

OCTOBER 7th, 1920.

The 181st meeting of the Hawaiian Entomological Society was held at the usual place. Present: Crawford, presiding; Swezey, Mant, Giffard, Timberlake, Muir, Whitney, Ehrhorn, and Fullaway.

The minutes of the 178th and 180th meetings were read and approved.

## ENTOMOLOGICAL PROGRAM.

## New Hawaiian Delphacidae (Homoptera).

BY F. MUIR.

The present paper deals with part of the collections made by Mr. W. M. Giffard and not dealt with in my last paper,\* and with collections made by Messrs. Timberlake and Giffard in 1919, also with a few other species. They add eleven new species and one variety to our list, as well as new localities. A number of species in the collections are not mentioned as they are not new. That such a well worked locality as Castle trail, Oahu, should yield new species indicates that we are far from the end of our list of species. While it is hoped that the recently introduced Miridae, *Cyrtorhinus mundulus* (Bred.), will be of benefit in the cane field and reduce the number of *Perkinsiella saccharicida* Kirk., it is to be hoped that it will not take to the native forest and interfere with the native Delphacidae.

The genus *Ilburnia* White now stands as the second largest genus in the family with eighty species; *Delphacodes* Fieb. (*Liburnia*) being the largest with about 180 species.

With the increase in the number of species some of them are becoming more difficult to define, even by the genitalia; at the same time isolated forms such as *I. sulcata* are turning

---

\* Proc. Haw. Ent. Soc. IV. 1. (1919) p. 84.

up. The intermediate forms will give us a better idea as to the line of evolution.

The varieties of such species as *Aloha ipomæae*, *Ilburnia blackburni* and *I. ipomæicola* attached to different food plants, require special study, and experiments of change of food and cross breeding should be carried out.

The cause of the variation of the male genitalia is the fundamental problem of the evolution of these insects. How many genetic characters the ædeagus contains is difficult to estimate. It is also difficult to understand why the genitalia should be the organs chiefly affected by crossings if Lotsy's theory be maintained.

Weismann and his followers have overemphasized the difference between the germ and somatic cells. There is but one cell and that is the germ cell. The somatic cells being only differentiated germ cells and the differentiation apparently lies wholly within the cytoplasm. Although the chromosomes may be the "bearers of heredity," yet they do not enter into the formation of the "characters." At most they only act upon the cytoplasm.

If cell division be quantitative (as polyembryony indicates) and not qualitative, how do similar nuclei acting upon similar cytoplasm bring about various differentiations? The nucleus cannot be the sole causation of the differentiation of the cytoplasm unless we admit a selective and qualitative division of the chromosomes.

There is experimental evidence to show that the relative position of the cell in the early stages of the embryo influences its development quite irrespective of the nucleus. The influence of certain cells, or their secretions, upon the growth and development of other cells in an organism has been demonstrated by experiments. Among Delphacidae there is a correlation between the germ plasma and the external male genitalia, as is indicated by the effect upon the latter brought about by injury to the former by parasites. It is therefore thinkable that an alteration in the germ plasma could bring about an alteration in the male genitalia without any special change in any particular chromosome or chromomere. It is only along

these lines that I can at present understand the specific differences of the genitalia.

The types of the new species have been deposited in the collection of the Hawaiian Sugar Planters' Experiment Station. Measurements are from the apex of the vertex to the anus and from base to apex of one tegmen.

#### DELPHACINI.

##### *Kelisia swezeyi* Kirk.

A small series on *Eragrostis* from Olokele Canyon, Kauai (*Swezey*, Sept., 1920).

##### *Kelisia sporobolicola* Kirk.

A male and a female on *Eragrostis* from Puu Ka Pele, Kauai, elevation 3500 feet, and a series of both sexes from Mana, Kauai, on *Sporobolus* (*Swezey*, Sept., 1920).

There is another series from Haleakala, Maui, elevation 6200 feet, on *Eragrostis* (*Timberlake*, July, 1919) which is lighter in color than the typical and the granules smaller but quite distinct.

##### *Kelisia sporobolicola immaculata* var. n.

In the typical *K. sporobolicola* Kirk. the granules on the veins are black. In this variety they are the same color as the veins so the tegmina are not spotted. The genitalia are similar.

A series from a steam crack, Kilauea, Hawaii, elevation 3800 feet, on *Deschampsia australis*. Another series on the same plant in the same district, elevation 4000 feet (*Giffard*, Aug., Sept., 1919). In coloration this variety is very like *K. swezeyi*, but the genitalia is that of *K. sporobolicola*.

#### ALOHINI.

##### *Leialoha lehuae mauiensis* Muir.

A small series from Keanae Pali, Haleakala, Maui, elevation about 5000 feet, on *Ohia lehua* (*Timberlake*, July, 1919).

##### *Nesodryas* (*Nesothoe*) *haa* sp. n. Fig. 1.

Male. Macropterous; length 2.5 mm. tegmen 3.6 mm.

Opening of pygofer subdiamond shape, anal angle fairly well pro-

duced; genital styles with apical, curved portion small; anal spines strong, slightly curved; aedeagus long, thin, tubular, slightly curved on basal half, apex produced into a crescent, one horn of which is small and truncate at apex.

Light chestnut, lighter over the carinae of pronotum and vertex; apical portion of face and genae white or light yellow, two transverse, white bars on middle of face and a smaller one near base, none of them reaching the lateral margins; four or five white spots along tempora; first joint of antennae and basal part of second dark; femora dark, tibiae and hind tarsi banded dark and light; abdomen light over pleura and hind margins of sternites, on edge of pygofer opening and genital styles. Tegmina chestnut, a large hyaline arc-shaped patch covering apex of costal cell and apical radial cells, also hyaline in apical portion of 3, 5, and 6 apical cells; the brown over the apical half darker and fuscous, light marks in clavus with a dark mark at apex; granules small, bearing brown macrotrichia.

Female. Macropterous; similar to male. Length 3.4 mm; tegmen 4 mm.

The genitalia of this species are near to *N. dryope* and *N. muiroi* but they are quite distinct from both. Described from nine males and twelve females from 29 miles, Olaa, Hawaii, elevation 2300 feet, feeding on *Antidesma platyphyllum*, the native name of which is haa (Giffard, Aug., 1918, Jan., 1919). Also 9 males and 5 females from 23 miles, Olaa, Hawaii, on the same food plant (Giffard, Aug., Sept., 1919). These were all taken in company of *N. dryope*.

*Aloha myoporicola* Kirk. Fig. 8.

The figure of the genitalia of this species given elsewhere\* was drawn from a distorted specimen. I now give a more correct figure.

*Ilburnia dubautiae* sp. n. Fig. 10.

Male. Brachypterous; length 2.5 mm., tegmen 1.8 mm.; length of vertex 1.3 times the width, apex wider than base, slightly rounded, base about middle of eyes; length of face twice the width, sides slightly areolate, median carina simple; antennae reaching middle of clypeus, second joint 1.8 times the length of first; tegmina reaching to apex of pygofer; hind femora reaching to end of abdomen, first hind tarsus longer than the other two together.

Opening of pygofer similar to *I. nigroceps* (Muir), the anal spines much smaller but diverging as in that species. The aedeagus has a

row of six teeth on a dorso-lateral position, the ventral spines do not proceed to the left side as in *I. nigroceps* and there are more spines on the right side at the apex of the ventral row. The genital styles are like those of *I. nigroceps*. Head, antennae, legs, abdominal pleura, and middle of tergites light brown or yellow; face, vertex, and genae dark brown between carinae; pronotum, mesonotum, front and middle coxae, abdominal sternites, lateral portions of tergites, pygofer, and apices of tarsi dark brown. Tegmina hyaline, light yellow, veins same color, granules minute, sparse, bearing black macrotrichia, a small brown spot at apex of clavus and a minute one at apex of costal cell.

Female. Brachypterous; length 3.6 mm.; tegmen 2.5 mm. Hind femora not reaching to apex of abdomen; tegmina reaching to apex of seventh abdominal tergite. Uniformly light brown or yellow, the spot at the apex of costal cell slightly larger than in the male.

Ridge south of Iao valley, Maui, elevation 2000 feet, on *Dubautia plantaginea* (Timberlake, July, 1919).

This is a Maui representative of *I. nigroceps* of Lanai; the lighter color of both sexes as well as the difference of aedeagus and anal spines makes them easy to separate. A figure of the aedeagus of *I. nigroceps* is given for comparison. Fig. 7.

*Ilburnia nesopele* sp. n. Fig. 6, a.

Male. Brachypterous; length 2.4 mm., tegmen 1.6 mm.; length of vertex 1.3 times the width, sides parallel, apex slightly curved, subequal to base in width, base slightly anterior to middle of eyes; length of face twice the width broadest on apical half, carinae obscure, median carina simple slightly thickened at base; antennae reaching to middle of clypeus, second joint 1.8 times the length of first; tegmina reaching to eighth tergite; hind femora reaching slightly beyond apex of abdomen, hind tarsi nearly as long as tibia, first tarsus slightly longer than other two together. Opening of pygofer slightly longer than wide, margins entire, a slight prominence on medio-ventral edge, dorsal emargination wide, shallow, not embracing more than half the anal segment; armature on diaphragm shield-shape, prominent, ridged down the middle, the sides strongly shagreen; anal spines large, flat, narrow, bases contiguous, slightly diverging at apex; genital styles reaching two-thirds to anal segment, broad, flat, broadest on basal half, apex truncate with angles projecting, the outer one more so than the inner; aedeagus near to that of *I. pele* (Kirk.) but the base larger and the spines on the dorsal aspect continued on to the right side to near base, the ventral spines forming a single row.

Dark brown; vertex, carinae of face and clypeus, antennae, femora, tibiae and tarsi of front and middle legs, tibiae and tarsi of hind legs, and basal portion of abdomen light brown or yellow. Tegmina hyaline, slightly fuscous, veins slightly darker, a small dark mark at

\* Proc. Haw. Ent. Soc. III (1916) p. 217. Pl. 2. fig. 18.

apex of subcostal cell and a larger one at apex of clavus from which it spreads out towards the middle and base, granules minute, sparse, bearing black macrotrichia.

Female. Brachypterous; length 3 mm.; tegmen 2.1 mm.; hind femora not reaching to apex of abdomen. Much lighter in color than the male; light brown or yellow, dark between carinae of face, genae, clypeus, last joint of tarsi and hind femora. Tegmina hyaline, a dark mark at apex of subcostal cell and apex of clavus.

Ukulele pipe line, Haleakala, Maui, 5000 feet elevation, on *Astelia veratroides* (Timberlake, July, 1919). The nymphs are yellow, brown on face, clypeus, wing pads, hind femora, and apical tarsi.

Described from seven males, three females, and three nymphs. This small series shows some color variation in the usual direction of the reduction of the dark areas. This species comes near to both *I. pele* (Kirk.) and *I. raillardicola* Muir. From the former it can be easily separated by the shape of the base of the aedeagus and the spines along the right side; from the latter it is easily separated by the long anal spines. Figs. 9a and 5.

*Ilburnia amamau* sp. n. Fig. 19, a.

Male. Brachypterous; length 2.9 mm.; tegmen 2 mm. Vertex slightly broader than long, apex slightly rounded, the two median carinae projecting, base slightly before middle of eyes, length of face twice the width, narrowest on basal half, median carina forking near base; antennae reaching beyond base of clypeus, second joint 1.6 times the length of first; hind femora reaching to apex of abdomen, first tarsus slightly longer than other two together; tegmina reaching base of pygofer.

Opening of pygofer longer than wide, anal emargination shallow, margins entire, a small projection from the medio-ventral edge; anal spines large, acute, slightly curved, not contiguous at base; genital styles narrow, flat, produced on inner basal edge, apex truncate with inner angle projecting; aedeagus flattened laterally, in lateral view deep with a deep emargination in middle of ventral edge, base narrowed, functional orifice near apex, three small spines on right near upper angle and a cluster of them on ventral aspect near apex which continues onto left side.

Light brown, fuscous between carinae of face, genae and clypeus and over carinae of thorax; darker over abdominal sternites and lateral portion of tergites. Tegmina hyaline, light brown, veins slightly darker, granules minute, sparse, bearing black macrotrichia.

Female. Brachypterous; length 3.5 mm.; tegmen 2.4 mm. Tegmen reaching to apex of eighth tergite. Similar in color to the male.

Haleakala, Maui, elevation 6100 feet (*Timberlake*, July, 1919). Described from forty males and one hundred and thirteen females and some young, taken on *Sadleria*, the native name of which is Amamau. The nymphs are uniformly light brown. There is the usual tendency for some specimens to be lighter than others and for the females to be lighter than the males. This species comes next to *I. painiu* Muir, to which it is closely related.

*Ilburnia aku* sp. n. Fig. 14, a.

Male. Brachypterous; length 2.5 mm.; tegmen 1.8 mm. Vertex considerably longer than wide, apex slightly rounded, the same width as base, base about the middle of eyes; length of face 2.6 times the width, slightly narrower at base than at apex, median carina simple; antennae reaching beyond base of clypeus, second joint 1.8 times the length of first; hind femora reaching to apex of abdomen, tibiae longer than femora, first joint of hind tarsus slightly longer than the other two together, spur with eight teeth; tegmina reaching slightly beyond the apex of abdomen.

Opening of pygofer large, the ventral edge somewhat straight, anal angles produced and curved inward; anal spines well developed, situated toward the base of the anal segment, their bases touching, slightly curved and diverging; the armature of the diaphragm oval, shiny; genital styles flat, slightly wider on basal half, apex truncate, sides subparallel; aedeagus tubular, slightly flattened laterally, orifice at apex which is slightly enlarged, a small row of minute spines on ventral aspect at apex and another on the right side of apex.

Dark brown; antennae, carinae of head, metathorax, legs, and base of abdomen yellowish, pleura and seventh and eighth tergites light. Tegmina hyaline, yellowish, with a dark brown mark from apex of costal cell to apex of clavus, more or less fading out in the middle. There is a tendency in some specimens for the carinae of thorax to be light.

Female. Brachypterous; length 2.7 mm.; tegmen 1.8 mm. Similar to male, but hind femora not reaching to apex of abdomen.

Olaa, 23 miles, Hawaii, elevation 2300 feet, feeding on *Cyanca tritomantha* (native name Aku). Described from eleven males and three females (*Giffard*, January, 1919).

This species is fairly isolated. At present I would place it near to *I. blackburni*. It is possible that it comes near to *I.*

*procellaris* (Kirk.) but I have not seen the aedeagus of this species.

*Ilburnia blackburni* (Muir).

A series of both sexes and young on *Clermontia coerulea* Hbd., Kona, Hawaii (*Timberlake*, August, 1919). A long series of both sexes and young from 29 miles, Olaa, Hawaii, feeding on *Urera sandwicensis* Wedd. (*Giffard*, August, 1918). One macropterous male from Crater Road, Kilauea, and one macropterous female from 23 miles, Olaa, Hawaii (*Giffard*, September, 1919).

*Ilburnia waikamoiensis* (Muir). Fig. 2.

A series of both sexes and young on a species of *Cyanea*, Haleakala, near Puu-o-luau, Maui, elevation 5800 feet (*Timberlake*, July, 1919). The former figure of the aedeagus of this species\* is reversed. It is slightly concave ventrally; the spines on the right side are small and form a row near the ventral aspect, those on the left are larger and towards the apex run on to the dorsal surface.

*Ilburnia boehmeriae* sp. n. Fig. 12, a.

In general build and coloration this species is similar to *I. pipturi* (Kirk.), but there is a difference in the genitalia which is visible externally. The genital styles are much narrower in the middle and the inner apical corner considerably produced; the aedeagus is more curved on the apical third, the basal projection is much smaller and narrower at base and the spines on the right side fewer and form a line; the anal spines are stouter.

Length of male 2 mm.; tegmen 1.2 mm.; female 2 mm.; tegmen 1.3 mm.

Makaleha Valley, Oahu, on *Boehmeria* sp. (*Swezey*, August, 1919). Described from five males, one female, and one young, the latter being uniformly yellow.

This is a case of a different food plant being associated with a small but distinct difference of the genitalia while the external body characters and coloration is apparently the same.

\* Proc. Haw. Ent. Soc. IV. 1. (1919) p. 105. Fig. 8.

The aedeagus and right genital style of *I. pipturi* are figured (Figs. 11, 11a) at the same magnification as those of *I. boehmeriae*.

*Ilburnia chambersi* (Kirk.).

A small series on *Raillardia ciliolata* from Crater Road, Kilauea, Hawaii (*Giffard*, July, 1919).

*Ilburnia geranii* sp. n. Fig. 13, a.

Male. Brachypterous; length 2.2 mm., tegmen 1.7 mm. Vertex nearly as broad as long, apex slightly rounded, base considerably before the middle of eyes; length of face 2.2 times the width, sides slightly curved, broadest in middle, median carina simple; antennae reaching to base of clypeus, second joint twice the length of first, tegmina reaching to apex of abdomen; hind femora reaching slightly beyond apex of abdomen; tarsi subequal in length to tibiae, first hind tarsus as long as the other two together.

Opening of pygofer round, edges entire, dorsal emargination shallow exposing anal tube, anal spines small, stout; genital styles fairly short, flat, narrowest in middle, apex truncate with inner angle slightly produced; aedeagus tubular with a dorsal projection at the base, apex acute with orifice along ventral aspect of apex, a ring of eight or nine spines about one-third from apex, a comb of five spines on the ventral aspect just basad of the ring of spines; the armature on diaphragm forming a raised knob with shagreen surface.

Light brown; dark brown or black between carinae of face, gulae and clypeus, on lateral portion of pronotum, over carinae of mesonotum, on front and middle coxae, abdominal sternites and mediolateral portion of tergites. Tegmina hyaline, a broad, irregular, fuscous band from apex of costal cell to apex of clavus extending in middle down to junction of media and cubitus, granules sparse, small, black, bearing short, black macrotrichia.

There is the usual amount of color variation, in some specimens the dark fades out considerably.

Female. Brachypterous; length 2.7 mm., tegmen 1.7 mm.; tegmina reaching to apex of seventh tergite. In coloration lighter than the male, some specimens being nearly uniformly light brown.

Haleakala, Maui, 6000 feet elevation, on *Geranium arborium* (*Timberlake*, July, 1919). The young are light brown with dark brown at base of tegminal pads and sides of abdominal tergites. Described from eighteen males, sixteen females and a number of young. This species comes next to *I. acuta* Muir, but the aedeagus is easily distinguished by the large comb of five teeth on the middle of ventral aspect.

*Iburnia sulcata* sp. n. Fig. 4.

Male. Brachypterous; length 2.5 mm., tegmen 1.5 mm. Length of vertex 1.4 times the width, apex slightly rounded with median carina projecting in middle, base well behind the middle of eyes; length of face 2.3 times the width, slightly widest at apex, median carina simple but base wide, showing trace of fork; antennae reaching beyond the middle of clypeus, second joint 1.5 times the length of first; tegmina reaching middle of sixth abdominal tergite; hind femora projecting slightly beyond apex of abdomen, first tarsus longer than the other two together.

Opening of pygofer about as long as wide, margins entire, dorsal emargination shallow, not embracing more than half the anal segment; anal spines large, flattened laterally, strongly curved outward, apices acute; genital styles long, narrow, flat, outer margin slightly concave, inner margin produced on basal third, apex truncate with the angles slightly projecting, a slight ridge in middle near inner edge; aedeagus large, flattened laterally, apex curved ventrad, a deep, longitudinal sulcus along the dorsal surface from base to the curve near apex, three rows of broad, flattened spines surround the apex at the point where sulcus ends, three or four shorter rows basad of these, functional orifice at apex.

Antimony yellow; a fuscous streak between the carinae of face, clypeus and genae, a longitudinal, faint fuscous mark on femora, darker on hind pair, faintly fuscous between carinae of nota. Tegmina hyaline, light yellow, a black mark at apex of costal cell and another at apex of clavus, veins slightly darkened, subcosta more so, basal margin of clavus black, granules minute and sparse, bearing black macrotrichia.

Female. Brachypterous; length 2.7 mm., tegmen 1.6 mm. Hind femora not reaching apex of abdomen; tegmina reaching seventh abdominal segment. Young uniformly yellow.

Ditch trail east of Keanae, Maui, elevation about 1500 feet, on *Cyrtandra* sp. (Timberlake, July, 1919). Described from two males, five females, and one young. The genitalia of this species isolates it from all others. For the present I place it next to *I. mauiensis*.

*Iburnia coprosmicola* Muir.

A series of both sexes and young from Kau desert, Kilauea, Hawaii, elevation 3800 feet, on *Coprosma ernodioides*. There is little difference in color compared with the type specimens from 29 miles, Oloa, in spite of the difference in climatic conditions.

*Iburnia raillardiae* (Kirk.). Fig. 18.

A long series of both sexes and young on *Raillardia scabra*

from 25 miles, Oloa, Hawaii, elevation 2300 feet. A small series on *Raillardia ciliolata* from the a-a flows, Kau desert, Hawaii, 3800 feet elevation (Giffard, June, July, 1918).

*Iburnia neoraillardiae* sp. n. Fig. 17.

Male. Brachypterous; length 2 mm., tegmen 1.4 mm. The external characters of this species are similar to those of *I. raillardiae* (Kirk.). In the genitalia the aedeagus is proportionally longer and not so deep, the genital styles are not so long at the apical outer angle and the inner edge is not so concave. The species are very closely allied.

Buckthorn brown or ochraceous tawny, lighter at base of abdomen and darker on abdominal dorsum; apex of genital styles dark. Tegmina light tawny, veins obscure, granules very minute bearing small, black macrotrichia.

Female. Brachypterous. Similar to male. Length 2.4 mm.; tegmen 1.9 mm. Macropterous. Length 2.7 mm.; tegmen 3.0 mm.

Described from forty-seven males and thirty-six females from Kahuku, Kau, Hawaii, elevation 1800 feet, feeding on *Lipochaeta subcordata* (Giffard).

*Iburnia ipomoeicola* (Kirk).

A long series of males, females and young from Kakuku, Kau, Hawaii, elevation 1800 feet, on *Ipomoea* sp., in which are represented the light and dark forms and also intermediate. (Giffard, July, 1918). Four males and seven females and young from Lower Puna, Hawaii, elevation 30 feet, on *Mucuna gigantea* (Giffard, August, 1918). There are dark forms tending towards the intermediate.

*Iburnia gigantea* sp. n. Fig. 15.

Male. Brachypterous; length 4.5 mm., tegmen 2.5 mm. Length of vertex nearly double (1.8 to 1) the width at base, projecting considerably beyond the eyes, apex slightly broader than the base, the carinae form a broad projection in the middle of the apex, base at middle of eyes; length of face 2.7 times the width, sides slightly arcuate, widest in middle, the furcation of median carina forming a thickened ridge on basal third; antennae reaching to the middle of clypeus, second joint 1.6 times the length of first; femora not reaching to apex of abdomen, tibiae longer than femora, first tarsus longer than the other two together, spur with ten teeth.

Brown; carinae of head and thorax lighter, antennae and legs mottled light and dark, light over abdominal pleura and in middle of tergites. Tegmina hyaline, yellowish, black over veins except the apical, a dark mark at apex of clavus and at apex of costal cell.

The shape of the pygofer is similar to that of *I. koebeleri* (Muir),\* anal spines small, bases wide apart; genital styles flat, broadest on basal two-thirds, apical third narrowed to pointed apex; aedeagus slightly flattened laterally, curved, orifice large situated on dorso-apical half, a row of small, curved spines on ventral aspect one-third from apex bending to left side, a few scattered spines on sides of apical half; armature on diaphragm consisting of two small, curved processes flattened laterally.

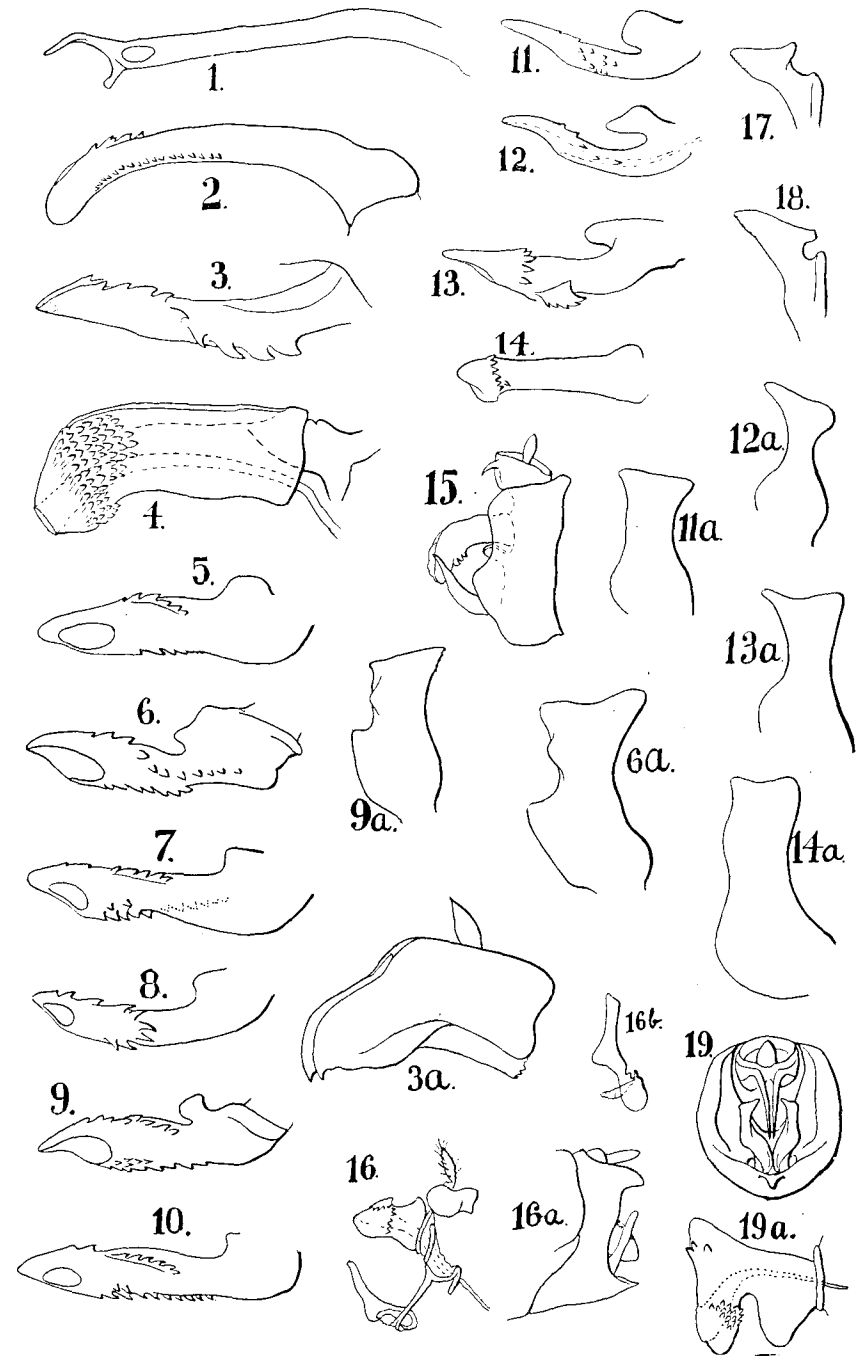
Castle trail, Oahu, elevation about 2000 feet, taken on *Pritchardia* sp. (Swezey, August, 1920). As only a single specimen was taken this may not be its food plant. The species comes near to *I. koebeleri* (Muir). It is of interest as showing the line by which a more normal type, such as *I. neowailupensis* (Muir) can proceed to such a form as *I. halia* (Kirk.).

\* Proc. Haw. Ent. Soc., III, 4 (1917). Pl. V, fig. 10.

PLATE VIII.

LIST OF FIGURES.

1. *Nesodryas haa*, aedeagus, p. 509.
2. *Iburnia waikamoienis*, aedeagus, p. 514.
3. " *lobeliae*, aedeagus; a, anal segment, p. 520.
4. " *sulcata*, aedeagus, p. 516.
5. " *raillardicola*, aedeagus, p. 512.
6. " *nesopele*, aedeagus; a, right style, p. 511.
7. " *nigroceps*, aedeagus, p. 511.
8. *Aloha myoporicola*, aedeagus, p. 510.
9. *Iburnia pele*, aedeagus; a, right style, p. 512.
10. " *dubautiae*, aedeagus, p. 510.
11. " *pipturi*, aedeagus; a, right style, p. 514.
12. " *boehmeriae*, aedeagus; a, right style, p. 514.
13. " *geranii*, aedeagus; a, right style, p. 515.
14. " *aku*, aedeagus; a, right style, p. 513.
15. " *gigantea*, profile of pygofer and anal segment with aedeagus exserted, p. 517.
16. " *olympica*, aedeagus, anal segment and left style with connecting structures; a, profile of pygofer; b, right style with internal basal portion, p. 520.
17. " *neoraillardiae*, left style, p. 517.
18. " *raillardiae*, left style, p. 516.
19. " *amamau*, full view of pygofer; a, aedeagus, p. 512.



Genitalia of new Hawaiian Delphacids.

*Ilburnia olympica* sp. n. Fig. 16, a, b.

Male. Brachypterous; length 3.3 mm., tegmen 2.4 mm. Length of vertex 1.7 times the width, base slightly behind the middle of eyes, slightly narrower than apex, the carinae projecting well forward in middle of apex; length of face 2.7 times the width, slightly broadest on apical half, forking of median carina near the apex, but they do not form two distinctly separate carinae, but a broad, flat ridge narrowing towards the apex; antennae reaching near to the middle of clypeus, second joint 1.4 times the length of first; hind femora reaching a little beyond the apex of abdomen, tibiae longer than femora, first hind tarsus considerably longer than the other two together, spur with nine or ten teeth. Opening of pygofer broader than long, anal angles produced and curved nearly enclosing the anal segment, medio-ventral edge produced into a pointed process; anal segment without spines; genital styles flat, broadest at base, narrowest in middle, apex truncate, slightly oblique; aedeagus short, slightly compressed laterally, deep, more so at base, the orifice large, occupying the apical half of the dorsal aspect, the edge set with several small spines, a circle of small spines slightly apical of middle.

Vertex and face dark shiny chestnut, clypeus lighter with darker marks between carinae; antennae fuscous, thorax fuscous, lighter between carinae, legs fuscous, abdomen fuscous lighter at base. Tegmina light brown or yellowish, veins black, a black mark at apex of clavus and a smaller one at apex of costal cell, granules small bearing black macrotrichia.

Female. Brachypterous; length 2.7 mm., tegmen 1.9 mm. Much lighter in color than the male.

Castle trail, Oahu, elevation about 2000 feet, on *Lobelia* sp. (Swezey, August, 1920). Described from three males and one female. This species is very isolated; it might equally well be placed near *I. halia* or *I. asteliae*.

*Ilburnia lobeliae* (Muir). Fig. 3, a.

The genitalia has not been previously figured.

## Kauai Insect Notes and Records.

BY O. H. SWEZEY.

While on the Island of Kauai during the first week of September, 1920, I was able to collect insects in a few places where I had never been before, but the great amount of rain prevailing at the time prevented collecting more than for about three days altogether. Some interesting captures were made of native insects, and several immigrant insects were found for the first time on that island.

### FIRST RECORDS OF IMMIGRANTS FOR KAUAU.

*Allograpta obliqua* (Say).—Two specimens of this Syrphid fly were caught in Olokele Canyon at about 1400 feet elevation. I did not see it anywhere else on the island. This is the aphis-feeding Syrphid that was first noticed in Honolulu the first part of this year.

*Bruchus pruininus* Horn.—The Bruchid which attacks the seeds of *Lucaena glauca*. I collected several specimens of the weevil on the flowers of its host tree in Olokele Canyon at an elevation of 1400 feet.

*Bruchus obtectus* Say.—The common bean weevil was obtained in a store at Waimea.

*Diachus auratus* (Fab.).—This Chrysomelid, first recorded in Honolulu in 1913, I collected in Olokele Canyon (1400 feet) and at Puu Ka Pele (3500 feet).

*Hyperaspis jocosa* (Muls.).—The ladybeetle introduced from Mexico to prey on the lantana *Orthezia*, I collected at Puu Ka Pele and at Summit Camp.

*Chrysidid*.—The Chrysidid which has been known in Honolulu since 1914, I saw one specimen of on a fence at Lihue, but failed to collect it.

*Epyris extraneus* Bridwell.—I collected this Bethyloid among morning glory vines on a stone wall at Lihue. Mr. Osborn tells me that he has seen this parasite on Kauai previously but had not recorded it.