Louisiana State Crop Pest Comm. 18, pp. 1-18, textfs. 1-7. (1907).
p. 90. Psidium sp. add: *A. holmesii.*
p. 85. Anona sp. add: *A. mirabilis.*
p. 86. Bambusa, add: *A. bambusae.*
p. 87. Fragaria sp. add: *A. fernaldi.*
p. 89. Piper betle, add: *A. nubilans.*
p. 90. Pteris quadriaurita should be quadriolata.

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 hawaiiensis** Kirkaldy. The type was from Molokai.

6. * **Rhopalus hyalinus** (Linneus).

(‡) *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 Fate, (less correctly Vate), in the New Hebrides, or from Sandwich Island in the Bismarck Archipelago.

Family Pyrrhocoridae.

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.

9. **M. obscura** Blackburn.

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.

10. **M. contracta** Blackburn.

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

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(‡) The subfamily Metrarginae 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. **Nesoclimacias** 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. 43a, 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, **Nesocryptias**, 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. vincta** (Say) [*periplanios* and *pacifica* Kirkaldy olim.]
15. ***Clerada apicicornis** Signoret.
16. **†Reclada moesta** F. B. White.
17. **Sephora crinigera** (F. B. White).
18. **Nesocymus calvus** (F. B. White).
19. **Nesomartis psammophila** Kirkaldy.
20. **Nysius ochriasis** Kirkaldy.
21. **N. saundersianus** Kirkaldy.

22. **N. kamehameha** Kirkaldy.
23. ***N. coenosulus** Stal.
24. ***N. delectus.** F. B. White.
25. ***N.** sp?. [*vinitor* Kirkaldy olim].
26. †**N. arboricola** F. B. White.
27. †**N. blackburni** F. B. White.
28. †**N. dallasi** F. B. White.
29. †**N. longicollis** Blackburn.
30. †**N. mauiensis** Blackburn.
31. †**N. nemorivagus** F. B. White.
32. †**N. nitidus** F. B. White.
33. †**N. pteridicola** F. B. White.
34. †**N. rubescens** F. B. White.
35. †**N. vulcan** F. B. White.
36. †**N. whitei** Blackburn.
37. ***Merragata hebroides** F. B. White.

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 membrance (*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.

39. **Reduviolus kahavalu** Kirkaldy.

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.

41. ***R. blackburni** F. B. White.

42. ***R. innotatus** F. B. White.

43. **R. tarai** 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 *lusciosus*, but the membranal venation is different and the ocelli more distinct.

Length ♀ 10½ mill.

Molokai.

55. **R. monticola** sp. nov.

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

A single ♀ in indifferent condition seems to be different from *lusciosus*. 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.

Oahu, Waianae Mts., lee side, 2000–3000 ft.

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* *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 ♀ 10¼ 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 medialy.
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-testaceous, 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. **M. ? rubritinctus** (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.
65. * **Halobates sericeus** Eschscholtz.

Family Reduviidae.

66. * **Alloeocranum biannulipes** (Montrouzier).
67. * **Zelus renardii** 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 variegate. 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. **Luteva 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 tegminal pattern, form of tegminal areole, &c. Dark testaceous, more or less suffused with fulvous. Eyes black. Antennae dark fuscous. Sternites blackish-brown, laterally testaceous. 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 testaceous. 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.

72. **L. insolida** F. B. White.

73. **Ploiariodes 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 persequens** F. B. White.

77. ***Physopleurella mundulus** F. B. White.

78. **Lasiochilus denigratus** (F. B. White).

This is known only from Hawaii, Mauna Kea, 3000 ft.

79. **L. decolor** (F. B. White).

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, Koholuamano.

81. **L. montivagus** sp. nov.
(=*L. 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, Koele Mts. I think that it is the same species that is found in Olaa and Hilo (1800 ft.).

82. **L. nubigenus** sp. nov.
(=*L. 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 3⅛ mill.
Maui, Haleakala, (5000 ft.).

83 **Nesidiocheilus 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. lunalilo** Kirkaldy. The type was a specimen from Kilauea, Hawaii.

89. **S. dryas** sp. nov.
=*S. lunalilo* var., Pl. IV. f. 12 (Faun. Haw.).

90. **S. oreias** sp. nov.
=*S. lunalilo* brachypterous form, Pl. IV. f. 13. This cannot be the brachypterous form of *lunalilo*, 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** (=*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. kassandra** 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. **Cyrtopeltis 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. kilaueae** 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.

Hawaii, Kilauea.

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

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

109. ***Hyalopeplus pellucidus** (Stal).

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

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

111a. ***Fulvius** sp. (near *oxycarenoides*). Kauai, on sugarcane fields.

111b. ***Halticus chrysolepis** Kirkaldy.

Family Acanthiidae.

112. **Acanthia exulans** (F. B. White).

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 3-3¼ 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, exeept 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 2⅞–3⅛ 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 tegminal 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.

117. * **Arctocorisa blackburni** (F. B. White).

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. 3.

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.

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‡ *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.

125. * **Siphanta acuta** (Walker).

Family Fulgoridae.

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

127. **Oliarus tamehameha** Kirkaldy.

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 sublaminate, or three-sided; spines many and feeble.... ...(2)

1a. Tibial spur strongly compressed, polished; spines few and strong .....(4)

2. Antennae subcylindric.....(3)

2a. Antennae flattened and widened 3 *Perkinsiella* Kirkaldy.

3. Frontal keels fused into one, almost at the base of the frons. ..... 2 *Kelisia* Fieber.

3a. Frontal keels fused about the middle of the eyes..... .....1 *Peregrinus* Kirkaldy.

4. Head normal.....(5)

4a. Head produced in front, so that it is longer than the rest of the body..... ..... 9 *Dictyophorodelphax* Swezey.

5. Frons with two keels, sometimes almost obsolete.....(6)

5a. Frons with the keels fused into one almost at the base (7)

6. Tegmina not reticulated..... 4 *Aloha* Kirkaldy

6a. Tegmina reticulated ..... 7 **Nesorestias** gen. nov.

7. Very slender, frail forms..... 8 **Nesodryas** gen. nov.

7a. Robust forms ..... (8)

8. Frons not speckled ..... 5 *Nesosydne* Kirkaldy

8a. Frons speckled ..... 6 **Nesothoe** gen. nov.

135. **Nesosydne 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 7/8-2 1/8 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. halia** 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 7/8 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 1/2 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 *ipomaeicola* 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 **elaeocarpi** 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 **eugeniae** sp. nov.

Nesothoë 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 **bobeae** 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.

160. **Peregrimus maidis** (Ashmead).

161. **Perkinsiella saccharicida** Kirkaldy.

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 fusco-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, ♀ 2¾ mill; expanse of tegmina ♂ 9, ♀ 10½ 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 opaqae. 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 Konahuanui ridges, from 1200 ft. upwards. The type was from Kauai.

Family Aphidae

168. **Aphis rosae** Linneus.

169. **Loxerates sacchari** (Zehntner).

170. **L. brassicae** (Linneus).

171. **Myzus citricidus** Kirkaldy.

172. **Myzocallis kahawaluokalani** 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. **truculentus** 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. **volcanicola** sp. nov.
R. **paludicola** sp. nov.
R. **lolupe** sp. nov.
R. **silvestris** sp. nov.
Nesidiolestes **insularis** sp. nov.
Luteva **insulicola** sp. nov.
Lasiochilus **insulicola** sp. nov.
L. **montivagus** sp. nov.
L. **nubigenus** sp. nov.
Sulamita **dryas** sp. nov.
S. **oreias** sp. nov.
Pseudoclerada **kilaueae** sp. nov.
Acanthia exulans var. **molokaiensis** nov.
A. **humifera** sp. nov.
A. **nubigena** 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.
Nesothoë gen. nov.
N. fletus sp. nov.
N. hula sp. nov.
N. frigidula sp. nov.
N. bobeae sp. nov.
N. perkinsi sp. nov.
N. laka sp. nov.
N. piilani sp. nov.
N. terryi sp. nov.
N. pluvialis sp. nov.
N. silvestris sp. nov.
Nesosydne **ipomoeicola** sp. nov.
N. pipturi sp. nov.
N. halia sp. nov.
N. palustris sp. nov.
N. chambersi sp. nov.
N. raillardiae sp. nov.
N. argyroxiphii sp. nov.
N. nephrolepidis sp. nov.

Nesorestias 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

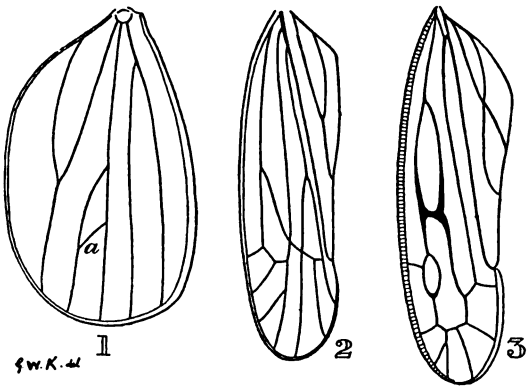
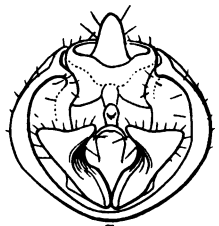


Fig. 1. Tegmen of *Nseosydne argyroxiphii*; "*a*" is sometimes absent.
Fig. 2. do., *Nesothoe bobeae*.
Fig. 3. *Nesophrosyne perkinsi*.

EXPLANATION OF PLATE 4.

1. *Nesosydne nephrolepidis*, male pygophor.
2. *N. koae*, do.
3. *N. pipturi*, do.
4. *N. ipomoeicola*, do.
5. *N. raillardiae*, do.
6. *N. argyroxiphii*, do.
7. *N. palustris*, do.
8. *N. halia*, do.
9. *Aloha ipomoeae*, do.
10. *N. chambersi*, do.
11. *id.*, left & right tegmina, showing variation in the same specimen.



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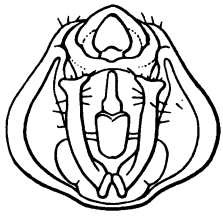

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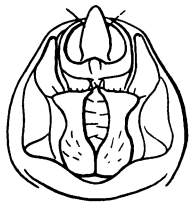

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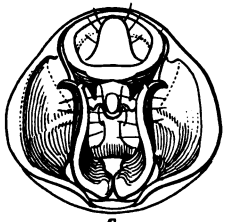

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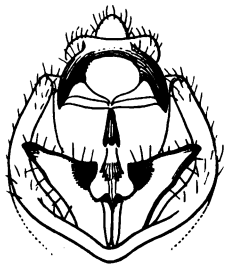
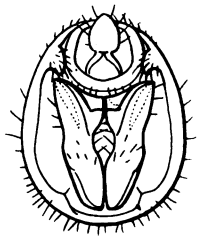
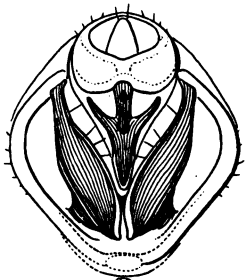


5
x 62



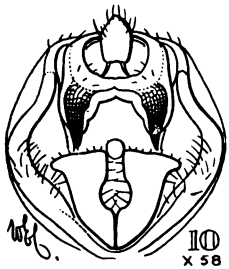
6
x 55

7
x 42

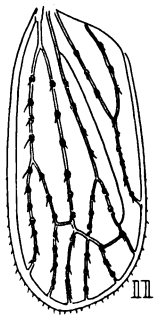


8
x 73

9
x 68



10
x 58



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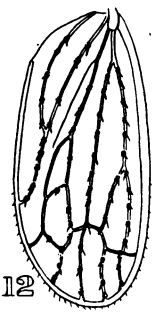

12

KIRKALDY——ON HEMIPTERA OF HAWAIIAN ISLANDS