PROCEEDINGS
OF THE
HAWAIIAN
ENTOMOLOGICAL SOCIETY
I
PART 5
(With Plate and Text Figures)

HONOLULU, APRIL 8, 1908
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Hawaiian Entomological Society
Founded 1906

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Editors of the Proceedings for 1906-1907

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JULY 5th, 1907.

The thirtieth regular meeting of the Society was held in the Entomological Laboratory of the H. S. P. A. Experiment Station, Mr. Swezey in the Chair.

Member elected: Mr. C. W. C. Deering.

NOTES AND EXHIBITIONS.

Bro. Matthias exhibited two specimens of a Conocephalid collected by himself in rushes near a pool in the vicinity of Wailuku, Maui, some twenty years ago. The species, undoubtedly introduced, is not recorded in the "Fauna Hawaiensis," and has not been collected by anyone since.

Mr. Kotinsky read the following extract from a letter recently received from Mr. W. L. Distant: "In reply to yours of the 7th of May, I did examine Teleonemia scrupulosa Stål, before describing T. lantanae. The British Museum possesses a long series of Stål's species identified by Champion, after comparison with Stål's type or cotype. T. lantanae is a more elongate species differing principally by the shape of the discoidal area which is both more elongate and narrower than in scrupulosa, in other words the costal margin of the hemelytra is much less amplified, rounded and sinuate."

Mr. Swezey exhibited specimens of a small black Cryptorhynchine weevil whose larvae bore in stems of Orchids and in the stipes of ferns. The specimens had been received a few days previous from Mr. E. D. Tenney, who had in turn received them from Mrs. Agnes Walker, Nuuanu Avenue, Honolulu. Mrs. Walker reported them very abundant among her ferns, coming up from the soil when she watered the ferns. Mr. Tenney has found them in stems and also in fleshy roots of Orchids in his orchid-house. He presumes that this weevil has been introduced in Orchids from the Philippine Islands, probably but a few years ago. It was two years ago that he called Dr. Perkins' attention to them in his orchid-house. Mr. Swezey reared them quite abundantly from the stipes of a fern (Sadleria cyatheoides), growing along the path on Pacific Heights Ridge, back nearly to the forest, in May, 1905.

Mr. Swezey also exhibited specimens of a large Tachinid fly (Chaetogaedia monticola Bigot), with the following note: "I recently reared quite a number of these Tachinids from pupae of

April, 1908
a native cut-worm (*Agrotis cinctipennis* Butl.). A considerable mystery is connected with the case, the facts of which follow. A cluster of 291 eggs of this moth were found on a mango leaf in Nuuanu Valley by Mr. Kotinsky, and turned over to me for rearing. Many of the young caterpillars died; but of those which attained full-growth and pupated, only 34 produced moths, while from 51 of the pupae Tachinids emerged. This Tachinid is very common and parasitizes all species of cut-worms, army-worms, and many other caterpillars. The mystery involved is this: How did this lot of caterpillars become parasitized? The eggs hatched in a breeding jar, and the caterpillars during all the time of their growth were enclosed, with no possible opportunity of being attacked by a Tachinid for the purpose of egg-laying. When about half-grown the caterpillars were divided into three lots (Mr. Kotinsky having one lot), and Tachinids bred out from each of the three lots. Questions remaining unanswered are: Were there Tachinid eggs somewhere on the food-plants (which were largely *Sonchus* and supplied from day to day) which hatched and the maggots attacked the caterpillars? Were there Tachinid eggs on the leaf with the cut-worm eggs? Were the Tachinid eggs deposited individually on the cut-worm eggs? It certainly appears as tho this Tachinid has a different method of ovipositing from others, so far as they are known, for they are always described as laying their eggs on the caterpillars. I have made some attempts at discovering the mode of ovipositing for this species, but so far with no success."

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**AUGUST 8th, 1907.**

The thirty-first regular meeting was held in the Library of the Bureau of Agriculture, Mr. Swezey in the Chair.

**NOTES AND EXHIBITIONS.**

Mr. W. W. Froggatt (of the Dep. of Agriculture, New South Wales) present as a visitor, presented the following notes on Entomology, principally economic, in Australia. He opened his remarks by pointing out the variety of climate and topography of the continent, and the consequent variety of the insect fauna. In his work against injurious insects he emphasized the successful practice of cyaniding the trees, especially when the pests were
scale-bugs. His experience was that ladybirds suffered little from cyaniding because they were generally shaken to the ground in the course of mounting the tent, and as the gas rose, the ladybirds usually revived, flying away soon after the removal of the tent. In the apple orchards which are infested much by the codlin moth, sprayng with lead arsenate is the common practice. Perhaps the most serious pest of the whole country is the comparatively recently introduced Mediterranean fruit-fly (Ceratitis capitata), and the Queensland fruit fly (Dacus tryoni). It has been recently discovered that kerosene oil is an irresistible attraction to the Mediterranean fly and the hope is now entertained that by trapping the flies with this oil, their ravages will be considerably checked. The oil, however, seems to have no attraction for the Queensland fruit-fly (Dacus tryoni). In the fight against Phylloxera, the use of resistant stocks offers relief. The San Jose scale, at first very numerous and injurious to fruit-trees, is now kept well in check by a number of enemies, the most effective, perhaps, being a lepidopterous larva* described by Mr. Froggatt not long ago. The Chinese wax-scale (Ceroplastes certierus) frequently inhabits fruit-trees in large numbers, but it does not seem to have the poisoning effect upon plant tissues that the San Jose and other scales have. A wash composed of a couple of pounds of washing soda to a bucket of water is the most effective remedy so far used.

Mr. Froggatt then referred to the Linnean Society of New South Wales as an old and well established, and one of wealthiest organizations of the kind in the world. Our fellow members, Dr. Perkins and Messrs. Kirkaldy and Terry, are members of the Society. While it is not a strictly entomological society, the volumes published (now amounting to 32) contain a great amount of entomological matter. Though the Field Naturalist's Societies of Australia have a large membership, they are not confined to entomological work, and in entomology they limit themselves practically to life histories.

Speaking of his own mission around the world, which brought him to the Hawaiian Islands, Mr. Froggatt was proud to have been chosen by both the State Officials and Entomologists of four

*Batrachedra sparsella* (Walker). Froggatt, Australian Insects, p. 280.—[Eds.]
of the Australian States, to represent them in a study of methods in economic entomology employed all over the world and principally upon means of subduing fruit-fly pests.

SEPTEMBER 5th, 1907.

The thirty-second regular meeting of the Society was held in the Library of the Sugar Planters' Experiment Station, Mr. Giffard in the Chair.

NOTES AND EXHIBITIONS.

Mr. Swezey exhibited a specimen of the wasp, *Pison iridipennis* Smith. He had observed this species very abundant at the Experiment Station H. S. P. A. this summer; whereas, he had not previously seen it on the island of Oahu. He had taken a few specimens on Maui, in 1906.* He was of the opinion that it must have recently rapidly increased in abundance.

Mr. Giffard exhibited several boxes of Cicindelidae and Cerambycidae, part of a large collection of North American (principally western) beetles he had purchased on the mainland. The collection contained about 8000 specimens, and 4000 species, determined by various specialists.

PAPERS READ.

Some Experiments in Breeding *Spodoptera mauritia* Boisd. for Color Variation.

BY OTTO H. SWEZEY.

A gravid female caught and placed in a breeding jar, October 15, 1906, deposited during the night 380 eggs on the cloth covering the breeding jar. The fact that there is somewhat of variation in shade of color in this species of moth, suggested the idea that here was a good opportunity to try some breeding experiments with color variation. These eggs hatched Oct. 20; about 100 attained full-growth and entered soil to pupate Nov. 10-15; 80 moths (43 males and 37 females) emerged Nov. 19 to Dec. 5.

* Later in September, found very abundant at Koloa, Kauai. Hence, is apparently well distributed in the group, altho I have found no records of it on Hawaii. (O. H. S.)
In carefully examining these moths, it could be seen that there was quite a little difference between the lightest and the darkest colored of each sex, and a close series in between. The males normally are lighter colored than the females.

From this lot of moths, pairs were selected for breeding. In each case, copulation took place and eggs were produced in one to five days. These hatched, and the moths were reared in the usual period of time.

Lot A.—A light-colored male and female. Only a few moths matured. There was nothing particularly striking about them, being about the average coloration. An attempt to breed a second generation was not successful.

Lot B.—This pair was a dark-colored female, and a light-colored male. 25 adult moths were reared. They were about normal as regards variation in color—both light forms and dark forms. From these a dark female and a normal male were selected for breeding. 36 males and 25 females were reared. The males were about normal color, but several were darker; the females were predominatingly of the darker form.

Lot C.—A pair of dark moths. From these, 22 adult moths were reared. Both sexes were predominatingly darker than the average normal. A pair of the darkest were mated, but with little success, only two females of their progeny were reared. These were very dark.

Lot D.—This was a very light-colored pair. From them 15 moths were reared. These moths were very light-colored compared with the average normal coloration. A pair were mated for further breeding. Only 2 adults were reared, and they were very light.

These experiments were necessarily interrupted, so that no more than two generations were reared; but the results from these indicate that after several generations of selected pairs of extreme coloration, one would arrive at widely different strains or varieties.

Some Coccidae From Singapore Collected by F. Muir.

BY JACOB KOTINSKY.

By courtesy of the Entomological Division of the H. S. P. A.
I was privileged to examine the Coccidae sent by Mr. Muir from
the above locality. The following species were in the collection, Mrs. Fernald's "Catalog of the Coccidae" being followed in nomenclature.

Subfamily COCCINAE.

PULVINARIA sp.

Specimens labeled by Mr. Muir "Chinese white wax scale" are evidently a species of Pulvinaria, but in the absence of cottony sacks it is impossible to say what species it is.

COCCUS TUBERCULATUS, n. sp. (fig. 1, e-i)

Adult ♀ ochreous, median area in some specimens marbled with brown.

Eyes small, black. Form more or less oblong, acuminate at each extremity. Derm with raised reticulating lines forming a tessellated pattern(fig.1, e) as in *tessellatum*. The reticulation less distinct away from median area. Dorsal surface is coated with a delicate transparent waxy layer. Antenna (fig. 1, f) 8 jointed formula approximately 3, 4, (5,2), 8, (6,1), 7. Two conspicuous long spines behind each. Legs normal, tarsus half the length of tibia. Stigmatic clefts small and inconspicuous; spines three (fig. 1, g) the median nearly 4 times the length of others. Marginal hairs moderately long and fine, simple, pointed. Submarginal tubercles (fig. 1, h) in 26 groups or irregular rows of 3-5 to each side of body. Scales of anal operculum (fig. 1, i) broad; outer edge somewhat longer than base apical angle rounded. Large number of circumgenital glands arranged in semilunar group. Length about 4 mm. Breadth about 1.5 mm.

Habitat.—On leaves of unknown tree. Singapore (F. Muir
No. 244), 1907. Except for the numerous tubercles and a few minor differences this species seems a very close ally of *L. frontale*, Green.

*Type* material and slide in Entomological collection (No. 860) of the Hawaiian Board of Agriculture.

**Paralecanium expansum** (Green).

Green, "Coccidae of Ceylon," III, p. 235, Pl. LXXXVI, 1904. Several specimens apparently all collected at Singapore on several plants. But one of them bears Mr. Muir's No. (238), another is dated March '07.

This is a very large species (7.5 mm. long and 6 mm. broad). Mr. Green reports it also from Java and Queensland, so that the present is the first record of this species from the Malay Straits.

Subfamily **DIASPINAe**.

**Chionaspis sp.**

"On sugar cane, especially wild." Malay States. (F. Muir No. 260). Zehntner described four species of Chionaspis from sugar cane in Java. The accessible literature covers only two of these, and the present species is not either but may be one of the other two.

**Phenacaspis dilatata** (Green).

Green, "Coccidae of Ceylon," II, p. 148, Pl. LI.

*Habitat.*—"Batu Estate" (Malay?) on "Rubber." (F. Muir No. 262).

*Note.*—On leaves along side of *Asp. palmae*, tho less abundant.

**Aspidiotus (Hemiberlesia) palmae** Morg. & Ckll.

Leonardi, Gen. e Spec. Diaspiti, Asp., p. 78, fig. 22, 1900.

"Batu Estate" (Malay?) on "Rubber" leaves, (Muir No. 262); Singapore on ?, March '07.

This insect was quite abundant on the specimen leaves collected by Mr. Muir. Externally it resembles *A. rapax* so closely that nothing short of a careful study of a microscopical preparation will determine its true identity.

In this connection it may be of interest to note that Mr. New
stead reports (Quart. Journ. Inst. Comm. Research Tropics, Liverpool Univ., Vol. I, No. I, p. 19, Jan. 1906), A. cydoniae Comst. upon rubber (Castilloa) from Nicaragua, C. America. This species is even more closely allied to palmae than is rapax, and were the determination made by a worker less careful than Mr. Newstead one would be inclined to doubt the authenticity of the name. A. cydoniae and its var., clavii, are quite common on these islands as is also a variety of rubber trees but so far this species has not been reported on rubber here.

**PSEUDAONIDIA TRILOBITIFORMIS** (Green).

Food plant—unknown. Singapore (F. Muir No. 248).

**CHRYSOMPHALUS MINUTUS**, n. sp. (fig. 2, a-d).

♀ **scale.**—Greenish yellow, subcircular, convex, diameter 0.65 mm. Exuviae sub-central, 1st orange, 2nd dark brown within white circle. Ventral scale complete except central opening, tough.

♂ **scale.**—Smaller, more elongate, with no appreciable ventral deposit.

♀.—Blood-red when dry. In balsam 0.450 mm. long by 0.42 mm. wide. Cephalic end more or less chitinised (especially in old specimens), broadly rounded; thorax separated from abdomen by lateral indenture. Pygidial termination quite broad, spaces between lobes unusually large, especially between median and second lobes (fig. 2, a). Three pairs of lobes: median pair united except distal third, quite broad, darker than the others, distinctly notched caudo-laterally, and terminating in an oval cavity; second lobe scarcely broader, minutely serrated, bearing about 5 teeth, oblique, separated from median by a space equal to combined width of two median lobes; third lobe about $\frac{3}{4}$ width of second, similarly shaped, bearing about 3 teeth to the serration, distance from 2nd only about $\frac{1}{2}$ of that between 1st and 2nd. Paraphyses distributed as follows: 2 are on median lobe pointing cephalad from cavity, the inner being $\frac{3}{4}$ length of outer; one more or less club shaped and much longer and stouter than first two is situated just lateral of median lobe and bears a small gland aperture, and a similar one at the inner base of the second lobe; one long fusiform paraphysis originates between the median
lobes and extends cephalad to and sometimes beyond anus. The paraphyses are peculiar in that they are unusually light in color and peculiar structurally. The interlobal plates are 3-furcated about as long as lobes, there being apparently one between medians, 5 between 1st and 2nd, and 3 between 2nd and 3rd; several simple plates of varying length follow the last lobe. No circumgenital glands. A few minute dorsal pores scattered about the caudal margin of pygidium.

Chrysomphalus minutus, n. sp.
a, \( \varphi \); b, \( \delta \); c, leg of \( \delta \);
d, pygidium.

Fig. 2

\( \delta \).—Apparently not much different from those of other Diaspinae (fig. 2, b). Tarsi (fig. 2, c) very hairy, claw sharply pointed, digitules, knobbed.

Habitat.—On both sides of leaf of unknown plant. Singapore, (F. Muir No. 249) February, 1907.

Type slide and material in Entomological Collection (No. 853) of the Hawaiian Board of Agriculture. Cotype material also in author’s collection.

OCTOBER 3rd, 1907.

The thirty-third regular meeting was held in the Library of the Bureau of Agriculture and Forestry, Mr. Giffard in the chair.

NOTES AND EXHIBITIONS.

Mr. Kotinsky exhibited a tube of both sexes of Eucoila impatiens, a few of which were decidedly less than one-half the size of the normal individuals. These were presumed to have come
from eggs laid in the larvae of the Horn-fly (*Haematobia serrata*). They were bred from eggs laid by a female confined with 200 maggots in a jar about a month previously. In all, 29 females and 6 males issued from these larvae. As these numbers do not represent an average, it is not certain that they are normal. The metamorphoses of *Stomoxys* consumed about 14 days, those of *Haematobia* close on to three weeks; the larvae of the latter were more numerous in cow dung five or six days old than that three or four days old. In the latter those of the larger flies were more abundant.

**PAPERS READ.**

**A Note On The Immigration of Hemiptera Into Oceanic Islands.**

**BY G. W. KIRKALDY.**

The geographical distribution of Insects is now so greatly vitiated by interisland and intercontinental commerce, that the smallest record of immigration, showing whether it is natural or artificial, is of value.

At a recent meeting of this Society, exhibition was made of a Hemipteron, *Piezodorus rubrofasciatus* (Fabr.). This Cimicid has a very wide distribution, occurring in northern Australia, New Caledonia, Murua, Lifu, Fiji, Tahiti, Japan, the Philippines, Cochin China, India, Sumatra, Java, Abyssinia and Zanzibar, that is to say, it may be expected almost anywhere in the Australasian, Oriental or Ethiopian Regions, as well as in the Manchurian Subregion. It has not established itself in the Hawaiian Islands, at least it has not yet been found, but it is very interesting to hear that an example was detected and killed by Mr. Craw, while inspecting introduced plants, at the Port of Honolulu. It is pretty certain that *Piezodorus rubrofasciatus* would have become established here sooner or later, if systematic plant-inspection had not been enforced.
The thirty-fourth regular meeting was held in the Library of the H. S. P. A. Experiment Station, Mr. Giffard in the chair.

Member elected: Mr. W. Pfotenhauer.

NOTES AND EXHIBITION.

Mr. Giffard exhibited three specimens of the rare endemic Cossonid Heteramphus hirtellus Sharp, which he had taken in September on Tantalus, Oahu, at about 1800ft. elevation. The specimens were found on damp ground under decaying leaves.

Mr. Giffard also exhibited numerous specimens of the commoner H. wollastoni, H. foveatus and H. filicum taken on Tantalus at various elevations between 1200 and 2000ft. in rotted fern-stumps. The only remaining recorded Oahuan specimens of Heteramphus which he had been unable to collect so far, was H. cylindricus. This latter species has heretofore been common at the base of the leaves, and in the stems, of Astelia. It is of much smaller size than all the other species from Oahu.

Mr. Giffard also presented notes on Coccinella repanda Thunb. and Coelophora inaequalis Fab., in which he stated that Prof. Koebele claimed that the Coccinellidae which he sent to the Hawaiian Islands from Australia under the name of Coccinella repanda was in reality the typical Coelophora inaequalis. Until the original types (which are in Europe) of both the species referred to, have been examined, there will, however, continue to be a doubt as to which is which.

Mr. Giffard exhibited the following Coccinellidae, with notes on their introduction into the Hawaiian Islands by Mr. Koebele:

Serangium maculigerum Blackburn. Sent over from Sydney in 1894. Taken by Koebele in various locations of northern New South Wales, also Toowoomba and Brisbane. The northern species described from Cairns may be only a variety of the same.

Pentilia nigra Weise? Sent over from China and Japan during 1895, abundant on orange in both localities. First found in Honolulu, July 29th, 1896, on Myrtle and feeding on Lepidosaphes beckii; already numerous the same year; a valuable insect.
Scymnus notescens Blackburn. Introduced from Australia in 1894. Numerous on Aphids.

Sticholotis punctata Crotch. Introduced from Japan and China in 1894-5. Rather variable in both places.

Mr. Swezey exhibited the following specimens with notes:

Melittobia hawaiiensis Perkins. Described by Dr. Perkins in Pt. IV, Proc. Haw. Ent. Soc. Bred from material collected by Mr. Giffard; reared later on Odynerus nigripennis, Sceliphron caementarium and Pison hospes. Oct. 1907, I found a nest at H. S. P. A. Experiment Station of Megachile palmarum, in which several of the cells contained parasitized larvae.

Megachile diligens Smith. Collected previously by me at Napoopoo, Hawaii, 1 specimen. Several collected today at Waimanalo, Oahu. In the “Fauna,” reported by Dr. Perkins as “rare” occurring on Oahu, Molokai, and Kona districts of Hawaii.

Sceliphron caementarium (Drury). Oct. 19, 1907, at H. S. P. A. Experiment Station, one female with 3 males perched on top, one above the other, and each holding to the neck of the one below with its jaws. The lower one had no sexual connection. On a previous occasion 2 males were found similarly perched upon one female.

Notes on the Life-history of an Endemic Hemerobiid
(Nesomicromus vagus Perk.).

By F. W. Terry.

During a collecting trip up the local valley of Palolo last March, several eggs of this small Hemerobiid were found on the leaves of a composite which was infested with aphides. From these eggs several larvae hatched, from which adults were finally bred.* The young emerged Mar. 5th, '07., feeding readily on aphides of various species, becoming fully-fed Mar. 14th. They commenced spinning cocoons the following day, and pupated Mar. 16th, emerging as adults Mar. 24th.

The total period occupied from eggs to adult being about 3

weeks; i.e., egg incubation period 3-4 days; larval period 10 days; pupal period 8 days.

Egg: Narrowly ovoid, non-stalked, non-sculptured, whitish-opalescent, .75x.30 mm.

Larva: Naked throughout its period, upon hatching, unicolorously pale-pink, 1.50 mm. long. The adult larva is elongately napiform and non-setose (this seems to be the characteristic form of those Hemerobiids and Chrysopids having naked larvae); dimensions, 7.50x1.50 mm. Head: small, flattened dorsoventrally, translucent, pale reddish-brown; antennae black, filiform, about 4 times the length of the head; palpi long, terminal joint long and moderately thickened, basal joints greyish-lutaceous, apical blackish; mandibles short, very little longer than the head, and much less curved than either Chrysopa or Anomalo-chrysa; pale reddish basally, darker apically, blackish madianly.

Body: Thoracic and abdominal segments brownish-testaceous, with a lateral row of irregular dark areas, forming from 1st thoracic to 5th abdominal segments a pair of irregular longitudinal chocolate-colored bands, with purplish shading around 1st.—3rd thoracic areas; 1st thoracic segment with lateral areas pale; abdominal segment 1-6 each with a lateral tubercle and pale lateral margins extending to segment 8. Segments 8-9 reddish-brown. Dorsal vessel conspicuous and blackish-brown. Legs moderately long, coxae and femora blackish, tibiae light-brown; claws normal, stalk of pedal sucker much shorter than that of Chrysopa or Anomalo-chrysa.

Pupa: Blackish and distinctly visible through the meshwork of the cocoon.

The cocoon is relatively large 6x3 mm., and composed of loosely-spun pale-yellow silk, the pupa lying freely within its spacious receptacle.

This insect appears to be common in the forests of the whole group.
DECEMBER 5th, 1907.

The thirty-fifth regular, and third annual, meeting was held in the Library of the H. S. P. A. Experiment Station, Mr. Giffard in the chair.

The Secretary announced the death of a member, Mr. E. H. Davis. An unanimous resolution of regret at the loss of Mr. Davis, and of condolence with his relatives, was passed by the Society. This was the first loss by death the Society had suffered.

The election of Officers for 1908 resulted as follows:

President ......................... Mr. W. M. Giffard
Vice-President..................... Mr. Otto H. Swezey
Sec-Treasurer...................... Mr. Jacob Kotinsky
Additional members of Executive \ Mr. F. W. Terry
  Committee....................... \ Dr. R. C. L. Perkins

NOTES AND EXHIBITIONS.

Mr. Giffard recorded the bee *Lithurgus* from Tantalus.

**Presidential Address**

**BY W. M. GIFFARD.**

The preparation of a Presidential address with some branch of entomological field or laboratory work as a subject may be an easy matter to the professional entomologist, and particularly so to one of that class which has had opportunities for an extended research in one or more of the various districts of these Islands; but it is quite another matter for the amateur like myself, who, under the most fortunate of circumstances, can devote on an average but one whole day per week to entomology of any kind, to address a Society of entomologists containing many members who have added lustre to the branch of science we serve. Whilst I feel greatly honored by the members of this Society electing me its President for the past fiscal year, and whilst I am at all times prepared to assist the interests of the Society in all respects, yet for the reasons above stated it is with great diffidence that I take
upon myself to deliver a Presidential address on an entomological subject in conformity with the precedent which seems to have been established by my respected and talented predecessor. Our By-Laws make it obligatory for the President to deliver an address at the Annual Meeting, and I have therefore decided that my subject on this occasion shall relate to a visit of 3½ days which I made recently to the Island of Lanai, during which short period barely one-half of my time could be devoted to collecting of insect fauna.

From the Rev. T. Blackburn’s Résumé of his journeys and collecting on these Islands the following extracts are taken as descriptive of Lanai, and they may be considered serviceable for the purpose of this address. “This island (Lanai) lies due West of Maui from which it is separated by a Channel 9 miles wide. It is one of the smaller islands, having an area of only about 150 square miles. Its highest summit has an elevation of about 3,400 feet and the mountains occupy an unusually small proportion of area to the plains; moreover the forest is here less extensive and dense than in most parts of the Archipelago.” * * * * “As a rule the insect fauna of the island appears to be closely related to that of Maui, but only a few of its insects seem absolutely identical with those of its neighbor; I feel compelled to regard them in general as species in course of acquiring complete isolation and therefore incapable of being treated as mere varieties. In the few patches of forest that I explored it appeared to me that insects were more plentiful than might have been expected.”

Comparatively speaking I do not consider that Lanai is at present as rich in insect life as Hawaii, Maui, Molokai or Oahu. It was not considered so by Dr. Perkins some years ago when he spent quite a little time on the island investigating it entomologically. Mr. Blackburn’s visit there was some years prior to that of Dr Perkins’, and covered a period of one week only, during which he collected the following endemic and introduced beetles: 

(See Trans. R. Dublin S. 1885.)

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endemic</td>
<td>17</td>
</tr>
<tr>
<td>Introduced</td>
<td>18</td>
</tr>
</tbody>
</table>

Of the endemic beetles no Carabids, Rhyncogonids or Plagithmysids were taken by him.

Dr. Perkins during a longer visit to Lanai than any entomologist has ever made, records in Fauna Hawaiensis (1900)
(as near as I can calculate) the following endemic beetles as having been collected by him on that Island.

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carabidae</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Cerambycidae</td>
<td>1</td>
<td>Five of these being generally distributed throughout the Islands.</td>
</tr>
<tr>
<td>Curculionidae</td>
<td>18</td>
<td>Five of these being generally distributed on other Islands.</td>
</tr>
<tr>
<td>Scolytidae</td>
<td>3</td>
<td>Four of these being generally distributed on other Islands.</td>
</tr>
<tr>
<td>Proterhinidae</td>
<td>13</td>
<td>Five of these being generally distributed on other Islands.</td>
</tr>
<tr>
<td>Ciodae (Cis)</td>
<td>10</td>
<td>One being generally distributed on other Islands.</td>
</tr>
<tr>
<td>Ciodae (Apterocis)</td>
<td>4</td>
<td></td>
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Since the above visits the forests and other local conditions of the Island have undergone a radical change for the worse, and it is easy to foretell what is in store in this respect in the future, should the depredations of goats and sheep on the little indigenous forest Lanai now possesses, be allowed to continue. Today the only forest on the Island worth mentioning is at the summit of the mountain called Haalelepakai which reaches an elevation of 3,400 feet. Its area I should approximate at about two hundred acres only, whilst my understanding from Dr. Perkins was that during the period of his visit, it extended over a much larger area. In this forest may be found a fair number of native trees such as Ohia-lehua (*Metrosideros polymorpha*), Pua (*Olea sandwicensis*), Naieo (*Myoporum sandwicense*), species of Straussia, Pelea, Lobelia, and Euphorbia, etc., together with the usual undergrowth of tree and other ferns, as well as occasional clumps of Ieie (*Freycinetia*). The condition as to deforestation referred to also extends to the sides of the valleys and gorges which are found on the upper sections of the slopes and plains that reach to the only mountain range on the Island. In olden times these valleys or gorges were well covered throughout with forest growth, but very little now is to be found unless one travels far into their innermost recesses. Barring, therefore, the small area of indigenous forest before mentioned, and the upper sections of some of the valleys referred to, the Island, as I found it, is of but little interest to the collector of endemic insects. I think it is possible, however, to secure today most, if not all, of the endemic
insects taken in the forest section by Dr. Perkins and Mr. Blackburn, but to do so one would have to remain in camp on the mountain for a more or less extended period, which, unfortunately, I was unable to do at the time of my visit. It is quite certain that unless the remnant of forest above referred to is immediately protected and preserved, in a short time it will entirely disappear as will also a very large number of the various species of endemic insects which have heretofore been collected there. It was this fact that induced me to take the present entomological conditions of Lanai as the subject of my address and I hope that now attention has been called to the condition that exists, some of the members of the Society will arrange to collect there in the near future.

The coast line of the island in places is now showing a dense growth of Algaroba, but the plains, slopes, plateaus and ravines are hopelessly bare of tree life except occasional clumps of wind-swept scrub Ohia-lehua and Pua in sheltered spots, or small groves of the native Pandanus, or, perhaps, a few occasional Kukuis (Aleurites moluccana), Eucalypti or such trees where these marked the former wind breaks of human habitation. Cactus (Opuntia) and clumps of Agaves also dot portions of the plains whilst the slopes leading to some of the plateaus are covered with a dense growth of Aliimahu or Puksawe (Cyathodes tameiameiae) as it is sometimes called. It it needless for me to say that none of these trees, plants or bushes are of very special interest to the collector of our endemic insect fauna. Moreover, domestic and other ants swarm everywhere except in the indigenous forest and these in themselves are sufficient to keep most of our endemic insects away from their neighborhood. On certain sections of the plains at about an elevation of 1,000 ft., I noticed an abundance of the native wild Ilima (Sida fallax. var.) in flower and at about 1,500 ft. elevation the introduced red-flowering Salvia (Salvia coccinea) was growing wild. This latter is probably an escape from gardens which if not eradicated will become a pest (if it has not already) as it is known to produce abortion in cattle. I have no doubt that had I had opportunity for a longer stay I might have taken from among these one or more species of other Aculeate Hymenoptera than those I collected. As it was, during a short hour I took Odynerus insulicola, O. nigripennis and one other species which may be O. monas. If not this, then it may
be a new species. In this neighborhood and at the same time I also collected *Nesoprosopis assimilans*.

Two and a half days of my time were spent at the Ranch house of the owner of the Island, which is situated at an elevation of about 1,800 feet at a section called Koele. The collecting I did was therefore of necessity confined to the larger valleys in that locality and more particularly to the sides of these, where, because of protection from the prevailing strong winds, there was still more or less native tree growth which was not wind swept. Of the *endemic insects* collected in these valleys at an elevation of 2,000 feet were the following:

† **COLEOPTERA**

**PROTERHINIDAE** *Proterhinus deceptor* and *P. innotabilis* * on Kukui and Ohia

**CIIDAE** *Cis calidus, C. porcatus and C. insularis* on Ohia.

**CARABIDAE** *Colpocaccus tantalus var. lanaiensis* from under stones in creek.

**CURCULIONIDAE** *Oodemias aequale* from dead Ohia twigs.

**HEMIPTERA**

* (Heteroptera)

**GECORIDAE** *(Nysius saundersianus)*

**MIRIDAE** *(Sarona)* 2 species nov.

**do.** *(Psallus)* 1 “ “

**do.** *(Tichorhinus kanakanus)*

**do.** *(Kalania hawaiiensis)*

* (Homoptera)

**DELPHACIDAE** *(Nesosydne)* 2 “ “

**JASSIDAE** *(Nesophrosyne)* 3 “ “

All these were beaten off Ohia, Pua and Naio.

* *Proterhinus innotabilis*, Dr. Perkins informs me, is a very variable species and may prove to include several.

† For the identification of the endemic Coleoptera I am indebted to Dr. R. C. L. Perkins and for that of the Hemiptera to Mr. G. W. Kirkaldy.
DIPTERA

Sarcophagid species.

ACULEATE HYMENOPTERA were not in evidence anywhere in this neighborhood, which is all the more surprising as bright sunny weather prevailed whilst on this particular collecting ground.

Of introduced species of insects I noticed in the vicinity the following:

COLEOPTERA

COCCINELLIDAE 3 species viz:

Cryptolaemus montrousieri
Rhizobius ventralis and
Coelophora inaequalis or Coccinella repanda
Generally distributed but not in large numbers.

COCUJIDAE 1 species (Psammaechus desjardinsii) beaten from Kukui, Ohia, etc.

ANTHRIBIDAE 1 species (Araeocerus fasciculatus) beaten from Kukui.

STAPHYLINIDAE 1 species, similar to one of the foreign introduced species on Oahu.

HYDROPHILLIDAE 1 species, (Hydrobius semicylindricus.) Found under stones in creek.

MYCETOPHAGIDAE 1 species (Litargus vestitus) from Ohia.

TENEBRIONIDAE 2 species viz:

Opatrum seriatum and
Alphitobius lateralis
Both exceedingly common under stones and in matted grass everywhere on the plains and plateaus. Generally taken in company.

HYMENOPTERA

Chalcis obscurata Generally distributed in the neighborhood.

ORTHOPTERA

Species of Roach (Polyzosteria soror) exceedingly common in thick matted manienie grass.
Species of Gryllid (Gryllus innotabilis) also exceedingly common.
HEMIPTERA

(Heteroptera)

REDUVIIDAE (Zelus renardii = peregrinus)
MIRIDAE (Hyalopeplus pellucidus)
TINGIDAE (Teleonemia lantanae)

The lantana Tingid (Teleonemia lantanae) is not thickly distributed so far as I could see, which fact is no doubt due to lantana, its food plant, being scarce on the Island. Lantana has never been a pest on Lanai which fact is no doubt due to the introduction, by a former owner of the Island, of Prof. Koebele's lantana insects some of which have the effect of preventing its spread. Its scarcity on the Island is most marked and during my 3½-day visit I never saw a plant of it although the owner of the Island informs me that he occasionally comes across a few small patches in remote spots.

The number of species of endemic insects seen and taken in the valleys mentioned, was very discouraging considering the hard tramping it was necessary to do in order to get over the ground, but a trip from the Ranch house to the summit of the mountain at Haalelepakai, which as I said before is at an elevation of 3,400 feet, is well worth making, even if it only allows one the opportunity for 3 or 4 hours collecting in any one day. This small forest section certainly seems more natural as a collecting ground for the entomologist, but even here the paucity of insect fauna is marked when compared to similar situations on some of the other Islands in the group. It is quite certain that if one intends to make a successful day of it there, one cannot afford to loiter on the collecting ground or en route. On the day I visited the mountain, Haalelepakai and the adjacent forest were enveloped in mist. This was varied with occasional showers of drizzling rain making collecting disagreeable, but for a third of the time, however, there were glimpses of sunshine during which I hoped to see some of the native Aculeates flying about. In this I was extremely disappointed and my visit to Haalelepakai in this respect produced the same result as was experienced in the valleys below—absolutely nothing of any kind on the wing other than the common blow-fly. I was more fortunate with other things, particularly with Coleoptera which ranks equally with Aculeate Hymenoptera
as my specialty, all other insects collected on my visit to this Island having been taken incidentally only. Amongst the endemic insects collected on Haalelepakai I will mention the following:

**COLEOPTERA**

**PROTERHINIDAE** *Proterhinus lanaiensis, P. ineptus, P. ineptus var., and P. innotabilis var.* from Ohia and other native trees.

**CIODAE** *Apterocis ephistemoides var.* from Ohia.

**CURCULIONIDAE** *Oodemus molokaiense* and *O. aequale* on Strausia, Ohia and other native trees (a pair of *Oodemus molokaiense* were taken "in cop.")

*Rhyncogonus sordidus* taken from moss on trunks of Strausia.

**CARABIDAE**

**NITIDULIDAE**

**ORTHOPTERA**

**HEMIPTERA**

*(Heteroptera)*

**NABIDAE** *(Reduviolus nubigenus)*

**MIRIDAE** *(Orthotylus)* 1 species

" (Sarona) 2 " nov.

" (Nesiomiris hawaiensis)

**GEOCORIDAE** *(Nysius)* 1 species nov.

**DO.** *(Homoptera)*

**DELPHACIDAE** *(Aloha)* 2 " nov.

**FULGORIDAE** *(Oliarus)* 1 " "

**JASSIDAE** *(Nesophrosyne)* 1 " "

The only introduced insects, other than common flies, noticed in the forest section were 3 species of COCCINELIDS viz: *Rhizobius ventralis, Scymnus vividus* and *Coccinella repanda* or Coelophora
inaequalis. The native Cerambycid (*Plagithmysus lanaiensis*) recorded by Dr. Perkins from this neighborhood I did not find although I spent a good deal of time seeking it. Either it was out of season in October or the damp atmosphere and lack of sunshine which prevailed on the mountain on this particular day prevented its appearance on the trunks of *Ohia lehua* to which it is supposed to be attached. It was taken by Dr. Perkins in the month of July, 1894.

The time I spent collecting and observing insects on Lanai was only what could be spared from a short visit to the Island made primarily for business, and I did not expect under such circumstances to either enlarge or enrich my collection to any great extent, yet it was with no ordinary pleasure that I made my quest in the virgin forest of Haalelepakai or the deep ravines of its slopes, and although not altogether successful as to the number of species of insects collected there, it was yet quite worth the trip to Lanai even if only to add to my collection of Coleoptera and Aculeate Hymenoptera some of the exceedingly interesting endemic species above enumerated. How much of novelty, interest, excitement, satisfaction and health such days of collecting can yield is surely only known to those whose lives seem too short to study a few species of the smallest, but not least interesting, of God's creatures.

The rapid disappearance of this virgin forest and that of other districts of these Islands should act as a bugle call to the members of this Society. The examination, classification and identification of specimens are matters that can be postponed, (although it is known that I am not favorable to delay in any branch of our work) but if collectors do not get into the field quickly the prizes nature now offers in some districts of these Islands may soon be withdrawn never, perhaps, to be offered again. We are with reason proud of the achievements of our entomologists in the local economic field: if some of the individual members of this Society fail to accomplish anything in pure science let the blame not be attributed to neglected opportunities. This Society now includes a number of enthusiasts who could not spend their leisure time better than in exploring every nook of a country "where every prospect pleases" and blessed with a climate so benignant that outdoor life is not only always possible but is a panacea for the ills that follow the cares of business and the indulgences of city life.
A Bibliographical Note on the Hemipterous Family Aleyrodidae

BY G. W. KIRKALDY.

In my recently published Catalogue of the Aleyrodidae, I noted on p. 103, that early this year, Tullgren had published a paper on this family, which I had not seen. The author has now favored me with a copy, and I can furnish the correct reference as "Arkiv for Zoologi III. no. 26, pp. 1-18, textfigs. 1-27. (March 6th. 1907.)"

A new genus, Aleurochiton, is formed, separated from Aleyrodites by the median vein of the tegmina being forked, and from Aleurodicus by the median vein of the wings being simple. The type is (aceris =) acerum. The other species discussed are "Aleyrodites" proletella, A. brassicae & A. fragariae, all being well illustrated.

I take this opportunity of making some corrections &c. in my Catalogue:


id. no. 3. op. cit. XVIII. 337-42, Pls. XII-XIII. (Oct. 1907). (*)

p. 34. "The Aleyrodites of the Greenhouse" &c. is by Westwood, not Westhoff.

p. 56, line 4, for "Mexico" read "New Mexico".

p. 78, immediately under Nearctic Region, add "Connecticut, actae, coryli, ternaldi, forbesii, mori, morilli, packardi, waldeni, vaporariorum."

p. 89, lines 28-9 for "P. gratissima" read "P. persea".

p. 103. add:


*With the following new species: Coryli, waldeni, & morilli; there are also new food plants, &c.
A List of the Described Hemiptera (excluding Aleyrodidae and Coccidae) of the Hawaiian Islands,

BY G. W. KIRKALDY.

The Hawaiian Hemiptera are remarkable for the fact that they are represented endemically by the following families only, viz: Cimicidae, (probably), Lygaeidae, Myodochidae, Nabidae, Reduviidae, Anthocoridae, Miridae, and Acanthiidae, among the 26 recognized families of Heteroptera, and by the Tetigoniidae, Fulgoridae, Asiracidae and Chermidae only, out of the 14 Homopterous families: that is to say, 12 out of 40. These figures, however, do not really represent the true constitution of the Fauna, as, out of these 14, only 6 are represented by more than ten species each, viz: Myodochidae, Nabidae, Miridae, and the first three Homopterous Families. (†)

The absence of Cicadidae, Cercopidae, Aradidae, Pyrrhocoridae, Tingidae, and Gerridae, so well developed in other parts of the Pacific, and the feeble representation of the mighty Cimicidae, Lygaeidae and Reduviidae, show, more plainly than many words, the real condition of the Fauna.

The leading characteristic of the Hawaiian Hemiptera is their tendency, and almost complete adaptation, to an arboreal life. All, or practically all, the Hawaiian Asiracidae—one of the most important families numerically—are arboreal, a phenomenon otherwise known, so far, only in one peculiar Australian genus, Proterosydne Kirkaldy. Acanthia, usually a riparian genus, has one species, representing, no doubt, the ancestral form, inhabit-

(†) In calculating, I have taken into account a large number of manuscript species.
ing dry heaths in Europe; nowhere but in these Islands, to my knowledge, are there arboreal species.

Species marked * are known elsewhere, or are probably not endemic; those marked † are unknown to me, at present, with certainty.

Of the 174 species now recorded, 138 are considered endemic and 36 immigrant; the endemic genera number 31. Beyond this, however, the Coccidae and Aleyrodidae must be added, and I have descriptions of over 100 endemic species in manuscript and at least 100 more yet unworked, so that I do not think that I overestimate the total Hemipterous fauna, endemic and immigrant, at 500 species, of which about 360 would be endemic, the rest immigrant.

Family Cimicidae. (†)

1. **Oechalia grisea** (Burm.) [= *patruelis* Stål.] I have noted (P. H. E. S. I. 141) that there are two types of *Oechalia*-ova here, but I cannot give details at present.

2. **O. pacifica** (Stål.) It is possible that this is only a variety of *O. grisea*, as I made it at first, and that there is another undescribed species here.

Family Thyreocoridae.

3. *Geotomus pygmaeus* (Dallas).

4. **Coleotichus blackburniae** (White).

Family Lygaeidae.

5. **Ithamar hawaiensis** Kirkaldy. The type was from Molokai.


(†) **Piezodorus rubrofasciatus** has been recorded by Van Duzee (1905 Bull. Amer. Mus. XXI. 207), and **Carpocoris pudicus** var. *fuscispina* by Oshanin (1906 Yezh. Zool. Mus. Peterb. XI. Beil 113.), both certainly in error. **Eysarcoris insularis** Dallas (1851 List 228) from “Sandwich Islands” is either from Pate, (less correctly Vate), in the New Hebrides, or from Sandwich Island in the Bismarck Archipelago.
Family Pylrhocoridae.

7. *Dysdercus peruvianus* (Guerin).

Family (=Geocoridae) Myodochidae.

8. *Metrarga nuda* F. B. White. (†)

This seems to be principally an Oahuan species. I have now only one Mauian example before me, which differs by the unicolorous pale red-brown tegmina, not chequered laterally. For the present, it may be termed var. mauiensis. The smaller dimensions given for nuda belong to the next species.


The genital characters separating this from nuda seem very slight, but some examples from Hawaii are distinctly smaller and darker, and seem to constitute a good species.


In the "Fauna Hawaiiensis" I described the ♂ labium as reaching to, or slightly beyond, the hind coxae, the ♀ labium as reaching to the base of the 4th sternite. This does not at all characterize the Oahuan specimens now before me, and must refer to the Lanai examples from Haalelepakai, &c., (which may then be termed lanaiensis sp. n.). In contracta, the ♂ labium reaches at least to the middle of the 6th sternite and to the middle of the ultimate one in the ♀. In both sexes, the first segment reaches the fore coxae.

var. *picea* nov. This has the pronotum, tegmina &c., fuscopiceous, the tegmina being rather obscurely speckled with pallid, which, however, is conspicuous on the dilated part. The underside is almost uniformly piceous, except the leg-annulations, &c. Hab. (of *contracta*) Oahu, Koolau range (? all over), on Ieie (*Freycinetia arborea*) and under fallen leaves &c. on the ground. In addition to the "Fauna Hawaiiensis" series, I have seen specimens taken by Messrs. Giffard, Swezey, Terry and myself.

*M. contracta* is so distinct structurally from the other species, that it forms at least a subgenus, which will probably be raised to

(†) The subfamily Metarginae is, so far as is known, entirely Hawaiian. It has really little to do with the Cyminae, as I formerly supposed, and should probably be placed near the Oxycareninae. The spiracles of the last three segments open on to the sternites.
generic rank, should the Metrarginae be found elsewhere. *Nesoclymacies* is characterized as follows:

Corium laminately dilated, basal sixth strongly contracted; first segment of labium reaching to fore coxae; pronotum rounded anterolaterally; eyes subpedicellate, not extending laterally nearly so far as the anterolateral angles of the pronotum. Antenniferous tubercles less acute. Type *contracta*.

11. **M. (N.) lanaiensis** sp. nov.

I have temporarily given this name to the Lanai specimens determined by me in 1902 as *contracta*. Pl. V. f. 48a, so Dr. Perkins informs me, refers to this. Beyond the labial proportions, as to which I am uncertain, I can say nothing about this, except to point out the differences between the alar venation in this and *contracta*, which may, however, be the Artist's error.

12. **M. villosa** F. B. White

I form a new subgenus, *Nesoctyptias*, for this, characterized as follows:

Corium not, or only slightly, contracted basally; first segment of labium reaching to base of head.

Antenniferous tubercles less acute; head and eyes much narrower than the pronotum anterolaterally, the latter rounded. Eyes sessile, small. Membrane small, not, or scarcely, extending posteriorly beyond the apical angle of the corium. Type *villosa*.

The typical subgenus, (type *nuda*) may therefore be characterized as:

Corium not, or only slightly, contracted basally; first segment of labium reaching to base of head. Antenniferous tubercles strongly acute; head and eyes reaching laterally about, or nearly, as far as the anterolateral angles of the pronotum. Eyes subpedicellate. Pronotum acutely spined anterolaterally. Membrane well developed.

13. **Orthoea nigriceps** (Dallas)
14. †**O. vinca** (Say) [*periplanios and pacifica* Kirkaldy olim.]
15. *Clerada apicicornis* Signoret.
17. **Sephora crinigera** (F. B. White).
19. **Nesomartis psammophila** Kirkaldy.
20. **Nysius ochriasis** Kirkaldy.
21. **N. Saundersianus** Kirkaldy.
22. *N. kamehameha* Kirkaldy.
23. *N. coenosulus* Stal.
25. *N. sp.? [vinitor Kirkaldy olim].
29. *N. longicollis* Blackburn.
30. *N. mausiensis* Blackburn.
34. *N. rubescens* F. B. White.
36. *N. whitei* Blackburn.

Family Tingidae.

38. *Teleonemia lantanae* Distant.

As Distant's description was practically useless, and as I felt uncertain of the distinction of this species from *T. notata* Champion, I sent specimens to Dr. Bergroth, who is the greatest living general authority on the Heteroptera. Dr. Bergroth confirms it as a good species and tells me that it is to be distinguished at once from *T. bifasciata* and *notata*, by having the antennae very conspicuously pilose (not indistinctly and almost microscopically so), by the cellules of the costal membrane (costal area Champion) being broad, almost subquadrate (not oblong and very narrow), and by the cellules of the costal (subcostal Champ.) area being transverse (not oblong). These points are omitted by Distant, but are the fundamental characters of the species.

Family Nabidae.


I think this should form a new subgenus, *Nesomachetes*, characterized by the almost straight lateral margins of the pronotum and consequent feeble elevation of the hind lobe, by the immaculate scutellum and non-annulate antennae and legs. The hamus of the wing arises from the connecting vein, almost at its
junction with the subtended vein. It is apparently nearest to *Reduviolus* in sp.

40. *R.* sharpianus Kirkaldy.
42. *R.* innotatus F. B. White.
43. *R.* tara Kirkaldy. The type was from Lanai.
44. *R.* subrufus F. B. White, (only fig. 37 in the "Fauna").
45. *R.* morai Kirkaldy. The type was from Kauai, and was figured (No. 39) on Pl. V. The hook (fig. 39a) belonged to another species, from Lanai.
46. *R.* koelensis Blackburn.
47. *R.* oscillans Blackburn.
48. *R.* arrogans sp. nov.
(= *Reduviolus subrufus* Kirkaldy 1902 l. c. (part)).

Of the general form of *subrufus*. Brownish-yellow, more or less infuscate on head and pronotum. Tegmina mostly, but irregularly, suffused with blackish, the ground color reddish-brown. Abdomen above mostly blackish. Beneath brownish-yellow (except pleurites). Middle and hind femora with an indistinct subcastaneous annulation near the apex. Membrane ashy testaceous, veins ashy-brown. Apex of second segment of antennae black.
Length 12 mill.
Molokai, (June 9th, 1893, Perkins).
49. *R.* truculentus sp. nov.
(= *Reduviolus subrufus* Kirkaldy 1902 l. c. (part.), Pl. V. f. 38).

♂. Pale ashy yellowish, marked with fuscous, as in the figure in the "Fauna Hawaiiensis". Membrane ashy testaceous, veins ashy brown.
Length 10½ mill.
Oahu, Honolulu Mts., on Mamake (*Pipturus albidus*).
50. *R.* nubigenus sp. nov.
(= *R.* morai olim part.).

Differs from *morai* by the very different appearance of the membrane which is rather thickly spotted with greyish fuscous, the veins being rather indistinct. The form is much shorter and broader.
Length 7½ mill.
Lanai, Haalelepakai; also, I think, from Maui, Haleakala; and Molokai.
51. **R. kaonohiula** sp. nov.  
(= *R. tarai* part.)  
Much like *tarai*, but the ♂ hook is very different, and the pronotum is distinctly more constricted submedially.  
Length 8½ mill.  
Hawaii, Kilauea, (Dec. 1904) on the Hilo Road, about 2 miles from the Volcano House.  
This is a little variable in intensity of coloring, fully matured individuals being very red, with deep black base and centre to the scutellum. The second segment of the antennae is feebly, if at all, fuscous apically.  

*Nymph* (ultimate): not specially noteworthy except that the apex of the second segment of the antennae is black.

52. **R. montivagus** sp. nov.  
(= *R. tarai* part.).  
Allied to *tarai* and *kaonohiula*, but the hind lobe of the pronotum is proportionately broader, and the pleura and sternites are immaculate orange yellow.  
Length 8½ mill.  
Kauai, Waimea Mts.

53. **R. lusciosus** (F. B. White) * (Pl. 5. f. 35 only of "Fauna").

54. **R. silvicola** sp. nov.  
(= *R. lusciosus* pt. olim).  
Scarcely to be distinguished from *fusciosus*, but the membranal venation is different and the ocelli more distinct.  
Length 8½ mill.  
Molokai.

55. **R. monticola** sp. nov.  
(= *R. lusciosus* pt. olim).  
A single ♂ in indifferent condition seems to be different from *fusciosus*. It is smaller and darker, the median line being thicker and darker, and distinctly trifurcate behind on the pronotum. Scutellum dark fuscous except two yellow spots. Sternites not sharply bicolorous, but confusedly fuscous.  
Length 7½ mill.  

* *Nesotyphlias* should not be regarded as a genus, but rather as a natural group produced by special circumstances. See p. 155.
56. R. procellaris sp. nov.
(= R. lusciosus pt. olim).
♀ yellowish-brown, the central line piceous, thick, forming into 5 on the hind lobe. Gula and genae blackish. Tegmina yellow-brown, blotched and spotted (especially inwardly) with blackish-brown, hind margin of corium very irregularly sinuate. Legs more darkly spotted than in preceding three, coxae mostly black. Abdomen dark fuscous, or blackish, ventrally paler down the middle; pleurites yellow-brown, marked with black.
Length ♀ 9½ mill.
Molokai, 4,500 ft.

57. R. volcanicola sp. nov.
(= R. lusciosus pt. olim).
Distinguished by the tegmina reaching to a little more than the middle of the abdomen; they are narrow, and angularly rounded apically.
The ♂ is fig. (no. 34—hook, 34a) on Pl. V. of the "Fauna"
Length 8 mill.
Hawaii, Kilauea.

58. R. curtipennis (Blackburn).
59. R. paludicola sp. nov.
(= R. lusciosus pt. olim).
Distinguished from all the other brachypterous forms by the very convex anterior pronotal lobe, and from all, except lolupe, by the multiannulate first segment of the antennae and very short tegmina.
Anterior lobe of pronotum confusedly fuscous, hind lobe with 5 fuscous longitudinal lines. Clavus yellowish-cinereous; corium pale reddish-fuscous. The minute membrane whitish, with a fuscous inner spot. Hind tibiae annulate. Abdomen blackish, more or less reddish partly; pleurites chequered, blackish, red and yellow.
Length ♂ 10 mill., ♀ a little less.
Molokai, 4,000 ft.

60. R. lolupe sp nov.
(= R. lusciosus pt. olim).
Close to the last, but larger, pronotum much less convex, tegmina shorter, and legs less darkly mottled.
Length ♀ 10½ mill., max. width 3¼ mill.
"Kauai? Molokai?"
61. **R. silvestris** sp. nov.

(=*R. lusciosus* pt. olim).

♀ Brownish-yellow of various tints: a central line from base of clypeus to posterior angle of scutellum blackish, doubling on anterior lobe of pronotum, momentarily interrupted on the middle of the pronotum and widening at the posterior angle of the scutellum. Head laterally dark fuscous; antennae brownish-yellow, the second segment a little longer than the first. Hind third of pronotum with an outwardly oblique, obscure fuscous line on each side. Tegmina pale purplish brown (veins mostly thick and yellowish), specked on the corium, especially on the exterior half, with purplish-fuscous. Membrane smoky, veins dark smoky. Abdomen mostly blackish, a broad brown yellow stripe down the sternites medially.

Length 8 mill.

Kauai 4,000 ft.

62. **Milu kerasphoros** Kirkaldy.

(=*Reduviolus rubritinctus* Kirkaldy olim=*Milu kerasphoron* Kirkaldy 1907 Can. Ent. XXXIX. 248.)

Head, collar, anterior lobe of pronotum, posterior margin of pronotum (more darkly), scutellum, &c., more or less reddish-purple or red-brown. Gula and sterna blackish. First, third and fourth segments of antennae and apex of second, labium &c., yellowish-brown; second segment of antennae yellowish, apex of fourth black. Scutellum blackish medianly or anteriorly. Tegmina ashy-yellow, irregularly speckled with pale brown on the clavus; veins on apical half of corium sanguineous. Just about the cross vein there is a fuscous suffusion across the tegmina, and the outer area is darkly speckled, forming a rather distinct pale reddish-fuscous band across. Apical angle of corium reddish-fuscous. Membrane greyish-testaceus, with ashy veins. Legs yellowish-brown, more or less faintly speckled. Hind femora rather obscurely annulate apically. Abdomen above mostly dark fuscous, beneath yellowish-brown (sometimes infuscate). Pleurites yellow-brown, incisures more or less fuscous. Head a trifle longer than the first segment of the antennae. Antennae 4.7½. 7. 4. Labium reaching nearly to the middle coxae. Fore femora two and a quarter times as long as the head, five and a half times as long as maximum width.

Length 9½-10 mill.
Oahu, practically all over the Koolau range from the forest level upwards, but not common.

var. purpurea nov.

The entire upper surface, excluding the membrane, is more or less suffused with purplish. It occurs apparently with the type-form.

63. *Mbrubritinctus* (Blackburn).

Blackburn does not mention the curious horns on the head, but the incrassation of the antennae indicates its probable position in this genus.

Family Gerridae.

64. *Microvelia vagans* F. B. White.


Family Reduviidae.

66. *Alloeocranum biannulipes* (Montrouzier).

67. *Zelus renardi* Kolenati (= *laevicollis* Champion and *peregrinus* Kirkaldy).

I am indebted to Dr. Bergroth for the information that *peregrinus* and *laevicollis* are the same species.

68. *Triatoma rubrofasciata* (de Geer).

69. *Nesidiolestes selium* Kirkaldy.

70. *N. insularis* sp. nov.

This differs so much from my description of *N. selium*, that I fear there is some mistake therein. I cannot refer now, however, to the unique type of the latter.

*N. insularis* differs by the pronotum not being constricted (!), and by the metanotal spine being subacute. The fore femora are nearly twice as long as the coxae, and much longer than the tibiae and tarsi together. In profile the head is much higher on the anterior lobe than on the posterior; eyes small. Head and thorax dorsally brownish-testaceous, more or less obscurely variegated. The abdomen, and the insect laterally and ventrally, piceous; base of abdomen above brownish, &c. The antennae, femora and tibiae are brownish and testaceous in rings. Length (? ♂) 9 mill.

Oahu, Tantalus 1,800 ft. (O. H. Swezey).
71. *Lutetia* insulicola sp. nov.  
(=*L. insolida* Kirk. pt. olim).  
Differs from *L. isadas* Kirkaldy by the different pattern and color; from *L. insolida* White by the larger size, different tegmental pattern, form of tegmental areole, &c. Dark testaceceous, more or less suffused with fulvous. Eyes black. Antennae dark fuscous. Sternites blackish-brown, laterally testaceceous. Fore legs not annulate; hind femora and tibiae dark fuscous, the former apically, and the latter basally, white; the tibiae paling towards the apex, which with the tarsi is testaceceous. Tegmina fuscous hyaline, each area more or less broadly margined with hyaline; exterior margin narrowly sanguineous. Wings hyaline, exterior margin partly sanguineous. Head a little more than twice as long as high, eyes large, occupying nearly all the height of the head. Pronotum longer than metanotum. Median areole of tegmen elongate, about half of the tegmen, widening after the middle, posteriorly acute-angled. Length 9 mill; length of hind tibia and tarsus 15 mill.  
Oahu, Waialua.  
73. *Ploiarodes whitei* F. B. White.  
I suspect I have lumped some good species.  
74. *P. rubromaculata* Blackburn.  
I think there may be some good species lumped by me here.  
75. †*P. pulchra* Blackburn.  

**Fam. Anthocoridae.**  
76. †*Triphleps persequeens* F. B. White.  
77. †*Physoplatysella munda* F. B. White.  
This is known only from Hawaii, Mauna Kea, 3000 ft.  
I think this is a good species. It occurs in the Koolau range, Oahu.  
80. *L. silvicola* sp. nov.  
(=*L. denigrata* pt. olim).  
Differs from *denigratus* by the scutellum being unicolorous sooty. The antennae have the first segment brownish-fuscous, second and third darker, fourth paler. Tegmina unspotted. Length 3¾ mill.  
Kauai, Koholamano.
81. L. montivagus sp. nov.  
\( (=L. \text{denigrata pt. olim}) \)
Distinguished by the maculate tegmina and by the lateral margins of the pronotum being less strongly rounded anteriorly. Clavus with a broad line near the base (by the scutellum), the clavo-corial suture, and a spot on the cuneus, yellowish-brown. Length 4 mill.
Lanai, Keoke Mts. I think that it is the same species that is found in Olaa and Hilo (1800 ft.).

82. L. nubigenus sp. nov.  
\( (=L. \text{denigrata pt. olim}) \)
Smaller than montivaga and the markings are paler and much more obscure; also the membrane has three small pale basal spots, and a large one apically. Length 3½ mill.
Maui, Haleakala, (5000 ft.).

83. Nesidiocheirus hawaiiensis Kirkaldy.
84. †Buchananiella sodalis F. B. White.
85. †Lilia delecta F. B. White.

Family Clinocoridae.

86. *Clinocoris lectularius* (Linneus).

Family Miridae.

87. Sulamita opuna Kirkaldy.
88. S. lunatilo Kirkaldy. The type was a specimen from Kilauea, Hawaii.
89. S. dryas sp. nov.
\( =S. \text{lunatilo var.}, \text{Pl. IV. f. 12 (Faun. Haw.)} \).
90. S. oreias sp. nov.
\( =S. \text{lunatilo brachypterus form, Pl. IV. f. 13. This cannot be the brachypterus form of lunatilo, as the vertex is longer, antennae shorter, &c.} \)
91. Psallus sharpianus Kirkaldy. The type was a Kauaian specimen.
92. P. pelidnopterus Kirkaldy (as var. of the previous).
93. Tichorhinus \( (=\text{Orthotylus}) \) perkinsi Kirkaldy. The type was from Kilauea, Hawaii.
94. T. iolani Kirkaldy. The type was from Kilauea, Hawaii.
95. *T. kanakanus* Kirkaldy. The type was also from Kilauea, Hawaii.

96. *T. kekele* Kirkaldy.

97. *T. daphne* Kirkaldy. The type was from Waianae, Oahu.

98. *T. kassandta* Kirkaldy (as var. of *daphne*).
   The type was from Kilauea, Hawaii.

99. *O. azalais* Kirkaldy. The type was from Makaweli, Kauai.

100. *Koanoa hawaiiensis* Kirkaldy. The type was from Lanai.

101. *Kamehameha lunalilo* Kirkaldy. The type was from Waianae, Oahu.

102. *Cytotopeiletis hawaiiensis* Kirkaldy.

103. *Nesidiorchestes hawaiiensis* Kirkaldy.

104. *Opuna hawaiiensis* Kirkaldy. The type was from Oahu.

105. *Pseudoclerada morai* Kirkaldy. The type was from Molokai.

106. *P. kiliaueae* sp. nov.
   = *P. morai* var. (Faun. Haw., Pl. IV. f. 19). This has nothing to do specifically with *morai*, the eyes being much smaller, and the pattern and coloring quite different.

107. *Sarona adonis*as Kirkaldy. The type was from Kilauea, Hawaii.

108. *Kalania (= Baracus) hawaiiensis* Kirkaldy.


110. *Oronomiris hawaiiensis* Kirkaldy. The type was from Waianae, Oahu.

111. *Nesiomiris hawaiiensis* Kirkaldy. The type was from Olaa, Hawaii, and was marked by mistake "*N. kekele."

111a. *Fulvius* sp. (near *oxycarenoides*). Kauai, on sugar-cane fields.

111b. *Halticus chrysolepis* Kirkaldy.

Family Acanthiidae.

   What I suppose to be this species is rather rare on Oahu, N. W. Koolau range, and Waialua Mts. A specimen from Kauai, 4000 ft., is very close but, I think, distinct.

var. *molokaiensis* nov. Very similar to the typical form, but
the pale color is browner, and the dark tint more suffused. It is probably a good species.
Length 5 mill.
Molokai Mts.
113. *A. oahuensis* (Blackburn).
I suppose that the Tantalus (Oahu) species, taken by Perkins, Giffard and Terry, is this, but I should scarcely have described the fourth segment of the antennae as thickened; at least it is not noticeably so in fresh specimens, nor is it very appreciably shorter than the third.

114. *A. humifera* sp. nov.

(*Acanthia oahuensis* Kirkaldy olim. (pt.)).
Closely allied to the last, but the tegminal picturation is different, and the second segment of the antennae is rather longer in proportion. The lateral margins of the pronotum are also rather more sinuate.

Black; a few, pale, obscure, ferruginous specks on the head, and a pale speck at the apex of the clavus. Corium pale yellowish-ferruginous, irregularly and rather sparsely marked and blotched with brown and blackish-brown. Clypeus and base of first segment of antennae yellowish-brown, rest of antennae dark fuscous. Femora brownish-yellow, medially fuscous, tibiae testaceous; fore tibiae slightly fuscous medially, extreme apex blackish. Antennae 15. 38. 22. 21.
Length 3-3½ mill.

Oahu, N. W. Koolau range: specimens from Maui (Haleakala, 3000 ft.) and Hawaii (Kona, 2000 ft.), I think are distinct, but I do not care to describe them on the material before me.

115. *A. nubigena* sp. nov.

(*Acanthia oahuensis* Kirkaldy olim. (pt.)).

Of the size and form as *oahuensis*, but the pronotum is regularly roundedly divergent towards the base, and the antennae are much shorter and stouter. Clavus pale yellowish-brown, except basally. Corium the same color, and practically unspotted, but the venation is dark, and rather broadly colored. Legs yellowish-brown, slightly infuscate in part, but not noticeably marked. Antennae scarcely reaching to the middle of the scutellum, when turned back, 4. 11. 10. 11.
Length 27/8-3½ mill.

Maui, Haleakala, 5000 ft.
116. *A. procellaris* sp. nov.  
(=*Acanthia oahuensis* Kirkaldy olim. (pt.)). 
Similar to the last, but the antennae are longer, and the terminal picturation different. 
Black; clypeus and first segment of antennae pale brownish-yellow, rest dark fuscous. Clavus black, a brownish-yellow spot near, and one at, the apex; corium brownish-yellow, veins broadly dark, exterior mostly dark fuscous, except the lateral margins &c. Legs pale, scarcely infuscate. Antennae reaching at least to the posterior angle of the scutellum, when turned back, 9. 32. 25. 20.  
Length 3½ mill.  
Molokai, 4000 ft. Specimens from Maui, Iao Valley, and from Lanai 2000 ft., scarcely differ from this. 

**Family Corixidae.**


**Family Notonectidae.**

118. *Buenoa pallipes* (Fabr). This is the ""Anisops sp? "" of the ""Fauna."

**Family Membracidae.**

119. *Centrotypus (?)* sp.?  
A recently introduced form, of which Dr. Perkins showed me a specimen, was probably a species of this genus.  

**Family Tetigoniidae.**

120. *Nesophrosyne perkinsi* (Kirkaldy); see textf. 8.  
121. *Nesophryne filicicola* Kirkaldy, from *Microlepia strigosa* not *Gleichenia*, as erroneously stated (P. H. E. S. I. 161).  
122. *N. kukanaroa* Kirkaldy.  
123. *N. kaiamamao* Kirkaldy.  

† *Bythoscopus peregrinans* (not "peregrinus" as erroneously written in the "Fauna"), *B. viduus* and *Tetigonia varicolor* must be expunged from the Hawaiian list.
124. *Conosanus hospes* (Kirkaldy).
   Family Poekillopteridae.

   Family Fulgoridae.

126. *Iolanía perkinsi* Kirkaldy. The type was from Kilauea, Hawaii.


128. *O. kanakanus* Kirkaldy. The type was from Kilauea, Hawaii.

129. *O. hevaheva* Kirkaldy. The type was from Kona, Hawaii.

130. *O. tarai* Kirkaldy. The type was from Waianae, Oahu.

131. *O. morai* Kirkaldy (as var. of *tarai*). The type was from Molokai.

132. *O. opuna* Kirkaldy.

133. *O. orono* Kirkaldy.

134. *O. koanoa* Kirkaldy. The type was from Kona, Hawaii.

Family Asiracidae

The genera of Asiracidae in Hawaii may be distinguished as follows:

1. Tibial spur not strongly compressed, often tectiform or sublamine, or three-sided; spines many and feeble.
   1a. Tibial spur strongly compressed, polished; spines few and strong.
   1b. Tibial spur not strongly compressed, or three-sided; spines many and feeble.

2. Antennae subcylindric.
   2a. Antennae flattened and widened.

3. Frontal keels fused into one, almost at the base of the frons.
   3a. Frontal keels fused about the middle of the eyes.

4. Head normal.
   4a. Head produced in front, so that it is longer than the rest of the body.

5. Frons with two keels, sometimes almost obsolete.
   5a. Frons with the keels fused into one almost at the base.

6. Tegmina not reticulated.
   6a. Tegmina reticulated.

7. Very slender, frail forms.

8. Nesodryas gen. nov.

7a. Robust forms .................................................. (8)
8. Frons not speckled ........................................... 5 Nesosydnne Kirkaldy
8a. Frons speckled ............................................. 6 Nesothoe gen. nov.
135. Nesosydnne koae Kirkaldy (with var. rubescens). The genitalia are figured on Pl. 4. f. 2.
136. N. leahi (Kirkaldy).
137. N. ipomoeicola (= pulchra Stal). Genitalia figured on Pl. 4. f. 4.
138. N. pipturi sp. nov. (Pl. 4. fig. 3).
Easily distinguished by the smooth, wide, somewhat polished frons, with scarcely raised keels, and by the green nymphs.
Length 1 3/4-2 1/2 mill.
Oahu, on Mamake (Pipturus albidus).
This and the other species will be described at length later on; in the mean time, these diagnoses and the figures will be sufficient to discriminate them.
139. N. haíia sp. nov. (Pl. 4. f. 8.).
♂ pale luteous; frons, pronotum and scutellum (except generally between the keels) dark fuscous. Tegmina with 3 apical cells, not nearly reaching the apex of the abdomen.
♀ similar to the ♂ but larger; the keels paler.
Length 3-3 3/8 mill.
Oahu, Koolau range.
140. N. palustris sp. nov. (Pl. 4. f. 7.).
Sordid brownish-yellow, the scutellar keels darker. There is no continuous subapical line, and the clavus is not completely sutured off from the corium. There are 4 apical veins, the subcostal cell being acute apically. The male pygophor is characteristic, having the "lip" acuminately produced.
Length 3 1/2-3 3/4 mill.
Molokai, 4950 ft. and 4500 ft, on trees in the excessively wet bogs on the highest points.
141. N. chambersi sp. nov. (Pl. 4. fig. 10-12).
Yellowish or pale ferruginous. Tegmina subhyaline, veins mostly concolorous with the prominent, brown granules.
Length 3 3/8 mill.
Hawaii, Kilauea, 4000 ft.
I have much pleasure in naming this after my friend Mr. W. E. Chambers, who has kindly drawn the accompanying figures for me.
142. **N. raillardiae** sp. nov. (Pl. 4. f. 5.).

Greenish-yellow, immaculate.

Length 3 mill.

Hawaii, Kilauea, 4000 ft., on Raillardia.

143. **N. argyroxiphii** sp. nov. (Pl. 4. f. 6 & textf. 1).

Black; keels of head and nota, a broken very narrow line down the middle of the abdomen, &c., testaceous. Tegmina subopaque, milky, veins fuscous. There are no apical cells, and the tegmina do not reach to the middle of the abdomen.

Length 3 mill.

Maui, Crater of Haleakala, on Argyroxiphium sandwicense.

144. **N. nephrolepidis** sp. nov. (Pl. 4 f. 1.)

Not unlike *ipometaetcola* and *halia*, but the tegmina are brownish-hyaline and the whole aspect is darker. The genitalia easily distinguish it.

**Nesodryas** gen. nov.

Somewhat allied to *Megamelus* Fieber, but the basal segment of the antennae is shorter than wide, not more than one-fourth of the length of the thickened second; the hind tibiae are distinctly longer than their tarsi, and the first segment of the latter is more than twice as long as the others together; tibial spur solid, elongate, narrow, with 5-7 strong spines. Veins of tegmina feebly granulate; 5 apicals, the 2nd. and 3rd. with common stalk, 4th forked near apex. Type *freycinetiae*.

1. Vertex and pronotum each with a couple of small, but conspicuous, dark fuscous spots.

.(Oahu) 145 *freycinetiae* sp. nov.

1a. Vertex and pronotum immaculate, pale ...... ... (2)

1b. Vertex pale, pronotum dark smoky.

.(Oahu) 146 *elaecarpis* sp. nov.

2. Pale greenish-testaceous, tegmina milky-colored.

.(Oahu) 147 *giffardi* sp. nov.

2a. Pale brownish-yellow; tegmina greyish hyaline, tegmina yellowish hyaline with the interior half pale orange-brown (or yellow-fumate).

.(Oahu) 148 *eugeniæ* sp. nov.

**Nesotheö** gen. nov.

Corresponds somewhat in the “laminate spur” series to *Chloriona*. Beyond the spur, it differs by the sudden compres-
sion of the tegmina at the base of the apical cells, the stronger excavation of the vertex, the union of the frontal submedium keels closer to the base of the frons. In all the species, the frons is marked transversely more or less clearly with pale, broken lines and spots. Type *fletus*.

The species, pending full description, are separable as follows:

1. First segment of antennae blackish or dark fuscous (or if pale, then the second is blackish) ......................... (2)
   1a. Antennae pale .................................................. (6)
2. Frons basally dark with pale markings, apically white. 3.
   2a. Frons pale brownish-yellow with whitish specks and a whitish suffused blotch in the middle; tegmina brown with a broad white basal band and an exterolateral crescent of the same hue (Maui) .................. 149 *fletus* sp. nov.
3. Vertex and pronotum white; tegmina immaculate (Kauai) .................................................. 150 *hula* sp. nov.
   3a. Vertex and pronotum pale yellowish or brownish; tegmina maculate. .................................................. (4)
4. Apical third of tegmina not maculate, some of the veins narrowly suffused ............ (Hawaii) 151 *frigidula* sp. nov.
   4a. Apical third of tegmen irregularly suffused, at least one of the cells smoky .................. (5)
5. Tibiae whitish, clearly annulate with brown ...........
   .......................................................... (Oahu) 152 *boabeae* sp. nov. (‡).
   5a. Tibiae brownish-yellow, feebly annulate .................... (Oahu) 153 *perkinsi* sp. nov.
6. Apical part of tegmen not blotched with brown ..... (7)
   6a. Apical part of tegmen blotched with brown .......... (9)
7. Tegmen with an oblique band near the base .......... (8)
   7a. Tegmen only suffusedly smoky ... (Maui) 154 *laka* sp. nov.
8. Larger, tegmina milky ....... (Molokai) 155 *piilani* sp. nov.
   8a. Tegmina not milky, face more clearly spotted apically ....
   .......................................................... (Oahu) 156 *terryi* sp. nov.
9. Second segment of antennae four times as long as the annuliform first .............. (Kauai) 157 *pluvialis* sp. nov.
   9a. Second segment of antennae less than three times as long as the non-annuliform first ...... (Lanai) 158 *silvestris* sp. nov.

(‡). A tegmen is figured, textfig. 2.
Nesorestias gen. nov.

This may be distinguished from the other solid-spurred forms by the two obscurely indicated keels on the frons; the tegmina are very short and rounded apically, closely but rather obscurely reticulated.

159. *N. filicicola* sp. nov.

♂ pitchy black; abdomen apically (more or less), antennae, labium, legs, &c., brownish-testaceous. Tegmina dark yellowish-brown, a small obscure black spot at the apex of the clavus.

♀ dark yellowish-brown; antennae, labium, legs, &c., brownish-testaceous. Tegmina yellowish-brown, a small obscure spot at the apex of the clavus.

Length 4 mill.

Oahu, Tantalus, on ferns.


162. *Aloha ipomoeae* Kirkaldy (Pl. 4. fig. 9.).

163. *Dictyophorodelphax mirabilis* Swezey.

Family Chermidae

164. *Hevaheva perkinsi* Kirkaldy.

165. *H. monticola* sp. nov.

Pale greenish-yellow, frons fuscous on the middle of the cones. Ocelli red. Pronotum with two or three pale fuscous bands down the anterior half, dorsulum broadly pale fuscous-olivaceous laterally. Tegmina hyaline, veins yellowish-white, an irregular broad smoky band reaching from the exterior margin along the "subcosta" to the union of the 3 main veins and past that of the other side, broadening on the anal cell; near the union of the main veins forking almost at right angles and continuing irregularly to the apex of the lower fork of the brachial. The veins on the apical third are smoky and suffused, and are more or less connected by a transverse smoky line. The veins are hairy. Wings hyaline, veins brokenly smoky. Antennae with scattered hairs.

Length ♂ 2, ♀ 2 3/4 mill; expanse of tegmina ♂ 9, ♀ 10 1/2 mill.

Oahu, Tantalus, 2000 ft. (Perkins, Oct.)

I have seen only a carded pair of this pretty little form, kindly lent to me by Dr. Perkins.
166. **H. silvestris** sp. nov.
Dark olivaceous-brown; legs &c., brownish-testaceous. Tegmina concolorous, subhyaline, veins opaqa. Wings more hyaline.
Length to apex of closed tegmina 2 mill.
Oahu, Tantalus, 2000 ft. (Perkins).
I know of this sombre little species only a single specimen kindly lent to me by Dr. Perkins.

167. **Trioza iolani** Kirkaldy. This forms galls on Ohia lehua (*Nani* (=*Metrosideros*) sp.?; on Tantalus, Palolo, and Kona-huanui ridges, from 1200 ft. upwards. The type was from Kauai.

**Family Aphidae**

168. **Aphis rosae** Linneus.
169. **Lozerates sacchari** (Zehntner).
170. **L. brassicae** (Linneus).
171. **Myzus citricidus** Kirkaldy.
172. **Myzocallis kahawalsokalani** Kirkaldy.
My thanks are due to Dr. Perkins for much information relative to type and type localities. I have examined the collections of Dr. Perkins and Messrs. Terry, Swezey and Giffard, and tender these gentlemen my thanks. N. B. nos. 111a & 111b, included after the manuscript was completed, bring up the total to 174.

The new species &c. described in this paper are as follows:
Metrarga *lanaiensis* sp. nov.
M. contracta var. *picea* nov.
M. nuda var. *mauiensis* nov.
*Nesoclimacias* subg. nov. of Metrarga.
*Nesocryptias* subg. nov. of Metrarga.
*Nesomachetes* subg. nov. of Reduviolus.
Reduviolus *arrogans* sp. nov.
R. *troculentus* sp. nov.
R. *nubigenus* sp. nov.
R. *kaonohiula* sp. nov.
R. *montivagus* sp. nov.
R. *silvicola* sp. nov.
R. *monticola* sp. nov.
R. *procellaris* sp. nov.
R. volcanícola sp. nov.
R. palúdicola sp. nov.
R. lotope sp. nov.
R. sílvestris sp. nov.
Nesidiolestes insularis sp. nov.
Luteva insúlicola sp. nov.
Lasiochilus insúlicola sp. nov.
L. montivagus sp. nov.
L. nubígenus sp. nov.
Sulamita dryas sp. nov.
S. oreásp. nov.
Pseudoclerada kilaeae sp. nov.
Acanthia exulans var. molokaiensis nov.
A. humífera sp. nov.
A. nubígena sp. nov.
A. procellaris sp. nov.
Nesodryas gen. nov.
N. freycinetiae sp. nov.
N. elaeocarpi sp. nov.
N. giffardi sp. nov.
N. eugeniae sp. nov.
Nesothoe gen. nov.
N. fleutos sp. nov.
N. hula sp. nov.
N. frigidula sp. nov.
N. boeae sp. nov.
N. perkinsi sp. nov.
N. laka sp. nov.
N. piillani sp. nov.
N. terryi sp. nov.
N. pluvialis sp. nov.
N. sílvestris sp. nov.
Nesosydne ipomoeicola sp. nov.
N. pipturi sp. nov.
N. hafia sp. nov.
N. palustris sp. nov.
N. chambersi sp. nov.
N. raillardiæ sp. nov.
N. argyroxiophil sp. nov.
N. nephrolepidis sp. nov.
Nesorestitias gen. nov.
N. filicicola sp. nov.
Hevaheva monticola sp. nov.
H. silvestris sp. nov.
A total of 3 genera, 3 subgenera, 3 varieties and 51 species.

EXPLANATION OF TEXT FIGURES

Fig. 1. Tegmen of Nesosydne argyroxyphii; "a" is sometimes absent.
Fig. 2. do., Nesothoe bobeae.
Fig. 3. Nesophrosyne perkinsi.

EXPLANATION OF PLATE 4.

1. Nesosydne nephrolepidis, male pygophor.
2. N. koae, do.
3. N. pipturi, do.
4. N. ipomoeicola, do.
5. N. raillardiæ, do.
6. N. argyroxyphii, do.
7. N. palustris, do.
8. N. halia, do.
10. N. chambersi, do.
11. id., left & right tegmina, showing variation in the same specimen.
KIRKALDY—ON HEMIPTERA OF HAWAIIAN ISLANDS
DECEMBER 12th. 1907.

A special meeting was held in the Library of the Bureau of Agriculture, Mr. O. H. Swezey in the chair.

Mr. W. A. Bryan delivered an address, in which he outlined the organization of the "Pacific Scientific Institution," which has been incorporated for the purpose of making a scientific Ethnological and Biological exploration of the Islands of the Pacific Ocean.

The following resolutions were carried by the Society:

Mr. W. A. Bryan having presented a paper outlining the aims, scope, organization and work of the Pacific Scientific Institution to members and guests of this Society at a Special Meeting held December 12th, 1907; and in view of the importance to the Society of the subject he discussed and the comprehensive interesting manner in which he presented it, be it

RESOLVED; that we, the Hawaiian Entomological Society and other scientists of Honolulu hereby express our appreciation of the courtesy thus shown us. Be it also

RESOLVED, that realizing the great importance of this Institution we take the opportunity now to endorse heartily this Institution which Mr. Bryan has so ably planned and to extend our congratulations to him for the success already achieved and our most earnest wishes for the further success of the Institution.

Be it further

RESOLVED, that these resolutions be spread on the minutes of the Society as a permanent record of such recognition, and that a true copy of them be presented to Mr. Bryan.
Reddish brown, the prothorax above being darker than the elytra or legs, clothed with sparse pale pubescence. Furcate pubescent lines of the elytra slender, pale yellowish, distinct. Antennae clear testaceous. Behind the antennae the head has very large and shallow, but not dense, punctures; the pronotum above appears bare on the large subovate dark area, already mentioned, though in reality it bears extremely short black hairs; at the sides it has a pale pubescence and is finely punctate, the punctures becoming much less numerous towards the sternum, with the surface smooth and shining. The elytra are densely and rugosely punctate throughout. Middle and posterior femora with conspicuous black hairs apically, generally more or less mixed with some white ones at the tip; hind femora with dense hairs throughout, those at the extreme base white, the rest black; hind tarsi with whitish hairs.

Hab. Oahu, on *Pipturus*; not rare, and easily bred, but it requires good eyesight to collect a series in the field, as it closely resembles the surface on which it rests, and is as a rule sluggish.

This figure, used on our title page, and on the cover of the earlier numbers, is of *Callithmysus koebelei*, an autochthonous species of beetle hitherto undescribed. On request, Dr. Perkins has kindly supplied the description of this species. (Eds.)
ANNOUNCEMENTS

Meetings are held the first Thursday of each month at 7:30 p.m., notice of the place of assembly being sent to each member by postcard one week previous.

* * * * *

Members exhibiting specimens at meetings of the Society are requested to hand to the Secretary, at the meeting, a note in writing of the generic and specific names of all specimens exhibited together with localities, and any remarks thereon which the exhibitors wish published. In the absence of such notes in writing, the Secretary and Editors will not be responsible for the accuracy of the report of such exhibition or for entire omission of any reference thereto in the Proceedings.

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The Society, having no separate Library, does not exchange its publications.

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The annual dues are five dollars ($5.00) payable on the first day of January in every year. There is no admission fee.

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All correspondence to be addressed to the Secretary-Treasurer at the Bureau of Agriculture and Forestry, from whom copies of the Proceedings may be purchased.

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pt. 5, 48 pages, Plate and Text Figures. 50c.
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