

FAUNA HAWAIIENSIS
OR THE
BIOLOGY OF THE SANDWICH (HAWAIIAN) ISLES

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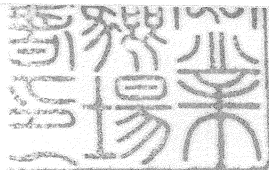
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VOLUME III. PART I.

DIPTERA BY P. H. GRIMSHAW.

Pages 1-77; Plates I, II, III, uncoloured.

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DIPTERA.

By Percy H. Grimshaw.

Introduction.

In the following pages 172 species of Diptera are recorded as inhabiting the Sandwich Islands. Very little was known of this section of the fauna previous to the visits of Mr Perkins—indeed I have only been able to find 22 species recorded (though I believe I have consulted all the available literature),—together with three or four referred to certain genera but not specifically identified. Of these, 10 appear to be represented in the present collection, 9 are practically cosmopolitan, while 9 were originally described from these islands. In the present contribution I have found it necessary to describe 106 species as new to science, and for the reception of 13 of these I have ventured to characterise 6 new genera.

The collection formed by Mr Perkins being a comparatively small one, and the other published records being so few, it would be unwise to discuss at any length any peculiarity in the distribution of the species that may appear to be indicated by the few specimens obtained. I may, however, point out that out of the total number of 172 species no fewer than 134 have hitherto been obtained from only a single island.

As at present known, the distribution in the various islands is as follows:

	No. of species.	No. of peculiar species.	Percentage of peculiar species.
Kauai	27	14	52
Oahu	45	24	65
Molokai	29	17	59
Lanai	15	8	44
Mau	22	15	68
Hawaii	54	26	64

In proportion to the number of species obtained, the Drosophilidae are unusually well represented and include not only the most remarkable generic forms. The Tipulidae sensu stricto have not yet been obtained from any of the islands, but their allies the

Long. corp. 4 mm. ♂ 4 mm. ♀ incl. ovipositor 4-5 mm.; al. 3-4 mm. Front reddish-brown, sometimes a little lighter behind, orbits, vertical triangle and a narrow central stripe (which is sometimes absent) cinereous, occiput with very pale setae, face cinereous or with a yellowish tinge, antennae blackish, with the first two joints lighter, and in the female sometimes yellowish-brown, proboscis and palpi yellow, the latter with dark tips. Thorax dark cinereous with three narrow, rather indistinct, blackish lines on the dorsum, which with the pleurae is thinly covered with very pale pubescence, scutellum with two setae and similar pubescence, halteres dark fuscous. Abdomen blackish, slightly shining, covered with short black hairs and a few bristles on the terminal segment, genitalia of ♂ conspicuous, blackish with pale pubescence, ovipositor of ♀ shining black, as long as the four preceding segments. Legs blackish-cinereous, tibiae, fore and intermediate knees and all the tarsi lighter, varying from reddish-yellow to pitchy brown, fore femora with bristles above and below, the middle and hind femora expanded, shorter than the succeeding joint and furnished with conspicuous long bristles. Wings hyaline with fuscous reticulation and showing the following principal features: a large clear space at the apex quite clear, first costal cell quite clear with two or three small brown spots touching the costal vein, third posterior oblique horseshoe-shaped brown spot, marginal cell with two large and one small limpid spot touching the costa, the former extending into the submarginal cell which has three limpid spots touching the costa, the posterior of these forming the upper portion of the clear apex, section of the wing, first posterior cell with the reticulation covering its basal two-thirds, first basal and discoidal cell entirely covered with fuscous, each with many small subapical limpid spots, third posterior and anal cells with very little reticulation.

HAB. Maui, one male, Haleakala crater, October 1896.

Plate II, fig. 24, wing.

(5) *Tephritis cratericola*, sp. nov.

Long. corp. ♂ 3-3½ mm., ♀ incl. ovipositor 4-5 mm.; al. 3-4 mm. Front reddish-brown, sometimes a little lighter behind, orbits, vertical triangle and a narrow ventral stripe (which is sometimes absent) cinereous, occiput with very pale setae, face cinereous or with a yellowish tinge, antennae blackish, with the first two joints lighter, and in the female sometimes yellowish-brown, proboscis and palpi yellow, the latter with dark tips. Thorax dark cinereous with three narrow, rather indistinct, blackish lines on the dorsum, which with the pleurae is thinly covered with very pale pubescence, scutellum with two setae and similar pubescence, halteres dark fuscous. Abdomen blackish, slightly shining, covered with short black hairs and a few bristles on the terminal segment, genitalia of ♂ conspicuous, blackish with pale pubescence, ovipositor of ♀ shining black, as long as the four preceding segments. Legs blackish-cinereous, tibiae, fore and intermediate knees and all the tarsi lighter, varying from reddish-yellow to pitchy brown, fore femora with bristles above and below, the middle and hind femora expanded, shorter than the succeeding joint and furnished with conspicuous long bristles. Wings hyaline with fuscous reticulation and showing the following principal features:

1. A large clear space at the apex quite clear, first costal cell quite clear with two or three small brown spots touching the costal vein, third posterior oblique horseshoe-shaped brown spot, marginal cell with two large and one small limpid spot touching the costa, the former extending into the submarginal cell which has three limpid spots touching the costa, the posterior of these forming the upper portion of the clear apex, section of the wing, first posterior cell with the reticulation covering its basal two-thirds, first basal and discoidal cell entirely covered with fuscous, each with many small subapical limpid spots, third posterior and anal cells with very little reticulation.

2. A large clear space at the apex quite clear, first costal cell quite clear with two or three small brown spots touching the costal vein, third posterior oblique horseshoe-shaped brown spot, marginal cell with two large and one small limpid spot touching the costa, the former extending into the submarginal cell which has three limpid spots touching the costa, the posterior of these forming the upper portion of the clear apex, section of the wing, first posterior cell with the reticulation covering its basal two-thirds, first basal and discoidal cell entirely covered with fuscous, each with many small subapical limpid spots, third posterior and anal cells with very little reticulation.

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Plate II, fig. 24, wing.

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two conspicuous patches of brownish to blackish scales extend from the costa to the fourth cell, the larger patch being in a line with the posterior transverse vein and generally including the single bristle which reaches externally the tip of the second cell, the other patch much smaller, filling up all but the apex of the third subcostal cell; from the large fuscous patch three irregular fuscous streaks extend to the posterior margin of the wing, one running over the posterior transverse vein and the other two crossing the middle of the second posterior cell from the inner edge of the same patch; a fuscous streak runs across the submarginal and marginal cells, reaching the costa about opposite the anterior transverse vein.

HAB. MONT. This species is represented in the collection by 22 males and 28 females, all taken within the crater of Haleakala, at a height of 8000 ft. Two of the males were captured in April 1864, all the other specimens in October 1866.

Plate II, fig. 27, wing.

PHAEOGRAMMA, nov. gen.

Head in profile subquadrate, front unusually flat and longer than the face, which is slightly concave with the oral margin slightly projecting, chin with a single dark and a few light coloured bristles, occiput with short stubby setae, one of which occurs also on each side of the front, behind the uppermost fronto-orbital bristles, the latter four in number; the three anterior pointing forward and the posterior one backward, antennae nearly as long as the face, third joint concave in front and obtuse at the tip, arista thick and very slightly pubescent, eyes broadly and obliquely oval, proboscis short and stout, palpi clavate. Thorax with two pairs of bristles on the dorsum, the anterior pair four, the posterior three, scutellum subtriangular with only two bristles. Abdomen cylindrical, except the fore femora, unarmed. Wings long and rather narrow, moderately shining, the abdomen, costal spine conspicuous, costa slightly undulate, the hind margin finely bristly, third unarmed and parallel with the fourth, the latter slightly undulate, otherwise quite straight, discal cell long and narrow, the anterior transverse vein very near its apex, much beyond the tip of the first vein and about two thirds of the length of the wing from its base, anal cell drawn out into a short point, pterostigma of the wings in the single species described consisting of three transverse bands in the apical half and two bands running longitudinally from the base and uniting with the first and second bands.

Type of genus: *P. whitpennis*, sp. nov.

The peculiar flattened front, the bisetose scutellum and the unusual pattern of the wings will readily serve to distinguish this genus from its allies.

DIPTERA

Fam. EPHYDRIDAE.

NOTIPHILA Fallen.

(1) *Notiphila insularis*, sp. nov.

♂♀. Long. corp. $3\frac{1}{2}$ mm.; al. $3\frac{1}{2}$ mm. Front brownish-grey, with the orbits and a central stripe light yellowish-grey; face light yellowish-grey, with two or three bristles near the oral margin; proboscis reddish-brown, palpi light yellow; antennae light reddish-yellow, the third joint only very slightly infuscated towards its tip. Thorax and scutellum light yellowish-grey, pleurae and metanotum light greenish-grey, halteres light yellow. Abdomen greenish-grey, with four rather obscure brownish spots on the first and second segments, two similar ones on the third, and two very small ones on the fourth. Legs with the fore coxae and all the femora dark brown, covered with greenish-grey tomentum, knees, tibiae and tarsi entirely reddish-yellow; intermediate femora with a few bristles in the apical half beneath, intermediate tibiae with three conspicuous bristles on the outer surface. Wings hyaline, veins yellowish-brown.

HAB. Oahu, one male and one female, Waialua, Koolau range, February 1893.

BRACHYDEUTERA Loew.

(1) *Brachydeutera argentata* Walker.

Notiphila argentata Walker, Ins. Saundersiana Dipt. p. 407 (1856).

Brachydeutera dimidiata Loew, Monog. Dipt. N. Amer. I. p. 163 (1862).

H.B. Hawaii. A single specimen of this already well-described North American species was obtained by Mr Perkins at Olaa in July 1895. Three specimens are recorded from the same island by L. O. Howard (Proc. Ent. Soc. Washington, vol. no. 4, p. 490, July 1901).

SCATELLA Desvoidy.

(1) *Scatella hawaiiensis*, sp. nov.

♂♀. Long. corp. $2\frac{1}{2}$ — $2\frac{3}{4}$ mm.; al. $2\frac{1}{2}$ mm. Front shining black with a slight greenish tinge; face shining greenish-black with a little brownish tomentum, a pale spot below the base of each antenna, a row of three conspicuous bristles down each side and the oral margin fringed with fine hairs; antennae quite black, arista with distinct pubescence on the upper side. Thorax shining brownish-black, the shoulders and front margin greenish-cinereous, pleurae and metanotum greenish-cinereous, a brown patch

50 Ju: D. Shapp,

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3 plate, Cambridge

on the mesopleurae, scutellum shining black, with two large subapical and two small lateral bristles, halteres light yellow; dorsum of thorax with three pairs of dorso-central bristles. Abdomen shining blackish. Legs entirely black. Wings brownish-grey, with five pellucid spots, the largest in the submarginal cell and subquadrate, two in the first posterior cell nearly as large, and one on each side of the posterior transverse vein, that on the inner side being much smaller than the others, subrotund and touching the fifth longitudinal but not reaching the fourth; the three upper spots stretch entirely across the cells in which they are contained; costal vein reaching the tip of the fourth vein.

HAB. Oahu. Eight males and six females were obtained on wet rocks in the Kaala Mts., at a height of 2000 ft., in March 1893.

This species appears to be closely allied to *S. stagnalis* Fln., but is distinguished from the latter by possessing three bristles on the face. It can, moreover, be distinguished from most of the species (but not all) with spotted wings by possessing three pairs of dorso-central bristles on the thorax, a character which belongs rather to the group possessing clear wings.

Plate III. fig. 1, wing.

Fam. DROSOPHILIDAE.

IDIOMYIA, gen. nov.

Front slightly convex, with three fronto-orbital bristles, the anterior about mid-way between the insertion of the antennae and the vertex and pointing forward, the other two pointing backward, orbital stripes abruptly terminated about or a little beyond the middle of the front, to which the vertical triangle nearly reaches; face slightly excavated, the oral margin distinctly reflexed, a few small bristles at the vibrissal angle, proboscis very thick, palpi thick and clavate, eyes large, round or slightly oval and distinctly pubescent. Antennae short, the first joint hardly distinguishable, the second large with a convex upper surface, so that between it and the third there is a distinct indentation, third joint large, oval and rounded at the extremity, arista bipectinate, sometimes also with short pubescence, bare at the base beneath. Thorax with two pairs of widely-separated macrochaetae behind the middle, scutellum subtriangular, rather flat, with a pair of lateral bristles and a pair of decussating apical ones. Abdomen slender and narrower than the thorax, subconical and obtuse in the male, pointed in the female; the latter sex possesses a more or less upturned ovipositor and a peculiar supra-anal process furnished with long stiff hairs. Legs long and slender, with few or no bristles. Wings much longer than the abdomen, auxiliary vein rudimentary, first longitudinal vein not quite reaching a third of the length of the wing, second and third longitudinal veins more or less curving upward in their basal half and then running parallel or nearly so to their termination, the third ending at the tip of the wing,

fourth vein nearly straight, fifth straight as far as the posterior transverse vein and then curved suddenly downwards to the posterior margin of the wing, sixth rudimentary; between the third and fourth longitudinal veins two transverse veins are present, one opposite or a little beyond the termination of the first longitudinal vein, the other opposite or a little beyond the posterior transverse vein, the two last sections of the fourth vein as thus divided about equal in length, discal cell united with the posterior basal cell, anal cell present but inconspicuous.

Type of genus: *I. perkinsi*, sp. nov.

As only one male of this genus is represented in the collection (that of the typical species) it is impossible to say yet whether certain characters, such as the strong curvature of the costa and the tuft of hairs on the fore tibiae are of specific or only sexual value, but I rather suspect the latter to be the case.

Key to species.

1. Scutellum dark with yellow median stripe2.
 ,, entirely dark on dorsum, with bright yellow margin(4) *I. picta*.
2. Face, antennae, and palpi black3.
 Face yellowish, antennae with basal joints obscurely yellow, palpi yellow(3) *I. oahuensis*.
3. Metanotum with yellow median stripe, femora with only the bases and tips
 infuscated.....(1) *I. perkinsi*.
 Metanotum entirely black, femora blackish with tips yellowish(2) *I. obscuripes*.

(1) *Idiomyia perkinsi*, sp. nov.

♂. Long. corp. 7 mm.; al. 8 mm. Front reddish-yellow with a transverse brown band behind the antennae, orbits as far as the most anterior fronto-orbital bristle and the vertical triangle black, face, proboscis, palpi and antennae black, the second joint of the latter with a tuft of stiff, black hairs, arista with long hairs along the whole length above and the apical half below, also with a very short thick pubescence between the long hairs. Thorax with the greater part of the dorsum blackish, anterior edge yellow with two median longitudinal black lines, humeri and lateral edges yellow, pleurae yellow with a shining black patch above the front coxae and a smaller one beneath the root of the wings, scutellum and metanotum black with yellow median stripe, halteres light yellow. Abdomen blackish-brown, shining, with obscure yellow markings at the anterior angles of each segment, the whole of the dorsum covered with fine bristles which are somewhat longer near the hind margin of each segment. Legs reddish-yellow, the apices and bases of all the femora and the two hinder pairs of tibiae slightly infuscated, fore femora with a few bristles on the outer side, fore tibiae with a conspicuous tuft of hairs at the base, intermediate tibiae with a strong subapical and a single apical bristle, hind tibiae with only a rather weak subapical bristle. Wings slightly tinged with yellowish-brown, the apex broadly infuscated, leaving a very narrow margin

between the tips of the second and third veins and a little broader space between those of the third and fourth veins lighter, a fuscous spot at the termination of the first longitudinal vein, all the transverse veins and the apex of the penultimate section of the fourth longitudinal vein also infuscated, the costa strongly curved forward just beyond the termination of the first longitudinal vein, second longitudinal vein strongly and third slightly curved forward about the middle of the wing; of the transverse veins between the third and fourth longitudinal veins the inner one is just beyond the termination of the first longitudinal vein and the outer one exactly opposite the posterior transverse vein, the latter strongly curved inward towards the base of the wing.

HAB. Molokai Mts., one male, above 4000 ft., June 1893.

Plate III. figs. 2, side view of head, 3, antenna, and 4, wing.

(2) *Idiomyia obscuripes*, sp. nov.

♀. Long. corp. 6 mm. ; al. $6\frac{1}{2}$ mm. Head in all respects like that of *I. perkinsi*. Thorax blackish-brown, before the suture two yellowish-cinereous central stripes, humeri and lateral edges yellow, pleurae for the greater part shining blackish, scutellum and halteres as in *I. perkinsi*, metanotum entirely black. Abdomen blackish-brown, shining, without any trace of yellow markings. Legs obscure yellowish, femora blackish with only the apices yellowish, fore tibiae without tufts of hair. Wings like those of *I. perkinsi*, but the costa nearly straight.

HAB. Maui, two females from Haleakala, 5000 ft., April 1894 and May 1896.

This form is evidently very closely allied to *I. perkinsi*, and may possibly prove to be only the female of that species. On account of the different locality and the difference in the colour of the dorsum of the thorax, the metanotum and the femora, it is perhaps better for the present to regard it as distinct.

(3) *Idiomyia oahuensis*, sp. nov.

♀. Long. corp. 6 mm. ; al. 7 mm. Front yellow, posterior half of orbits and the vertical triangle black, face and palpi obscure yellowish, proboscis blackish, antennae obscure reddish-yellow with the third joint light brown, second joint with numerous black hairs, arista with long hairs along the whole length above and the apical two-thirds below, also with a number of shorter hairs between the long ones on the upper side. Thorax reddish-yellow with two broad black stripes on the dorsum which are approximated behind and deeply excavated on their outer side so as to appear almost hook-shaped, humeri shining black, pleurae, scutellum, metanotum and halteres as in *I. perkinsi*. Abdomen shining blackish, obscurely yellow at the base, ovipositor and supra-anal process

reddish-yellow, the former slightly upturned and about as long as the last abdominal segment. Legs coloured much as in *I. perkinsi*, the fore femora with bristles as in that species, the fore tibiae without conspicuous hairs. Wings similar to those of *I. perkinsi*, but the costa not arched, the tips of the second, third and fourth longitudinal veins infuscated and a patch of fuscous in the marginal cell near the termination of the first longitudinal vein.

HAB. Oahu, one female, Kawailoa gulch, April 1893.

(4) *Idiomyia picta*, sp. nov.

♀. Long. corp. 5 mm.; al. 6 mm. Front light yellow in front, reddish-yellow behind, in one specimen entirely of the latter colour, orbits as far as the anterior fronto-orbital bristles and vertical triangle blackish with yellowish-cinereous tomentum, face light yellow, proboscis and palpi black, antennae black, the apex of the second joint more or less pale, arista with only four or five hairs on the upper surface and two or three on the apical half of the lower surface, without pubescence. Thorax yellowish-cinereous before the suture and almost entirely blackish-brown behind, the dark portion sending forward two central lines which extend a little in front of the suture, opposite their termination on each side is a small isolated dark spot, while external to the two central lines the dark colour is indented by the light ground-colour, humeri bright yellow, pleurae dark yellowish-cinereous, scutellum blackish on the dorsum with bright yellow margins, metanotum dark cinereous, halteres yellow. Abdomen shining blackish, ovipositor dark reddish-yellow. Legs obscure yellowish, fore femora more or less dark brown and the tips of the others slightly infuscated. Wings hyaline with a brownish tinge in the marginal cell, a small fuscous patch over the termination of the first and junction of the second and third longitudinal veins, the tips of the second, third and fourth veins broadly infuscated, transverse veins and apical portion of the penultimate section of the fourth vein also broadly infuscated; the outer of the transverse veins between the third and fourth longitudinal veins distinctly beyond the posterior transverse vein, the latter directed outward and straight, the outer posterior angle of the discal cell therefore less than a right angle, costa not arched, venation otherwise as in the preceding species.

HAB. Maui, three females, Haleakala, above 5000 ft., October 1896.

HYPENOMYIA, gen. nov.

Front broad and almost parallel-sided, with three fronto-orbital bristles on each side of the posterior half, the lowest one pointing forward, and the other two backward, the middle one much the smallest, two vertical bristles near the upper angle of the eye,

one upright and the other pointing outwards, two ocellar bristles pointing forwards and two upright ones behind the vertical triangle; face perpendicular, about as long as the front and distinctly convex longitudinally, at the lower angle on each side is a conspicuous row of strong black bristles which are curved inwards in front of the face; chin with a few bristles; proboscis thick, palpi clavate; eyes large, oval; antennae with the third joint oval, rounded at the end, longer than the first two joints taken together, arista long, with long hairs along the whole length of the upper surface and a few on the apical half beneath. Thorax with two pairs of conspicuous and one or two pairs of smaller dorso-central bristles behind the suture, two humeral, one presutural, two notopleural and four supra-alar bristles; scutellum with two lateral and two apical decussating bristles. Abdomen rather small, conical, in the male with seven distinct segments, the sixth furnished with a row of long fine hairs near the hind margin and with a curious spathulate appendage below, attached by a slender pedicel to the hind margin, seventh segment small, laterally compressed and furnished with long, rather tortuous hairs. Legs rather stout, the tibiae a little thicker at their extremities, the hind pair slightly bent. Wings large, much exceeding the abdomen; last segment of fourth longitudinal vein nearly three times as long as the penultimate, posterior transverse vein oblique, and hence making an acute angle with the fifth longitudinal, anal cell small but distinct.

Type of genus: *Hypenomyia varipennis*, sp. nov.

(1) *Hypenomyia varipennis*, sp. nov.

♂. Long. corp. 6—7 mm.; al. 7 mm. Front yellow, upper half of the orbits darker, the vertical triangle dark brown, face light yellowish-grey, somewhat shining, antennae reddish-yellow, palpi and proboscis yellow. Thorax obscure yellowish in front, behind with four broad, ill-defined brown stripes, pleurae for the greater part brown, scutellum brown above with the sides yellow, metanotum and halteres yellow. Abdomen dark brown. Legs yellow, with the fore tibiae except the bases, the tips of the intermediate and hind tibiae and the greater part of the intermediate metatarsi blackish. Wings tinged with fuscous, leaving the second costal cell, the bases of the marginal and submarginal cells, a quadrate spot on either side of the anterior transverse vein, a subtriangular spot in the discal cell, an oval spot below the base of the fifth vein, one below the tip of the second, one between the tips of the third and fourth veins, and more or less of the posterior margin of the wing hyaline.

HAB. Molokai Mts., two males, 5000 ft., September 1893.

Plate III. figs. 5, side view of head, and 6, wing.

DROSOPHILA Fallen.

This genus is represented by nearly fifty species, of which forty are here dealt with. I cannot satisfactorily refer any of these to already described forms, and therefore have regarded them all as new. Owing to the absence of any striking characters in some of the smaller species I have found it impossible, without reference to types, to decide whether they may or may not belong to certain previously-described North American or European species, with the descriptions of which they agree in many particulars. I hardly think it likely that the native species will be found elsewhere, so that the chances of the names given below being reduced to synonyms will only apply to one or two which may (though this is an unlikely supposition) have been introduced. I have left eight specimens undetermined, owing to their bad condition.

Key to species.

- 1. Wings with a dark pattern or with dark spots2.
 " not so marked11.
- 2. Tibiae pale yellow, conspicuously banded with dark brown(1) *D. picticornis*.
 " not banded3.
- 3. Thorax light yellow, with a single broad central stripe and three conspicuous lateral spots blackish.....(2) *D. variegata*.
 Thorax not so coloured 4.
- 4. Wings with costal and apical borders continuously infuscated5.
 " without continuous fuscous border6.
- 5. Fourth longitudinal vein distinctly curved near its apex.....(3) *D. undulata*.
 " " straight(4) *D. perkinsi*.
- 6. Thorax yellow, with four conspicuous black stripes; scutellum yellow with broad central dark stripe(5) *D. conspicua*.
 Thorax unstriped or with less than four stripes; if four inconspicuous stripes are present the scutellum is entirely yellow7.
- 7. Third longitudinal vein with a fuscous spot opposite the posterior transverse vein8.
 Third longitudinal vein without such spot9.
- 8. Infuscation in marginal cell or on middle portion of second longitudinal vein extending to a distance equalling the whole breadth of the wing...(6) *D. lanaiensis*.
 Infuscation in marginal cell or on middle portion of second longitudinal vein only about as broad as the length of the posterior transverse vein(7) *D. hawaiiensis*.
- 9. A fuscous spot on the middle of the second longitudinal vein10.
 No " " "(10) *D. paucipuncta*.
- 10. Pleurae entirely yellow(8) *D. ochracea*.
 " marked with dark brown.....(9) *D. pilimana*.
- 11. Apex of wings more or less infuscated12.
 " " clear17.
- 12. Base of fore femora furnished on the inner side with a brush of short, stiff black hairs(11) *D. anomalipes*.
 Fore femora unarmed13.

13. Femora black with only the bases and tips yellow(12) *D. nigra*.
 „ yellow14.
14. Antennae entirely, and front for the most part, light yellow(13) *D. flaviceps*.
 „ and front more or less darkened15.
15. Pleurae yellow(14) *D. infuscata*.
 „ dark brown or blackish16.
16. Thorax and scutellum reddish-yellow(15) *D. sordidapex*.
 „ „ blackish-cinereous, the latter with yellow apex(16) *D. haleakalae*.
17. Wings with second costal cell infuscated.....(17) *D. setiger*.
 „ „ clear.....18.
18. Wings with one or both the transverse veins clouded with fuscous19.
 „ without any fuscous22.
19. The greater portion of the 2nd and the apices of the 3rd and 4th longitudinal veins bordered with pale fuscous(18) *D. humeralis*.
 Longitudinal veins not bordered with fuscous20.
20. Last section of the 4th longitudinal vein twice as long as the penultimate(19) *D. parva*.
 Two last sections of the 4th longitudinal vein equal in length.....21.
21. Thorax and scutellum reddish or brownish yellow, femora light yellow.....(20) *D. sharpi*.
 Thorax, scutellum and fore femora blackish(21) *D. olaae*.
22. Intermediate and hind tibiae with dark rings23.
 Tibiae not annulated24.
23. Fore femora swollen(22) *D. crassifemora*.
 „ not swollen(23) *D. nasalis*.
24. Femora more or less dark25.
 „ entirely light yellow27.
25. Arista extremely short-haired; small species(24) *D. mauiensis*.
 „ long-haired; larger species26.
26. Third joint of antenna light yellow(25) *D. molokaiensis*.
 „ „ dark brown(26) *D. sp.?*
27. Last two sections of the 4th longitudinal vein equal or subequal28.
 Last section of the 4th longitudinal vein at least half as long again as the penultimate31.
28. Thorax shining black.....(27) *D. melanosoma*.
 „ more or less yellow29.
29. Thorax reddish-yellow with obscure blackish stripes; pleurae partly blackish(28) *D. longiseta*.
 Thorax yellow, unstriped; pleurae entirely yellow.....30.
30. Front reddish-yellow; second joint of antennae entirely yellow(29) *D. xanthosoma*.
 „ dark ferruginous; „ „ dark brown above, yellow below.....(30) *D. cognata*.
31. Thorax entirely or in part reddish-yellow; pleurae reddish-yellow32.
 „ and pleurae dark brown or blackish37.
32. Antennae entirely light or reddish-yellow33.
 „ with the third joint dark35.
33. Scutellum dark brown(31) *D. inaequalis*.
 „ yellow34.
34. Size $2\frac{1}{2}$ —3 millimetres(32) *D. monticola*.
 „ less than 2 millimetres(33) *D. pusilla*.
35. Abdomen light yellow without markings.....(33) *D. pusilla*, var.
 „ dark reddish-brown.....36.

36. Face with a distinct broad keel ; size larger(34) *D. carinata*.
 „ without distinct keel ; size smaller(35) *D. obscuricornis*.
 37. Antennae entirely yellow(36) *D. varifrons*.
 „ partly or entirely dark brown38.
 38. Scutellum blackish with yellow apex(37) *D. polita*.
 „ reddish-brown or dark brown, unicolorous39.
 39. Arista with only 3 hairs above and none below.....40.
 „ at least 6 hairs above and 4 below(40) *D. plumosa*.
 40. Front entirely blackish-brown(38) *D. obscurifrons*.
 „ yellowish near the antennae, otherwise dark brown.....(39) *D. exigua*.

(1) *Drosophila picticornis*, sp. nov.

♂ ♀. Long. corp. $3\frac{1}{2}$ mm.; al. 4 mm. Front rather more than one-third of the width of the head, parallel-sided, dark brown, with the orbits, anterior edge, and a narrow median line lighter. Face obscure yellowish-white with the oral margin distinctly projecting and more yellowish, a distinct black spot at the insertion of the vibrissa, below which are a few smaller bristles; proboscis black, palpi ?. Antennae blackish with the apex and lower half of the third joint whitish-yellow, which colour is sharply defined; arista plumose above and on the apical half below. Thorax yellow, with a very broad central stripe, two spots on each side of the latter, a spot on each shoulder, a small spot in front of the base of the wings, two spots and a vertical stripe on the mesopleurae, dark brown; scutellum yellow with a large double spot on the dorsum dark brown; metanotum brown and shining, halteres yellow. Abdomen dark brown, with the first segment in the male and four spots on the anterior border of each of the three following segments yellow. Legs light yellow with the basal two-thirds or so of the femora, two rings on each of the tibiae and the tips of the tarsi dark brown. Wings brown, with numerous single and double hyaline spots.

HAB. Kauai, one male, Waimea Mts., 4000 ft., 1894; one female, Koholamano, Kauai, April 1895.

Plate III. figs. 7, antenna, and 8, wing.

(2) *Drosophila variegata*, sp. nov.

♀. Long. corp. 4—5 mm.; al. 4—6 mm. Front brown with the orbits and a narrow median line yellow, vertical triangle black; face yellow. Antennae yellow, with the upper edge of the second joint brownish and the whole of the third joint black; proboscis yellow, palpi black. Thorax light yellow, with a broad central stripe, three spots behind the shoulders, and several spots on the pleurae black, the central stripe continued over the scutellum, which is otherwise yellow; metanotum yellow, with brown or black central stripe, halteres light yellow. Abdomen black with large

paired subquadrate yellow spots at the anterior angle of each segment, ovipositor projecting, slightly upturned and reddish-yellow. Legs yellow, the bases of the anterior and the greater part of the intermediate and hind femora dark brown or blackish. Wings hyaline, with three irregular dark brown bands running across from the costa to the posterior margin; the first commences immediately before the termination of the 1st longitudinal vein and about its middle sends out a patch which extends beyond the anterior transverse vein and joins the second band, the latter commences about the middle of the wing as a very broad band, then suddenly narrows when it crosses the 3rd vein, expands again on the 4th, runs over the apical half of the discal cell, including the posterior transverse vein but leaving a small hyaline spot near the lower exterior angle of the cell, and terminates on the posterior margin about as broad as it commenced, the third band at the apex of the wing, covering the tips of the 2nd, 3rd, and 4th veins, and along the latter sending a projection inwards which nearly meets the second band.

HAB. Molokai Mts., six females, 4000 ft., May and June 1893.—Lanai, three females, 2000 ft., December 1893, and one female, Halepaakai, 3000 ft., July 1894.

Plate III. figs. 9, ♀ individual, and 10, wing.

(3) *Drosophila undulata*, sp. nov.

♂. Long. corp. 4 mm.; al. $4\frac{1}{2}$ mm. Front dark brown, with the orbits and a narrow median line yellow; face dark reddish-yellow with a distinct keel. Antennae obscure reddish-yellow with the upper edge of the first two joints and the whole of the third dark brown; proboscis yellow, palpi black. Thorax yellow with three black stripes running the whole length, the middle one the broadest; external to these are two stripes, the inner one of which runs from the suture backwards and the outer one from the shoulder to the base of the scutellum, being interrupted at the suture and joining the former behind; metanotum light yellow, scutellum black above, yellow at the sides, halteres yellow. Abdomen black, the fore borders of the segments obscure yellowish. Legs yellow with dark femora, the tips of all the tibiae slightly infuscated and on the two hinder pairs a trace of a dark ring near the base. Wings hyaline, with the costal cells distinctly tinged with yellow; all the veins broadly bordered with fuscous, the margins of the wing likewise darkened all round, except the costal margin as far as opposite the anterior transverse vein, up to which point the 1st and 2nd longitudinal veins are yellowish; 2nd longitudinal vein distinctly curved, and the 4th vein with the two last segments strongly waved.

HAB. Hawaii, one male, Kilauea, August 1896.

Plate III. fig. 11, wing.

(4) *Drosophila perkinsi*, sp. nov.

♂ ♀. Long. corp. $2\frac{1}{2}$ —3 mm. ; al. 3 — $3\frac{1}{2}$ mm. Front yellowish-brown, orbits and vertical triangle lighter; face yellowish-grey with a distinct keel. Antennae yellow with the third joint dark brown; proboscis yellow, palpi black. Thorax yellowish-cinereous becoming reddish-brown behind, with three narrow central brown lines, the middle one reaching the anterior edge, the others abbreviated in front and more or less interrupted at the suture; lateral edge and a broad band on the pleurae dark brown, pleurae otherwise yellowish; metanotum yellowish- or reddish-brown, scutellum dark brown above, yellow at the sides, halteres yellow. Abdomen dark brown, the posterior edges of the segments yellowish-cinereous. Legs yellowish with dark femora, two hind pairs of tibiae with very slight traces of brown rings near the base and tip, and the tarsi, especially the front pair, more or less darkened. Wings hyaline with a broad fuscous border beginning just beyond the termination of the 1st longitudinal vein and running round as far as the anal cell, in the three posterior cells the inner margin of this dark edging is irregularly sinuate, the two transverse veins conspicuously blotched with fuscous and a large fuscous spot in the 1st posterior cell just over the end of the discal cell; 2nd longitudinal vein very slightly curved and the 4th quite straight.

HAB. Hawaii, two males, Kilauea, August 1896.—Oahu, one female, Waianae, coast, January 1897.

Plate III. fig. 12, wing.

(5) *Drosophila conspicua*, sp. nov.

♀. Long. corp. 5 mm. ; al. 6 mm. Front yellowish-brown, orbits and vertical triangle lighter, space between the ocelli black, occiput with three black stripes; face light yellowish-grey, without keel, cheeks, lower part of occiput, proboscis and palpi light yellow. Antennae brown, somewhat yellowish beneath. Thorax yellow with four black lines, pleurae yellow, scutellum dark brown with only the lateral angles yellow, metanotum yellow with faint brown central stripe, halteres yellow. Abdomen shining black, with four pairs of yellow subquadrate spots situated at the anterior angles of the first four segments, those of the first segment hardly distinct from the anterior border which is also yellowish. Legs yellow, tip of fore and intermediate tibiae and base and tip of the posterior tibiae slightly infuscated, the last joint of all the tarsi also dark. Wings hyaline, marginal cell infuscated for the greater part of its length, the infuscation extending over the 2nd longitudinal vein, but leaving a spot at the termination of the 1st longitudinal vein and another before

the tip of the 2nd vein hyaline, apex of costal cell, a spot on the third vein opposite the posterior transverse vein and a large spot below this on the 4th vein fuscous, both the transverse and the tips of the 2nd to the 5th longitudinal veins broadly infuscated, the infuscation on the 4th extending twice as far inwards as that on the 3rd; posterior transverse vein angularly bent near its middle.

HAB. Hawaii, one female, Oloa, November 1896.

Plate III. fig. 13, wing.

(6) *Drosophila lanaiensis*, sp. nov.

♀. Long. corp. $3\frac{1}{2}$ —5 mm.; al. 4 — $5\frac{1}{2}$ mm. Front reddish-yellow with the orbits and vertical triangle lighter; face shining yellowish, not keeled; proboscis and palpi brown, lighter at the base; antennae obscure yellowish, with the upper edge of the first two and the whole of the third joint darker, sometimes dark brown. Thorax yellow with three brown stripes, the middle one sometimes indistinct, and between this and the lateral stripes on each side a faint trace of a very narrow dark line; pleurae yellow with a dark spot on the mesopleura; scutellum, metanotum, and halteres yellow. Abdomen as in *D. conspicua*, but the yellow spots not so distinct and the ovipositor longer and more slender. Legs yellow, terminal joint of the tarsi dark. Wings hyaline, and marked as in *D. conspicua* but more faintly, the posterior transverse vein quite straight.

HAB. Lanai, five females, 2000 ft., December 1893.

(7) *Drosophila hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 3—4 mm.; al. $3\frac{1}{2}$ —5 mm. Front varying from reddish-yellow to dark brown, orbits and vertical triangle lighter and usually cinereous, face yellowish-cinereous, proboscis and palpi reddish-yellow to reddish-brown, antennae dark brown. Thorax yellowish-cinereous, unstriped or with two obscure brown stripes, pleurae reddish-yellow to dark brown, mesopleurae blackish, scutellum and halteres yellow, metanotum reddish-brown to blackish. Abdomen blackish with more or less distinct yellow spots at the anterior angles of the segments, ovipositor distinct. Legs yellow. Wings hyaline, a spot over the 1st longitudinal vein, a transverse band crossing from the middle of the costa over the posterior transverse vein to near the tip of the 5th longitudinal vein, more or less broken up into spots or blotches on the veins, and the tips of the 2nd, 3rd, and 4th veins fuscous; posterior transverse vein slightly convex.

HAB. Hawaii, nine males and two females, Kona, 3500—4000 ft., July and September 1892; one female, Kilauea, August 1896.

A male from Kona, Hawaii, 4000 ft., September 1892, another from Kaumana, Hilo, 2000 ft., January 1896 (in the same island), and a female from Wainae Mts., Oahu, April 1892, differ in having the pleurae lighter, the thorax reddish-yellow rather than cinereous, the fuscous markings on the wings fainter, and the central band only commencing on the 2nd longitudinal vein and being quite broken up into spots. *D. hawaiiensis* appears, however, to be so variable, that at present I shall regard these three specimens as representing a form of that species.

Plate III. fig. 14, wing.

(8) *Drosophila ochracea*, sp. nov.

♀. Long. corp. $3\frac{1}{2}$ —4 mm. ; al. 4— $4\frac{1}{2}$ mm. Front yellow, sometimes a little brownish; face, proboscis, and palpi yellow; antennae obscure yellowish with the third joint darker and sometimes quite brown. Thorax, including the pleurae, scutellum, and metanotum, ochraceous-yellow, without any dark markings, halteres yellow. Abdomen dark brown or blackish, with large quadrate yellow spots at the anterior angles of the segments; sometimes these spots are so large that the abdomen would be better described as yellow with a dorsal line and the hind borders of the segments dark brown. Legs yellow. Wings hyaline with the following fuscous markings: a spot on the 1st longitudinal vein, one on the middle and another at the tip of the second vein, the former distinctly nearer the base of the wing than the posterior cross-vein, a small roundish spot at the tip of the 3rd and an elongated one at the tip of the 4th vein, both transverse veins broadly infuscated, the infuscation on the posterior one being enlarged at each end into a more or less distinct round spot.

HAB. Hawaii, five females, Olaa, July 1895.

(9) *Drosophila pilimana*, sp. nov.

♂ ♀. Long. corp. $3\frac{1}{2}$ —4 mm. ; al. 4—5 mm. Front yellowish or reddish-brown, orbits and vertical triangle lighter; face cinereous or yellowish-cinereous; proboscis yellowish-brown, palpi yellow; antennae reddish-yellow to brownish, the basal joints somewhat lighter. Thorax yellowish-cinereous, in the male more reddish-yellow with obscure brown markings, pleurae yellow with brown markings, of which two brown streaks on the mesopleurae are the most conspicuous, scutellum yellow with the dorsum more or less dark brown, metanotum brown, halteres yellow. Abdomen as in *D. ochracea*. Legs yellow, in the male the fore tibiae are furnished with long fine hairs on the outer surface. Wings as in *D. ochracea*, but the spots, especially that on the middle of the 2nd longitudinal vein, smaller and less distinct, the anterior transverse vein hardly or not at all infuscated.

HAB. Oahu, one male and three females on trunks of forest trees, Waianae Mts., April 1892.—Kauai, one male, Waimea Mts., 4000 ft., May 1894; one female, Koholuanui, April 1895.

A specimen much paler in all its parts and with the spots on the wings very faint but similarly situated, was obtained in the Mts. of Molokai (4000 ft.) in May 1893, and cannot well be separated from the present species.

(10) *Drosophila paucipuncta*, sp. nov.

♀. Long. corp. $3\frac{1}{2}$ —4 mm.; al. 4 — $4\frac{1}{2}$ mm. Very similar to *D. pilimana*, but differs in the total absence of the fuscous spot on the middle of the 2nd longitudinal vein. The front is darker, the thorax is yellowish-brown becoming much darker behind owing to an obscure blackish patch in front of the scutellum; the metanotum, on the other hand, is lighter; abdomen with yellow spots smaller.

HAB. Hawaii, three females, Oloa, July 1895.

(11) *Drosophila anomalipes*, sp. nov.

♂. Long. corp. $4\frac{1}{2}$ mm.; al. $5\frac{1}{2}$ mm. Front dark reddish-brown with the orbits reddish-yellow, face light cinereous, proboscis reddish-yellow, palpi dark brown; antennae black. Thorax reddish-yellow with an obscure, broadish, central brown stripe, pleurae reddish-yellow, scutellum, metanotum, and halteres reddish-yellow. Abdomen dark reddish-yellow, with a dorsal central line and the hind margins of the segments blackish. Legs yellow, the fore pair of peculiar structure as follow: coxae nearly as long as the femora and furnished at the tip with numerous black curved bristles, femora furnished near the base on the inner side with a brush of rather short, stiff, black bristles, tibiae swollen on the inner side of the tip into a little black knob, metatarsus somewhat swollen. Wings hyaline, with a fuscous spot at the apex which includes the tips of the 2nd, 3rd, and 4th veins, apex of the costal cell and posterior transverse vein also infuscated, the latter quite straight and only about half its length from the border of the wing.

HAB. Kauai, two males of this distinct and peculiar species, 4000 ft., July 1896.

Plate III. figs. 15, fore leg of ♂, and 15a, apex of tibia of same, more highly magnified.

(12) *Drosophila nigra*, sp. nov.

♀. Long. corp. 6 mm.; al. 6 mm. Front blackish with a transverse reddish-yellow band immediately behind the antennae, orbits and vertical triangle shining black; face dark cinereous, proboscis yellow, palpi black; antennae black. Thorax,

including pleurae, scutellum, and metanotum, shining black, halteres reddish-yellow. Abdomen shining black, unicolorous. Legs yellow, with the fore coxae dull blackish and all the femora shining black. Wings tinged with light brown, with the apex as far as half way to the end of the discal cell much darker and the posterior transverse vein infuscated.

HAB. Maui, a single imperfect female, Haleakala, 5000 ft., May 1896.

(13) *Drosophila flaviceps*, sp. nov.

♂. Long. corp. $2\frac{1}{4}$ mm.; al. $2\frac{1}{2}$ mm. Front light yellow, orbits and vertical triangle a little darker, face greyish-yellow, proboscis, palpi, and antennae light yellow. Thorax dark cinereous, somewhat shining, pleurae blackish-brown, shining, scutellum dark brown with a yellowish tinge, metanotum reddish-brown, halteres yellow. Abdomen shining black. Legs light yellow. Wings rather narrow, hyaline, with the apical half slightly infuscated, last two sections of the 4th vein equal, posterior transverse vein about twice its length from the border of the wing.

HAB. Hawaii, one male, Kona, 3500 ft., June 1892.

(14) *Drosophila infuscata*, sp. nov.

♂. Long. corp. $2\frac{1}{2}$ mm.; al. $2\frac{3}{4}$ mm. Front dark reddish-brown, face yellowish-grey, proboscis and palpi yellow; antennae obscure reddish-yellow, the upper edges of all the joints somewhat darker. Thorax, including the pleurae, scutellum, and metanotum, reddish-yellow, halteres yellow with somewhat infuscated knob. Abdomen shining dark brown, the first and the base of the second segments yellowish. Legs light yellow. Wings hyaline, the apical and upper half infuscated, the dark portion bounded, but not sharply defined, by a line drawn obliquely from the middle of the costa to just below the tip of the 4th vein; last two sections of the 4th vein equal; posterior transverse vein broadly infuscated, quite straight and distant about its own length from the posterior margin of the wing.

HAB. Hawaii, one male, Olaa, December 1896.

(15) *Drosophila sordidapex*, sp. nov.

♂. Long. corp. 3 mm.; al. 3 mm. Front reddish-brown, upper part of orbits and space between the ocelli blackish; face dark brown, proboscis and palpi yellow, antennae obscure reddish-yellow with the third joint dark brown. Thorax, halteres, and abdomen as in *D. infuscata*, but the pleurae dark brown. Legs light yellow.

Wings hyaline with dark apex, the dark portion including only the tips of the 2nd and 3rd veins and that of the 4th slightly, posterior transverse vein not infuscated, quite straight, last section of the 4th vein distinctly longer than the penultimate.

HAB. Hawaii, one male, Olaa, July 1895.

(16) *Drosophila haleakalae*, sp. nov.

♂. Long. corp. 3 mm.; al. $3\frac{1}{2}$ mm. Front, including orbits, light yellow in front, blackish behind, posterior part of orbits and vertical triangle dark and shining; face, proboscis, and palpi yellow; antennae yellow with the upper edge of the two last joints dark brown. Thorax, including pleurae and metanotum, shining blackish-cinereous, shoulders a little reddish, scutellum blackish with yellow apex, halteres yellow. Abdomen shining black. Legs yellow. Wings hyaline, with the apex and the posterior transverse vein slightly infuscated, the latter quite straight and distant a little more than its length from the posterior margin of the wing, last section of the 4th vein longer than the penultimate.

HAB. Maui, one male, Haleakala, 6000 ft., March 1894.

(17) *Drosophila setiger*, sp. nov.

♂. Long. corp. $2\frac{1}{2}$ mm.; al. $2\frac{1}{2}$ mm. Front wholly shining black, face glistening whitish, proboscis obscure yellowish, palpi?; antennae black. Thorax, including pleurae, scutellum, and metanotum, shining black, halteres with yellow stalk and blackish knob. Abdomen shining black. Legs yellow, fore tibiae with two or three long fine bristles, fore metatarsus furnished at its base with two very long and conspicuous bristles. Wings hyaline with the costal cells dark fuscous and a slight fuscous streak along the costa; posterior transverse vein straight, one and a half times its length from the border, last section of the 4th vein half as long again as the penultimate.

HAB. Molokai, one male, Forest above Pelekunu, 24th August, 1893.

Three females from Molokai Mts., 4000—5000 ft., June to September 1893, are so like the above species that I hesitate to describe them as distinct. They are much larger, however, the body and wings both measuring $3\frac{1}{2}$ mm.; the face is quite black, with the triangular central portion (i.e. excluding the cheeks) highly polished; legs yellow, without conspicuous hairs.

Plate III. fig. 16, fore leg of ♂.

(18) *Drosophila humeralis*, sp. nov.

♂ ♀. Long. corp. 3 mm.; al. $3\frac{1}{2}$ mm. Front dark brown, in the female lighter in front; face obscure brownish, with a distinct keel; proboscis? yellowish-brown;

antennae dark brown. Thorax blackish-brown with two thin lines on the dorsum reddish-yellow, shoulders light yellow, a stripe of the same colour proceeding from thence to the root of the wings, edges of mesopleurae yellowish, the pleurae otherwise dark brown, scutellum dark brown above, yellow on the sides, metanotum blackish, halteres reddish-yellow. Abdomen blackish with the hind borders of the segments a little lighter. Legs yellow with dark brown femora, fore tarsi in the male fringed with rather long, fine hairs. Wings hyaline, the greater part of the second vein, the tips of the 3rd and 4th and the posterior transverse vein broadly bordered with fuscous.

HAB. Kauai, one male and one female, 4000 ft., July 1896.

(19) *Drosophila parva*, sp. nov.

♂. Long. corp. $1\frac{1}{2}$ mm.; al. $1\frac{1}{2}$ mm. Front black, reddish-yellow immediately behind the antennae, the orbits and vertical triangle dark cinereous; face blackish with a distinct keel; antennae very short, reddish-yellow with the upper edges of the joints somewhat darkened. Thorax dark cinereous, in the best-preserved specimen are traces of three darker lines on the dorsum, scutellum and pleurae dark cinereous, metanotum blackish, halteres pale yellow. Abdomen blackish-brown. Legs with the fore coxae light yellow, the femora more or less brown, the tibiae yellow, with slight traces of darker rings, the tarsi yellow with the terminal joint darkened. Wings hyaline with both the transverse veins conspicuously infuscated, 2nd longitudinal vein distinctly curved forwards at the tip, 3rd and 4th veins parallel, the last section of the latter twice as long as the penultimate.

HAB. Hawaii, Kilauea, two males, August 1896; one male, Kona, 4000 ft., August 1892.

(20) *Drosophila sharpi*, sp. nov.

♂, ♀. Long. corp. 4—5 mm.; al. $4\frac{1}{2}$ —6 mm. Front reddish-brown with the orbits and vertical triangle shining dark brown; face yellowish to reddish-brown, proboscis and palpi reddish-yellow; antennae reddish-brown. Thorax reddish-yellow to reddish-brown, scutellum reddish-yellow, sometimes with a blackish spot near the base, pleurae, metanotum, and halteres reddish-yellow. Abdomen yellow with a dorsal median line and the hinder halves of the segments blackish. Legs light- to reddish-yellow. Wings tinged with light brown, posterior transverse vein slightly infuscated, quite straight, two last sections of the 4th vein equal in length.

HAB. Kauai, Koholuamano, two males and three females, April 1895.

(21) *Drosophila olaae*, sp. nov.

♀. Long. corp. $4\frac{1}{2}$ mm.; al. $4\frac{1}{2}$ mm. Front dark brown, hinder part of orbits and vertical triangle blackish; face blackish, with a distinct keel, eye-margins and chin light cinereous; antennae dark brown, second joint for the greater part yellowish. Thorax, including pleurae, scutellum, and metanotum, blackish, halteres reddish-yellow. Abdomen blackish, the segments very narrowly edged with reddish-yellow. Legs with the fore coxae and all the femora blackish-brown, tibiae yellowish, intermediate and hind pairs infuscated at the tip, knees light yellow, tarsi obscure yellowish. Wings slightly tinged with yellowish-brown, posterior transverse vein straight and broadly infuscated, rather less than its length from the border, last two sections of the 4th vein equal.

HAB. Hawaii, Olaa, one female, December 1896.

(22) *Drosophila crassifemur*, sp. nov.

♂. Long. corp. $3\frac{1}{2}$ mm.; al. 4 mm. Front dark brown, an orange-coloured transverse spot behind each antenna; face light yellowish with a very prominent light yellow rounded central keel; antennae dark brown, base of third and apex of second joints reddish-yellow. Thorax orange-yellow, with five rather indistinct brown stripes, humeri light yellow, pleurae reddish-yellow blotched with dark brown, scutellum blackish-brown with the sides yellow, metanotum reddish-yellow, halteres light yellow. Abdomen dark brown, with the segments indistinctly edged with yellowish. Fore legs with the coxae reddish-yellow, the femora shining dark brown, short and very much swollen, with some long black hairs on their upper and outer surfaces, the tibiae equal in length to the femora and yellowish, the tarsi yellowish with the apical joints somewhat darker; intermediate and hind legs with the femora shining dark brown but not swollen, the tibiae yellow with two dark rings, and the tarsi slender and yellowish. Wings slightly greyish tinged but none of the veins clouded.

HAB. Maui, one male of this distinct and peculiar species from Haleakala, 5000 ft., October 1896.

Plate III. fig. 17, fore leg of ♂.

(23) *Drosophila nasalis*, sp. nov.

♂. Long. corp. $4\frac{1}{4}$ mm.; al. 4 mm. Front dark brown, with the anterior edge, the orbits, vertical triangle, and a central line lighter and more or less yellowish; face brownish-yellow with a very prominent yellow, nose-like keel; proboscis yellow,

palpi black; antennae dark brown with the basal joints for the greater part reddish-yellow. Thorax yellow with five brown stripes, pleurae dark brown, the mesopleurae edged below with yellowish, scutellum dark brown with the sides and a basal indistinct spot yellowish, metanotum shining brownish with a slight covering of grey tomentum, halteres light yellow. Abdomen dark brown, with the edges of the segments reddish-yellow. Legs with the fore coxae and all the femora shining blackish-brown, tibiae yellowish, the fore pair with indistinct, the other pairs with two distinct brown rings, tarsi obscure yellowish. Wings uniformly tinged with light brown.

HAB. Molokai Mts., one male, September 17th, 1893, and one male from woods above Pelekunu, August 27th, 1893.

Plate III. fig. 18, head of ♂.

(24) *Drosophila mauiensis*, sp. nov.

♂, ♀. Long. corp. 2 mm.; al. 2 mm. Front dark brown; face brown with a thin sharp keel; proboscis and palpi yellowish; antennae very short, yellowish or reddish-brown, beneath lighter, arista straight with a few extremely short hairs on the upper and on the apical half of the under surfaces. Thorax obscure blackish or dark brown, rather shining, pleurae, scutellum, and metanotum blackish, halteres light yellow. Abdomen blackish, becoming much lighter, almost yellow, towards the tip. Legs with the femora shining blackish, knees and tibiae obscure reddish-yellow, the hind tibiae a little darker towards the tip, tarsi yellowish. Wings hyaline.

HAB. Maui, Iao Valley, one male and three females, September 1896. This small and distinct species may be easily recognised by the extremely short hairs on the arista. What I take to be the male has a long pointed organ (? penis) beneath the abdomen, slightly bent at the tip.

(25) *Drosophila molokaiensis*, sp. nov.

♂. Long. corp. $3\frac{1}{2}$ mm.; al. 4 mm. Front blackish behind, reddish-brown in front, orbits and vertical triangle shining; face grey, without distinct keel; proboscis dark brown, palpi yellowish; antennae, including the third joint, reddish-yellow, the second joint darker above. Thorax with scutellum dark brown, shining; pleurae and metanotum blackish, halteres pale yellow. Abdomen dark brown. Legs with all the femora shining dark brown, the tibiae yellowish, the intermediate pair somewhat darker, all the tarsi yellow with the two apical joints black. Wings slightly tinged with yellowish-brown, posterior transverse vein straight, last two sections of the fourth vein equal.

HAB. Molokai Mts., one male, 4500 ft., September 1893.

(26) *Drosophila* sp.

Two specimens from Koholuamano, Kauai, April 1895, differ from the last species in being smaller, having the antennae dark brown and the tarsi entirely yellow. They are, however, in bad condition, and hence their description is deferred until more material is obtained.

(27) *Drosophila melanosoma*, sp. nov.

♀. Long. corp. $3\frac{1}{2}$ mm.; al. $3\frac{1}{2}$ mm. Front dark reddish-brown in front, blackish behind; face brownish cinereous with a slight keel, proboscis reddish-yellow, palpi dark brown; antennae obscure brownish, the basal joints darker than the third. Thorax, including pleurae, metanotum, and scutellum, shining black, the latter with a reddish apex, halteres pale yellow. Abdomen shining black. Legs, including the fore coxae, light yellow. Wings very slightly tinged with yellowish-brown, third and fourth veins rather wide apart in the middle and distinctly convergent towards the apex, posterior transverse vein slightly oblique.

HAB. Kauai, Mts. Waimea, one female, 4000 ft., 1894.

(28) *Drosophila longiseta*, sp. nov.

♂, ♀. Long. corp. 6 mm.; al. $6\frac{1}{2}$ mm. Front dark brown; face reddish-yellow to yellowish-grey, distinctly keeled; proboscis and palpi reddish-yellow; antennae large, reddish-brown, arista very long and rather tortuous, plumose above for its whole length and below on its apical half. Thorax brownish-yellow, with three obscure blackish stripes, pleurae reddish-yellow, a large patch on the mesopleura and a small spot beneath the root of the wing blackish, scutellum dark brown, reddish at the sides, metanotum reddish-yellow, halteres yellow. Abdomen blackish with some indistinct yellowish spots at the basal angles of each segment. Legs long and slender, in the female the fore tarsi longer than the tibiae, the fore femora in both sexes armed with long spine-like hairs which are arranged in two rows. Wings yellowish-hyaline.

HAB. Molokai Mts., one male, 4000 ft., June 13th, 1893; one female, 4500 ft., September 13th, 1893.

Plate III. fig. 19, antenna.

(29) *Drosophila xanthosoma*, sp. nov.

♂. Long. corp. 3 mm.; al. $3\frac{1}{2}$ mm. Front, face, palpi, and proboscis yellow; antennae yellow, the third joint somewhat brownish. Thorax, pleurae, metanotum, scutellum, and halteres reddish-yellow. Abdomen yellow, with the hind margins of

the segments more or less brown. Legs yellow, the last joint of the tarsi dark. Wings yellowish-hyaline, third and fourth veins parallel, last two sections of the latter equal, posterior transverse vein slightly convex.

HAB. Hawaii, Olaa, one male, December 1896.

Three specimens with a much darker abdomen and some traces of brown marks on the thorax, from Kona, Hawaii, 2000 ft., June 1892, are scarcely distinct from the species here described.

(30) *Drosophila cognata*, sp. nov.

♀. Long. corp. 4 mm.; al. $4\frac{1}{2}$ mm. Very similar to *D. xanthosoma*, but larger, the front darker; ferruginous rather than yellow, with the orbits and vertical triangle shining, antennae brown, with the second joint reddish-yellow beneath. Thorax darker, brownish-yellow; abdomen dark brown, with the basal angles of the segments yellow; legs with the last joint of the tarsi yellow; wings more decidedly tinged with yellow, third and fourth veins slightly convergent towards the apex, posterior transverse vein straight.

HAB. Molokai Mts., two females, 4000 ft., May 1893.—Hawaii, Olaa, one female, December 1896.

(31) *Drosophila inaequalis*, sp. nov.

♀. Long. corp. 2 mm.; al. $2\frac{1}{2}$ mm. Front bright reddish-yellow with the vertical triangle brown; face and cheeks yellow, proboscis reddish-yellow, palpi yellow with black tips; antennae entirely reddish-yellow, arista with only about two hairs on the upper side and one below. Thorax reddish-yellow with three broadish brown stripes which coalesce behind, pleurae obscure reddish-yellow, scutellum dark brown, metanotum shining blackish, halteres light yellow. Abdomen dark brown, with obscure yellowish spots at the basal angles of the segments. Legs yellow, the tarsi slightly darker towards their tips. Wings yellowish-hyaline, 2nd longitudinal vein distinctly curved forwards near the apex, so that the distance between its termination and that of the 3rd vein is twice that between the terminations of the 3rd and 4th veins, the latter parallel, the last section of the 4th vein half as long again as the penultimate, posterior transverse vein distinctly convex.

HAB. Hawaii, Kona, two females, 4000 ft., August 1892.

(32) *Drosophila monticola*, sp. nov.

♂, ♀. Long. corp. $2\frac{1}{2}$ —3 mm.; al. 3— $3\frac{1}{2}$ mm. Front brownish-yellow, a transverse band behind the antennae bright yellow; face yellow, proboscis and antennae

reddish-yellow, palpi yellow with black apical half. Thorax, including the pleurae, metanotum, and scutellum, yellow or reddish-yellow, a small streak behind each shoulder and two faint stripes on the dorsum brown, halteres yellow. Abdomen yellow, with the hind border of each segment dark brown, but interrupted in the middle. Legs yellow, the apices of the tarsi dark brown or blackish. Wings hyaline, 2nd longitudinal vein very little curved at the apex, 3rd and 4th parallel, last section of the latter half as long again as the penultimate, posterior transverse vein straight.

HAB. Hawaii, Kona, Mt. Hualalai, one male and one female, 8000 ft., August 1892.

(33) *Drosophila pusilla*, sp. nov.

♂, ♀. Long. corp. $1-1\frac{1}{2}$ mm.; al. $1\frac{1}{2}-1\frac{3}{4}$ mm. Front yellow, orbits very pale; face pale yellow; proboscis yellow, palpi yellow with somewhat darkened tips, antennae entirely yellow, arista with only three hairs above. Thorax, including pleurae, scutellum, and metanotum, yellow, halteres yellow. Abdomen yellow or yellowish-brown, genitalia black. Legs yellow, tips of tarsi slightly darkened. Wings hyaline, distance between terminations of 2nd and 3rd veins twice that between those of the 3rd and 4th, the latter parallel, last section of the 4th vein about twice as long as the penultimate, posterior transverse vein straight.

HAB. Molokai, three specimens of this minute species, of which I believe two are males, were obtained on the mountains, 3000 ft., in September 1893.—Maui, a specimen from Haleakala, taken at a height of over 5000 ft. in October 1896, only differs in having the third joint of the antenna brown instead of yellow. At present I shall regard it merely as a variety.

(34) *Drosophila carinata*, sp. nov.

♀. Long. corp. $2\frac{1}{2}$ mm.; al. $2\frac{3}{4}$ mm. Front dark brown with the orbits and vertical triangle cinereous; face yellowish-cinereous with a very conspicuous keel which is narrow between the antennae but becomes much broader towards the oral margin, so that in front view it appears triangular; proboscis yellowish-brown, palpi yellow; antennae reddish-yellow with the second joint above and the third joint entirely brown. Thorax with pleurae obscure brownish-yellow, with traces of three lighter stripes, the pubescence rather coarse, scutellum yellowish-brown with lighter margin, metanotum obscure brownish, halteres reddish-yellow. Abdomen dark brown, a little lighter towards the base, the hind margins of the segments blackish, ovipositor reddish-yellow. Legs yellow. Wings hyaline, rather broad, a dark spot at the termination of the first longitudinal vein, second vein straight, third distinctly curved in the middle so as to

approach the second, beyond the middle running parallel with the fourth, last section of the latter fully twice as long as the penultimate, transverse vein quite straight.

HAB. Hawaii, Kona, one female, 4000 ft., August 1892; Olaa, one female, July 1895.

Plate III. fig. 20, head of ♀.

(35) *Drosophila obscuricornis*, sp. nov.

♂ ♀. Long. corp. $1\frac{1}{2}$ mm.; al. $1\frac{3}{4}$ —2 mm. Front black with the orbits and vertical triangle shining and a little lighter; face dark brown or blackish, without distinct keel, proboscis yellowish, palpi dark brown; antennae entirely blackish-brown. Thorax blackish-brown, pleurae reddish-yellow (in one of the specimens dark brown), scutellum and metanotum dark brown, the latter shining, halteres yellowish. Abdomen dull uniform blackish-brown, the terminal segment shining. Legs light pitchy-brown. Wings greyish hyaline, no dark spot at the termination of the first vein, terminations of the second and third veins twice as far apart as those of the third and fourth, third and fourth veins parallel, last section of the fourth vein about twice as long as the penultimate, posterior transverse vein straight.

HAB. Molokai Mts., one male and two females, 5000 ft., August and September 1893.

(36) *Drosophila varifrons*, sp. nov.

♂. Long. corp. $1\frac{3}{4}$ mm.; al. $2\frac{1}{4}$ mm. Front light yellow with the orbits and vertical triangle black and polished; face, chin, proboscis and palpi light yellow; antennae entirely reddish-yellow, the arista black with four or five hairs above and about three below. Thorax shining black, with a slight olivaceous tinge, pleurae, scutellum and metanotum shining black, halteres light yellow. Abdomen black with the last segment highly polished. Legs yellow, the terminal joints of the tarsi darker. Wings hyaline, terminations of the second and third veins twice as far apart as those of the third and fourth, third and fourth veins parallel, last section of the latter about half as long again as the penultimate, posterior transverse vein straight.

HAB. Oahu, Kaala Mts., on wet rocks, one male, 2000 ft., March 1893.

(37) *Drosophila polita*, sp. nov.

♀. Long. corp. $3\frac{1}{4}$ mm.; al. $3\frac{1}{2}$ mm. Front shining black behind, reddish-yellow in front; face yellowish-cinereous, shining; proboscis yellow, palpi yellow with black tips; antennae reddish-yellow with the third joint dark brown. Thorax with dorsum,

pleurae and metanotum shining black, scutellum blackish, not quite so highly polished and with yellow apex, halteres reddish fuscous. Abdomen black with the apical segment and lateral margins shining. Legs yellow. Wings hyaline, last section of the fourth vein about half as long again as the penultimate, posterior transverse vein straight.

HAB. Lanai, one female, 2000 ft., December 1893.

From this species I can hardly separate a specimen from Kona, Hawaii, taken at a height of 5000 ft. in July 1892 and another from Oloa in the same island obtained in July 1895. They are both smaller than the type, the former having the abdomen shining throughout and the halteres yellow, the latter also with yellow halteres and the thorax and pleurae somewhat lighter. If distinct their description must be deferred until fuller material is obtained.

(38) *Drosophila obscurifrons*, sp. nov.

♂. Long. corp. 2—2½ mm.; al. 2½ mm. Front black, the orbits, the vertical triangle and a central line a little lighter; face blackish, with a slight keel; proboscis and palpi yellowish; antennae dark brown, arista with three hairs above but none below, apex of second joint and base of third sometimes lighter. Thorax blackish-brown, pleurae olivaceous or dark cinereous, scutellum and metanotum blackish-brown, the latter shining, halteres light yellow. Abdomen blackish, the last segment shining. Legs yellowish, the femora and the tips of the tarsi a little darker. Wings hyaline, last section of the fourth vein about half as long again as the penultimate, posterior transverse veins straight.

HAB. Molokai Mts., three males, 5000 ft., August and September 1893.

(39) *Drosophila exigua*, sp. nov.

♂ ♀. Long. corp. 2 mm.; al. 2 mm. Very similar to *D. obscurifrons*, but differs as follows: the front distinctly reddish-yellow near the antennae, the latter much lighter, with the second joint reddish-yellow or only darkened above, the legs lighter yellow with the femora pale or only slightly darker. Wings with the last section of the fourth vein about twice as long as the penultimate.

HAB. Hawaii, Kilauea, one male, July 1896; Kona, one male and one female, 4000 ft., July 1892.

(40) *Drosophila plumosa*, sp. nov.

♂ ♀. Long. corp. 2—2½ mm.; al. 2½—3 mm. Similar to *D. obscurifrons*, but the front lighter, sometimes obscure reddish-yellow, arista of the antennae with at least six hairs above and three below, thorax lighter, olive-brown, halteres paler, almost creamy,

legs lighter, with yellow femora, wings with the last section of the fourth vein about twice as long as the penultimate. From *D. exigua* this species differs in the number of hairs on the arista and in the colour of the halteres.

HAB. Hawaii, Kona, one male, 2000 ft., September 1892; Olaa, one male and one female, July 1895.

Fam. ASTEIIDAE.

ASTEIA Meigen.

The three species described below have only two bristles on the scutellum, thus disagreeing with Schiner's diagnosis of this genus (*Fauna Austriaca*, II. p. 280). Moreover the arista of the antennae is of a different nature to that of the European species. The neuration is so distinctive, however, that I have little hesitation in placing them here for the present, although ultimately they may serve as types of a new genus.

(1) *Asteia hawaiiensis*, sp. nov.

♂ ♀. Long. corp. $2\frac{1}{2}$ —3 mm.; al. 3 — $3\frac{1}{2}$ mm. Front shining black, face greyish and shining, proboscis and palpi reddish-yellow; antennae blackish-brown, with the under side of the second and third joints whitish-yellow, arista in the form of a zigzag with a short hair at each bend. Thorax shining black; pleurae also shining black, but with a lemon-yellow stripe running from the base of the fore coxae to the root of the wings, scutellum shining black with a light yellow spot at the apex, halteres blackish. Abdomen quite black above, with the apical segments more shining; venter and sides yellow. Legs yellow, with the apices of the fore femora, the whole of the fore tibiae and tarsi blackish-brown and the intermediate and hind femora and tips of the tarsi more or less infuscated. Wings slightly tinged with yellowish-brown.

HAB. Hawaii, Kona, four males and one female, 3500—4000 ft., June—July 1892; Olaa, one female, November 1896.

(2) *Asteia apicalis*, sp. nov.

♂. Long. corp. 2 — $2\frac{1}{2}$ mm.; al. $2\frac{1}{2}$ — $3\frac{1}{2}$ mm. Similar to *A. hawaiiensis*, but differs as follows: arista of antennae nearly straight, with the hairs less erect, so that they are difficult to see except under a high power; yellow spot on the scutellum much larger and in some specimens almost extending to the base and thus dividing the black into two portions; halteres lighter and somewhat yellowish; legs yellowish with the apical joints of the tarsi blackish, femora only a little infuscated towards the apex; wings quite clear.

HAB. Hawaii, Kilauea, four males, July 1895.

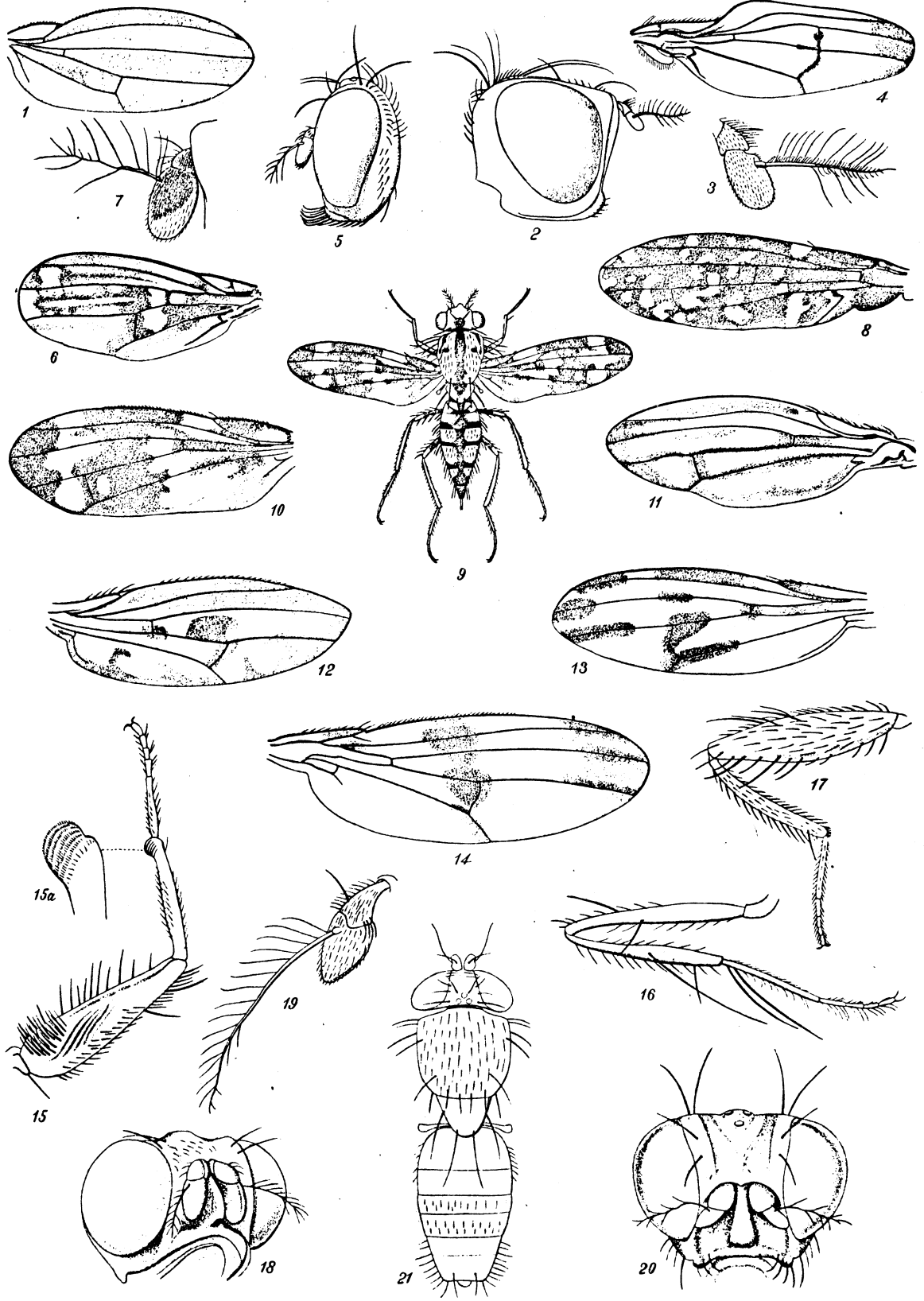
74.

" (3) *Asteia*, sp.

"The third species belonging to this genus is represented by a single specimen beaten from trees, at a height of 3000 ft. in the Waianae Mts., Oahu, in April 1892. It differs from the other two species inhabiting these islands in having entirely black antennae, blackish pleurae and reddish-yellow legs. The ovistia appears to be quite bare".

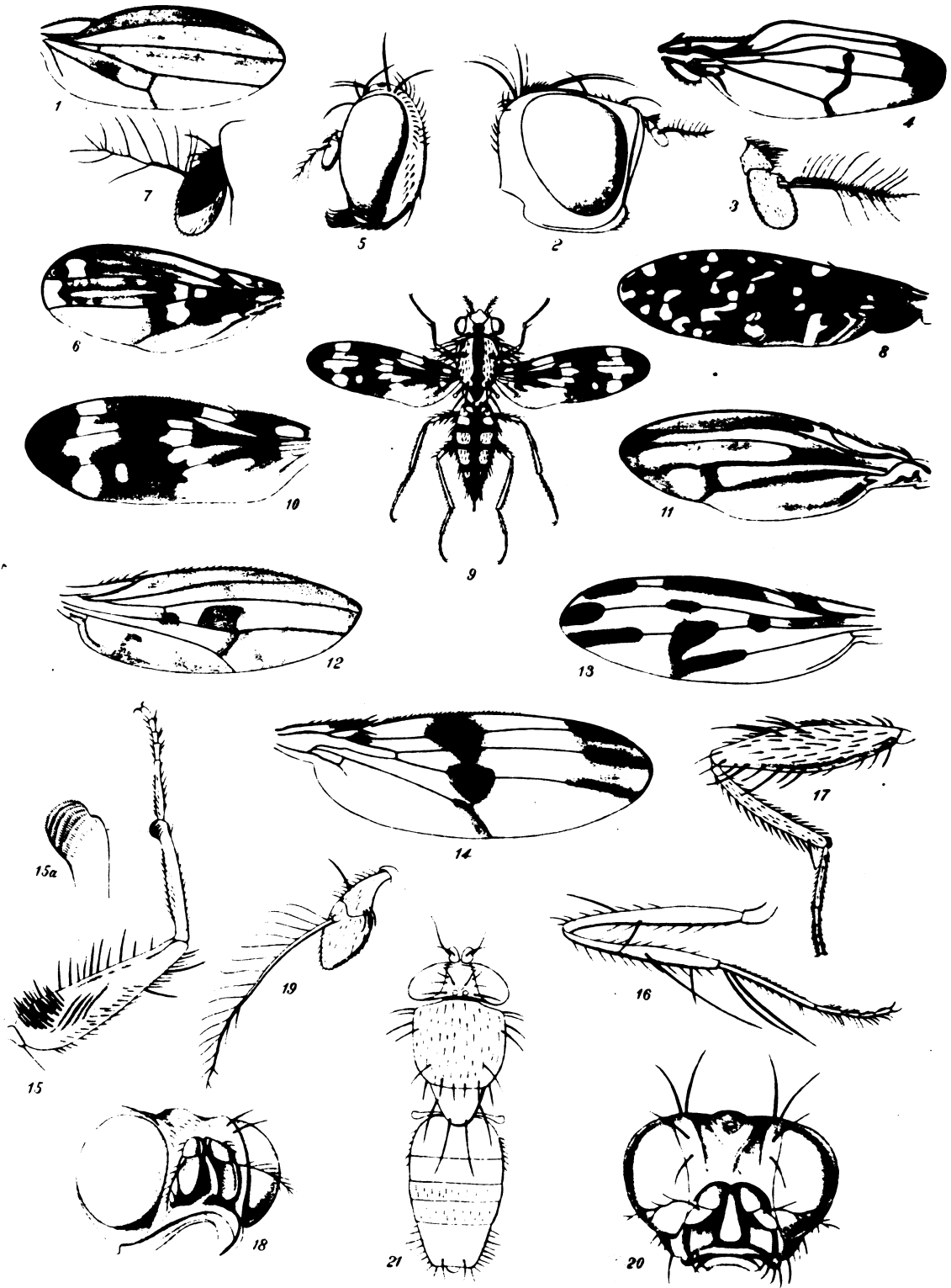
No other *Drosophilidae* sens lat.

EBB.



PH Grimshaw & E Wilson. } del.

E Wilson, Cambridge.



Grimshaw & Co.
Engravers

F. Wilson, Cambridge

has the first section of the second and third longitudinal veins the same length as the first section of the first vein, a second section of the second vein opposite the origin of the third vein, and a third section of the second vein opposite the origin of the costa sub-equal last section of the second vein, while the first section of the third vein is equal to the second section of the third vein; last section of the third vein equal to the first section of the third vein.

HAB.—Kona, Hawaii.—Maui.—Oahu.

This is a darkly coloured species as said to be a native of Africa, but is recorded from Cuba, St. Vincent, and Brazil. It is represented in the collection by thirty seven specimens, including both sexes, of which two were from Mauna Loa, Hawaii, obtained at a height of 3500 ft. in June 1892. The remaining eight examples are from Kona, Hawaii (4000 ft., September 1894); Lanai, Hawaii (2000 ft., December 1896); Lilo Valley, West Maui Mts., March 1894; Lanai, 2000 ft., 1894; and Kawaihoa Gulch, Oahu, April 1893. Osten-Sacken and Williston both list this species in the genus *Borborus*. On account of the extreme tenacity of the section of the third vein (rendering it almost invisible), the length of the first section of the third vein seems to me to be a true *Limosina*.

(2) *Limosina aequalis*, sp. nov.

♂ ♀. Long. corp. 2½ mm.; al. 2 mm. Front deep black, with the orbits and central stripe somewhat lighter, face black, rather shining, with a double groove down the centre, proboscis, palpi and antennae entirely black, the latter perfect with the third joint large, hairy and hemispherical, acista pubescent. Thorax and scutellum shining black, pleurae dull black. Abdomen black. Legs black, bases of the femora and the tarsi a little lighter. Wings greyish, the three sections of the first vein equal in length, the first section with a few longer bristles, first two sections of the third vein equal, together shorter than the last section of the second vein, last section of the third vein straight, terminating at the tip of the wing.

HAB.—Oahu, Kawaihoa Gulch, one male and one female, April 1893.

Closely allied to *L. pumila*, Williston, from the island of St. Vincent, but differs in the entirely black front and face.

NOTE.—Half-a-dozen specimens of *Acalyptate Muscidae*, gummed on card and in bad condition, have been left undetermined.

Fam. PHORIDAE.

PHORA Latreille.

(1) *Phora*, sp.

A single specimen belonging to this genus, but without head, is in the present collection, from Kona, Hawaii, taken at a height of 2000 ft. in September 1892.

Fam. HIRPOTROSCIDAE.

This genus is represented in the collection by three distinct species, but owing to the war regarding the Hawaiian Islands, I have been unable to come to any conclusion regarding the exact measurements of the specimens of the Short-eared Owl in Kona, Hawaii, 2000 ft., Lanai, Hawaii, 2000 ft., and Lanai, Hawaii, 2000 ft.

The smallest specimen was captured at a height of over 3000 ft. on the 12th May 1893, and was found to be a true *Hirpotoscia*.

The largest specimen was captured from 2 to 2½ mm. in length. One was obtained in Kona, Hawaii, 2000 ft., in 1892 on a Short-eared Owl, two in the same region in 1892 on a specimen of *Vestiaria coccinea*, and a fourth was found in Lanai, Hawaii, 2000 ft., but the locality is not indicated.

Bibliography.

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2. J. M. E. BAUGER. Diptères nouveaux peu connus. 33^e partie. N^o 1. Tachinidae. Ann. Soc. Ent. Fr. (6) VII. pp. 77—101 (1888). [Describes *Cladogonia (Bipharipicus) monticola*.]
3. D. W. COQUILLE. A new Trypetid from Hawaii. Ent. News Philad. 1899, p. 129. [Describes *Arcus caricatus*.]
4. L. G. HOWARD. Diptera collected in Hawaii by H. W. Henshaw. P. Ent. Soc. Washington, Vol. IV, No. 4, p. 400, 1901. [List of 10 species, but none described.]

DIPTERA.

SUPPLEMENT.

SINCE the preceding account of the Diptera was published, a small additional series of specimens has been obtained and handed to me containing about sixteen additional species. The most remarkable of these is the wingless Dolichopodid I have described on page 81 as the type of a new genus. Some of the others are evidently introductions, and with my present limited acquaintance with exotic Diptera I do not feel justified in regarding them as new, especially in such groups as *Tachinidae* or *Sarcophagidae*. It is rapidly becoming impossible for a single worker to obtain an adequate knowledge of all families, and in the investigation of the Dipterous fauna of any country in the future, the aid of specialists who devote themselves to single families will have to be called in. In the present instance this plan has been partially executed to, and we are much indebted to Dr Speiser for his careful working out of the *Hippoboscidae*, to which I referred briefly on p. 77. His report is given below (pp. 80-92). [P. 81-84]

Fam. STRATIOMYIDAE (p. 11).

NEOEXAIRETA C. Steen-Sacken.

(1) *Neoexaireta spinigera* Wied.

Xylophaga spinigera Wied., Auss. zweifl. Ins. II, 648 (1830).

Neria spinigera Macq., Dipt. Exot. I, I, 172, taf. XXI, fig. 12 (1838) and pl. I, fig. 2 (1844).

Physo spinigera Walk., List. Dipt. Ins. Suppl. I, 7 (1851).

Oahu, Honolulu, two specimens, June and July, 1900. I have compared the specimens with others so named in the British Museum, and find them to agree in

(2) *Genus and species*

one from the Mts. of Healea in 1900, appears to be very near the type, but the antennae are broken and it is difficult to ascertain its position.

Fam. DOLICHOPODIDAE (p. 11).

GENAMITIDIDAE (p. 11).

(1) *Genamitididae patellifer*, Thomson (p. 411).

An additional female from S. Kona was obtained in February 1860.

DOLICHOPODUS Latreille.

This genus, not hitherto recorded from the Sandwich Islands, is represented in the present collection by five specimens obtained in the island of Oahu in 1900. Three males and one female are from the Waialeale Mts. (May), and the other specimen, a male, from N.W. Koolau (July). I have not been able to identify the species, but it comes very near the European *griseipennis* Stamm. The antennae, however, are shorter, the fore coxae quite yellow, without silvery sheen, the hind tibiae dark in at least their apical half, and the fourth longitudinal vein not so abruptly broken.

CAMPISCIENEMUS Walker (p. 13).

(3) *Campisicnemus patellifer*, sp. nov.

7. Long. corp. 1½ mm.; al. 1¾ mm. Front dark brown with a greenish metallic reflection. Antennae black, third joint obtuse, hairy, arista about as long as the flagellum, hairy, with a spatulate enlargement at the tip. Thorax and scutellum dark brown, shining with greenish metallic tinge, halteres bright yellow. Abdomen dull black, shining. Legs yellow, with the tips of the hind femora and of all the tarsi darker. Fore femora without bristles; intermediate femora very much thickened and abruptly narrowed towards the tip, on the under surface of the distal portion a row of very conspicuous black bristles; hind femora slender, furnished with black bristles on the under surface near the tip. Intermediate tibiae furnished in their middle portion, furnished near the tip with a row of long fine hairs; hind tibiae long and slender, furnished with fine short hairs. Fore and hind tarsi furnished with extremely short and furnished with two long hairs, the length of the tibiae slender and curved, provided with a row of long, long and regularly disposed hairs. Wings broad and parallel to posterior transverse vein more than twice its length, the wing veins not at the wing.

DIPTERA

Fam. ORTALIDAE (p. 44)

ACROSTIC Loew (p. 44).

- (1) *Acrosticta pallipes* Grimshaw (p. 44).

Two females taken in the Honolulu Mts. in 1900.

EUXESTA Loew (p. 44).

- (1) *Euxesta annonae*, Fabricius.

Honolulu, Oahu, one female taken in the Honolulu Mts., 1900.

CHRYSOMYZA Fallen.

- (1) *Chrysomyza*, sp.

This genus is represented by a single specimen taken in the Honolulu Mts. in 1900. It is a beautiful species with shining metallic green thorax, coppery scutellum and abdomen metallic bluish purple with green margin. The wings have the first posterior cell closed and stalked. Possibly an introduction from the West Indies or South America.

Fam. SAPROMYZIDAE.

- (1) *Sapromyza*, sp.

A single specimen belonging to this genus was obtained in the Honolulu Mts. in 1900, but I have not been able to identify it. At the same time I do not feel justified in describing it as new.

Fam. EPHYDRIDAE (p. 49).

BRACHYDEUTERA Loew (p. 49).

- (1) *Brachydeutera argentata*, Walker (p. 49).

A single specimen taken in the Iao Valley, Maui, in September 1901.

SCATILLA Desvoidy (p. 49).

- (1) *Scatilla hawaiiensis* Grimshaw (p. 49).

Eleven specimens obtained at Pali, Oahu, in December 1900.

Fam. DROSOPHILIDAE (p. 50).

DROSOPHILA Fallen (p. 55).

- (7) *Drosophila hawaiiensis* Grimshaw (p. 60).

One specimen (? a male), N.W. Koolau (Oahu), July 1901.

- (9) *Drosophila pitmaniana* Grimshaw (p. 61).

One female, Waialua Mts., Oahu, May 1901.

- (41) *Drosophila crucigera*, sp. nov.



♀. Long. corp. $3\frac{1}{2}$ —4 mm.; al. 4 mm. Similar to *D. variegata* (p. 57) but smaller, second joint of antennae entirely yellow, and pattern of wings more broken up although of the same general type. In the centre of the wing is a fuscous patch roughly resembling a Greek cross, the foot of which extends over the posterior transverse vein; in the centre of the second posterior cell, i.e. exterior to the foot of the cross, is a small rounded detached spot and a similar one in the middle of the third posterior cell. Third fuscous band (at the apex of the wing) with a conspicuous hyaline spot between the tips of the 2nd and 3rd veins.

HAB. Oahu, one female, Honolulu Mts., August 1900, one female, Waialua Mts., May 1901.

- (42) *Drosophila*, sp.

A single male specimen of a species apparently allied to *D. paucipuncta* was obtained by Mr Perkins in Oahu (N.W. Koolau) in July 1901. The wings bear only the slightest trace of fuscous markings, the thorax is yellowish marked with four or five obscure brown stripes, while the fore tibiae and tarsi are bearded with long hairs.

DIPTERA PUPIPARA.

By Dr. P. Speiser, Bischofsburg, Ostpreussen.

In einer Bearbeitung der Dipteren der "Fauna Hawaiiensis" erwähnt P. H. Speiser auf p. 77 auch drei Species von Hippobosciden, ohne diesen jedoch Namen zu geben. Herr P. H. Grimshaw hat mir die grosse Liebesswürdigkeit

DESCRIPTION OF PLATE I. (VOL. III.)

DIPTERA.

- Fig. 1. *Sciara molokaiensis*, sp. n., wing.
 Fig. 2. *Platyura fuscocostata*, sp. n., wing.
 Fig. 3. " " base of ♀ antenna.
 Fig. 4. " *hawaiiensis*, sp. n., base of ♂ antenna.
 Fig. 5. " *insularis*, sp. n., base of ♀ antenna.
 Fig. 6. *Chironomus hawaiiensis*, sp. n., wing.
 Fig. 7. " " antenna of ♀.
 Fig. 8. *Ceratopogon* sp., wing.
 Fig. 9. " " apex of ♂ antenna.
 Fig. 10. " " apex of fore tarsus of ♂.
 Fig. 11. *Psychoda inornata*, sp. n., wing.
 Fig. 12. *Limnobia perkinsi*, sp. n., wing.
 Fig. 13. *Dicranomyia apicalis*, sp. n., ♂ genitalia seen from below.
 Fig. 14. *Styringomyia Jidyma*, sp. n., lateral view of head.
 Fig. 15. " " dorsal view of abdomen.
 Fig. 16. " " wing.
 Fig. 17. *Gnamptopilopus patellifer* Thomson, lateral view of ♂ genitalia.
 Fig. 18. " " wing.
 Fig. 19. " " hind tibia of ♂ seen from without.
 Fig. 20. " *pallidicornis*, sp. n., lateral view of ♂ genitalia.
 Fig. 21. " " wing.
 Fig. 22. *Sicnemus fimbriatus*, sp. n., intermediate femur and tibia of ♂.
 Figs. 23 & 24. " *distortipes*, sp. n., intermediate femur, tibia and metatarsus of ♂, showing outer and hind surfaces.
 Fig. 25. " *calcaratus*, sp. n., intermediate femur, tibia and metatarsus of ♂.



DESCRIPTION OF PLATE III. (VOL. III.)

DIPTERA.

- Fig. 1. *Scatella hawaiiensis*, sp. n., wing.
Fig. 2. *Idiomyia perkinsi*, sp. n., ♂, lateral view of head.
Fig. 3. " " antenna of ♂.
Fig. 4. " " wing of ♂.
Fig. 5. *Hypenomyia varipennis*, sp. n., ♂, lateral view of head.
Fig. 6. " " wing.
Fig. 7. *Drosophila picticornis*, sp. n., antenna.
Fig. 8. " " wing.
Fig. 9. " *variegata*, sp. n., ♀.
Fig. 10. " " wing.
Fig. 11. " *undulata*, sp. n., wing.
Fig. 12. " *perkinsi*, "
Fig. 13. " *conspicua*, "
Fig. 14. " *hawaiiensis*, "
Figs. 15 & 15a. " *anomaliipes*, sp. n., fore leg of ♂ and end of tibia more highly magnified.
Fig. 16. " *setiger*, sp. n., fore leg of ♂.
Fig. 17. " *crassifemur*, sp. n., fore leg of ♂.
Fig. 18. " *nasalis*, sp. n., head of ♂.
Fig. 19. " *longiseta*, sp. n., antenna.
Fig. 20. " *carinata*, sp. n., head of ♀.
Fig. 21. *Ophthalmomyia lacteipennis* Loew, dorsal view of ♂.