executive Secretary of the Board of Commissioners of Agriculture and Forestry, Territory of Hawaii, as follows:

"Your letter of October 22, 1940, requesting a modification of existing regulations to permit the direct entry of queen bees without the present quarantine restrictions was, along with other letters on the same subject considered by the Commissioners at their meeting on November 28, 1940.

"Action was deferred until the next meeting which will be held December 19, 1940".

PAPERS PRESENTED

Mr. F. A. Bianchi presented a paper as follows: "Two Thrips New to Hawaii".

Mr. D. T. Fullaway presented a paper entitled: "Check List of Parasitic Hymenoptera of the Samoan Islands, with descriptions of new species".

Mr. F. A. Bianchi presented a paper entitled: "Remarkable Longevity of a Pyrophorus Larva".

NOTES AND EXHIBITIONS

Litomastix floridana (Ashm.).—Mr. Swezey reported that during November he had collected 7 caterpillars of *Plusia chalcites* from mint in his garden on Lanihuli Drive, 6 of which proved to be parasitized by *Litomastix floridana,* which is a parasitism of 85%.

Pyroderces incertulella (Walker).—Mr. Swezey exhibited a male inflorescence of *Pandanus* collected at the University of Hawaii, which was very heavily infested with the larvae of this moth. He reported that from a similar inflorescence collected on Keeaumoku St., Oct. 11, 1940, 266 moths had issued. On several previous occasions, moths were reared abundantly from the same material. Apparently these male inflorescences are always infested by these larvae. They begin when the inflorescence is fresh, but continue feeding after it is all dried up. Examination showed how they had fed on the surface of the dry hard stems. It is evident that

this is a very abundant species in Hawaii, yet it has seldom been collected except when reared. Only one is recorded in "Fauna Hawaiiensis", collected by Perkins. It is placed by Walsingham in *Stagmatophora,* but, later (Trans. Ent. Soc. London, LXXVI, p. 497, 1928) it was transferred by Meyrick to the genus *Pyroderces,* and he recorded it from Austral Islands, also Rapa and Queensland. Thus it is shown to have a wide range in the Pacific.

Conibius sp.—Mr. Van Zwaluwenburg exhibited a series of a tenebrionid beetle which agrees closely with specimens collected on Oahu by O. H. Swezey in 1917 and 1924, identified by G. F. Bryant of the British Museum as *Conibius* near *brunnipes* Champ. The insects of the present series were collected Dec. 4 under rocks at Lualualei, Oahu by Messrs. Rosa and Van Zwaluwenburg, they were very numerous, and in association with another tenebrionid *Ammophorus insularis* Boh.

The incoming President, Mr. E. C. Zimmerman, now took the chair while the retiring president, Mr. R. H. Marlowe delivered his presidential address entitled, "Some Recent Advances in Insecticides".*

Dr. W. E. Hoffmann, Entomologist and visitor located at Canton Christian College, gave an interesting account of the situation in China.

* To be published later [Editor].