

NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN
ASIA (DIPTERA), XXXVII¹

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THREE PLATES

The crane flies herewith considered have been derived from several sources, the chief ones being as follows: Extensive collections from Java and eastern Borneo, collected by Mrs. M. E. Walsh; material from the Khasi Hills, Assam, taken by Mr. S. Sircar; specimens from various provinces in China, taken by Messrs. Franck, Gressitt, and Kellogg; material from New Guinea and the Philippines, preserved in the Museum of Comparative Zoölogy, Cambridge, Massachusetts. Except where indicated to the contrary, the types are preserved in my own collection of these flies. As often in the past, my sincere thanks are extended to the various collectors of this abundant and valuable series of Tipulidæ. A single species of Tanyderidæ, considered as being the most generalized family of crane flies, is described at this time.

TANYDERIDÆ

EUTANYDERUS OREONYMPHA sp. nov. Plate 1, fig. 1.

General coloration gray, variegated with black; antennæ 17-segmented, black throughout; halteres yellow, knob dark brown; femora black, bases broadly yellow; tibiæ black with a broad yellow central ring; wings whitish subhyaline, with four oblique brown crossbands, the third very oblique, extending completely across wing from midlength of cell Sc₁, involving outer end of cell 1st M₂; abdominal tergites black, light gray sublaterally.

Male.—Length, about 15 millimeters; wing, 13; antennæ, about 3.

Rostrum black, dusted with gray, nearly as long as remainder of head; palpi black. Antennæ 17-segmented, black throughout; flagellar segments suboval to subcylindrical, the second shorter than the first, the succeeding segments very gradually decreasing

¹ Contribution from the Department of Entomology, Massachusetts State College.

in size outwardly; terminal segment a little larger than penultimate. Head gray, with black verticils.

Pronotum and cervical sclerites gray, narrowly blackened medially. Mesonotal præscutum light gray, with three very conspicuous black stripes, median stripe very narrowly divided by a pale capillary vitta; setæ of interspaces yellow, conspicuous; scutum gray, each lobe with two blackish areas; scutellum and short mediotergite gray. Pleura and pleurotergite gray. Halteres yellow, knob dark brown. Legs with coxæ gray pruinose; trochanters black, pruinose; femora black, bases broadly yellow, including slightly less than proximal half; tibiæ black, with a conspicuous yellow central ring, subequal in extent to the dark apex and about twice as wide as blackened base; tarsi black. Wings (Plate 1, fig. 1) with ground color whitish subhyaline, conspicuously patterned with brown, including all of cell C excepting a small pale spot near outer end and four solidly darkened, unmarginated, darker brown oblique fasciæ, distributed as follows: Basal fascia including anterior prearcular field and a postarcular area to the general level of origin of Rs, sending a distal extension in cell R to beyond midlength of Rs and a narrow seam along vein Cu to second dark fascia; a conspicuous ground area in cell R before origin of Rs, extending into cell M behind; second dark fascia narrow, completely traversing wing at cord, in cells R₄ and R₅ sending a distal extension almost to third band; third band complete, oblique, narrow, almost parallel-sided, extending from costa at near midlength of cell Sc₁, involving outer end of cell 1st M₂; distal band occupying narrow wing apex in cells R₁ to R₄ and extreme outer ends of cells Sc₁ and R₅; additional isolated dark spots include a circular area at fork of Sc and marginal spots at M₁, M₃, and Cu₁; veins yellowish brown, darker in patterned areas. In one wing of type a circular dark spot at fork of R₂₊₃. Venation: Cell R₂ about one and one-third as long as its petiole.

Abdominal tergites light gray laterally, segments broadly and continuously blackened medially, caudal margins of segments more narrowly blackened, on outer segments continued basad along lateral margin to form conspicuous outer lateral triangles; hypopygium black.

Habitat.—New South Wales.

Holotype, male, Mount Kosciusko, altitude 5,000 feet, December 11, 1931 (A. L. Tonnoir). Presented by collector to Dr. P. J. Darlington, of the Harvard Australian Expedition; type in the Museum of Comparative Zoölogy, Cambridge, Mass.

Eutanyderus oreonympha is very different from the only other known species of the genus, *E. wilsoni* Alexander, of Victoria, in the larger size, in the increased number of antennal segments, and in the very different pattern of the legs and wings. There are now six species of Tanyderidæ known from Australia and Tasmania, separable by the following key.

Key to the Australian species of Tanyderidæ.

1. A short element R_{4+5} present; antennal flagellum entirely or chiefly black. 2.
 A short element R_{2+3+4} present; antennal flagellum yellow (*Radinoderus Handkirsch*) 4.
2. Free tip of Sc_2 preserved; a supernumerary crossvein in cell R_1 . (*Nothoderus* Alexander, Tasmania). *Nothoderus australiensis* (Alexander).
 Free tip of Sc_2 atrophied; no supernumerary crossveins in any of the cells. (*Eutanyderus* Alexander) 3.
3. Antennæ 15-segmented; tibiæ uniformly brown; cell R_2 shorter than its petiole. (Victoria) *Eutanyderus wilsoni* Alexander.
 Antennæ 17-segmented; tibiæ black with a broad central yellow ring; cell R_2 longer than its petiole. (Southern New South Wales).
Eutanyderus oreonympha sp. nov.
4. Femora yellow, with only the tips blackened. (Southern Queensland).
Radinoderus terræ-reginæ (Alexander).
 At least the fore femora conspicuously darkened at near midlength.... 5.
5. Wings broad, of normal conformation; wing bands wide, restricting ground color; an apical dark spot in cells Sc_1 , R_1 , and R_2 ; medial dark femoral rings conspicuous on all legs. (Northern New South Wales).
Radinoderus dorrigensis Alexander.
 Wings relatively narrow, tips subfalcate; wing bands narrow; no dark spot at wing tip; median femoral bands of middle legs scarcely evident. (Western Australia).
Radinoderus occidentalis (Alexander).

All of the previously described Australian species have been figured by the writer.² The most recent key to the tanyderid genera, with figures of the wing pattern and venation of the known Australian species, with the single exception of *Radinoderus occidentalis*, has been given by Dr. Inez W. Williams.³

² Alexander, C. P. The Tanyderidæ of Australia (Diptera). Proc. Linn. Soc. New South Wales 53 (1928) 367-374, figs. 1-4; Observations on the dipterous family Tanyderidæ. Proc. Linn. Soc. New South Wales 55 (1930) 221-230, pls. 5, 6; text fig. 1.

³ Williams, Inez W. The external morphology of the primitive tanyderid dipteran, *Protoplasa fitchii* O. S., with notes on the other Tanyderidae. Journ. N. Y. Ent. Soc. 41 (1933) 1-35, pls. 1-8, figs. 1-38; text fig. 1.

The only species of the family described since the publication of the last-cited paper is *Protanyderus alexanderi* Kariya, from the Japanese Alps, Central Honshiu.⁴

Whether the Chilean genus *Araucoderus* Alexander can be maintained as distinct from *Eutanyderus* is rendered doubtful by the discovery of the new species described in this paper.

TIPULIDÆ

TIPULINÆ

PSELLIOPHORA ARDENS (Wiedemann).

Ctenophora ardens WIEDEMANN, Dipt. exot. 1 (1821) 20.

Pseliophora ardens OSTEN SACKEN, Berlin. Ent. Zeitschr. 30 (1886) 168.

One male, one female, Tjiangsana, Djampang, western Java, November, 1936 (*Walsh*). The male agrees entirely with the descriptions and identified specimens, but the female has the wings almost uniformly deep saturated yellow, with a conspicuous dusky cloud at margin along tip of vein 1st A. In this specimen the wing tip, which is darkened in normal individuals, is concolorous with the remainder of the yellow ground.

PSELLIOPHORA LUCTUOSA de Meijere.

Pseliophora luctuosa DE MEIJERE, Tijds. voor Ent. 59 (1916) 199.

One male, Tjiangsana, Djampang, western Java, November, 1936 (*Walsh*).

DOLICHOPEZA (OROPEZA) FOKIENSIS sp. nov. Plate 1, fig. 2; Plate 2, fig. 25.

General coloration of mesonotum gray, præscutum with four darker brownish gray stripes; antennæ of moderate length; basal flagellar segments bicolorous, dark with pale apices; legs with tibiæ and tarsi white; wings narrow, strongly suffused with brown, the brownish black stigma preceded and followed by restricted creamy yellow areas; cell 2d A narrow; male hypopygium with the sublateral portions of tergite with low triangular points; ninth sternite bearing oval yellow lobes that are densely provided with microscopic setulæ; ædeagus black, subtended by dusky phallosomic plates.

Male.—Length, about 11 millimeters; wing, 10.2; antennæ, about 3.4.

Frontal prolongation of head yellow above, blackened on sides; palpi with basal two segments dark brown, remaining segments

⁴Kariya, Shojiro. On the Family Tanyderidæ of Japan (Diptera). *Mushi* 8 (1935) 39–41, pl. 6, figs. 1–7.

black. Antennæ moderately elongate, as shown by measurements; scape and pedicel yellowish white; first flagellar segment pale brown; succeeding three segments brownish black, tip narrowly obscure yellow to produce a bicolored appearance; remaining segments uniformly blackened; flagellar segments subcylindrical, basal portion a trifle thicker; verticils subequal in length to segments, unilaterally arranged. Head light gray, somewhat darker gray on vertex, posterior vertex with a delicate capillary median vitta; anterior vertex wide.

Pronotum gray. Mesonotal præscutum gray, with four darker brownish gray stripes, intermediate pair separated by a line of the ground color, the two stripes confluent behind; posterior sclerites of notum blackened, sparsely pruinose, scutal lobes with cephalic-lateral portion darkened. Pleura obscure yellow, variegated with brownish gray on ventral sternopleurite, anepisternum, meron, and pleurotergite; dorsopleural membrane and pteropleurite pale. Halteres with stem yellow, knob broken. Legs with fore coxæ darkened, pale apically; remaining coxæ yellow, extreme bases darkened; trochanters yellow; femora brownish yellow, tips passing into brown; tibiæ and tarsi snowy white. Wings (Plate 1, fig. 2) with a strong brownish tinge, stigma very conspicuous, brownish black; prearcular and costal regions more suffused than remainder of ground; cell Sc yellow; restricted cream-yellow areas before and beyond stigma; veins brown. Wings narrower than in *shirakiella*. Venation: Rs straight, oblique, longer than basal section of R_{4+5} ; cell 1st M_2 wider than in *shirakiella*, especially on basal portion; cell 2d A narrow.

Abdomen variegated obscure yellow and brown, basal rings brighter, more yellowish; a broken median series of longitudinal brown dashes on sternites, lacking on basal rings; hypopygium chiefly pale. Male hypopygium (Plate 2, fig. 25) with tergite, 9t, extensive, median area slightly produced into a blackened plate the margin of which is weakly concave; sublaterally the tergal margin bears low triangular points. Ædeagus blackened, subtended by dusky plates, *p*, the apices of which are roughened. What appears to represent the ninth sternite, 9s, bears two oval yellow lobes that are densely covered with microscopic pale setulæ.

Habitat.—China (Fukien).

Holotype, male, Gang-keu, altitude 1,900 feet, July 24, 1936 (*Gressitt*).

Generally similar to *Dolichopeza* (*Oropeza*) *shirakiella* (Alexander), of Formosa, differing especially in the longer antennæ, which are fully one and one-half as long as in *shirakiella*, with the flagellar segments correspondingly lengthened, and in the details of structure of the male hypopygium. The subgenus *Oropeza* had not been reported from China.

TIPULA (SCHUMMELIA) BICOLORATA sp. nov. Plate 1, fig. 3; Plate 2, figs. 26 and 27.

General coloration yellow, præscutum and scutum heavily patterned with polished black; pleura yellow, with a transverse brown girdle on episternum; knobs of halteres dark brown; femora yellow, tips blackened; wings bicolorous, basal two-thirds grayish subhyaline, distal third strongly infumed; abdominal segments in part bicolorous, yellow, caudal margins broadly dull black; male hypopygium with tergite complex in structure, dorsal plate bifid.

Male.—Length, about 9 millimeters; wing, 8.8; antennæ, about 3.5.

Frontal prolongation of head pale yellow above, slightly darker on sides; palpi with basal two segments pale brown, intermediate segment paler, terminal segment passing into black. Antennæ moderately elongate, as shown by measurements; scape and pedicel yellow; flagellum uniformly dark brown; terminal segment greatly reduced, oval; verticils shorter than segments. Head polished brown; anterior vertex wide.

Pronotum yellow, weakly darkened medially above. Mesonotal præscutum yellow, chiefly covered by three polished black stripes, interspaces very narrow and obscured, especially behind scutum similarly polished black; scutellum pale yellow, parascutella infuscated; mediotergite black centrally, paling to obscure brownish yellow on sides; pleurotergite brownish yellow. Pleura pale yellow, episternum more darkened, especially on anepisternum, to form a weak transverse girdle, crossing dorsopleural region and lateral borders of præscutum to disc of latter. Halteres with stem yellow, knob dark brown. Legs with coxæ and trochanters pale yellow; femora yellow, tips rather narrowly but conspicuously blackened, the amount subequal on all legs; tibiæ brown, tips passing into brownish black; tarsi black; claws with a single long basal tooth. Wings (Plate 1, fig. 3) bicolored, basal two-thirds grayish subhyaline, distal portion strongly infuscated, including all cells beyond cord except those immediately surrounding the darker brown, oval stigma, which

are whitish; wing tip similarly narrowly and vaguely whitened; axilla and adjacent regions of arculus restrictedly darkened; veins dark brown. Squama apparently naked. Venation: R_s oblique, straight, a little shorter than R_{2+3} ; cell M_1 deep; cell 1st M_2 hexagonal; m-cu at near two-thirds the length of M_{3+4} .

Abdominal tergites bicolored, yellow, caudal margins broadly dull black; second tergite with base similarly blackened; outer tergites, including ninth, uniformly black; sternites yellow, second and third with posterior borders black, fourth to seventh, inclusive, uniformly yellow; eighth sternite black, ninth yellow. Male hypopygium (Plate 2, fig. 26) with the tergite, 9t, distinct from the sternite, 9s. Tergite (Plate 2, fig. 27, 9t) profoundly split into two lobes, each with apex truncate, with coarse spines, margin roughened; from ventral face of tergite a longer plate forming two glabrous lobes, separated by a linear incision; lateral margins of lobes with a single series of black peglike spines; a long powerful spine on either side, these approximated at base to form a lyriform structure; a small curved fingerlike arm on side of plate near base, each tipped with a few short black spines. Dististyles, d , simple, the inner split nearly to base to form two separate lobes. Notch of ninth sternite with a small fleshy pale lobe on either side. Eighth sternite unarmed.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*).

Tipula (*Schummelia*) *bicolorata* is very distinct from the other regional species so far described, differing especially in the polished black color of the mesonotum, the bicolored wings, and the structure of the male hypopygium. The squama appears to lack the conspicuous setæ found in other members of the subgenus *Schummelia*, but the assignment appears to be correct.

NEPHROTOMA PARVA (*Edwards*).

Pachyrrhina parva EDWARDS, *Ann. & Mag. Nat. Hist.* VIII 18 (1916) 266, 267.

Described from Mount Ari, Formosa, altitude 8,000 feet, collected October 10, 1912, by Nitobe. A few specimens of both sexes from Hong San, Kiangsi, southeastern China, altitude 3,000 to 3,400 feet, June 24 to 29, 1936 (*Gressitt*), and from Tsin Leong San, eastern Kwangtung, China, altitude 2,750 feet, June 4, 1936 (*Gressitt*).

Allotype.—Length, about 10 millimeters; wing, 8.5.

Agreeing closely with the male in size and color. Central portions of scutal lobes a trifle darker than the ground, but not blackened; scutellum faintly darkened. Wings with cell Sc darkened; stigma a trifle darker than the ground. Cell M_1 with very short petiole or sessile, the character variable. Median line of abdominal tergites weakly infumed.

Allotype, female, Hong San, Kiangsi, altitude 3,150 feet, June 27, 1936 (*Gressitt*).

NEPHROTOMA NIGROSTYLATA Alexander.

Nephrotoma nigrostylata ALEXANDER, Philip. Journ. Sci. 57 (1935) 204-206.

Hitherto known only from Szechwan, western China. Several specimens of both sexes, Foochow, Fukien, southeastern China, May 1, 1936 (*Kellogg*).

LIMONIINÆ

LIMONIINI

LIMONIA (LIBNOTES) CITRIVENA sp. nov. Plate 1, fig. 4; Plate 2, fig. 28.

Thorax and abdomen uniformly orange; head brown; halteres yellow, outer half of knob black; femora yellow, tips broadly blackened; tibiæ and basal tarsal segments brownish yellow to yellow; wings pale yellow, veins deep orange-yellow throughout; R_s oblique; R_2 long, bending into R_{2+3} in an unusually long curve; anal veins convergent.

Male.—Length, about 11 millimeters; wing, 9.5.

Rostrum very small, brown; palpi reduced, black. Antennæ with scape brownish yellow, pedicel and flagellum black; flagellar segments subcylindrical to oval, with short apical necks; verticils nearly twice length of segments; terminal segment one and one-half length of penultimate, cylindrical. Holoptic or virtually so; head brown, posterior portion paler.

Thorax uniformly orange. Halteres yellow, outer half of knob black. Legs with coxæ and trochanters yellow; femora yellow, clearer at base, tips broadly blackened, the amount subequal on all legs, including about the distal sixth; tibiæ pale brownish yellow, tips narrowly and weakly darkened; tarsi with basal three segments yellow, outer segments dark. Wings (Plate 1, fig. 4) pale yellow, without stigma; cells C and Sc clearer yellow; veins deep orange-yellow. Macrotrichia on longitudinal veins beyond cord with exception of R_2 . Venation: Sc long,

Sc₁ ending about opposite m-cu, Sc₂ at its tip; Rs oblique, vein R₁ beyond free tip of Sc₂ long, bending gently into R₂₊₃; cell 1st M₂ shorter than any veins beyond it, m-cu at near midlength; anal veins strongly convergent.

Abdomen, including hypopygium, uniformly deep orange. Male hypopygium (Plate 2, fig. 28) with tergite, 9t, slightly narrowed outwardly, apex truncated or virtually so. Ventral dististyle, *vd*, fleshy, in area nearly equal to basistyle; a fleshy pale lobe on face, terminating in two strong setæ; rostral prolongation relatively slender, with a group of rostral spines near base, these apparently four in number in a close group but difficult to count in the unique type. Gonapophyses, *g*, with mesal apical lobe slender, a low flange on margin before apex. *Ædeagus*, *a*, unusually broad, bifid at apex.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*).

Limonia (*Libnotes*) *citrivena* is distinct in the uniform orange color of the body, in conjunction with the pale-yellow wings with orange veins.

LIMONIA (LIBNOTES) CROCEA CELESTIA subsp. nov.

Male.—Length, about 9 to 9.5 millimeters; wing, 10 to 11.

Characters as in typical *crocea* (Edwards)⁵ of Siam, differing in the coloration of the thorax.

Anterior vertex reduced to a narrow strip, in width about one-fourth diameter of scape. Thorax uniformly orange, præscutum and scutum unmarked, surface shiny. Bases of fore femora a trifle brightened. Wings with arcular darkening not passing vein M behind. Male hypopygium with lobe of basistyle large. Dorsal dististyle a gently curved rod, tip decurved, surface of style with abundant delicate appressed setæ. Ventral dististyle relatively small, produced into a slender prolongation, the usual spines arising from base of prolongation, placed close together, their tips narrowed into hairlike points; from face of style near base of prolongation a strong tubercle tipped with a very long strong seta. Gonapophyses with mesal apical lobes slender, nearly straight, darkened.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*). Paratopotypes, 2 males.

⁵ Ann. & Mag. Nat. Hist. VIII 17 (1916) 353.

Edwards⁶ records this same race from two stations in lowland North Borneo.

LIMONIA (DICRANOMYIA) MESOSTERNATA (Alexander).

Dicranomyia mesosternata ALEXANDER, Ann. Ent. Soc. America 12 (1919) 329, 330.

Widespread in the Japanese Islands (Karafuto, Hokkaido, Honshiu). One male, Chengtu, Szechwan, western China, altitude 1,800 feet, May 6, 1936 (*Franck*). The three species, *Limonia (Dicranomyia) consimilis* (Zetterstedt), *L. (D.) mesosternata* (Alexander), and *L. (D.) mesosternatoides* (Alexander), are allied and are most readily told by differences in the structure of the male hypopygium, especially the ventral dististyles and gonapophyses.

LIMONIA (GERANOMYIA) TORTA sp. nov. Plate 1, fig. 5; Plate 2, fig. 29.

Rostrum relatively short, less than one-half length of body; mesonotal præscutum testaceous brown with two sublateral darker brown stripes, lateral margins brown; pleura pale yellow; femora obscure yellow with an ill-defined darker subterminal ring, tips narrowly yellow; wings faintly tinged with brown, costal portion more yellowish; an extensive pale-brown pattern, chiefly costal in distribution; dark areas at origin of Rs and fork of Sc widely separated; Sc long; costal fringe (male) long; male hypopygium with a single very powerful tubercle and spine at apex of rostral prolongation of ventral dististyle.

Male.—Length, excluding rostrum, about 5.5 millimeters; wing, 6.2; rostrum, about 2.

Female.—Length, excluding rostrum, about 6 millimeters; wing, 6.5; rostrum, about 2.

Rostrum relatively short, about equal in length to head and thorax combined, black throughout; palpi black. Antennæ black. Front and anterior vertex narrowly silvery, continued backward to occiput as a silvery median vitta, remainder of posterior vertex blackened.

Pronotum light brown, narrowly darkened laterally. Mesonotal præscutum with ground color pale testaceous brown, patterned with darker brown, including longitudinal narrow stripes occupying usual interspaces, extending entire length of præscutum; median dark vitta barely indicated; lateral borders of præscutum rather broadly darkened, in fresh specimens tinged

⁶ Journ. Fed. Malay St. Mus. 16 (1931) 494.

with green; humeral region yellowish white, the color continued caudad between lateral darkened areas; scutal lobes weakly darkened, median region restrictedly pale; scutellum testaceous, parascutella a little darker; mediotergite brown. Pleura yellow, unmarked except for vague spots on dorsopleural membrane. Halteres dusky, stem more greenish. Legs with coxæ and trochanters testaceous yellow, with greenish tinges; femora obscure yellow, with an ill-defined dark subterminal ring, tips narrowly yellow; tibiæ and tarsi pale brown. Wings (Plate 1, fig. 5) with a faint brown tinge, ground color of costal region more yellowish; an extensive pale-brown pattern, including a series of about six costal areas, the second at the supernumerary crossvein in cell Sc, third at origin of Rs, fourth at fork of Sc, fifth stigmal, sixth at tip of vein R_3 ; in more heavily colored individuals areas two and three reaching vein M behind, in other specimens these areas more restricted; cord and outer end of cell 1st M_2 narrowly seamed with pale brown; very restricted pale-brown clouds at ends of veins Cu_1 and 2d A; veins brown, yellow in costal interspaces. Male with costal fringe long and conspicuous. Venation: Sc long, Sc_1 ending about opposite four-fifths to five-sixths length of Rs, Sc_2 at its tip; a supernumerary crossvein in cell Sc; cell 1st M_2 subequal in length to vein M_{1+2} beyond it; m-cu close to fork of M; cell 2d A moderately wide.

Abdominal tergites and hypopygium brown; sternites yellow. Male hypopygium (Plate 2, fig. 29) with tergite, 9t, rather deeply notched. Basistyle, *b*, with ventromesal lobe small, slightly and unequally bilobed. Dorsal dististyle a powerful curved hook. Ventral dististyle, *vd*, of moderate size, larger than basistyle; rostral prolongation very strong and powerful, close to apex with a very long tubercle that merges at near two-thirds length into a single powerful spine or two unequal, partially fused spines; combined spine and tubercle in length exceeding dorsal dististyle. Gonapophyses, *g*, with mesal apical lobe slender, curved.

Habitat.—Assam (Khasi Hills).

Holotype, male, Cherrapunji, altitude, 4,000 feet, May, 1936 (*Sircar*). Allotopotype, female. Paratopotype, female.

Limonia (*Geranomyia*) *torta* is very different from the other regional species of the subgenus in the short rostrum, the pattern of the præscutum and pleura, wing pattern, long costal fringe in male, and in the structure of the male hypopygium. The costal fringe is somewhat as in the otherwise entirely distinct *L. (G.) longifimbriata* Alexander (Philippines). The

structure of the male hypopygium is most similar to that of *L. (G.) baliana* Alexander (Bali) which has the costal fringe short and all details of coloration and venation distinct.

LIMONIA (GERANOMYIA) FUMIMARGINATA VACIVA subsp. nov.

Female.—Length, excluding rostrum, about 6.3 to 6.7 millimeters; wing, 6.5 to 7; rostrum, about 2.2 to 2.4.

Close to the typical form, distinguished especially by the subterminal, slightly darkened femoral ring and the more heavily patterned wings. Antennal flagellum pale brown, much paler than basal segments. Præscutal stripes brownish black, median stripe widest opposite pseudosutural foveæ. Femora with an ill-defined pale-brown subterminal ring, tips clear yellow. Wings with the pattern quite distinct from that of the typical form; dark costal areas with the pale centers much more restricted, the dark margins correspondingly widened; dots and marbling of basal field more abundant and irregular, invading cells C and Sc and interpolating darkenings between first and second (h and supernumerary crossvein in cell Sc) and second and third (origin of Rs) major costal areas.

Habitat.—Assam (Khasi Hills).

Holotype, female, Cherrapunji, altitude 4,000 feet, May, 1936 (*Sircar*). Paratopotype, female.

HELIUS (HELIUS) PAVONINUS sp. nov. Plate 1, fig. 6; Plate 2, fig. 30.

General coloration black; halteres yellow; legs yellow, tips of femora conspicuously black; wings brown, patterned with large, pale cream-colored areas, including two major spots just beyond one-third length of wing, constricting ground color at this point; other pale areas beyond cord.

Male.—Length, about 6 millimeters; wing, 6 to 6.5.

Female.—Length, about 6.5 to 7 millimeters; wing, 6 to 6.5.

Rostrum black, slightly longer than remainder of head; palpi black. Antennæ short, about one and one-half length of rostrum; scape black, pedicel brownish black, flagellum brown; basal flagellar segments oval, terminal segment elongate; verticils about equal in length to segments. Head brownish black, front and orbits more grayish; anterior vertex narrow.

Pronotum brownish black. Mesonotal præscutum reddish brown, with three blackish stripes, median stripe long and complete, lateral stripes short and inconspicuous; lateral margins of præscutum blackened; posterior sclerites of notum brownish black. Pleura black. Halteres with stem pale or weakly in-

fumed, extreme base and knob clear yellow. Legs with the coxæ brownish black, fore pair a little brightened at tip; trochanters yellow, posterior pair more darkened; femora light yellow, tips conspicuously (0.6 to 0.7 millimeters, or about distal eighth or ninth) and abruptly black; tibiæ and tarsi yellow, terminal segments darker; claws simple. Wings (Plate 1, fig. 6) with a strong brown suffusion, handsomely patterned with pale cream-yellow, as follows: Major areas in cell R before origin of Rs and opposite this in outer ends of cells Cu and 1st A, restricting dark ground color at this level to cell M; a nearly complete but narrow pale band beyond cord, including broad bases of outer radial cells, center of cell 1st M₂, and outer end of cell M₄; isolated smaller yellow areas before stigma in cell R₁ and beyond tip of vein R₃ in cell R₃; anterior prearcular region, with cells C and Sc clear yellow; veins brown, yellow in clear areas. Anterior branch of Rs with a variable number of macrotrichia, in cases these lacking; other branches of R and M, with the exception of M₄, with trichia. Venation: Sc relatively long, Sc₁ ending shortly before fork of Rs, Sc₂ near its tip; branches of Rs strongly divergent, cell R₃ at margin thus very wide; m-cu at near one-third to one-half length of cell 1st M₂.

Abdomen black, hypopygium a little more reddish brown. Male hypopygium (Plate 2, fig. 30) with outer dististyle, *od*, relatively stout, outer tooth bearing a tiny lateral spinule before apex; inner tooth elongate. Lateral tergal lobes, *9t*, appearing as unusually large expanded blades.

Habitat.—Assam (Khasi Hills).

Holotype, male, Cherrapunji, altitude 4,000 feet, May, 1936 (*Sircar*). Allotopotype, female, pinned with type. Paratopotypes, 7 of both sexes.

Helius (Helius) pavoninus is entirely different from all other described species of the genus, especially in the handsomely patterned wings.

HELIUS (HELIUS) CTENONYCHA sp. nov. Plate 1, fig. 7; Plate 2, fig. 31.

General coloration of præscutum obscure yellow, with a narrow but conspicuous dark-brown median stripe; head dark gray; antennæ relatively short; legs black, tarsi paling to yellow; claws conspicuously toothed; wings strongly infumed, costal border broadly darker brown to wing apex; Sc₁ ending nearly opposite r-m; cells R₂ and R₃ at wing margin subequal in extent; cell

1st M_2 rectangular, one and one-half as long as wide; m-cu at or very close to fork of M; male hypopygium with outer dististyle bearing a straight lateral spine some distance before tip; lateral lobes of tergite appearing as very flattened blades with obtusely rounded tips.

Male.—Length, about 6 millimeters; wing, 6 to 6.5.

Female.—Length, about 7 millimeters; wing, 6.2 to 6.8.

Rostrum black, about equal in length to remainder of head; palpi black. Antennæ about as long as head, including rostrum; scape and flagellum black, pedicel more brownish; flagellar segments oval, beyond fifth or sixth becoming more elongate. Head dark gray, with conspicuous erect to proclinate black setæ.

Cervical sclerites black. Pronotum and præscutum obscure yellow, narrowly but conspicuously dark brown medially; posterior sclerites of notum more uniformly dark brown. Pleura yellow, mesepisternum in cases weakly darkened. Halteres dark brown, base of stem restrictedly yellow. Legs with coxæ and trochanters yellow; femora black, bases very narrowly obscure yellow, more evident on forelegs; tibiæ and basitarsi black, outer tarsal segments paling to yellow; claws large, yellow, each with three long conspicuous teeth, outer tooth largest. Wings (Plate 1, fig. 7) strongly infumed, broad costal margin to wing tip still darker brown, stigma not further differentiated; veins dark brown. Costal fringe short. Venation: Sc relatively long, Sc_1 ending nearly opposite r-m, Sc_2 a short distance from its tip; branches of Rs very gradually diverging from one another; cells R_2 and R_3 at margin subequal; cell 1st M_2 rectangular, one and one-half as long as wide; m-cu at or very close to fork of M.

Abdominal tergites brown, caudal borders a little darker; basal sternites obscure brownish yellow, darker laterally; subterminal segments dark brown; hypopygium a little brightened. Male hypopygium (Plate 2, fig. 31) with the basistyle, *b*, simple, with more abundant setæ on mesal face than on outer. Outer dististyle, *od*, shorter than inner, sickle-shaped, with a conspicuous lateral spine some distance from tip. Inner dististyle, *id*, with distal half unusually long and slender. Lateral lobes of tergite, *9t*, appearing as very flattened blades, tips oval.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*). Allotopotype, female. Paratopotypes, 1 male, 1 female. Paratypes, 6 males, Batan bessi, Sangkoelirang district, May, 1937 (*Walsh*).

The most similar species is *Helius* (*Helius*) *fumicosta* Edwards (Malay Peninsula) which differs in the shorter rostrum, in the shortened basal flagellar segments, in the uniformly reddish brown thorax, and in the venational details, as the short cell 1st M_2 , with m-cu shortly beyond its base. The long teeth on the claws in the present species are very conspicuous.

HELIUS (HELIUS) NIGRICAPELLA sp. nov. Plate 1, fig. 8; Plate 2, fig. 32.

Allied to *nigriceps*; general coloration of mesonotum almost uniformly dark brown; antennæ short, flagellum brown; pleura yellowish brown, blackened dorsally; wings grayish, cells C and Sc with stigma more infuscated; Sc_1 ending shortly before fork of Rs; m-cu about one-fourth its length before fork of M; male hypopygium with outer dististyle terminating in two very short points; inner dististyle with apical portion broad; lateral lobes of tergite with a narrow head, margin produced into a single acute recurved point.

Male.—Length, about 6 millimeters; wing, 5.5; antennæ, 1.

Rostrum and palpi black, the former subequal in length to remainder of head. Antennæ relatively short; scape and pedicel black, flagellum brown; basal flagellar segments oval, outer segments more elongate; basal flagellar segment with conspicuous basal pedicel, succeeding segments with this much shorter; terminal segment one and one-fourth as long as penultimate; verticils shorter than segments, unilaterally distributed. Head black; anterior vertex reduced to a narrow strip.

Mesonotum almost uniformly dark brown. Pleura with dorsal portion occupied by a blackened stripe that also includes the pleurotergite; ventral pleurites paler, yellowish brown. Halteres black. Legs with coxæ and trochanters obscure yellow; femora black, bases of fore pair restrictedly paler; tibiæ and basitarsi black, outer tarsal segments paler; claws with basal spines. Wings (Plate 1, fig. 8) grayish, cells C and Sc, with the stigma, more infuscated; margin of outer radial field slightly darkened; veins brown. Costal fringe (male) moderately long. Venation: Sc relatively long, Sc_1 ending shortly before fork of Rs, Sc_2 close to its tip; branches of Rs gently divergent, cell R_2 at margin very narrow, about one-fifth that of cell R_3 ; cell 1st M_2 small, irregularly pentagonal, much shorter than any of veins beyond it; m-cu about one-fourth its length before fork of M; cell 2d A relatively wide.

Abdomen black, hypopygium a little brightened. Male hypopygium (Plate 2, fig. 32) with mesal face of basistyle, *b*, with

abundant coarse setæ but otherwise unarmed. Outer dististyle, *od*, relatively short, gently curved, at apex split into two very short cultriform points. Inner dististyle, *id*, longer, distal third more flattened, only slightly narrower than base. Lateral lobes of tergite, *9t*, with expanded apex unusually narrow, margin produced into a single acute recurved point.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*).

Helius (Helius) nigricapella is closely allied to *H. (H.) nigriceps* Edwards. I possess a paratype of this latter species through the friendly interest of Doctor Edwards; the species differs in the venation, especially the wider radial field and more divergent branches of *Rs*, although cell *R*₂ at margin is similarly very narrow. What I have determined as *nigriceps* from Sumatra differs further in the simple claws and in the structure of the male hypopygium, especially in the narrow apex of the inner dististyle and the entirely different conformation of the apices of the lateral tergal lobes.

HEXATOMINI

GYNOPLISTIA (GYNOPLISTIA) ALBIZONATA sp. nov. Plate 1, fig. 9.

Entire thorax pale orange yellow, opaque; head black; halteres yellow; legs black, all tibiæ with a narrow white ring at near basal third; wings blackish, prearcular region abruptly clear yellow; veins of outer radial field with abundant macrotrichia; cell *M*₁ present; abdomen with segment one and basal ring of segment two yellow, remaining segments blackened basally, caudal margins gray; subterminal segments and genital shield black.

Female.—Length, about 15 millimeters; wing, 13.

Rostrum and palpi black. Antennæ 17-segmented, black throughout; formula (female) 2+3+4+8; branch of first flagellar segment short and obtuse; second branch about twice the segment; longest branch (about flagellar segment three or four) about two and one-half times the segment; penultimate segment indistinctly separated from terminal. Head transverse, black.

Entire thorax pale orange-yellow, surface opaque. Halteres yellow. Legs with coxæ and trochanters orange; femora black, extreme bases of fore pair yellow, this color even more reduced on remaining femora; tibiæ black with a narrow white ring at near basal third, narrowest (about 0.5 to 0.6 millimeter) on forelegs, widest (about 1.1 to 1.2 millimeters) on posterior

legs; vestiture of annuli similarly whitened; tarsi black. Wings (Plate 1, fig. 9) relatively broad, deeply suffused with black, more saturated in costal portion; wing base to level of arculus bright yellow, clearly delimited; veins dark brown, yellow in prearcular field. Macrotrichia of outer radial veins abundant, fewer and more scattered on veins M_1 and M_2 , lacking on M_3 and M_4 . Venation: Sc_2 projecting beyond level of Sc_1 , ending shortly beyond level of origin of R_{2+3} ; R_{2+3+4} short, subequal to or shorter than R_2 ; petiole of cell M_1 about two-thirds the cell; m-cu at near midlength of cell 1st M_2 .

Abdomen with segment one and basal ring of segment two clear yellow; remainder of tergite two and succeeding tergites blackened basally, caudal margins broadly blue-gray, on the subterminal segments more uniformly blackened; sternites chiefly blackened, caudal margins of segments narrowly gray; shield of ovipositor dull black; cerci stout, flattened-compressed, black, tips horn-yellow; hypovalvæ uniformly blackened.

Habitat.—New Guinea (Morobe District).

Holotype, female, Mount Misim, altitude 6,400 feet, March (*Stevens*); Museum of Comparative Zoölogy, Cambridge, Massachusetts, through Dr. Nathan Banks.

Gynoplistia (*Gynoplistia*) *albizonata* is very different from other species of the genus in the Papuan fauna. *G. (G.) insolita* Walker, of Salwatty, has somewhat similar white rings on the tibiæ but is entirely different in other respects.

HEXATOMA (ERIOCERA) PERORNATA sp. nov. Plate 1, fig. 10.

Allied to *lunata*; general coloration ochreous and dark brown; antennæ (male) greatly elongated, approximately four times length of body; wings grayish subhyaline, conspicuously patterned with brown and yellow, latter color appearing as seams to certain veins; cell R very wide at outer end; cell M_1 present; m-cu at fork of M; abdominal segments yellow, intermediate tergites with caudal borders narrowly blackened.

Male.—Length, 11 to 12 millimeters; wing, 12.5 to 13.5; antennæ, about 45.

Rostrum greatly reduced in size, pale brown; palpi black, porrect. Antennæ (male) greatly elongated, approximately four times length of body, as shown by measurements; scape enlarged, obscure yellow, streaked above with a dusky line; pedicel yellow, darkened beneath; flagellum brownish black to black, segment one restrictedly paler at base; all flagellar segments with a uni-

laterally arranged series of outwardly directed spines, more numerous on basal segments, becoming sparse and scattered on outer segments. Vertical tubercle unusually large and inflated, obscure yellow, with dense long pale hairs; antennal fossa involving anterior face of tubercle; posterior portion of head ochreous yellow.

Mesonotal præscutum variegated with ochreous and dark brown, the pattern consisting of two brown stripes on anterior half, their outer margins thence directed laterad and forming outer borders of usual præscutal stripes, median region behind thus chiefly pale, slightly more infumed before suture; scutum grayish ochreous, lobes variegated with brown; scutellum light gray, parascutella darker; postnotum pale ochreous. Mesonotum with long, coarse, chiefly pale-brown hairs, longest and most conspicuous on præscutum, involving stripes as well as interspaces. Pleura chiefly pale, variegated with brown on anepisternum and sternopleurite. Halteres yellow, small knobs darkened. Legs with coxæ darkened; trochanters reddish brown; remainder of legs yellow, tips of tibiæ and outer tarsal segments darkened; legs relatively short and stout, conspicuously hairy; claws with basal spine. Wings (Plate 1, fig. 10) with ground color grayish subhyaline, conspicuously patterned with brown and yellow, somewhat as in *ornata*; brown pattern including prearcular field, bases of cells R and M, anterior border of cell R, virtually all of R_1 , and basal half of R_4 ; cells C, Sc, Sc_1 , R_2 , and R_3 brown, with conspicuous whitish streaks; a dark-brown seam continued along vein R_5 to margin; cord and adjoining portions of veins M, M_{1+2} , and m conspicuously bordered by yellow, this, in turn, similarly margined with brown; tips of veins R_{1+2} , R_3 , and R_4 similarly bordered by yellow, like basal half of vein M where it traverses the darkened basal cells; anal cells more infuscated, especially in the axilla and as a seam on outer half of vein 2d A. Costal fringe short but abundant; veins beyond cord virtually glabrous; a scattered series of small trichia for almost the entire length of outer section of vein R_5 . Venation: Much as in *ornata* and *lunata*; Rs very long, on basal third paralleling vein R_1 , thence very gradually diverging, but cell R_1 unusually narrow at outer end; vein M arched at midlength; cell R at outer end of unusual width, as in *ornata* and *lunata*; cell M_1 present; vein m very long, oblique; basal section of M_{1+2} long and strongly arcuated, inner end of

cell 1st M_2 , thus lying proximad of other elements of cord; m-cu at fork of M, shorter than distal section of Cu_1 ; cell 2d A wide.

Abdomen short and arcuate, as common in males of this genus having elongate antennæ; segments yellow, intermediate tergites narrowly and inconspicuously bordered with black, most evident on posterior margin of tergite two; outer segments and hypopygium more uniformly infuscated; basal tergites whitish pruinose, narrowly darkened medially; abdomen with long setæ, most conspicuous on sides and toward outer end.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in unending swampy forest, May, 1937 (*Walsh*). Paratopotype, 1 male.

This fly and the species next described as *Hexatoma (Eriocera) perlunata* sp. nov. are unquestionably most nearly allied to *H. (E.) lunata* (Westwood) and *H. (E.) ornata* (Enderlein), despite the possession of cell M_1 . The four species form a very isolated group, with a distribution ranging from the Malay Peninsula and Sumatra to Borneo. All are well-distinguished by the greatly elongated antennæ of the male and by certain venational features, as the position of Rs, which on its basal portion lies parallel to vein R_1 , and by the unusual width of cell R at its outer end. Edwards⁷ has well discussed the interrelationships existing between *lunata* and *ornata*.

HEXATOMA (ERIOCERA) PERLUNATA sp. nov. Plate 1, fig. 11.

Female.—Length, about 13 millimeters; wing, 10; antennæ, about 2.

Closely allied to *perornata* sp. nov., but differing in virtually every detail of color.

Rostrum brown; palpi black. Antennæ 7-segmented, very short; scape pale, pedicel and flagellar segments gradually smaller outwardly, last subglobular. Vertical tubercle moderately enlarged, deep chestnut-brown; head darker behind.

Thorax almost uniformly dull black; setæ short and sparse. Halteres black throughout. Legs with coxæ and trochanters black; fore femora yellow with about distal fourth brownish black; remaining femora almost uniformly infuscated, tips a little more blackened; tibiæ black, extreme bases narrowly orange; tarsi black; claws simple. Wings (Plate 1, fig. 11) with

⁷ Ann. & Mag. Nat. Hist. IX 8 (1921) 68, 70, 71, 93, 94.

the restricted ground color whitish subhyaline, remainder chiefly dark brown, including all of wing before cord except anal cells, a lunule of the ground color in cells R and M before cord, and very restricted yellow spots, as follows: h, origin of Rs, fork of Sc, cord, and tips of veins R_{1+2} , R_3 , and R_4 ; beyond cord, the whitish ground involving the broad outer ends of cells R_4 to M_4 , inclusive, interrupted by a broad dark seam along vein R_5 to margin or nearly so; cell Cu dark except for a pale spot nearly at outer end; cell 1st A chiefly brownish gray; cell 2d A darkened, with an obscure yellow spot before midlength, crossing vein 2d A into cell 1st A. Venation: Almost as in *perornata*.

Abdomen black, vaguely brightened by obscure yellow areas on intermediate tergites. Cerci long and slender, horn-yellow.

Habitat.—Eastern Borneo.

Holotype, female, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*). Paratopotype, female.

Despite the entirely differing general appearance, the present fly is very closely related to *Hexatoma (Eriocera) perornata* sp. nov., and the possibility is not excluded that the two names represent the sexes of a single species. If such should prove to be the case, the sexual dichroism would be extreme for species within the genus.

HEXATOMA (ERIOCERA) NIMBIPENNIS sp. nov. Plate 1, fig. 12.

Belongs to the *verticalis* group; general coloration brownish black to black; antennæ (male) elongate, approximately four times length of body; scape and pedicel chestnut yellow, flagellum black; flagellar segments with numerous erect spines; vertical tubercle black; præscutum without stripes; halteres brownish black throughout; femora yellow, base and apex darkened; wings with a strong brownish tinge; stigma oval, darker brown; macrotrichia on veins beyond cord sparse or lacking; veins R_{1+2} , R_2 , and R_{2+3} subequal; R_{1+2} in longitudinal alignment with R_1 ; m-cu at fork of M; abdomen and hypopygium dull black.

Male.—Length, about 11 millimeters; wing, 13; antennæ, about 45; flagellar segment one, 12; flagellar segment two, 13.

Rostrum short, black; palpi black. Antennæ (male) very long, approximately four times length of body; scape and pedicel chestnut yellow, flagellum black; flagellar segments with numerous erect spines, becoming more sparse and scattered on outer segments. Head brownish black; vertical tubercle very large and bulbous, with conspicuous erect pale setæ.

Mesonotum brownish black to dull black, præscutum without evident stripes; interspaces with long erect white setæ. Pleura dull black, very sparsely pruinose. Halteres brownish black throughout. Legs with coxæ and trochanters brownish black; femora yellow, base and apex darkened; tibiæ dark brown; tarsi black; claws with tooth at extreme base. Wings (Plate 1, fig. 12) with a strong brown tinge, cell Sc a little more yellowish; stigma oval, darker brown than the ground; veins brown, Sc, Cu, and veins near wing base more yellowish; vein C more incrassated opposite stigmal region. Costal macrotrichia short but abundant; trichia lacking on veins beyond cord, with exception of a restricted series on distal section of vein R_5 . Venation: R_{1+2} , R_2 , and R_{2+3} all short, subequal in length; R_{1+2} straight, in virtual longitudinal alignment with R_1 , not upcurved to costa, as common in the group; Rs about three times R_{2+3+4} ; m-cu at fork of M.

Abdomen, including hypopygium, dull black.

Habitat.—Western Java.

Holotype, male, Tjikarang, Djampang, November, 1936 (Walsh).

Hexatoma (Eriocera) nimbipennis is allied to *H. (E.) verticalis* (Wiedemann), differing especially in the almost uniform black color of the body and halteres, with no præscutum stripes.

HEXATOMA (ERIOCERA) NIMBIPENNIS STYGIPES subsp. nov.

Female.—Length, about 15 millimeters; wing, 12.

Similar to the typical form, differing as follows: Antennæ and legs entirely and uniformly black. Wings more uniformly blackened, costal region and seams along radial veins darker; stigma scarcely differentiated against the ground.

Habitat.—Western Java.

Holotype, female, Bibidjilan, Djampang, November, 1936 (Walsh).

HEXATOMA (ERIOCERA) ENAVATA sp. nov. Plate 1, fig. 13.

Belongs to the *verticalis* group; general coloration brown; antennæ (female) 10-segmented, scape and pedicel yellow, flagellum black; wings with a weak brown tinge; stigma pale brown; macrotrichia of veins beyond cord reduced in number; R_3 short, about two-thirds as long as R_{2+3+4} ; cell 1st M_2 about equal in length to vein M_{1+2} beyond it; valves of ovipositor elongate.

Female.—Length, about 9 millimeters; wing, 7.5.

Rostrum very reduced, testaceous; palpi short, brown. Antennæ (female) 10-segmented; scape and pedicel yellow, flagellum black; basal flagellar segment much more incrassated than those following, especially on basal half; flagellar segments two and three subequal in length; succeeding segments gradually decreasing in length. Head brown; vertical tubercle inconspicuous.

Mesonotum almost uniformly dark brown, posterior sclerites more pruinose; setæ of præscutum almost lacking, reduced to a few microscopic ones near suture. Pleura dark brown, sparsely pruinose. Halteres infuscated. Legs with coxæ and trochanters brown; femora obscure yellow to brownish yellow, tips weakly darkened; tibiæ and tarsi brownish black. Wings (Plate 1, fig. 13) with a weak brown tinge; stigma oval, pale brown; veins brown, C and Sc more yellowish. Macrotrichia of veins beyond cord virtually confined to a complete series on vein R_5 . Venation: Sc_1 ending about opposite r-m, Sc_2 a short distance from tip; Rs long, about twice R_{2+3+4} ; R_2 a little longer than R_{1+2} , placed before the fork, so a short element R_{3+4} is present; R_3 about two-thirds as long as R_{2+3+4} ; cell 1st M_2 about equal in length to vein M_{1+2} beyond it; m reduced; m-cu close to fork of M, longer than distal section of Cu_1 .

Abdominal tergites dark brown; basal sternites a little brightened; genital shield yellow. Ovipositor with valves long and slender, dark brown.

Habitat.—Western Java.

Holotype, female, Tjimerang, Djampang, October, 1936 (Walsh).

By Edwards's key to the Old World species of *Eriocera*⁸ the present fly runs to *Hexatoma (Eriocera) pusilla* Alexander, of Tropical Africa, which somewhat resembles the present species in general appearance but differs fundamentally in the short fleshy valves of the ovipositor. Whether the antennæ of the male sex of the present insect are elongate remains a questionable point, but from the reduced vertical tubercle of the female it seems very possible that this is not the case.

HEXATOMA (ERIOCERA) RUFICAUDA (Edwards).

Eriocera ruficauda EDWARDS, Journ. Fed. Malay St. Mus. 16 (1931) 502, 503.

The unique type was taken from Bettotan, at low altitudes in British North Borneo. A female from Pelawau berar,

⁸ Ann. & Mag. Nat. Hist. IX 8 (1921) 70-78.

Sangkoelirang district, East Borneo, taken May, 1937, by Mrs. Walsh, is very similar to the type, differing in minor regards only.

Antennæ (female) 11-segmented; basal segments obscure yellow, outer segments more darkened; antennæ shorter than combined head and thorax. Trochanters and femoral bases pale. Venation: R_{2+3} one and one-half as long as R_{2+3+4} and fully four times R_2 alone; petiole of cell M_1 about twice the cell.

HEXATOMA (ERIOCERA) AZUREA sp. nov. Plate 1, fig. 14.

General coloration velvety black; legs black, femora broadly bright yellow on basal portions; wings black, prearcular field abruptly yellow; Rs relatively short, less than R; m-cu at outer end of cell 1st M_2 ; abdomen velvety black with conspicuous deep blue shiny rings on tergites two to six, inclusive; genital shield black.

Female.—Length, about 18 millimeters; wing, 15.5.

Rostrum and palpi black. Antennæ with scape and pedicel black; flagellum broken. Head black, sparsely dusted with gray; vertical tubercle low, entire.

Thorax uniformly velvety black; vestiture of præscutum moderately long but sparse. Halteres uniformly dark brown. Legs with coxæ and trochanters brownish black; femora bright yellow on basal third to half, remainder of legs uniformly black. Wings (Plate 1, fig. 14) black, prearcular field abruptly and conspicuously light yellow; paler longitudinal streaks in cells R, M, and 1st A; veins brown, yellow in prearcular field. Macrotrichia of outer radial veins relatively abundant except at ends of veins; no trichia on outer medial branches. Venation: Rs relatively short, less than twice basal section of R_5 and shorter than R; R_{2+3+4} shorter than basal section of R_5 ; R_{1+2} long, one and one-half as long as either R_{2+3+4} or R_{2+3} ; cell M_1 lacking; m-cu at outer end of cell 1st M_2 , shorter than distal section of Cu_1 .

Abdomen velvety black, with deep blue shiny rings at mid-length of tergite two and on bases of tergites three to six, inclusive; genital shield black; cerci elongate, very gently up-curved, horn-colored.

Habitat.—Mindanao.

Holotype, female, Zamboanga; in the Museum of Comparative Zoölogy, Cambridge, Massachusetts, through gift of B. P. Clark.

Hexatoma (Eriocera) azurea is most nearly allied to *H. (E.) chalybeicineta* (Alexander), likewise from Mindanao, differing

especially in the brightened femoral bases, yellow wing base, unusually short Rs, and long R_{1+2} . The brevity of Rs approaches the condition found in *H. (E.) selene* (Osten Sacken); in all other respects the present species is a very different fly.

HEXATOMA (ERIOCERA) VIRIDIVITTATA sp. nov.

General coloration of thorax dull black, præscutum with three polished metallic green stripes; antennæ with basal flagellar segments yellow; femora yellow, tips broadly black, tibiæ dark brown throughout; wings dark brown, prearcular region pale yellow, discal area whitish; genital shield orange.

Female.—Length, about 18 millimeters; wing, 14.

Rostrum and palpi black. Antennæ (female) 9-segmented; scape and pedicel dark brown; basal four flagellar segments yellow, terminal three segments dark brown; flagellar segments gradually decreasing in length, first about one and one-half times length of second; terminal segment one and one-half times length of penultimate. Head dull black, sparsely pruinose, with black setæ; vertical tubercle low.

Pronotum black. Mesonotal præscutum dull black with three broad polished metallic green stripes, interspaces narrowed behind; setæ of interspaces relatively sparse but long; posterior sclerites of notum brownish black, centers of scutal lobes more greenish. Pleura dull black. Halteres brownish black. Legs with coxæ and trochanters black; femora light yellow, tips conspicuously blackened, on fore and middle legs including distal third; posterior legs broken; tibiæ dark brown; tarsi black. Wings strongly infumed, prearcular region broadly light yellow; a more whitish discal blotch in cells R_1 , R, and M; most cells of wing with somewhat paler central streaks to produce a slightly streaked appearance; veins stout, much more so than in *glabrivittata*, brown, yellow in pale areas. Outer radial branches with macrotrichia. Venation: Rs relatively long, about one and one-half as long as R; R_{1+2} subequal to R_{2+3} ; R_{2+3+4} shorter than basal section of R_5 ; R_2 vertical; cell 1st M_2 relatively small, shorter than any of veins beyond it; cell M_1 lacking; m-cu at near midlength of cell 1st M_2 , about one and one-half times length of distal section of Cu_1 .

Abdomen with first tergite velvety black; tergites two to seven almost entirely nacreous brown, with bluish reflections, caudal borders of segments narrowly darkened, opaque; sternites more reddish brown; genital shield orange; cerci elongate, slender, dark brown on basal half, distal ends yellow.

Habitat.—Mindanao.

Holotype, female, Zamboanga; in the Museum of Comparative Zoölogy, Cambridge, Massachusetts, through gift of B. P. Clark.

Closest to *Hexatoma (Eriocera) glabrivittata* Alexander (northern Luzon), differing in the metallic green præscutal stripes, orange genital shield, stout wing veins, and details of venation, as the longer and narrower cell 1st M_2 .

HEXATOMA (ERIOCERA) DISJUNCTA sp. nov. Plate 1, fig. 15.

General coloration black, thorax dull black; antennæ (female) 8-segmented, flagellar segments yellowish brown; terminal segment about two-thirds penultimate; setæ of præscutal interspaces relatively inconspicuous; halteres and legs black; wings strongly tinged with blackish, cell 1st A paler; two disconnected white areas before cord, one in outer end of cell R_1 , second crossing outer ends of cells R and M; wing tip narrowly yellow; veins R_{1+2} and R_{2+3+4} subequal; abdomen black, tergites subnitidous, with narrow velvety black posterior borders that become even narrower and finally evanescent on outer segments; eighth and succeeding abdominal segments orange.

Female.—Length, about 13 millimeters; wing, 10.

Rostrum and palpi black. Antennæ (female) 8-segmented; scape and pedicel black, outer flagellar segments more yellowish brown; flagellar segments gradually decreasing in length, last about two-thirds penultimate. Head dull black.

Mesonotum uniformly dull black; setæ of interspaces very short on cephalic half of præscutum, longer but still relatively inconspicuous behind. Pleura black. Halteres black throughout. Legs entirely black. Wings (Plate 1, fig. 15) with a strong blackish tinge, cell 1st A much paler, more grayish; prearcular region, base of cell C, and cell 2d A somewhat paler than ground; two entirely disconnected white discal spots of moderate size, one in outer end of cell R_1 , the other occupying both cells R and M across distal end of vein M; wing tip narrowly but conspicuously pale yellow, extending from cell R_2 to 2d M_2 ; veins dark brown. Longitudinal veins beyond cord with abundant macrotrichia. Venation: Sc_1 ending opposite r-m; R_{1+2} relatively long, subequal to R_{2+3+4} , and approximately two and one-half to three times R_{2+3} ; cell M_1 lacking; inner end of cell 1st M_2 strongly arcuated; m-cu at near four-fifths length of cell 1st M_2 ; distal section of Cu_1 rather strongly curved to margin but in longitudinal alignment with basal section.

Abdomen black, eighth and succeeding segments (female), including genital shield and valves of ovipositor, orange; tergites subnitidous, caudal margins of segments narrowly more velvety black, on intermediate segments including distal fourth or fifth of exposed portions of segments, becoming narrower on outer segments, segments five to seven almost entirely subnitidous.

Habitat.—Eastern Borneo.

Holotype, female, Pelawau berar, Sangkoelirang district, in swamp forest, May, 1937 (*Walsh*).

By Edwards's key to the Old World species of *Eriocera*⁹ the present fly runs to *Hexatoma (Eriocera) leucotela* (Walker) of Singapore, disagreeing in the wing pattern and venational details. Edwards's figure of the type specimen of *leucotela*,¹⁰ compared to the present fly, shows a single pale discal area, a much wider whitened apex, and both anal cells paler than the ground.

HEXATOMA (ERIOCERA) JUXTA sp. nov. Plate 1, fig. 16.

Allied to *disjuncta*; general coloration dull black; antennæ 8-segmented in both sexes; halteres and legs black; wings strongly suffused with blackish; a single white discal area, extending from cell R_1 into cell M; wing tip narrowly yellow; macrotrichia of veins of outer medial field sparse; abdomen polished black, broad posterior borders of segments velvety black, involving distal half to third of segments; genital shield of female black.

Male.—Length, 10 to 10.5 millimeters; wing, 8 to 8.5.

Female.—Length, 16 to 17 millimeters; wing, 11 to 12.5.

Rostrum and palpi black. Antennæ black throughout, 8-segmented in both sexes; terminal segment subequal to or a little longer than penultimate. Head black, gray pruinose.

Thorax uniformly black; setæ of præscutal interspaces relatively short and inconspicuous. Halteres and legs black. Wings (Plate 1, fig. 16) strongly suffused with blackish, cell 1st A paler; in female, axillary portion of cell 2d A similarly pale; a single white discal area, extending from cell R_1 into cell M, almost reaching vein Cu behind; wing tip narrowly yellow, involving cells R_3 to R_5 , inclusive; veins brown, paler in the brightened apical lunule. Numerous macrotrichia in outer radial field, in outer medial field more sparse and restricted to extreme outer portions of veins, especially on M_{1+2} . Venation: R_{1+2} subequal to or longer than R_{2+3+4} ; m-cu at from two-thirds to four-fifths

⁹ Loc. cit.

¹⁰ Loc. cit., pl. 10, fig. 10.

length of cell 1st M_2 ; distal section of Cu_1 deflected caudad, not in longitudinal alignment with basal section.

Abdomen black, basal half or more of each tergite polished nacreous, the broad posterior borders more velvety black, involving distal half to third, narrowest on posterior segments; hypopygium and genital segments in female black; cerci horn yellow, elongate, nearly straight.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*). Allotopotype, female. Paratopotypes, 1 male, 1 female.

Hexatoma (Eriocera) juxta is closely related to *H. (E.) disjuncta* sp. nov., both species running to the same place by the use of Edwards's key to the Old World species of the subgenus.¹¹ The present fly differs most evidently in the nature of the wing pattern, the restricted macrotrichia of the outer medial field, the much wider opaque black margins on the abdominal tergites, and the blackened genital shield of the female.

HEXATOMA (ERIOCERA) NEPALENSIS (Westwood).

Caloptera nepalensis WESTWOOD, Ann. Soc. Ent. France 4 (1835) 681.

Widely distributed in the Himalayan region, but hitherto I had seen no materials from eastern China. Males and females, Yim-Na-San, eastern Kwangtung, altitude 1,800 to 2,750 feet, June 11 to 15, 1936 (*Gressitt*).

ELEPHANTOMYIA INULTA sp. nov. Plate 1, fig. 17; Plate 3, fig. 33.

General coloration gray, præscutum with three conspicuous brown stripes; rostrum and antennæ black, the former nearly as long as body; pleura gray, variegated with darker; legs dark brown, tarsi a little paler; wings tinged with grayish, stigma scarcely darker; anterior branch of R_s nearly perpendicular at origin, gently arcuated along posterior border of stigma; branches of R_s strongly divergent, cell R_3 at margin very wide; cell 1st M_2 large; abdominal segments more or less bicolored; hypopygium light yellow.

Male.—Length, excluding rostrum, 4.5 to 5 millimeters; wing, 5.5 to 6.5; rostrum, 4 to 4.5.

Rostrum approximately as long as body (in male), black throughout. Antennæ black, scape and pedicel more or less pruinose; verticils of outer segments moderately long. Head dark gray; anterior vertex nearly three times diameter of scape.

¹¹ Loc. cit.

Pronotum gray. Mesonotal præscutum gray with three conspicuous brown stripes; scutal lobes dark brown, median area pale; scutellum broad, dark brown; mediotergite paler brown. Pleura gray, variegated with dark brown on anepisternum and ventral sternopleurite. Halteres pale, knobs very weakly darkened to obscure yellow. Legs with coxæ dark; trochanters brownish black; remainder of legs dark brown, tarsi paling to obscure yellow. Wings (Plate 1, fig. 17) tinged with grayish, stigma scarcely darker; veins pale brown. Sparse trichia on anterior branch of Rs, much more abundant on vein R_5 and all outer branches of M. Venation: Sc_1 ending opposite fork of Rs, Sc_2 at tip; Rs in alignment with basal section of R_5 ; anterior branch of Rs very strongly arcuated to nearly perpendicular at origin, thus running relatively close to vein R_1 , as in *Elephantomyodes*, but arcuated along posterior border of stigma; branches of Rs widely divergent, cell R_3 at margin thus very wide; vein M at origin arched cephalad, greatly narrowing cell R above it; cell 1st M_2 large, rectangular, nearly as long as vein M_{1+2} beyond it; m-cu at near one-fourth length of cell, a little shorter than distal section of Cu_1 ; cell 2d A wide.

Abdomen short, bicolored, dark brown, caudal margins of intermediate segments pale, of sternites much more broadly so; subterminal segments dark brown; hypopygium pale yellow. One paratype shows the abdominal segments much more unicolorous, tergites brown, sternites a trifle paler. Male hypopygium (Plate 3, fig. 33) with outer dististyle, *od*, bidentate at apex, distal fourth with microscopic spines. Inner dististyle, *id*, longer, entirely pale, gradually narrowed to blunt tip. What appears to represent the lateral arms of the tergite are flattened elongate pale blades, their tips obtuse, contiguous or decussate on median line with the mate of opposite side. Phallosome very pale, relatively short, lateral pale apophyses straight; ædeagus not a coiled penefilum as in typical *Elephantomyia*.

Habitat.—Assam (Khasi Hills).

Holotype, male, Cherrapunji, altitude 4,000 feet, May, 1936 (*Sircar*). Paratopotypes, 3 males.

The only other Oriental *Elephantomyia*, s. s., is *Elephantomyia* (*Elephantomyia*) *pendleburyi* Edwards (Malay Peninsula, Borneo), an entirely different fly. The venation of the radial field of the present insect much suggests the subgenus *Elephantomyodes*, but I prefer to consider the insect a true *Elephantomyia* though aberrant.

ERIOPTERINI

CLYDONODOZUS XANTHOPTERA sp. nov. Plate 1, fig. 18.

Mesonotal præscutum and scutum brownish yellow, darker laterally; head grayish white; scutellum brownish black to black; pleura black, heavily dusted with silvery; halteres yellow; legs yellow, femora with a blackened subterminal ring; wings yellow, with a restricted dark-brown pattern; R_{2+3+4} preserved as a short element; abdomen yellow, with a narrow lateral black stripe.

Male.—Length, about 13 millimeters; wing, 10.

Female.—Length, about 14 to 15 millimeters; wing, 11 to 11.5.

Rostrum dark brown; palpi 4-segmented, outer two segments shortest, crowded; basal segments brownish yellow, outer two segments black. Antennæ with scape brown, very sparsely pruinose; pedicel yellow, flagellum brownish black; flagellar segments cylindrical, with long conspicuous verticils that much exceed segments in length. Head heavily dusted with grayish white, most conspicuous on wide anterior vertex; postgenæ less heavily dusted.

Mesonotal præscutum and scutum brownish yellow, polished, central portion paler; a small black lateral spot behind transverse suture; scutellum brownish black to black, parascutella pale; mediotergite brown. Pleura black, very heavily dusted with silvery. Halteres yellow, stem a little more obscurely so than knob. Legs with coxæ black basally, pruinose, apices paling to brownish yellow; trochanters obscure yellow; femora yellow, with a conspicuous brownish black ring immediately before apex; tibiæ and basal four tarsal segments uniformly pale yellow, terminal segment darkened. Wings (Plate 1, fig. 18) strongly suffused with yellow, costal region more saturated; small dark-brown spots and seams as follows: Interrupted series along cord and outer end of cell 1st M_2 ; arculus; origin of R_s ; Sc_2 ; tip of vein R_3 ; fork of M_{1+2} ; paler marginal clouds at ends of veins M_1 , M_2 , and M_3 ; a paler brown longitudinal wash in cell 1st A at near midlength of vein; veins yellow, dark brown in infuscated portions. Venation: Cell C wide, especially in male; R_s angulated and short-spurred at origin; R_3 in longitudinal alignment with R_s , leaving a short element representing R_{2+3+4} ; vein R_4 decurved at apex; cell 1st M_2 relatively small; cell M_1 subequal in length to its petiole.

Abdomen yellow, with a narrow lateral black stripe; hypopygium yellow.

Habitat.—Eastern Borneo.

Holotype, male, Batanbessi, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*). Allotype, female, Pelawau berar, Sangkoelirang district, May, 1937. Paratopotype, 1 female.

From the species of *Clydonodozus* hitherto made known from the East Indian islands, including *C. curvinervis* Edwards (North Borneo), *C. griseiceps* de Meijere (Simalur), *C. multistriatus* Enderlein (Sumatra), and *C. punctulatus* Edwards (Sumatra), the present fly differs in the combination of characters as diagnosed above, notably the coloration of antennæ, head, mesonotum, and legs. It is apparently closest to *curvinervis*, differing in the coloration of the head, legs, halteres, wings, and abdomen.

LIPSOTHRIX ASSAMICA sp. nov. Plate 1, fig. 19.

Thorax entirely pale yellow, unmarked; antennæ (male) relatively long, if bent backward extending about to the wing root; halteres yellow throughout; wings subhyaline, prearcular and costal regions clear light yellow; complete series of macrotrichia on all longitudinal veins beyond cord; R_{2+3+4} and anterior branch of Rs subequal; basal section of R_5 angulated and weakly spurred at near midlength; cell M_2 open by atrophy of m; cell M_3 about twice its petiole; m-cu at fork of M; cell 2d A relatively wide; abdominal tergites brownish black, caudal and lateral margins of segments yellow; basal sternites clear light yellow, outer segments uniformly blackened.

Male.—Length, about 5.5 millimeters; wing, 6.3.

Rostrum obscure yellow; palp brownish black. Antennæ (male) relatively long, if bent backwards extending to wing root; scape and pedicel yellow; basal segment of flagellum brownish yellow, succeeding segments black; flagellar segments subcylindrical, with an abundant white pubescence; verticils sparse, shorter than segments. Head yellow.

Mesonotum and pleura entirely pale yellow, unmarked. Halteres yellow throughout, stem relatively slender. Legs with coxæ and trochanters pale yellow; remainder of legs broken. Wings (Plate 1, fig. 19) subhyaline, prearcular and costal region clear light yellow; stigmal area scarcely darkened and entirely undelimited; veins brown, those in the yellow areas luteous. Costal fringe short; complete series of macrotrichia on all longitudinal veins beyond cord. Venation: Sc_1 ending shortly before fork of Rs, Sc_2 at its tip; Rs relatively long, about one-third longer than R_{2+3+4} ; R_{1+2} and R_2 subequal, both very pale to nearly evanescent, former about twice as long as R_{2+3} ; R_{2+3+4} unusually

long, subequal to entire anterior branch of Rs; basal section of R_5 angulated and weakly spurred at near midlength; cell M_2 open by atrophy of m; cell M_3 about twice its petiole; m-cu at fork of M; cell 2d A relatively wide.

Abdominal tergites brownish black, caudal and lateral margins of intermediate segments yellow, the amount increasing on segments five and six; outer segments uniformly blackened; basal sternites clear light yellow; hypopygium brownish yellow.

Habitat.—Assam (Khasi Hills).

Holotype, male, Cherrapunji, altitude 4,000 feet, May, 1936 (*Sircar*).

Lipsothrix assamica is readily told from all described Asiatic species by the venation, especially the subequal R_{2+3+4} and anterior branch of Rs, and by the open cell M_2 .

TRENTEPOHLIA (PLESIOMONGOMA) CALLINOTA sp. nov. Plate 1, fig. 20.

Mesonotal præscutum yellow, color almost obliterated by blackened areas; median præscutal stripe with central portion of anterior half more reddish brown; flagellar segments long-cylindrical, about four times as long as thick; all tibiæ white, with a slightly indicated dark ring on basal third; wings whitish subhyaline, prearcular and costal portions clearer yellow, including veins; wing tip infuscated.

Female.—Length, about 11 millimeters; wing, 6.5.

Rostrum and palpi black. Antennæ with scape and pedicel brownish black, a little paler beneath; basal three or four flagellar segments brown, remainder black; antennæ relatively long, flagellar segments cylindrical, approximately four times as long as thick; terminal segment about one and one-fourth length of penultimate. Head behind yellow, with a paler median carina that is a caudal elongation of the narrow anterior vertex.

Cervical region dark brown. Pronotum brownish black. Mesonotal præscutum with the restricted ground color yellow, surface almost covered by dark; median stripe brownish black, central portion on anterior half paling to reddish brown; entire lateral margin of præscutum broadly polished black, including humeral region, as well as widened posterior portions, crossing suture and including scutal lobes; median area of scutum yellow; scutellum infuscated, restrictedly pale on caudal border; mediotergite black. Pleura and pleurotergite light yellow, ventral sternopleurite darkened. Halteres brownish black, extreme base of stem pale. Legs with all coxæ and trochanters pale yellow; femora yellow basally, deepening to brown outwardly,

tips abruptly and rather broadly (about 1 millimeter) snowy white; tibiæ white, slightly infuscated just beyond base, the amount including about one-third to one-fourth total length of segment; tarsi white, outer segments a trifle darkened; femora and tibiæ without spines but with scattered long black setæ. Wings (Plate 1, fig. 20) narrow; whitish subhyaline, prearcular and costal regions clearer yellow; stigma small, dark brown; wing tip conspicuously infuscated; scarcely evident darkenings at origin of R_s and on $m-cu$; veins dark brown, yellow in luteous areas. Venation: Sc_1 ending shortly before R_2 , latter subequal to R_{1+2} .

Abdominal tergites brownish black, paler laterally; sternites paler brown, subterminal sternite black; genital segment obscure yellow.

Habitat.—Eastern Borneo.

Holotype, female, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*).

Trentepohlia (Plesiomongoma) callinota is most similar to *T. (P.) candidipes* Edwards, of the Malay Peninsula, differing especially in the coloration of the thorax, legs, and wings, and in the structure of the antennæ.

GONOMYIA (LIPOPHLEPS) PHORACANTHA sp. nov. Plate 1, fig. 21; Plate 3, fig. 34.

Belongs to the *nubeculosa* group, allied to *pallidisignata*; general coloration plumbeous black; scutellum yellow, with a darkened median spot at base; pleura with a narrow pale longitudinal stripe; femoral rings broad, black; wings infumed, variegated with white; cell R_1 relatively wide; male hypopygium with inner dististyle bearing a slender spine at base; phallosome consisting of two simple curved spines arising from complex basal rods and plates.

Male.—Length, about 3 millimeters; wing, 3.2.

Rostrum and palpi black. Antennæ with basal segments yellow above, darker beneath; flagellum black, with very long verticils. Head yellow, center of vertex darkened.

Lateral pretergites narrowly pale yellow. Mesonotal præscutum and scutum plumbeous black; scutellum bright yellow, base darkened on median portion, parascutella black; mediotergite plumbeous black. Pleura almost uniformly plumbeous black, with a narrow and ill-defined whitish longitudinal stripe extending from and including fore coxæ, reaching base of abdomen. Halteres yellow, knobs darkened basally above. Legs with fore and hind coxæ pale, midcoxæ black with the apices restrictedly

pale; trochanters yellow; femora brownish yellow with a broad black subterminal ring, preceded and followed by much narrower, clearer yellow rings; tibiæ and tarsi obscure yellow, outer tarsal segments more darkened; claws simple. Wings (Plate 1, fig. 21) strongly suffused with brown, prearcular field, broad costal border, wing tip, and distal ends of outer medial and cubital cells white; a small darker brown spot at tip of Sc and origin of Rs; stigma brown, a trifle darker than ground color; veins brown, whitened in ground color. Venation: Sc₁ ending immediately beyond origin of Rs, Sc₂ at its tip; Rs and R₂₊₃₊₄ somewhat distant from R₁, so cell R₁ is relatively wide; vein R₃ nearly perpendicular; cell R₂ at margin more extensive than cell R₃; m-cu at fork of M.

Abdomen black, caudal borders of outer tergites pale; hypopygium dark. Male hypopygium (Plate 3, fig. 34) with outer dististyle, *od*, a simple darkened, gently curved rod, with a weak flange on mesal face of basal half. Inner dististyle, *id*, pale, with a conspicuous pale spine at base, this spine about one-fourth length of outer dististyle. Phallosome, *p*, consisting of two slender simple curved spines about one-half length of outer dististyle, arising from a complex series of blackened rods and plates, as illustrated.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*).

The nearest ally of the present fly is *Gonomyia (Lipophleps) pallidisignata* Alexander (Luzon), which has the hypopygium somewhat similar in construction, the inner dististyle having a conspicuous basal spine forming an apparent additional or intermediate dististyle. The present fly differs from *pallidisignata* in the details of coloration but especially in the phallosome, the outer rods consisting of straight, daggerlike points from an inconspicuous sclerotized basal scaffolding. *G. (L.) nubeculosa* de Meijere is again quite distinct, the inner dististyle being unarmed and the phallosome again different, the outer rods being long and powerful, subequal in length and size to the outer dististyle.

STYRINGOMYIA REDUCTA sp. nov. Plate 1, fig. 22; Plate 3, fig. 35.

General coloration black, including halteres and legs; setæ of head and mesonotum relatively small and weak; wings with a strong blackish tinge; anterior branch of Rs oblique, unusually long, nearly one-half as long as Rs alone; m-cu a trifle more

than its own length beyond fork of M; vein 2d A simple; male hypopygium without spines on basistyle; dististyle complex, outer arm unusually reduced in size; ædeagus with distal end resembling head of a sea horse.

Male.—Length, about 6 millimeters; wing, 5.2.

Rostrum and palpi black. Antennæ with the scape and pedicel obscure yellow beneath, remainder of organ black. Head obscure yellow, variegated with brown, including a large area in center of posterior vertex; setæ inconspicuous.

Pronotum very pale yellow, darkened in the depressed central portion. Lateral pretergites pale yellow. Mesonotal præscutum black, surface dull, sparsely pruinose; restricted humeral region orange-yellow; setæ relatively small and inconspicuous; posterior sclerites of notum dark, central portion of scutellum and lateral portions of mediotergite a little paler; scutellum with erect setæ. Pleura dull black. Halteres and legs black throughout. Wings (Plate 1, fig. 22) with a strong blackish tinge, base vaguely paler; veins dark brown. Costal fringe of moderate length. Venation: Anterior branch of Rs oblique, unusually long, nearly one-half as long as Rs alone; cell 2d M₂ barely sessile; m-cu a trifle more than its own length beyond fork of M; vein 2d A long and simple.

Abdomen, including hypopygium, black throughout; segments with abundant dense erect setæ. Male hypopygium (Plate 3, fig. 35) without spines on basistyle, *b*. Dististyle with the outer arm, *od*, unusually reduced, only about one-half as long as longest lobe of intermediate style, very slender, setæ correspondingly small and weak; intermediate arm, *md*, long, stout, cylindrical, with numerous coarse setæ, at base with a blackened mushroom-shaped lobe; inner arm, *id*, elongate, pale, gradually narrowed to a short blackened point, surface with abundant long delicate setæ; at base of style a cylindrical blackened lobe. A further appendage, apparently of the dististyle, appears as a strongly curved dark arm superimposed against basistyle. Ædeagus, *a*, resembling head of a sea horse, *Hippocampus*, crown with two small black spines, surface with abundant setæ.

Habitat.—Mindanao.

Holotype, male, Mount Apo, Galog River, altitude 6,000 feet, October 1, 1930 (*Clagg*).

Styringomyia reducta is entirely distinct from the other described black species of the genus that have the legs and halteres

uniformly black. The male hypopygium shows very distinct structural features.

STYRINGOMYIA GEMINATA sp. nov. Plate 1, fig. 23; Plate 3, fig. 36.

General coloration of notum brownish yellow, variegated with brown; antennal flagellum black throughout; knobs of halteres yellow; legs yellow, ringed with brown, rings complete and well-defined; wings yellow with many of the veins black; anterior branch of Rs relatively short, oblique; abdominal tergites bicolored, yellow, caudal margins dark brown; male hypopygium with basistyle terminating in two slender spinous setæ that arise from a single low tubercle; sternite narrow, two setæ placed close together at apex.

Male.—Length, about 8.5 millimeters; wing, 5.2.

Female.—Length, about 6 millimeters; wing, 4.5.

Rostrum pale; palpi black. Antennæ with scape yellow above, blackened beneath; remainder of organ black; flagellar segments cylindrical, with conspicuous verticils. Head chiefly ochreous, with conspicuous setæ, some modified.

Mesonotal præscutum brownish yellow, with dark markings especially on posterior half; scutal lobes yellow, their posterior margins brown; scutellum yellow, bordered posteriorly by black; mediotergite black, paler laterally; mesonotum with some erect modified setæ. Pleura variegated yellow and black, pale yellow ventrally. Halteres with knob and base of stem yellow, remainder of stem darkened. Legs with coxæ and trochanters pale yellow; remainder of legs yellow, conspicuously ringed with brown, as common in the genus, rings complete and well-delimited. Wings (Plate 1, fig. 23) with a strong yellow tinge; veins yellow, following veins black: Anterior branch of Rs; r-m; M and its outer branches; m-cu; tips of veins R₅ to 2d A, inclusive, on last-named vein including about distal half; a distinct cloud surrounding r-m. Costal fringe erect, conspicuous. Venation: Anterior branch of Rs relatively short, oblique; cell 2d M₂ barely sessile.

Abdominal tergites bicolored, segments yellow, conspicuously ringed caudally with dark brown, central portion of basal ring very faintly suffused with dusky; sternites yellow, caudal margins of segments faintly darkened. Male hypopygium (Plate 3, fig. 36) with apex of basistyle, *b*, bearing a low tubercle that terminates in two long slender black setæ. Dististyle, *d*, with outer arm, *od*, uniformly blackened, with weak setæ. Tergite,

t, with apical lobe broadly and evenly rounded, densely setulose. Sternite, *s*, narrow, with two long apical setæ, these placed less than their own width apart.

Habitat.—Eastern Borneo.

Holotype, male, Pelawau berar, Sangkoelirang district, in swampy forest, May, 1937 (*Walsh*). Allotopotype, female.

From the other members of the genus *Styringomyia* having bispinous basistyles, including *S. acuta* Edwards, *S. armata* Edwards, *S. claggi* Alexander, *S. curvispina* Edwards, *S. ensifera* Edwards, *S. holomelania* Alexander, *S. spathulata* Alexander, and probably *S. transversa* Edwards, the present fly is readily told by the structure of the male hypopygium, especially the location of both spines on a common tubercle. The other species, with the exception of the entirely distinct *holomelania*, have these spines arising from individual tubercles and further have the details of the dististyle quite distinct.

STYRINGOMYIA ANGUSTITERGATA sp. nov. Plate 1, fig. 24; Plate 3, fig. 37.

General coloration yellow, variegated with brown; antennal flagellum yellow; dark rings on legs incomplete; wings yellow, with a restricted dark pattern; vein 2d A simple, its distal fourth blackened; male hypopygium with spine of basistyle single, flattened, shorter than its long basal tubercle; tergite with terminal lobe long and narrow, with a dense clothing of long erect setæ; sternite terminating in two short blackened points, separated by a U-shaped median notch, modified setæ subapical.

Male.—Length, about 7 millimeters; wing, 5.

Female.—Length, about 6 millimeters; wing, 4.6.

Rostrum yellow; palpi bicolored, ringed yellow and brown. Antennæ with scape yellow, especially above; pedicel pale brown; flagellum yellow. Head yellow; bristles proclinate, moderately stout.

Pronotum yellow medially, darkened on sides. Mesonotal præscutum chiefly yellow, anterior third a little more darkened, posterior portion nearly clear, median stripe delimited only in front, becoming obsolete behind; lateral stripes reduced to small dark spots at suture; scutum yellow, each lobe with two small isolated brown areas; scutellum yellow, with two erect setæ; mediotergite weakly darkened. Pleura pale yellow. Halteres yellow. Legs with coxæ and trochanters yellow; remainder of legs pale yellow with the usual dark rings on femora and tibiæ, these narrow and interrupted on lower faces of segments; tips of tibiæ and individual tarsal segments darkened. Wings (Plate

1, fig. 24) pale yellow, with a restricted dark pattern on veins, as follows: r-m, involving the adjoining portion of membrane; m-cu; outer end of cell 1st M_2 ; distal fourth of vein 2d A; veins very pale yellow, darkened as described. Venation: Anterior branch of Rs oblique; r-m just beyond fork of Rs, basal section of R_5 short to virtually lacking; cell 2d M_2 very short-petiolate to virtually sessile; m-cu close to midlength of cell 1st M_2 ; vein 2d A simple but with tip bent strongly into margin.

Abdominal tergites yellow with small paired dark spots before midlength and with caudal border insensibly darkened; on subterminal segments the brown more extensive to form a continuous median vitta; in the female the pattern heavier, consisting of two pairs of dark spots as described; sternites more uniformly yellow. Male hypopygium (Plate 3, fig. 37) with the spine of basistyle, *b*, single, relatively short and flattened, arising from a long basal tubercle that exceeds it in length. Dististyle, with outer arm, *od*, long, outer margin darkened; remainder of dististyle as figured, intermediate arm, *md*, produced into a long spine, inner arm with two shorter stout blackened points. Tergite, *t*, with terminal lobe unusually long and narrow, its length many times its greatest width, surface squamose, with abundant erect setæ, all exceeding width of blade. Sternite, *s*, depressed, apex with two short blackened points, separated by a small U-shaped notch, usual paired setæ placed subapically.

Habitat.—Philippine Islands.

Holotype, male, Calanag; in the Museum of Comparative Zoölogy, Cambridge, Massachusetts, through Dr. Nathan Banks. Allotopotype, female. Paratopotype, female.

Styringomyia angustitergata is quite distinct from all known species of the genus. The structure of the male hypopygium, especially of the tergite and sternite, readily separates the fly from all described allies.

ILLUSTRATIONS

[a, *Ædeagus*; b, *basistyle*; d, *dististyle*; dd, *dorsal dististyle*; g, *gonapophysis*; id, *inner dististyle*; md, *intermediate lobe of dististyle*; od, *outer dististyle*; p, *phallosome*; s, *sternite*; t, *tergite*; vd, *ventral dististyle*.]

PLATE 1

- FIG. 1. *Eutanyderus oreonympha* sp. nov., venation.
2. *Dolichozeza* (*Orozeza*) *fokiensis* sp. nov., venation.
3. *Tipula* (*Schummelia*) *bicolorata* sp. nov., venation.
4. *Limonia* (*Libnotes*) *citrivena* sp. nov., venation.
5. *Limonia* (*Geranomyia*) *torta* sp. nov., venation.
6. *Helius* (*Helius*) *pavoninus* sp. nov., venation.
7. *Helius* (*Helius*) *ctenonycha* sp. nov., venation.
8. *Helius* (*Helius*) *nigricapella* sp. nov., venation.
9. *Gynoplistia* (*Gynoplistia*) *albizonata* sp. nov., venation.
10. *Hexatoma* (*Eriocera*) *perornata* sp. nov., venation.
11. *Hexatoma* (*Eriocera*) *perlunata* sp. nov., venation.
12. *Hexatoma* (*Eriocera*) *nimbipennis* sp. nov., venation.
13. *Hexatoma* (*Eriocera*) *enavata* sp. nov., venation.
14. *Hexatoma* (*Eriocera*) *azurea* sp. nov., venation.
15. *Hexatoma* (*Eriocera*) *disjuncta* sp. nov., venation.
16. *Hexatoma* (*Eriocera*) *juxta* sp. nov., venation.
17. *Elephantomyia* *inulta* sp. nov., venation.
18. *Clydonodozus* *xanthoptera* sp. nov., venation.
19. *Lipsothrix* *assamica* sp. nov., venation.
20. *Trentepohlia* (*Plesiomongoma*) *callinota* sp. nov., venation.
21. *Gonomyia* (*Lipophleps*) *phoracantha* sp. nov., venation.
22. *Styringomyia* *reducta* sp. nov., venation.
23. *Styringomyia* *geminata* sp. nov., venation.
24. *Styringomyia* *angustitergata* sp. nov., venation.

PLATE 2

- FIG. 25. *Dolichozeza* (*Orozeza*) *fokiensis* sp. nov., male hypopygium.
26. *Tipula* (*Schummelia*) *bicolorata* sp. nov., male hypopygium, lateral aspect.
27. *Tipula* (*Schummelia*) *bicolorata* sp. nov., male hypopygium, tergite.
28. *Limonia* (*Libnotes*) *citrivena* sp. nov., male hypopygium.
29. *Limonia* (*Geranomyia*) *torta* sp. nov., male hypopygium.
30. *Helius* (*Helius*) *pavoninus* sp. nov., male hypopygium.
31. *Helius* (*Helius*) *ctenonycha* sp. nov., male hypopygium.
32. *Helius* (*Helius*) *nigricapella* sp. nov., male hypopygium.

PLATE 3

- FIG. 33. *Elephantomyia* *inulta* sp. nov., male hypopygium.
34. *Gonomyia* (*Lipophleps*) *phoracantha* sp. nov., male hypopygium.
35. *Styringomyia* *reducta* sp. nov., male hypopygium.
36. *Styringomyia* *geminata* sp. nov., male hypopygium.
37. *Styringomyia* *angustitergata* sp. nov., male hypopygium.

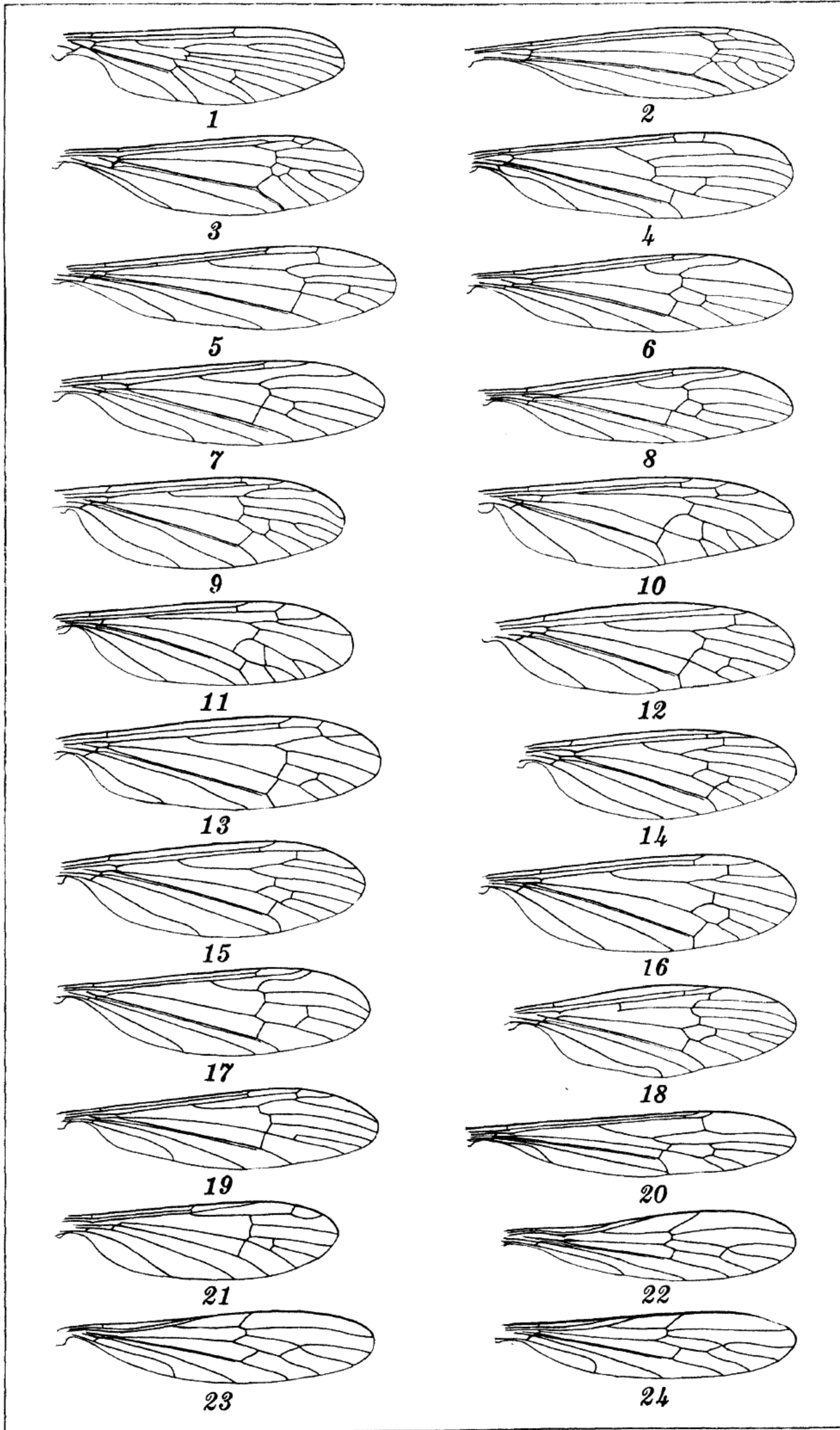


PLATE 1.



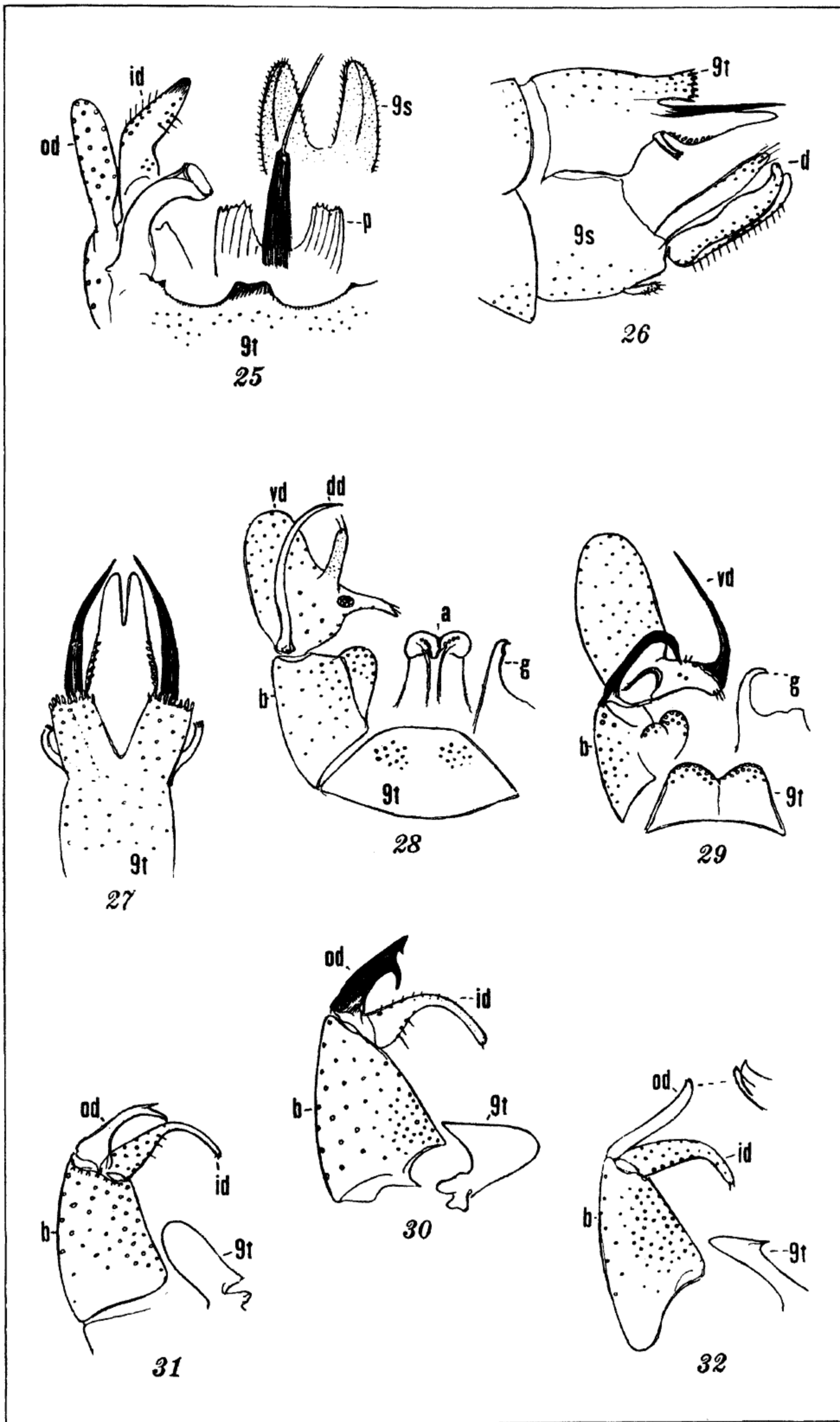


PLATE 2.

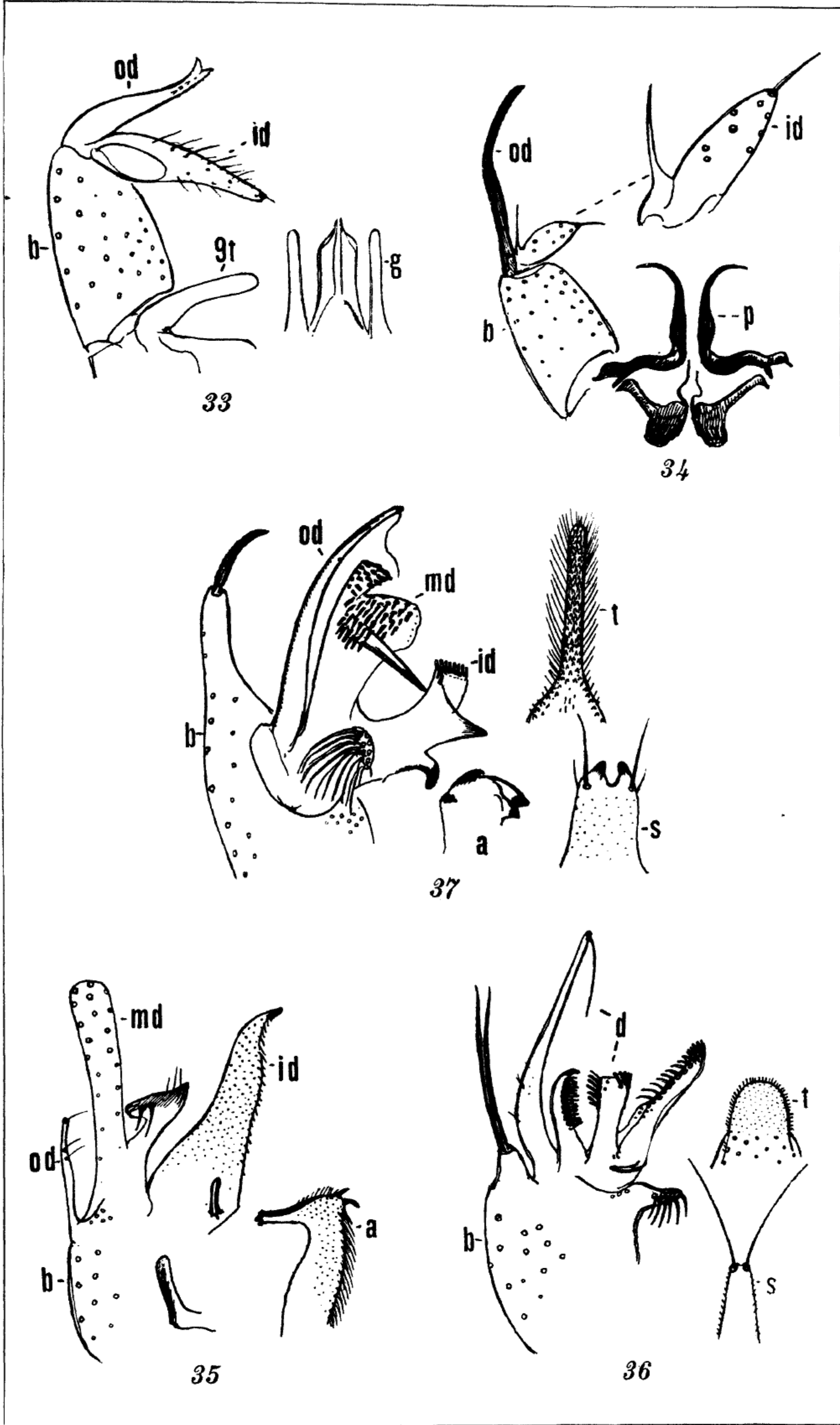


PLATE 3.