

NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN
ASIA (DIPTERA), XV¹

By CHARLES P. ALEXANDER
Of Amherst, Massachusetts

TWO PLATES

The very interesting Tipulidæ discussed herein have been derived from a variety of sources. The unusually valuable collections from eastern Siberia, belonging to the zoölogical museum of the Russian Academy of Sciences, Leningrad, were included in rich series of these flies submitted to me for determination by Drs. Theodore Pleske and A. von Stackelberg, to whom I express my sincere thanks and appreciation for the opportunity of extending our knowledge of the Tipulidæ to the northward in eastern Asia. All types resulting from these materials are in the zoölogical museum of the Russian Academy of Sciences. The material from China is chiefly from the rich Graham collections in the United States National Museum, with other species in my own collection, collected by Messrs. Franck and Kellogg. The Japanese Tipulidæ were collected by Messrs. Esaki, Kariya, and Nakamura, the Esaki material being returned to Doctor Esaki for preservation in the entomological collection of Fukuoka Imperial University, the other specimens in my own collection through the continued kindly interest of the collectors.

TIPULINÆ

TIPULA (ACUTIPULA) BIPENICILLATA Alexander. Plate 2, fig. 25.

Tipula bipenicillata ALEXANDER, Philip. Journ. Sci. 24 (1924) 603-604.

The types were from Saghalien Island, collected by Esaki. Two additional males were taken at Ozenuma, Fukushima, Honshiu, Japan, July 28 and 29, 1931, by Nakamura, greatly extending the range of the fly.

The peculiar conformation of the inner dististyle (Plate 2, fig. 25, *id*) of the male hypopygium renders the fly easily recognizable. The rostral portion of the style is blackened and

¹Contribution from the entomological laboratory, Massachusetts State College.

provided with small setæ; in the notch between this projection and the apical lobe extends a long slender pale rod. The outer dististyle (Plate 2, fig. 25, *od*) is broad, dilated at midlength, with sparse setæ that are chiefly marginal in distribution, as is common in the subgenus. Eighth sternite across caudal portion nearly straight or only slightly emarginate, with two widely separated groups or pencils of setæ.

TIPULA (ACUTIPULA) DESIDIOSA *sp. nov.* Plate 2, fig. 26.

General coloration of mesonotum gray, the præscutum with an intermediate pair of more grayish brown stripes; pleura light yellow, the anepisternum and ventral sternopleurite light gray; legs black, only the femoral bases narrowly brightened; wings grayish, almost immaculate, the usual dark spot in cell Cu very faintly indicated; bases of outer radial cells darkened; a conspicuous oblitative streak before cord; median lobe of ninth tergite of male hypopygium weakly notched at apex, set with abundant black spines.

Male.—Length, about 16 millimeters; wing, 17.5.

Frontal prolongation of head dark dorsally, somewhat brighter laterally; nasus elongate; palpi with basal segment dark brown, the succeeding segments much paler, the distal portion of last segment broadly dark brown. Antennæ with scape and pedicel light yellow; flagellum black, the basal portion of the first segment paler; verticils elongate. Head gray, with extremely vague indications of a darker median vitta.

Pronotum ocher-yellow. Mesonotal præscutum light gray, with an intermediate pair of more grayish brown stripes, in addition to paler brown lateral stripes; scutum light gray, the lateral portions of the lobes marked with grayish brown, the areas of the two lobes thus being unusually widely separated. Pleura light yellow, the anepisternum and ventral sternopleurite light gray; dorsopleural region buffy yellow. Halteres with stem dark brown, the base narrowly light yellow, the knob paler apically. Legs with the fore coxæ gray pruinose, yellow apically; remaining coxæ light yellow; trochanters yellow; legs black, only the very narrow femoral bases obscure yellow, broadest on the forelegs where about the basal fifth is brightened, on the hind legs the bright color almost obsolete. Wings with a grayish tinge, the stigma brown; a conspicuous whitish oblitative streak before cord, extending from before stigma into the base of cell M_3 ; bases of radial cells beyond cord, together with outer portion of cell M, a little infumed; a vague indication of a brownish cloud before midlength of cell Cu; veins

brown. Venation: Rs a trifle longer than m-cu; M_{3+4} and basal section of M_3 subequal.

Basal abdominal tergites yellow, narrowly and interruptedly trivittate with dark brown, the lateral margins of the segments broadly buffy, on fifth and succeeding segments, the color passing into dark brownish gray; hypopygium dark; basal sternites yellow, the remainder dark. Male hypopygium with the median lobe of tergite, 9t, long and slender, very weakly notched at apex, set with abundant black spicules. Outer dististyle, *od*, narrow at base, strongly curved and expanded outwardly, the surface with microscopic pale setæ only. Inner dististyle, *id*, with two beaklike portions, the outer ending in a triangular point and provided with numerous strong setæ; apex of style broadly and obtusely rounded, with a dense group of long setæ. Eighth sternite slightly produced and compressed medially.

Habitat.—China-Tibet border.

Holotype, male, Yin-Kuan-Tsai, altitude 13,000 to 15,000 feet, July 25, 1930 (*Graham*).

Tipula (*Acutipula*) *desidiosa* is clearly different from the other regional species of the subgenus. At first sight the species appears to fall in the group of clear-winged species allied to *munda*, but there is a distinct though very faint wing pattern, including the characteristic dark cloud in cell Cu. The nearest ally appears to be *T. (A.) kuzuensis* Alexander (Japan), which is distinct in the details of the male hypopygium, especially of the dististyles, the outer bearing a brush of long coarse setæ on margin near base.

TIPULA (ACUTIPULA) ONCERODES sp. nov. Plate 1, fig. 1; Plate 2, fig. 27.

Size large (wing over 25 millimeters); general coloration of mesonotal præscutum obscure yellow, with four brown stripes; antennal flagellum bicolorous; thoracic pleura yellow; wings tinged with brown, with a conspicuous whitish obliterative streak before cord; no dark spot in cell Cu; abdominal tergites obscure yellow, with a conspicuous sublateral brown stripe, the outer segments uniformly blackened; median lobe of tergite of male hypopygium simple.

Male.—Length, 25 to 27 millimeters; wing, 26 to 28; hind leg (type), femur, 20; tibia, 24.5; basitarsus, 32.

Frontal prolongation of head dark brown, narrowly reddish brown sublaterally above; nasus elongate; palpi brownish black. Antennæ relatively short, only a little longer than the palpi; scape obscure brownish yellow, weakly pruinose above; pedicel obscure yellow; flagellum bicolorous, the basal enlargements

brownish black, the remainder brownish yellow; verticils elongate. Head dark grayish brown; anterior vertex relatively narrow, about twice the diameter of scape.

Posterior pronotum dark brown. Mesonotal præscutum obscure yellow, with four dark brown stripes, the intermediate pair widely separated on more than the anterior half, converging behind, confluent at suture; posterior sclerites of mesonotum chiefly dark brown; dorsal pleurotergite restrictedly darkened, the remainder light yellow. Pleura entirely light yellow. Halteres dark brown, the extreme base of stem yellowish, the apex of knob whitish. Legs with the coxæ and trochanters light yellow; femora brownish yellow, the tips narrowly blackened, the amount nearly equal on all legs, being a trifle less on posterior femora; tibiæ and tarsi brownish black. Wings (Plate 1, fig. 1) tinged with brownish, especially in the outer radial field; stigma and costal region darker brown than the ground; a conspicuous whitish oblitative streak before cord, crossing cell 1st M_2 into base of M_3 ; vein Cu at junction of m-cu vaguely suffused with brown; no dark spot in cell Cu; veins brown. Venation: Rs and m-cu subequal, the latter a short distance before the fork of M_{3+4} ; vein R_{4+5} deflected caudad on outer portion, ending just behind the wing tip; basal section of M_{3+4} subequal to or shorter than the basal section of M_3 .

Abdominal tergites obscure yellow, with a conspicuous sublateral brown stripe that is very narrowly broken by pale at caudal margins of segments; on fifth and succeeding tergites, the segments almost uniformly blackened; caudal margins of tergites very narrowly, lateral margins a little more broadly pale; sternites yellow, the outer segments dark brown; outer dististyle pale yellow. Male hypopygium with the median lobe of tergite broad-based, narrowed to the simple apex, which is set with abundant small black spicules. Outer dististyle (Plate 2, fig. 27, *od*) relatively narrow, a little dilated at midlength, the apex truncated. Inner dististyle, *id*, with a small dark-colored fingerlike lobe on outer margin at near two-thirds the length. Eighth sternite with a small U-shaped median incision that is bordered by weak setæ that are not arranged in brushes or pencils.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude, 3,500 feet, August 16, 1931 (*Franck*). Paratopotypes, males, August 14 to 16, 1931.

Tipula (*Acutipula*) *oncerodes* is allied to species such as *T.* (*A.*) *bipenicillata* Alexander, *T.* (*A.*) *biramosa* Alexander, and

T. (A.) tokionis Alexander, having the median lobe of the ninth tergite of the male hypopygium simple, and with the wings nearly immaculate, lacking any dark spot in cell Cu. The species is readily told from all such allied forms by its large size and structure of the male hypopygium, especially of the inner dististyle and the armature of the eighth sternite.

TIPULA (ACUTIPULA) LATIFASCIATA sp. nov. Plate 1, fig. 2.

Allied to *atuntzuensis*; general coloration olive-gray, the præscutum with four brown stripes; antennal flagellum almost uniformly blackish, scape and pedicel yellow; femora yellow, the tips narrowly and abruptly black; wings with the ground color brownish yellow, the radial cells beyond cord darker; dark spot in cell Cu conspicuous, preceded and followed by light yellow areas; a similar yellow spot at two-thirds the length of cell M; oblitative area before cord very wide, sending a narrower line across the bases of the outer medial cells; abdominal tergites chiefly pale brown, narrowly trivittate with darker; outer segments more uniformly darkened.

Female.—Length, 20 to 24 millimeters; wing, 18 to 20.

Frontal prolongation of head yellow dorsally, infuscated laterally beneath; nasus and palpi brownish black. Antennæ with the scape and pedicel yellow; flagellum almost uniformly darkened, the basal enlargements black, the remainder dull brownish black; verticils elongate. Head olive-gray.

Pronotum olive-gray. Mesonotum olive-gray, the præscutum with four brown stripes, the intermediate pair not attaining the suture and, in cases, a little more intensely colored along their mesal edges; each scutal lobe with a single darkened area; scutellum without dark median vitta. Pleura olive-gray, the ventral sternopleurite and most of anepisternum darker gray. Halteres blackened. Legs with the coxæ gray; trochanters yellow; femora yellow, the tips narrowly but conspicuously black, the amount including the distal fifth (forelegs) to sixth (hind legs); tibiæ brownish yellow, the tips narrowly dark brown; basal two segments of tarsi chiefly pale, narrowly tipped with black, the remaining segments uniformly darkened. Wings (Plate 1, fig. 2) with a strong brownish yellow suffusion, the stigma and spot in cell Cu darker brown; region beyond the oblitative band, including bases of outer radial cells and the outer half of cell 1st M₂ somewhat more infumed; m-cu narrowly clouded with darker; areas in outer half of cell M and in cell Cu on either side of the dark spot clear yellow; an unusually

broad oblitative streak before cord, extending into bases of cells M_3 and M_4 , thence continued outwardly to include the sub-basal portions of cells M_1 , 2d M_2 , and a small contiguous spot in outer half of cell R_5 ; veins yellow, abruptly dark brown in the darkened area beyond the oblitative band, including vein M_{1+2} beyond the basal section, bases of M_1 and M_2 , m , and the narrow adjoining portions of vein M_3 ; m -cu slightly less darkened. Venation: R_s a little exceeding m -cu; m a little shorter than the petiole of cell M_1 .

Abdominal tergites chiefly pale brown, the basal segments more brightened, brownish yellow; a narrow blackened median vitta along tergites, together with somewhat broader sublateral stripes; lateral margins narrowly pale; basal sternites chiefly yellow, the outer segments passing into darker. Cerci long and slender.

Habitat.—China-Tibet border.

Holotype, female, Yu-Long-Gong, altitude 14,000 feet, August 14, 1930 (*Graham*). Paratypes, 1 female, Tatsienlu, altitude 8,000 to 9,000 feet, August 16, 1930; 1 female, near Yien Long Shien, altitude 13,000 to 15,000 feet, August 3 to 6, 1930.

The nearest ally of the present fly is *Tipula (Acutipula) atuntzuensis* Edwards (Yunnan), which differs conspicuously in the coloration of the legs, the femora being extensively and gradually infuscated on outer portions, not narrowly and abruptly blackened. The dark spot in cell Cu is broader in *atuntzuensis* while the pale oblitative band is narrower.

TIPULA (INDOTIPULA) SUBYAMATA sp. nov. Plate 2, figs. 28 and 29.

Male.—Length, 13 to 14 millimeters; wing, 15.5 to 17.5.

Female.—Length, about 21 millimeters; wing, 19.

Generally similar and closely related to *yamata* Alexander (Japan), differing especially in the details of structure of the male hypopygium.

Male hypopygium with the lobes of the ninth tergite (Plate 2, fig. 28, 9t) much broader and heavily blackened throughout. Outer dististyle, *od*, narrow, the tip obtusely rounded, the outer margin with setæ that are relatively much shorter and more scattered than in *yamata*. Inner dististyle, *id*, narrow, the outer margin with eighteen modified flattened setæ. The details of the hypopygium of *yamata* (Plate 2, fig. 29, 9t, *od*, *id*) are shown for comparison. Here the modified setæ of the inner dististyle total twenty-four in number.

Habitat.—China (Szechwan).

Holotype, male, Chunking, altitude 1,000 to 2,000 feet, May 6 to 27, 1930 (*Graham*). Allotopotype, female. Paratopotype, male.

TIPULA AMYTIS sp. nov. Plate 1, fig. 3.

General coloration gray, the præscutum with well-defined intermediate brown stripes, the lateral stripes diffuse; an additional capillary median brown vitta on præscutum; antennal scape dark brown, pedicel light yellow; apices of knobs of halteres obscure yellow; femora yellow, the tips black; wings pale brown, the stigma and a confluent seam on anterior cord dark brown; conspicuous whitish areas on disk, including an incomplete fascia beyond cord and stigma; basal abdominal tergites yellow, with a broad sublateral black stripe; terminal segments black.

Female.—Length, about 22 millimeters; wing, 21.

Frontal prolongation of head relatively long, gray pruinose, especially above; nasus distinct; palpi black. Antennæ with scape dark brown, the pedicel abruptly light yellow; flagellum broken. Head light gray, the center of vertex slightly infumed.

Mesonotal præscutum gray, with four brown stripes, the intermediate pair widely divided by a line of the ground color that is further split on cephalic portion by a capillary brown vitta; lateral stripes much paler and very broad and diffuse, reaching the lateral border of sclerite; posterior sclerites of mesonotum gray, variegated with darker areas. Pleura gray, the anepisternum and ventral sternopleurite somewhat darker gray; dorso-pleural region more buffy brown. Halteres yellow, the basal half of knob more infuscated. Legs with the coxæ grayish pruinose; trochanters brownish yellow; femora yellow, tipped with black; remainder of legs broken. Wings (Plate 1, fig. 3) with the ground color pale brown, the prearcular and costal regions more yellowish; disk variegated by conspicuous whitish areas; stigma and a broad confluent seam on anterior cord dark brown; a similar colored, elongate-oval area at origin of Rs; the whitish areas include the basal third of cell M, confluent with subbasal areas in cells Cu and 1st A; a large area at two-thirds the length of cell M; small markings before and beyond origin of Rs; a conspicuous, incomplete, white crossband beyond cord, extending from costa through cell 1st M₂; wing tip uniformly darkened; darkened areas adjoining vein Cu more intense and deeply colored; veins brown, the obliterative areas conspicuous. Venation: R₁₊₂ entire; Rs long, approximately twice m-cu; m shorter than petiole of cell M₁; cell 1st M₂ narrowed outwardly.

Abdominal tergites one to five yellow, beyond the second becoming more obscure; a broad sublateral black stripe, bordered externally by a light gray margin; segments six to nine black, the lateral pale borders very narrow and finally becoming obsolete. Ovipositor with cerci straight, the margins smooth.

Habitat.—China-Tibet border.

Holotype, female, near Tang-Gu, altitude 14,000 feet, August 3 to 6, 1930 (*Graham*).

Tipula amytis is distinctly different from the other regional species known to me. The wing pattern suggests certain species of *Acutipula*, but the elongate Rs renders such a subgeneric assignment doubtful.

TIPULA VITIOSA sp. nov. Plate 1, fig. 4.

General coloration gray, the præscutum with four poorly indicated darker gray stripes, the cephalic end of the sclerite with four more brownish areas; nasus unusually broad and weakly notched at apex; antennæ with scape brown, pedicel obscure yellow, flagellum black; wings brown, conspicuously variegated by darker brown and white, the latter including a narrow but complete crossband beyond the cord; vein R_{1+2} persistent, diverging widely from R_3 , not much exceeding R_2 alone; abdominal tergites yellow, trivittate with dark brown.

Female.—Length, about 20 millimeters; wing, 17.5.

Frontal prolongation of head light gray above, more infuscated on sides; nasus unusually broad, its apex weakly notched; palpi dark brown. Antennæ with scape brown, pedicel obscure yellow, flagellum black; longest verticils exceeding the segments and unilaterally arranged. Head light gray, the vertex with a capillary brown line.

Mesonotal præscutum light gray, with four poorly indicated, darker gray stripes, the cephalic ends of the intermediate stripes and similar humeral areas before the pseudosutural foveæ light brown, producing a series of four subequal spots on cephalic portion of sclerite; posterior sclerites of mesonotum gray, the centers of the scutal lobes brown, the scutellum and mediotergite more or less suffused with brown. Pleura gray, the dorsopleural membrane buffy. Halteres relatively long, pale yellow, the knobs dark brown. Legs with the coxæ gray; trochanters obscure yellow; femora brownish yellow to obscure yellow, the tips narrowly and weakly darkened; tibiæ light brown, the tips scarcely darkened; tarsi dark brown; tibial spur formula 1-?-2. Wings (Plate 1, fig. 4) with the ground color brown, conspicuously variegated by darker brown and white areas; the

dark markings include the stigma and a confluent area on anterior cord, a spot at origin of Rs, a small post-arcular area, and seams along veins Cu and 2d A; the white areas include a narrow but complete white crossband beyond cord, large jagged areas in cells R and M, the outer one in cell M being V-shaped; origin of Rs entirely surrounded by white areas; cubital and anal cells variegated with white; outer half of cell R_5 with central portion white; cells C and Sc light yellow; veins dark brown. Squama naked; macrotrichia of veins very small and sparse, lacking on R_3 . Venation: R_{1+2} entire, without trichia, diverging widely from R_3 and only a little longer than R_2 alone; m and petiole of cell M_1 subequal; m-cu at fork of M_{3+4} .

Abdomen with basal tergite infumed, the succeeding tergites more yellowish to ochereous, with three narrow continuous brown stripes, the median one much narrower than the interspaces; sublateral stripes very broad, margined externally by very narrow pale borders; subterminal segments more uniformly darkened. Ovipositor with the basal shield blackened, polished; cerci horn-colored, long and straight, the margins smooth, the tips obtuse; hypovalvæ relatively short, blackened.

Habitat.—China-Tibet border.

Holotype, female, near Tang-Gu, altitude 14,000 feet, August 3 to 6, 1930 (*Graham*).

Tipula vitiosa is generally similar to *T. leucosema* Edward (Yunnan), especially in the wing pattern, but differs conspicuously in the coloration of the thorax and abdomen. The very broad, weakly notched nasus and the short, suberect R_{1+2} furnish conspicuous characters for the definition of the present fly.

TIPULA VIVAX sp. nov. Plate 1, fig. 5.

General coloration of thorax light gray, the three præscutal stripes concolorous, separated from one another by dark brown areas on the interspaces; scape and pedicel yellow, the flagellum weakly bicolorous; nasus very short and stumpy; halteres yellow, the knobs dark brown; femora yellow, the tips narrowly black; wings pale brown, the prearcular and costal regions abruptly light yellow; a conspicuous white pattern on disk, including a virtually complete crossband beyond cord; R_{1+2} entire; abdomen yellow, the subterminal segments darkened; basal segments narrowly trivittate with brown.

Female.—Length, about 15 millimeters; wing, 14.5.

Frontal prolongation of head brownish yellow; nasus very short and stumpy; palpi dark brown. Antennæ with scape and

pedicel obscure yellow; flagellum very weakly bicolorous, the basal enlargement of each segment dark brown, the remainder paler brown. Head light gray.

Mesonotal præscutum chiefly light gray, this including the broad gray stripes, the interspaces variegated by linear brown dashes, there being two on either side of the median gray stripe; extreme cephalic end of præscutum with a short brown median dash; posterior sclerites of notum gray. Pleura light gray; dorsopleural membrane buffy. Halteres yellow, the knobs abruptly dark brown. Legs with the coxæ light gray; trochanters yellow; femora yellow, the tips narrowly and conspicuously black; tibiæ obscure yellow, the tips narrowly and gradually blackened; tarsi black; tibial spur formula 1-?-2, middle legs broken. Wings (Plate 1, fig. 5) with the ground color pale brown, the prearcular and costal regions light yellow; stigma darker brown than the ground; white areas as follows: A narrow but virtually complete crossband beyond cord, scarcely interrupted by a narrow dark seam along vein M_{1+2} ; a broader pale band before cord, extending generally parallel to the first described band, extending across cells R_1 , R , and M ; large pale areas in bases of cells M and Cu , outer half of Cu , and in bases of anal cells; veins dark brown, flavous in the yellow costal region. Squama naked; numerous macrotrichia on veins beyond cord; distal three-fourths of R_{1+2} naked. Venation: R_{1+2} entire; r-m connecting with R s at or before fork; cell 1st M_2 relatively small, pentagonal; m-cu connecting with M_4 some distance beyond base.

Abdomen chiefly yellow, the outer segments a little more suffused with darker; very narrow, brown, median and sublateral stripes on tergites, the extreme lateral margins more buffy white; on sternites the three brown stripes are broader, especially the median one. Genital segment and ovipositor yellow; cerci long and slender, nearly straight, with smooth margins.

Habitat.—China-Tibet border.

Holotype, female, Zya-Ha Pass, altitude 14,000 to 17,000 feet, July 25 to 27, 1930 (*Graham*).

The only described regional species that agrees at all closely with the present fly in its small size, persistent R_{1+2} , and in having the wing pattern somewhat similar, is *Tipula pedicellaris* Alexander, which differs in the black scape, distinct præscutal pattern, extensively blackened femora, and incomplete pale crossband beyond cord.

LIMONIINÆ

HEXATOMINI

EPIPHRAGMA OCELLARIS GRACILISTYLUS subsp. nov.

Quite as in typical *ocellaris* (Linnæus), differing in slight characters of the male hypopygium. Outer dististyle slenderer and nearly straight, only the extreme tip decurved. Lobes of tergite obtuse at tips, separated by a U-shaped notch.

Habitat.—Eastern Siberia (Ussuri).

Holotype, male, Tigrowaja, Suchan district, June 16, 1927 (*Stackelberg*).

PSEUDOLIMNOPHILA BRUNNEINOTA sp. nov. Plate 1, fig. 6; Plate 2, fig. 30.

General coloration of mesonotum light reddish brown, without markings; antennæ brownish black throughout, flagellar segments long-cylindrical; halteres dusky; legs chiefly brownish black to black; wings strongly tinged with light brown or yellowish brown, the stigma small, long-oval, darker brown; R_2 about one-half R_{2+3} ; m-cu about one-third its length beyond fork of M; abdominal tergites dark brown, the subterminal segments brownish black.

Male.—Length, about 5 to 5.5 millimeters; wing, 5.8 to 6.2.

Rostrum and palpi black. Antennæ brownish black throughout; flagellar segments long-cylindrical, the longest verticils about twice the segments; terminal segment a little longer than the penultimate. Head dark brownish gray.

Pronotum dark brown. Mesonotum light reddish brown, without markings; pleura more yellowish. Halteres dusky. Legs with the coxæ and trochanters testaceous-yellow; remainder of legs brownish black to black, only the femoral bases restrictedly obscure yellow. Wings (Plate 1, fig. 6) with a strong light brown or yellowish brown tinge, the costal region clearer yellow; stigma long-oval, darker brown; veins brown. Costal fringe relatively long; macrotrichia of veins long and abundant, including close series on veins beyond cord. Venation; Sc_1 ending just beyond fork of Rs, Sc_2 near its tip; R_2 about one-half R_{2+3} ; R_{2+3+4} only gently arcuated; cell M_1 exceeding its petiole; m-cu about one-third its own length beyond fork of M; anterior arculus preserved.

Abdominal tergites dark brown, the sternite paler; subterminal segments brownish black; hypopygium dark. Male hypopygium (Plate 2, fig. 30).

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 7,000 feet, July 27, 1931 (*Franck*). Paratopotype, male, July 17, 1931.

The nearest allies of the present fly are *Pseudolimnophila chikurina* Alexander, of Formosa, which differs in the brownish gray coloration of the thoracic notum and pleura, and in the paler legs; and *P. fusca* (Brunetti), of the eastern Himalayas, which differs in the pale legs, brightened first flagellar segment, and presence of a narrow median præscutal stripe.

LIMNOPHILA (IDIOPTERA) USSURIANA sp. nov. Plate 1, fig. 7; Plate 2, fig. 31.

Allied to *trimaculata*; general coloration of thorax gray, the præscutum with indications of four darker brown stripes; antennæ of male of moderate length, the verticils slightly exceeding the segments; femora yellow, the tips narrowly blackened; wings pale yellow, with a heavy brown pattern; abdominal segments bicolorous, the bases pale, the apices brown.

Male.—Length, about 6 millimeters; wing, 7.5; antenna, about 2.4.

Female.—Length, about 7 millimeters; wing, 8; antenna, about 1.7.

Rostrum and palpi black. Antennæ with the scape dark brown, the pedicel and first flagellar segment yellow, remainder of flagellum black; verticils (male) slightly exceeding the segments; terminal segment about two-thirds the penultimate; antennæ (male) much shorter than in *trimaculata*, if bent backward extending to shortly beyond roots of halteres. Head gray.

Mesonotum dark with a heavy gray bloom to virtually obscure the ground; præscutum with vague indications of four darker stripes, these becoming more evident behind; pseudosutural foveæ conspicuous, black; tuberculate pits lacking. Pleura heavily gray pruinose. Halteres pale yellow, relatively long and slender. Legs with the coxæ yellow, the fore coxæ more darkened and pruinose at base; trochanters yellow; femora yellow, the tips narrowly and abruptly black, the amount subequal on all legs, including about the apical eighth or less; tibiæ obscure yellow, the tips narrowly darkened; tarsi chiefly dark brown. Wings (Plate 1, fig. 7) with the ground color pale yellow, the prearcular and costal regions a little brighter yellow; wing tip narrowly and vaguely darker; stigma brown; conspicuous brown clouds and seams, as follows: Origin of Rs, Sc₂, along cord and outer end of cell 1st M₂, fork of M₁₊₂, on supernumerary crossvein in cell M, and as marginal clouds

at ends of veins R_3 , M_4 , and 2d A; veins brown. Venation: R_{2+3+4} about one-half longer than m-cu.

Abdominal tergites dark brown caudally and laterally, the remainder of disk obscure yellow; sternites pale yellow, the caudal margins of segments weakly darkened; segments eight and nine more uniformly dark brown, the basistyles of male hypopygium yellowish. In the female, the abdominal tergites are more uniformly darkened; valves of ovipositor long and slender. Male hypopygium (Plate 2, fig. 31) with the outer dististyle, *od*, relatively slender, the apex suddenly narrowed, the outer margin of distal half with abundant microscopic appressed spinulæ.

Habitat.—Eastern Siberia (Ussuri).

Holotype, male, Tigrowaja, Suchan district, June 9, 1927 (*Stackelberg*). Allotopotype, female.

The only close ally of the present fly is *Limnophila* (*Idioptera*) *trimaculata* (Zetterstedt), a somewhat uncommon species of northern Europe, which differs in the more-elongate antennæ of the male, the more extensively blackened legs, and the less heavily patterned wings. The male hypopygium is very similar in the two species. The other European members of *Idioptera*, together with the three Nearctic species, all have the male hypopygia of entirely different structure. The relatively short antennæ of the male of the present fly approach the condition found in some species of the subgenus *Elæophila* Rondani (as the Nearctic *sabrina* Alexander), supporting Edwards's contention that the two groups are not sufficiently distinct for subgeneric separation.

LIMNOPHILA (DICRANOPHRAGMA) MELALEUCA sp. nov. Plate 1, fig. 8.

Size very small (wing, male, 4.5 millimeters); general coloration of mesonotum brownish gray, the præscutum with dark lines on interspaces; knobs of halteres conspicuously dark brown; femora brownish testaceous, with a pale brown subterminal ring, the tips narrowly but conspicuously white; wings (male) broadest opposite level of termination of vein 2d A; dark pattern confined to vicinity of veins; cells M to 2d A, inclusive, extensively washed with dusky.

Male.—Length, about 4 millimeters; wing, 4.5.

Rostrum and palpi black. Antennæ with the scape and pedicel black; flagellum obscure yellow, the outer segments darker. Head dark.

Mesonotal præscutum brownish gray, with a submedian, brown, longitudinal stripe, occupying the usual interspaces, with a spotlike area of the same color lying on outer margin of the usual lateral stripe, behind the pseudosutural foveæ; posterior sclerites of mesonotum darkened, sparsely pruinose. Pleura chiefly dark brown, sparsely pruinose. Halteres pale yellow, the knobs dark brown. Legs with the coxæ and trochanters brownish black; femora pale brownish testaceous, deepening to a pale brown subterminal ring, the subequal tips abruptly white; tibiæ and tarsi yellow. Wings (Plate 1, fig. 8) broadest at level of termination of vein 2d A; disk chiefly white, cells M, Cu, 1st A, and 2d A extensively washed with dusky, except at outer ends; a series of darker brown marginal spots, including six major areas along costa, the fourth and fifth confluent, lying above the fork of R_{2+3+4} and on R_2 ; cord, outer end of cell 1st M_2 and fork of M_{1+2} narrowly seamed with brown; veins dark in the clouded areas, pale yellow in the interspaces.

Abdomen, including hypopygium, dark brown.

Habitat.—Japan (Kyushu).

Holotype, male, Wakasugiyama, Chikuzen, August 7 to 9, 1931 (*Esaki et al.*).

Limnophila (*Dicranophragma*) *melaleuca* is readily told by the diagnostic features listed above, notably the small size, darkened knobs of halteres, white femoral tips, and expanded wings of male.

LIMNOPHILA (DICRANOPHRAGMA) MELALEUCA IGNAVA subsp. nov.

Male.—Length, about 4 to 5 millimeters; wing, 5.

Female.—Length, about 5.5 millimeters; wing, 6.2.

Characters as in the typical form, differing especially in the slightly larger size and slight details of coloration.

Wings with the darkening in cells Cu to 2d A less developed to nearly obsolete; dark marginal areas at ends of longitudinal veins larger, tending to become confluent with one another and with the submarginal darkenings at the supernumerary cross-vein in cell R_2 and the area at fork of M_{1+2} .

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 7,000 feet, July 29, 1931 (*Franck*). Allotopotype, female, altitude 4,500 feet, August 12, 1931.

LIMNOPHILA (DICRANOPHRAGMA) LÆTITHORAX sp. nov. Plate 1, fig. 9; Plate 2, fig. 32.

General coloration dark brown or brownish black, the mesonotal præscutum and scutum more reddish brown, without

markings; wings broad in male, narrower in female, the costal fringe relatively short in both sexes; wings with numerous dots in the cells, additional to the five major brown costal spots.

Male.—Length, 5.5 to 6 millimeters; wing, 6.5 to 8.

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

Rostrum and palpi black. Antennæ black, the first flagellar segment light yellow, the remainder of flagellum brownish black. Head brownish gray.

Mesonotal præscutum and scutum reddish brown pollinose, much brighter in color than the blackened, sparsely pruinose mediotergite and pleura; præscutum without darker markings with the exception of the black pseudosutural foveæ, and, in cases, a narrow outer margin to the outer lateral stripe. Halteres pale yellow. Legs with the coxæ blackened, sparsely pruinose; trochanters obscure yellow, blackened apically beneath; remainder of legs light yellow, the last tarsal segment darkened. Wings (Plate 1, fig. 9) broad in male, narrower in female; ground color pale cream-yellow, with a spotted and dotted brown pattern, the major areas including a series of five costal darkenings, one being postarcular, the second at origin of Rs, the third and fourth more or less confluent at the fork of Rs, leaving a pale spot between them in costal field; last major area at supernumerary crossvein; cord and outer end of cell 1st M_2 more narrowly seamed with brown; small circular brown dots in all cells, together with a series of slightly larger similar marginal spots at ends of all longitudinal veins; veins light yellow, darker in the infuscated areas. Costal fringe relatively short in both sexes, dark brown; in female, the setæ are somewhat shorter than the width of the costal cell. Venation: m-cu at near midlength of cell 1st M_2 ; cell M_1 shorter than its petiole.

Abdomen dark brown, the hypopygium more brownish yellow to yellow. Male hypopygium (Plate 2, fig. 32) with the outer dististyle, *od*, strongly bidentate at apex; inner dististyle, *id*, broad basally, narrowed outwardly, the apex with a series of four strong setæ in a single row.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 7,000 feet, July 27, 1931 (*Franck*). Allotopotype, female, pinned with type. Paratopotypes, 4 males and females, July 17 to 27, 1931 (*Franck*).

Limnophila (*Dicranophragma*) *lætithorax* is most nearly allied to the Formosan *L. (D.) taiwanensis* Alexander, which differs in the less-brightened mesonotal præscutum that is nar-

rowly lined with brown on the interspaces, the more abundant dotted areas on wings, and the long, light yellow, costal fringe in the female, the trichia being approximately as long as the width of the costal cell.

LIMNOPHILA MARTYNOVI sp. nov. Plate 1, fig. 10.

General coloration light gray, the præscutum with two darker gray intermediate stripes; pseudosutural foveæ and tuberculate pits black, very conspicuous; femora yellow basally, the apices blackened, broadly so on forelegs; wings with the ground color yellow, with a heavy brown-spotted pattern; m and m-cu lacking; veins beyond cord almost without macrotrichia.

Female.—Length, about 10.5 millimeters; wing, 8.5.

Rostrum gray; palpi black. Antennæ 16-segmented, black, the scape heavily light gray pruinose; flagellar segments gradually decreasing in size outwardly, the terminal segment longer than the penultimate; verticils longer than the segments. Head light gray; eyes small, with fine ommatidia; anterior vertex wide; head prolonged behind eyes.

Pronotum large and conspicuous, gray. Mesonotal præscutum light gray, with two darker gray intermediate stripes; pseudosutural foveæ and tuberculate pits black, very conspicuous, the latter lying at cephalic portion of sclerite, diverging anteriorly; posterior sclerites of notum clear light gray, the scutal lobes vaguely marked with darker. Pleura, including the dorsal membrane, gray. Halteres pale, the knobs very weakly darkened. Legs with the coxæ light gray; trochanters brownish yellow; femora broadly blackened apically, the bases yellow, the black most extensive on forelegs where about the distal three-fourths is included, narrowest on the posterior legs where about the outer third or fourth is darkened; tibiæ yellowish brown, the tips narrowly darkened; tarsi black; legs with conspicuous setæ. Wings (Plate 1, fig. 10) with the ground pale yellow, with a heavy brown spotted and dotted pattern; costal cell chiefly dark brown by a series of extensive areas that are confluent on basal half of cell, cell Sc more extensively clear; large, paler brown areas at origin of Rs, along cord, and as postarcular darkenings in bases of cells R and M; marginal clouds at ends of all longitudinal veins; small brown dots in outer radial field and in cells M to 2d A, chiefly grouped along the veins; cells R₁, R, and M are chiefly clear of markings; veins brown. Macrotrichia of veins beyond cord very sparse, restricted to veins R₁ and R₁₊₂, and as a scattered series the entire length of R₅, more numerous and crowded on distal fifth; no trichia on anal

veins and only one or two at outer end of Cu. Venation: R_{2+3+4} shorter than basal section of R_5 ; cell M_1 present; cell 1st M_2 open by atrophy of m; m-cu entirely lacking; anterior arculus preserved.

Abdomen dark gray, the tergites more suffused medially with brownish. Ovipositor with the cerci powerful, blackened on basal third, the horn yellow tips strongly upcurved.

Habitat.—Eastern Siberia (Ussuri).

Holotype, female, Maiche region, near Shkotowo, $132^{\circ} 20'$ east longitude, $43^{\circ} 20'$ north latitude, June 5, 1927 (*Martynov*); No. 205.

Limnophila martynovi is named in honor of the collector, Dr. A. Martynov, who has collected many interesting Tipulidæ in Ussuri. The single specimen available indicates a fly of unusual interest. The remarkable venation, with both m and m-cu lost by atrophy, is different from that in all related forms and certainly appears to represent a normal condition, since the two wings are quite alike. The exact systematic position of the fly is rendered in question because of the loss of m-cu and the sex of the specimen. The general features of venation are not unlike those found in *Dactylolabis* or *Limnophila*, sensu strictu, and if we disregard the two venational features above mentioned, the general appearance of the insect would be much as in either of these groups. All species of the two groups known to me, including virtually all of the described species, have numerous macrotrichia on the veins beyond the cord. I am inclined to believe that the present fly will be found to fall in or close to the typical subgenus *Limnophila*.

Genus HEXATOMA Latreille

Hexatoma LATREILLE, Gen. Crust. et Ins. 4 (1809) 210.

Subgenus ERIOCERA Macquart

Eriocera MACQUART, Dipt. exot. 1 1 (1838) 74.

Edwards² has reviewed critically the numerous names that have been proposed in the subgenus *Eriocera*, indicating those that deserve consideration as being valid. I certainly agree that *Penthoptera* should be placed in the strict synonymy of *Eriocera*. There remain three names that are here considered as representing valid subgenera under the oldest name, *Hexatoma*.

² Ann. & Mag. Nat. Hist. IX 8 (1921) 67-99.

1. *Hexatoma* Latreille. Wings with cell R_3 present and with only two branches of M attaining the wing margin (M_{1+2} and M_4). Valves of ovipositor short and fleshy. As so restricted, the subgenus includes about eight valid species in Europe, one in Japan, and two in boreal America.

2. *Cladolipes* Loew. Characters as in *Hexatoma* but with cell R_3 of wings lost by fusion of veins R_3 and R_4 to margin. The group includes a single species, *simplex* Loew, of Greece.

3. *Eriocera* Macquart. All species have cell R_3 present. The number of free branches of media ranges from two to four, the low figure being found in a single species from the Seychelles Islands, which otherwise differs from *Hexatoma*, s. s., in the elongate valves of the ovipositor. The venation of the outer medial field is wonderfully plastic, and in many species these veins tend to become weak or even semiatrophied. An entirely comparable case is found in the eriopterine genus *Trentepohlia* Bigot. Ovipositor with elongate sclerotized valves, more rarely (*longicornis* group) with these short and fleshy. As so interpreted, *Eriocera* includes the vast bulk of the genus, with approximately two hundred species distributed in all temperate and tropical regions and subregions, with the exceptions of the Chilian and Maorian.

There seems to be no question but that the three groups here recognized are very closely allied and are maintained for convenience in handling the vast complex of species. The three subgenera may be separated as follows:

1. Wings with three or four branches of media attaining the margin; when only two such branches are found (*ferruginea* Edwards, Seychelles Islands); the ovipositor with sclerotized cerci..... *Eriocera* Macquart.
- Wings with but two branches of media attaining the margin; ovipositor with fleshy valves 2.
2. Wings with cell R_3 lacking..... *Cladolipes* Loew.
- Wings with cell R_3 present..... *Hexatoma* Latreille.

As a result of placing these groups in a single genus, a few names have become preoccupied and the species are renamed as follows:

HEXATOMA (ERIOCERA) BENGALENSIS nom. nov.

Hexatoma (Eriocera) bicolor MACQUART, Dipt. exot. 1 1 (1838) 66, non *Hexatoma (Hexatoma) bicolor* MEIGEN, Syst. Beschreib. 1 (1818) 209.

HEXATOMA (ERIOCERA) MADAGASCARIENSIS nom. nov.

Hexatoma (Eriocera) obscura BIGOT, Ann. Soc. Ent. France III 7 (1859) 123, non *Hexatoma (Hexatoma) obscura* MEIGEN, Syst. Beschreib. 1 (1818) 210.

HEXATOMA (ERIOCERA) WIEDEMANNI nom. nov.

Hexatoma (Eriocera) nigra WIEDEMANN, Aussereur. zweifl. Ins. 1 (1828) 27, non *Hexatoma (Hexatoma) nigra* LATREILLE, Gen. Crust. et Ins. 4 (1809) 260.

The species later described as *nigra* by Macquart (1838), and which is of unusual importance in the discussion in that it is the type of the subgenus, is herewith considered as being distinct from *nigra* Wiedemann. Enderlein (1912) described a species from Colombia as *Eriocera macquarti*, under the belief that the fly was conspecific with Macquart's *nigra*. This Colombian insect differs in certain important regards from Macquart's description and I am very doubtful that it will be found to be the same as Macquart's species. The presence of a red vertical tubercle in *macquarti* Enderlein but not in *nigra* Macquart renders the synonymy very doubtful.

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

Belongs to the *spinosa* group; general coloration brownish gray, in male the præscutum with a conspicuous, dark brown, median stripe; antennæ (male) elongate, approximately three times the length of body; body (male) conspicuously hairy; legs black, the femoral bases narrowly but conspicuously bright yellow; wings brown, the prearcular region more yellowish.

Male.—Length, about 17 to 18 millimeters; wing, 20 by 4.8; antenna, about 50 to 55.

Female.—Length, about 25 millimeters; wing, 19; antenna, about 5.

Male.—Rostrum and palpi black. Antennæ black throughout, approximately three times the length of the body; flagellar segments with coglike spines, as in group. Head grayish brown, with a dense pale pubescence; vertical tubercle conspicuous.

Mesonotal præscutum brownish gray, clearer gray on humeral and lateral portions, with a conspicuous dark brown median line; posterior sclerites of notum more grayish; notum with conspicuous erect setæ. Pleura blackish, heavily pruinose with light gray, especially on the ventral portions. Halteres brown, the knobs brownish black. Legs with the coxæ gray pruinose; trochanters brownish black, sparsely pruinose; femora black, the bases broadly bright yellow, including about the basal third or fourth on the fore and middle legs, about the basal fifth on the posterior femora; remainder of legs black. Wings (Plate 1, fig. 11) relatively narrow, with a strong brown tinge, the costal region somewhat darker; prearcular region more yellowish; stigma barely indicated; a dark seam along vein Cu;

centers of basal cells from R to 2d A paler than the borders; veins brown. Macrotrichia of veins very sparse; costal fringe short and appressed; veins beyond cord without trichia, excepting a few scattered ones on distal section of vein R_5 . Venation: R_{2+3} longer than R_{1+2} , the latter about three times R_2 alone; cell M_1 present but variable in size; m-cu at or close to midlength of cell 1st M_2 .

Abdomen chiefly dark brown, the sternites pruinose; hypopygium light brown to yellowish brown; abdomen conspicuously hairy.

Female.—Generally similar to male except in the sexual features of short antennæ and short, inconspicuous pubescence of the body. Median dark stripe on præscutum lacking.

Habitat.—China-Tibet border.

Holotype, male, Yin-Kuan-Tsai, altitude 13,000 to 15,000 feet, July 25, 1930 (*Graham*). Allotopotype, female. Paratopotype, male.

Hexatoma (Eriocera) lanigera is closest to *H. (E.) stricklandi* (Edwards), of Japan, differing most evidently in the dark coloration of the wings and the distinct pattern of the legs, which in the present fly are black with only the femoral bases narrowly yellow.

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

Belongs to the *spinosa* group; general coloration gray; vestiture of body short in both sexes; antennæ (male) of moderate length, subequal to the body; femora broadly yellow basally, the tips blackened, narrowly so on fore and middle legs, broadly on posterior femora; wings fulvous, stigma small, brown; cell M_1 present; abdominal tergites brownish black, the sternites and genital region of both sexes yellowish.

Male.—Length, 15 to 16 millimeters; wing, 18 by 4.8 to 20 by 5.1; antenna, 15 to 16.

Female.—Length, about 25 millimeters; wing, 21 by 6.

Male.—Rostrum dark brown; palpi black. Antennæ of moderate length, approximately as long as body, black throughout; flagellar segments with the usual armature of spines. Head brownish gray; vertical tubercle very large and protuberant.

Mesonotal præscutum yellowish gray, with three darker, more brownish stripes, in addition to a narrow, more blackish, median vitta; lateral stripes small and relatively indistinct; lateral border of sclerite narrowly blackish; posterior sclerites of mesonotum chiefly brownish gray; vestiture of notum reduced to small, dark-colored setæ. Pleura heavily light gray pruinose,

with scattered elongate whitish setæ. Halteres dark brown. Legs with the coxæ light gray, with long pale setæ; trochanters yellow; femora chiefly bright yellow, the tips blackened, on fore and middle legs narrowly so, involving about the basal third or fourth, on posterior legs more extensively, including about the outer two-thirds; tibiæ brown; tarsi darker brown. Wings (Plate 1, fig. 12) with a strong fulvous tinge, the prearcular region and cell Sc brighter yellow; stigma small, brown; centers of most of cells with paler, more grayish centers; veins yellowish brown. Macrotrichia of veins very scanty, as is the case in almost all members of the group. Venation: Cell M_1 present.

Abdominal tergites brownish black, the extreme lateral margins pale; sternites yellow; hypopygium brownish yellow; abdomen with inconspicuous short white setæ.

Female.—Characters as in male, except in the sexual differences. Halteres with stem light brown, the knobs dark brown. Ovipositor with the elongate tergal shield fulvous; valves elongate, nearly straight.

Habitat.—China-Tibet border.

Holotype, male, near Tang-Gu, altitude 14,000 feet, August 3 to 6, 1930 (*Graham*). Allotopotype, female. Paratype, 1 male, Tatsienlu, altitude 8,000 to 9,000 feet, August 16, 1930.

Hexatoma (Eriocera) tibetana is readily told from the allied *H. (E.) lanigera* sp. nov. by the much shorter antennæ of the male and the short vestiture of the thoracic notum in the male.

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

Belongs to the *spinosa* group; mesonotum yellowish gray, the præscutum with a median blackish vitta and blackened lateral margins; antennæ relatively short, subequal in length to the body; legs black, the femoral bases rather narrowly yellow; wings with a strong fulvous-brown tinge; stigma small, brown; cell M_1 lacking; abdominal tergites black, sternites obscure yellow.

Male.—Length, about 13.5 millimeters; wing, 16 by 4.1; antenna, 13.

Rostrum yellow, grayish pruinose; palpi elongate, black. Antennæ black throughout, subequal in length to body; flagellar segments with the usual spines and spinous setæ found in males of this group. Head brown; vertical tubercle large; setæ of head long, dark-colored.

Mesonotal præscutum yellowish gray, with a broad, median, pale brown stripe that is further split by a narrow blackish vitta; lateral stripes ill-defined, grayish; posterior interspaces

more yellowish; lateral margins of sclerite narrowly blackish; posterior sclerites of mesonotum blackish, very sparsely pruinose, the scutellum more heavily so; vestiture of notum short, chiefly pale. Pleura blackish, light gray pruinose, with sparse pale elongate setæ. Halteres pale brown, the knobs dark brown. Legs with the coxæ pruinose, with sparse pale setæ; trochanters yellowish; femora yellow basally, the tips very broadly blackened, on forelegs including about the outer two-thirds, on middle legs one-third, on posterior legs slightly more than four-fifths; tibiæ and tarsi black. Wings (Plate 1, fig. 13) relatively narrow, with a strong fulvous-brown tinge; prearcular region and cell Sc clear light yellow; stigma small, brown; veins pale brown. Venation: Cell M_1 lacking.

Abdominal tergites black; sternites obscure yellow, variegated sublaterally by pale brown; hypopygium dark; vestiture of abdomen relatively long and pale.

Habitat.—China-Tibet border.

Holotype, male, Yu-Long-Si, altitude 15,600 feet, July 28, 1930 (*Graham*).

Despite the lack of cell M_1 of the wings, I am referring this insect without question to the *spinosa* group, where it is unique in this venational feature. It is most similar to *Hexatoma* (*Eriocera*) *tibetana* in the general appearance and relative length of the antennæ of the male and differs in the notable increase in the amount of black on femora.

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

Belongs to the *verticalis* group; general coloration gray pruinose; antennæ (male) short; mesonotal præscutum with three brownish black stripes; knobs of halteres pale yellow; legs black, with about the basal half of femora yellow; wings whitish subhyaline, all veins bordered by brown; R_{1+2} , R_2 , and R_{2+3} subequal; cell 1st M_2 elongate; abdomen stout, black, conspicuously clothed with black setæ; hypopygium large, black.

Male.—Length, about 8 to 9 millimeters; wing, 7.5 to 9.

Rostrum and palpi black. Antennæ (male) short, if bent backward not attaining the wing root, 7-segmented; black, the basal segment pruinose; flagellar segments gradually decreasing in length, the terminal segment about one-half the penultimate. Head gray pruinose, the broad vertical tubercle more whitish gray.

Mesonotal præscutum gray with three brownish black stripes; scutum gray, each lobe with two brownish black areas; posterior sclerites of notum light gray; setæ of notum short and incon-

spicuous. Pleura gray, the dorsopleural membrane dark. Halteres dusky at bases, the knobs and outer half of stem light yellow. Legs with the coxæ and trochanters black, the former pruinose; femora with slightly more than the basal half light yellow, the outer portion black; remainder of legs black. Wings (Plate 1, fig. 14) whitish subhyaline, all veins bordered by brown to give a streaked appearance. Macrotrichia of veins very sparse or lacking; costal fringe short but dense; veins beyond cord without trichia excepting a scattered series of relatively long ones the entire length of outer section of vein R_5 , more crowded on distal third. Venation: R_{1+2} , R_2 , and R_{2+3} all subequal; R_{2+3+4} about two-thirds R_3 ; cell 1st M_2 long, about equal to the longest vein beyond it, the latter elements not showing signs of atrophy; m-cu just beyond fork of M.

Abdomen stout, black, with abundant coarse erect setæ; hypopygium large, black, the narrow tergal plate polished black.

Habitat.—Eastern Siberia (Ussuri).

Holotype, male, Tigrowaja, Suchan district, June 8, 1927 (*Stackelberg*). Paratopotypes, 2 males, June 9 to 11, 1927.

Hexatoma (Eriocera) stackelbergi is named in honor of the collector, Dr. A. von Stackelberg, whose extensive collections in Ussuri have vastly enriched our knowledge of this region. The species is quite different from all other regional members of the subgenus, being most nearly related to *H. (E.) nipponensis* (Alexander) and allies, differing in the brown borders to the veins, the nearly glabrous outer veins of wing, the stout abdomen with unusually large hypopygium, and other characters. The fly is likewise generally similar and not distantly allied to *H. (E.) austera* (Doane), of western North America.

HEXATOMA (ERIOCERA) GIFUENSIS sp. nov. Plate 1, figs. 15, 16; Plate 2, fig. 33.

Belongs to the *verticalis* group; general coloration black, probably pruinose in fresh specimens; antennæ (male) elongate, being approximately three times the body, the flagellar segments with numerous slender spines; tips of femora blackened; wings with a faint yellow tinge, the stigma dark brown; R_{2+3+4} about two-thirds to three-fourths the length of R_3 alone; m-cu a short distance beyond fork of M.

Male.—Length, about 12 millimeters; wing, 12; antenna, about 30.

Female.—Length, 13 to 14 millimeters; wing, 10.5 to 11.5; antenna, about 2.2.

Described from alcoholic specimens.

Rostrum brown; palpi black. Antennæ of male elongate, nearly three times the body; basal segment brownish yellow, flagellum black; flagellar segments with conspicuous erect spines; antennæ of female 10-segmented. Head dark brown, the genæ brighter; vertical tubercle of male unusually large and high, of female smaller but still conspicuous.

Mesonotum and pleura black, probably pruinose in fresh specimens, any bloom or stripes that may be present destroyed by immersion; interspaces (male) with a dense erect pale pubescence. Halteres pale, the knobs dark brown. Legs with the coxæ darkened basally, the tips brighter; trochanters of male brownish black, of female more yellowish; femora yellow, the tips narrowly blackened; tibiæ and basitarsi brownish yellow, the tips narrowly blackened; outer tarsal segments black; segments of legs with conspicuous setæ. Wings (Plate 1, fig. 15) with a faint yellow tinge, the costal region clearer yellow; stigma dark brown; cord and vein Cu narrowly seamed with brownish; veins brown, Sc more yellowish. Macrotrichia of veins beyond cord very scanty, occurring on distal section of R_5 . Venation: R_{2+3+4} about two-thirds to three-fourths R_3 alone; R_{2+3} subequal to R_2 ; m-cu a short distance beyond fork of M, the distance not exceeding one-third the length of m-cu itself.

Abdomen black. Male hypopygium (Plate 2, fig. 33) with the apical spine of the outer dististyle, *od*, long and nearly straight; only a few, very weak denticles on ventral side at base of spine.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Gifu, Mino, June 6, 1931 (*Kariya*).

Allotopotype, alcoholic female. Paratopotypes, 2 broken alcoholic females.

Hexatoma (Eriocera) gifuensis differs from *H. (E.) moriokana* (Matsumura) in the dark coloration of the body, the brown wing veins, and the details of venation, notably the position of m-cu at or just beyond the fork of M. Edwards has contended that *moriokana* is a synonym of *verticalis* (Wiedemann), but if Matsumura's description and figure of *moriokana*³ are approximately correct, this can hardly be the case. The present fly is certainly distinct from *verticalis*, the wing of which is shown for comparison (Plate 1, fig. 16), the obliquity of the cord being a conspicuous character. There are certain discordant features in Matsumura's account of his species. His figure shows the

³ Thousand Insects Japan, Additamenta 2 (1916) 470-471, pl. 25, fig. 11.

elongate antennæ of a male attached to the body of a female. The length of the antennæ of *moriokana* as given by Matsumura (78 millimeters) is obviously too great. The description calls for a length about four times that of the body and might be assumed to total approximately 38 to 40 millimeters.

HEXATOMA (ERIOCERA) OMEIANA sp. nov. Plate 1, fig. 17.

Belongs to the *verticalis* group; general coloration gray, the præscutum with four shiny black stripes; antennæ (female) 11-segmented; knobs of halteres dark brown; femora yellow, the tips blackened, broadly so on the forelegs, more narrowly on posterior femora; wings with a faint brown tinge; stigma oval, darker brown; veins very insensibly seamed with darker; R_{2+3} very short to lacking; R_{2+3+4} subequal to distal section of R_3 .

Female.—Length, about 11 to 12 millimeters; wing, 9 to 11.5; antenna, about 2.3 to 2.5.

Rostrum reddish brown; palpi black. Antennæ (female) 11-segmented, if bent backward ending before the wing root; flagellar segments gradually decreasing in length outwardly, the first segment subequal to the succeeding three segments combined; scape, pedicel, and extreme base of first flagellar segment yellowish on lower surface, the remainder of organ black. Head black, with a sparse gray bloom; vertical tubercle of moderate size, subnitidous.

Mesonotal præscutum gray, with four shiny black stripes, the intermediate pair ending before suture, more or less confluent at their cephalic ends; posterior sclerites of notum light gray pruinose, the scutellum more heavily so. Pleura, including the dorsopleural region, dark gray. Halteres pale, the knobs dark brown. Legs with the coxæ gray pruinose; trochanters with outer faces infuscated, the inner aspect yellow; femora yellow basally, the tips blackened, somewhat more broadly so on forelegs where approximately the basal half or more is darkened, narrowly on the posterior femora where the outer fifth or sixth is blackened; one paratype shows all femora with the tips only narrowly blackened; tibiæ light brown, the tips narrowly black; tarsi black. Wings (Plate 1, fig. 17) with a faint brown tinge; stigma oval, slightly darker brown; veins brown, very insensibly margined with dusky. Macrotrichia of veins relatively sparse, beyond cord with a dense series on distal section of vein R_5 , and, in cases, with one or two trichia on either or both outer sections of M_{1+2} ; costal fringe dense. Venation: R_{2+3} very short to lacking; R_{1+2} a little exceeding R_2 ; R_{2+3+4} elongate, subequal

to or a trifle shorter than R_3 ; m-cu variable in position, from being placed at fork of M to a distance beyond this fork about equal to one-half the length of m.

Abdomen black, subnitidous. Ovipositor with the unusually long and slender cerci horn-colored, the basal shield blackened at base.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 4,000 feet, August 10, 1931 (*Franck*). Paratopotypes, 8 females, August 9 to 10, 1931.

By Edwards's key to the Old World species of *Eriocera*, the present fly runs out at couplet 22, agreeing most nearly with *Hexatoma (Eriocera) nigrina* (Riedel), of Formosa, which differs in the uniformly darkened wings and shorter vein R_{2+3+4} .

HEXATOMA (ERIOCERA) LUTEICOSTALIS sp. nov. Plate 1, fig. 18.

Belongs to the *longicornis* group; general coloration gray, the præscutum with three brown stripes, the median one divided by a capillary dark brown vitta; antennæ (male) a little more than three times the length of body; spines of flagellar segments unusually scanty; wings with a faint brownish yellow tinge, the prearcular and costal regions light yellow; R_{2+3} long, from one-third to more than one-half R_{2+3+4} ; m-cu close to fork of M (male) or slightly beyond (female).

Male.—Length, about 10 millimeters; wing, 12.2; antenna, about 33.

Female.—Length, about 9 millimeters; wing, 11; antenna, about 2.

Rostrum and palpi brownish black, the latter small and slender. Antennæ (male) elongate, slightly exceeding three times the body; scape enlarged, dark brown; pedicel very small, yellowish brown; flagellum black, the base of first segment obscure yellow; spines of the flagellum very scanty, on the basal segment there are about five, restricted to the distal half of segment; segment two with about eighteen spines, of which only six or seven are large, the alternate ones being microscopic; third flagellar segment with about seven large spines from tuberculate bases, with two or three smaller spines and delicate setæ arranged between the members of each pair of tubercles; terminal segment with only small scattered spinulæ. In female, antennæ 9-segmented, gradually decreasing in length to near end, the terminal three segments small and nearly equal in size. Head

brownish gray; vertical tubercle (male) very large, of female smaller but still conspicuous.

Mesonotal præscutum gray, with three slightly darker brown stripes, the median one divided by a capillary dark brown vitta; posterior sclerites of notum yellowish gray, the scutal lobes variegated by ill-delimited brown areas; notum of male with dense erect pale setæ, that of female with setæ somewhat shorter but still long and conspicuous. Pleura gray pruinose. Halteres pale, the knobs very weakly darkened. Legs with the coxæ dark-colored, pruinose; trochanters obscure yellow; femora brownish yellow, the tips rather narrowly blackened; tibiæ and tarsi brown, of forelegs considerably darker than the hind legs. Wings (Plate 1, fig. 18) with a faint brownish yellow tinge, the prearcular and costal regions clear light yellow; stigma relatively small, pale brown, distinct; scarcely indicated darker seams along cord and veins Cu and R_5 ; veins dark brown, pale yellow in the flavous areas. Veins with very sparse macrotrichia; costal fringe abundant but the trichia very tiny and appressed; no trichia on veins beyond cord excepting very sparse microscopic ones on R_5 and in stigmal region of vein $R_1 + Sc_2$. Venation: R_{2+3} unusually long for a member of this group, somewhat variable, ranging from one-third to more than one-half R_{2+3+4} ; R_{1+2} and R_2 subequal; m-cu close to fork of M (male) or slightly beyond this fork (female).

Abdomen brownish gray, including hypopygium. Ovipositor with small fleshy valves, as in the group.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 3,500 feet, August 17, 1931 (*Franck*). Allotopotype, female, pinned with type. Paratopotype, female, August 16, 1931 (*Franck*).

The closest ally of the present fly is the Nearctic *Hexatoma* (*Eriocera*) *longicornis* (Walker), which has the antennæ of the female 11-segmented, the flagellum of the male antenna with abundant conspicuous spines, the costal border of the wings strongly darkened, and numerous other characters. The species differs from the two other Asiatic members of the *longicornis* group, *nudivena* sp. nov. and *subpusilla* sp. nov., in the distinct stigmal area and the venation, especially the long R_{2+3} , which is always much longer than R_2 alone. The clear yellow costal border of the wings and the presence of nine antennal segments in the female provide other characters for the ready separation of the species.

HEXATOMA (ERIOCERA) NUDIVENA sp. nov. Plate 1, fig. 19.

Belongs to the *longicornis* group; general coloration of body brown, the præscutum with three slightly darker brown stripes; pleura and coxæ pruinose; wings with a strong dusky tinge; stigma lacking; macrotrichia of veins very sparse or lacking; outer medial veins subobsolete.

Female.—Length, about 9 millimeters; wing, 11.2.

Rostrum and palpi black. Antennæ broken beyond the third segment, black. Head brownish black; vertical tubercle long and conspicuous.

Mesonotum uniform medium brown, the præscutum with three somewhat darker, ill-defined stripes; scutellum gray pruinose. Thorax with only very short blackened setæ. Pleura black, heavily gray pruinose. Halteres short, brownish black throughout. Legs with the coxæ gray pruinose; trochanters black; femora obscure brownish yellow, the tips blackened; remainder of legs black. Wings (Plate 1, fig. 19) with a strong dusky tinge; stigma lacking; veins brown. Macrotrichia of veins very sparse; costal fringe short but abundant; no trichia on veins beyond cord excepting a scanty series on distal section of R_5 . Venation: Crossvein h arcuate; R_{2+3+4} and R_3 subequal; R_{1+2} a little longer than R_2 ; R_{2+3} very short to subobsolete; outer medial veins tending to become obsolete, the distal two-thirds of M_3 and M_4 scarcely evident; m-cu subequal to distal section of Cu_1 , placed just beyond fork of M.

Abdomen dark brown, more or less pruinose. Ovipositor with fleshy valves, the hypovalvæ longer than the cerci, moderately sheathing.

Habitat.—China-Tibet border.

Holotype, female, Zya-Ha Pass, altitude 14,000 to 17,000 feet, July 25 to 27, 1930 (*Graham*).

By Edwards's key to the Old World species of *Eriocera*⁴ the present fly runs to the second half of couplet 11, where it disagrees with all further species in the fleshy valves of the ovipositor. This fly, with *luteicostalis* sp. nov., and *subpusilla* sp. nov., are unquestionably members of the *longicornis* group which Edwards was inclined to place in the typical subgenus *Hexatoma* rather than in *Eriocera*, despite the retention of three outer medial veins in all members of the group.

⁴ Ann. & Mag. Nat. Hist. IX 8 (1921) 70-78.

HEXATOMA (ERIOCERA) SUBPUSILLA sp. nov. Plate 1, fig. 20.

Belongs to the *longicornis* group; general coloration gray; antennæ (female) 6-segmented; mesonotal præscutum with three darker gray stripes; legs pale brown, the femoral tips narrowly brownish black; wings pale grayish, entirely immaculate; R_{2+3+4} longer than R_3 ; R_2 just beyond fork of R_{2+3+4} .

Female.—Length, about 8 millimeters, wing, 8.

Mouth parts and palpi much reduced. Antennæ only 6-segmented, brown, the basal three segments somewhat paler brown; flagellar segments decreasing in length outwardly, the terminal segment only about one-third to one-half the length of the fifth. Head gray, the vertical tubercle very poorly developed.

Mesonotum light gray, the præscutum with three darker gray stripes that are very poorly delimited against the ground. Pleura gray, the dorsopleural membrane dusky. Halteres pale. Legs with the coxæ gray; remainder of legs pale brown, the tips of femora narrowly brownish black. Wings (Plate 1, fig. 20) uniformly pale grayish, with no costal brightening, entirely immaculate; veins brown. Costal fringe reduced to abundant small setæ; trichiation of veins beyond cord reduced to a scattered series on distal two-thirds of R_5 and a few on vein $R_1 + Sc_2$ in region usually occupied by stigma. Venation: R_s angulated at origin; R_{2+3+4} longer than R_3 ; R_2 just beyond fork of R_{2+3+4} , a trifle shorter than R_{1+2} ; m-cu shortly beyond fork of M , subequal to or a trifle shorter than the distal section of Cu_1 .

Abdomen dark brown, the genitalia obscure brownish yellow. Ovipositor with short fleshy valves, the hypovalvæ exceeding the small cerci.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 4,000 feet, August 13, 1931 (*Franck*).

By Edwards's key to the Old World species of the subgenus, *Hexatoma (Eriocera) subpusilla* runs to the African *H. (E.) pusilla* (Alexander). It is quite different from *H. (E.) luteicostalis* sp. nov. in the reduction in number of antennal segments, the unbrightened costal region, entire lack of a stigmal area, and, especially, the details of venation, as the brevity of R_{2+3} , shortness of cell R_3 , and the basal position of m-cu. From *H. (E.) nudivena* sp. nov. it differs in the small size, much paler wings, and the details of venation.

HEXATOMA (ERIOCERA) KARIYAI sp. nov. Plate 1, fig. 21; Plate 2, figs. 34 to 36.

Belongs to the *rubrescens* group; general coloration black, gray pruinose; antennæ short in both sexes; wings heavily patterned with dark brown, including cells C and Sc and broad seams along cord and longitudinal veins; Rs in alignment with R_5 ; male hypopygium with a conspicuous hairy tubercle on either side of midline of caudal margin of eighth sternite; ædeagus at apex split into two slender fimbriate arms.

Male.—Length, about 16 to 17 millimeters; wing, 12 by 3.9; antenna, about 3.

Female.—Length, about 25 millimeters; wing, 15 by 5.

Described from alcoholic specimens.

Rostrum and palpi black. Antennæ of male 7-segmented, of female, 11-segmented, black throughout; flagellar segments (male) gradually decreasing in length and diameter to end; in female, terminal segment about as long as the two preceding segments combined; flagellar segments with long coarse black setæ. Head black, with conspicuous black setæ.

Thorax, including halteres, black, in female apparently more grayish pruinose. Legs black, the femoral bases very broadly more yellowish brown or brown, very extensively so on the posterior legs where only the distal sixth is blackened, on forelegs with the outer fifth blackened. Wings (Plate 1, fig. 21) broad, especially in female; ground color brownish yellow, heavily patterned with blackish, including cells C and Sc, prearcular region, and stigma; other large seams include origin of Rs, cord, outer end of cell 1st M_2 , and most longitudinal veins, excepting Cu; anal cells streaked with dusky; veins brown. Macrotrichia of veins very sparse, with a restricted series on outer section of R_5 . Venation: Rs in alignment with the basal section of R_5 , R_{2+3+4} departing at a strong angle, the fork thus asymmetrical; cell 1st M_2 elongate, equal to distal section of M_{1+2} , the other outer branches of M progressively shorter; m-cu one-half to one-third longer than the distal section of Cu_1 .

Abdomen black, with a gray pruinosity, most evident in female. Male hypopygium (Plate 2, fig. 34) with the ædeagus, *a*, relatively long, at apex split into two delicately fringed branches. Eighth sternite, 8s, with two closely applied submedian tubercles that are densely set with long coarse setæ. Ovipositor about intermediate in structure between the elongate sclerotized and shorter fleshy types; cerci black, elongate, yet not highly polished; hypovalval plate single, at apex split into two paler setiferous lobes.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Gifu, Mino, May 17, 1931 (*Kariya*).

Allotopotype, alcoholic female. Paratopotype, alcoholic male.

Hexatoma (Eriocera) kariyai is named in honor of Prof. S. Kariya, entomologist of the Nawa Entomological Laboratory, to whom I am indebted for many Tipulidæ from Mino Province. The species is closest to *H. (E.) kamiyai* (Alexander) and *H. (E.) subrectangularis* (Alexander), both of Japan, in the general pattern of the wings, including the darkened costal border, differing in the large size and structure of the male hypopygium. The coloration in alcohol is distinctly pruinose, and if this is a natural condition, the fly is very different from *kamiyai* in which the entire body is intense velvet-black. The ædeagi of the male hypopygia of *kamiyai* (Plate 2, fig. 35, *a*, holotype) and *subrectangularis* (Plate 2, fig. 36, *a*, paratype) are shown for comparison with the present fly.

HEXATOMA (ERIOCERA) PLESKEI sp. nov. Plate 1, fig. 22.

Belongs to the *rubescens* group; general coloration black, the præscutum light gray, with four more blackish gray stripes; antennæ short in both sexes; legs and halteres black; wings with a strong yellowish brown tinge, the cord a little clouded with darker; macrotrichia of veins beyond cord very sparse; abdomen dull black, sparsely pruinose.

Male.—Length, 12 to 14 millimeters; wing, 12 to 13.

Female.—Length, 15 to 16 millimeters; wing, 12 to 14.

Rostrum and palpi black. Antennæ short in both sexes, black throughout, 7-segmented in male, 11-segmented in female. Head brownish gray, the vertical tubercle clearer gray, relatively small in both sexes, in male weakly notched; head with abundant long black setæ.

Mesonotum light gray, the præscutum with four more blackish gray stripes; setæ relatively long, dark-colored; scutum with centers of lobes extensively darkened. Pleura black, pruinose. Halteres black. Legs with the coxæ and trochanters black, pruinose; remainder of legs black. Wings (Plate 1, fig. 22) with a strong yellowish brown tinge, the costal region a little darker; stigma small, oval, dark brown; a scarcely apparent darker brown cloud along cord; veins dark brown. Macrotrichia of veins beyond cord very sparse or lacking, with a scattered series of about ten relatively long trichia on distal section of vein R_5 . Venation: R_{2+3} more than twice R_{2+3+4} and about two-thirds to

three-fourths R_2 alone; cell M_1 lacking; m-cu near midlength of cell 1st M_2 .

Abdomen, including hypopygium, dull black, very sparsely pruinose; extreme bases of tergites and the subbasal impressed transverse lines narrowly polished black. Ovipositor black throughout; cerci sclerotized, slender, the tips obtuse.

Habitat.—Eastern Siberia (Ussuri).

Holotype, male, Tigrowaja, Suchan district, June 16, 1927 (*Stackelberg*). Allotopotype, female, June 11, 1927. Paratopotypes, 5 males and females, June 8 to 16, 1927; paratypes, 1 male, 1 female, Sedanka River, near Wladiwostok, April 20, 1927 (*Martynov*).

I take great pleasure in dedicating this distinct *Eriocera* to Dr. Theodore Pleske, distinguished dipterologist and ornithologist, to whom I express my indebtedness for many kindly favors. Among the regional species of the group, the only other with entirely black legs is *Hexatoma (Eriocera) longifurca* (Alexander), of Japan, which differs conspicuously from the present fly in the more yellowish wings that are conspicuously variegated with brown, and in the more grayish pruinosity covering the entire body.

HEXATOMA (ERIOCERA) PYRRHOPYGA sp. nov. Plate 1, fig. 23; Plate 2, fig. 37.

Belongs to the *mesopyrrha* group; mesonotal præscutum deep reddish brown with three dark brown stripes; remainder of notum and pleura dark liver brown; femora yellow, the tips black, narrowest on fore and middle femora, more broadly so on posterior legs; wings with the ground color brown, the base and a broad diffuse band before cord yellow; distal half of cell C dark brown; costa nearly glabrous, as in group; abdomen with segments two to four orange, five to seven black, eight and nine reddish yellow.

Male.—Length, about 18 to 22 millimeters; wing, 17 to 21; antenna, 4.8 to 5.2.

Rostrum and palpi dark brown. Antennæ (male) 7-segmented; scape and pedicel dark brown, flagellum yellow throughout; flagellar segments gradually decreasing in length and size outwardly, the black verticils long and conspicuous. Head dark brownish gray; vertical tubercle of moderate size, entire, with black setæ.

Ground color of mesonotal præscutum deep reddish brown, restricted by three dark brown stripes; posterior sclerites of notum and pleura deep liver-brown to dark brown. Halteres

dark brown. Legs with the coxæ and trochanters brownish black; femora yellow basally, the tips conspicuously blackened, very narrowly so on fore and middle legs where the distal fifth or sixth is included, much broader on the posterior legs where the distal two-thirds or more is blackened; tibiæ obscure yellow to brownish yellow, the tips narrowly brownish black; tarsi brownish black. Wings (Plate 1, fig. 23) with the ground color brown, the costal region orange, the distal half of cell C abruptly dark brown; a broad diffuse yellow crossband before cord; prearcular region yellow; veins brown, yellow in the flavous areas. Trichiation about as in other members of the group, the costal series very sparse; trichia on veins R_{1+2} , R_3 , R_4 , and R_5 beyond cord. Venation: R_{1+2} very long, subequal to or exceeding twice m-cu.

Abdomen with basal segment brownish black, segments two to four orange, the tergites margined posteriorly with black, more broadly so on fourth segment; segments five to seven black; outer segments, including hypopygium, reddish yellow. Male hypopygium (Plate 2, fig. 37) with the outer dististyle glabrous, the surface with oblique parallel striæ or wrinkles, apical notch distinct, terminal spine slender and decurved; gonapophyses bifid.

Habitat.—China (Fukien).

Holotype, male, Foochow (*Kellogg*). Paratopotypes, 2 males.

Hexatoma (Eriocera) pyrrhopyga is allied to the regional *H. (E.) kelloggi* (Alexander), *H. (E.) muiri* (Alexander), and *H. (E.) prælata* (Alexander), differing from all in the reddish yellow hypopygium, which contrasts conspicuously with the black subterminal abdominal segments. In the general coloration of the body, the fly comes closest to *prælata*, being entirely different from the two other species above listed; *H. (E.) cæsarea* (Alexander) likewise belongs to this group, but is readily distinguished from the other members by the lack of a pale crossband on the wing disk.

HEXATOMA (ERIOCERA) CLEOPATRA sp. nov. Plate 1, fig. 24.

Belongs to the *dichroa* group; thorax brownish black or black; antennal flagellum reddish brown; legs dark brown; wings with a strong brownish yellow tinge, with a broad but very poorly defined more yellowish band before cord; cells C and Sc not darkened; costa with very numerous small trichia; veins beyond cord with trichia; cell M_1 present; abdominal segments one and five to seven black, the remainder orange.

Female.—Length, about 27 millimeters; wing, 21.

Rostrum and palpi dark brown. Antennæ with the scape dark brown, succeeding three segments more reddish brown, terminal segments broken; verticils conspicuous, black. Head blackish gray; vertical tubercle small and simple.

Thorax almost entirely very dark brownish black or black, the extreme cephalic portion of præscutum variegated by reddish on either side of a capillary dark median vitta; thoracic setæ black. Halteres reddish brown, the knobs dark brown. Legs with the coxæ and trochanters black; remainder of legs very dark brown. Wings (Plate 1, fig. 24) with a strong brownish yellow tinge; a broad but very poorly defined, more yellowish band before cord; cells C and Sc not darker than the ground; veins chiefly yellow. Macrotrichia of costa very numerous but short; macrotrichia on veins beyond cord, including complete series on $R_1 + Sc_2$, R_{1+2} , R_{2+3+4} , R_{2+3} , R_3 , R_4 , and both sections of R_5 ; on outer medial veins trichia are present but more scattered; a few on distal two-thirds of Rs. Venation: Sc long, Sc_2 ending beyond R_2 ; R_{2+3+4} one-half longer than basal section of R_5 ; R_2 slightly oblique; R_{1+2} from one-third to one-half longer than R_{2+3} ; cell M_1 present.

Abdomen with basal tergite black, the caudal margin narrowly orange; segments two to four, inclusive, orange, the pleural membrane darkened; segments five to seven black; eighth segment and shield of ovipositor bright orange; valves elongate, horn-yellow.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 7,000 feet, August 11, 1931 (*Franck*).

By Edwards's key to the Old World species of *Eriocera*⁵ this fly runs to couplet 42, beyond which point it disagrees with all included members in the yellowish wings and coloration of antennæ. If the unusually diffuse band on the wings is considered as being distinct, the fly runs further to couplet 86, including *bicolor* (Macquart) and *cingulata* (de Meijere), which are very different species. In its general appearance, the present fly is much like certain members of the *mesopyrrha* group, notably *cæsarea* (Alexander); but the presence of abundant costal trichia and undarkened costal region serve to separate the two species.

⁵ Ann. & Mag. Nat. Hist. IX 8 (1921) 70–78.

ILLUSTRATIONS

[*a*, Ædeagus; *b*, basistyle; *g*, gonapophysis; *i*, interbase; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *s*, sternite; *t*, tergite.]

PLATE 1

- FIG. 1. *Tipula* (*Acutipula*) *oncerodes* sp. nov., venation.
2. *Tipula* (*Acutipula*) *latifasciata* sp. nov., venation.
3. *Tipula* *amytis* sp. nov., venation.
4. *Tipula* *vitiosa* sp. nov., venation.
5. *Tipula* *vivax* sp. nov., venation.
6. *Pseudolimnophila* *brunneinota* sp. nov., venation.
7. *Limnophila* (*Idioptera*) *ussuriana* sp. nov., venation.
8. *Limnophila* (*Dicranophragma*) *melaleuca* sp. nov., venation.
9. *Limnophila* (*Dicranophragma*) *lætithorax* sp. nov., venation.
10. *Limnophila* *martynovi* sp. nov., venation.
11. *Hexatoma* (*Eriocera*) *lanigera* sp. nov., venation.
12. *Hexatoma* (*Eriocera*) *tibetana* sp. nov., venation.
13. *Hexatoma* (*Eriocera*) *mediofila* sp. nov., venation.
14. *Hexatoma* (*Eriocera*) *stackelbergi* sp. nov., venation.
15. *Hexatoma* (*Eriocera*) *gifuensis* sp. nov., venation.
16. *Hexatoma* (*Eriocera*) *verticalis* (Wiedemann), venation.
17. *Hexatoma* (*Eriocera*) *omeiana* sp. nov., venation.
18. *Hexatoma* (*Eriocera*) *luteicostalis* sp. nov., venation.
19. *Hexatoma* (*Eriocera*) *nudivena* sp. nov., venation.
20. *Hexatoma* (*Eriocera*) *subpusilla* sp. nov., venation.
21. *Hexatoma* (*Eriocera*) *kariyai* sp. nov., venation.
22. *Hexatoma* (*Eriocera*) *pleskei* sp. nov., venation.
23. *Hexatoma* (*Eriocera*) *pyrrhopyga* sp. nov., venation.
24. *Hexatoma* (*Eriocera*) *cleopatra* sp. nov., venation.

PLATE 2

- FIG. 25. *Tipula* (*Acutipula*) *bipenicillata* Alexander, male hypopygium, details.
26. *Tipula* (*Acutipula*) *desidiosa* sp. nov., male hypopygium, details.
27. *Tipula* (*Acutipula*) *oncerodes* sp. nov., male hypopygium, details.
28. *Tipula* (*Indotipula*) *subyamata* sp. nov., male hypopygium, details.
29. *Tipula* (*Indotipula*) *yamata* Alexander, male hypopygium, details.
30. *Pseudolimnophila* *brunneinota* sp. nov., male hypopygium.
31. *Limnophila* (*Idioptera*) *ussuriana* sp. nov., male hypopygium.
32. *Limnophila* (*Dicranophragma*) *lætithorax* sp. nov., male hypopygium.

- FIG. 33. *Hexatoma (Eriocera) gifuensis* sp. nov., male hypopygium.
34. *Hexatoma (Eriocera) kariyai* sp. nov., male hypopygium.
35. *Hexatoma (Eriocera) kamiyai* (Alexander), male hypopygium, ædeagus.
36. *Hexatoma (Eriocera) subrectangularis* (Alexander), male hypopygium, ædeagus.
37. *Hexatoma (Eriocera) pyrrhopyga* sp. nov., male hypopygium.

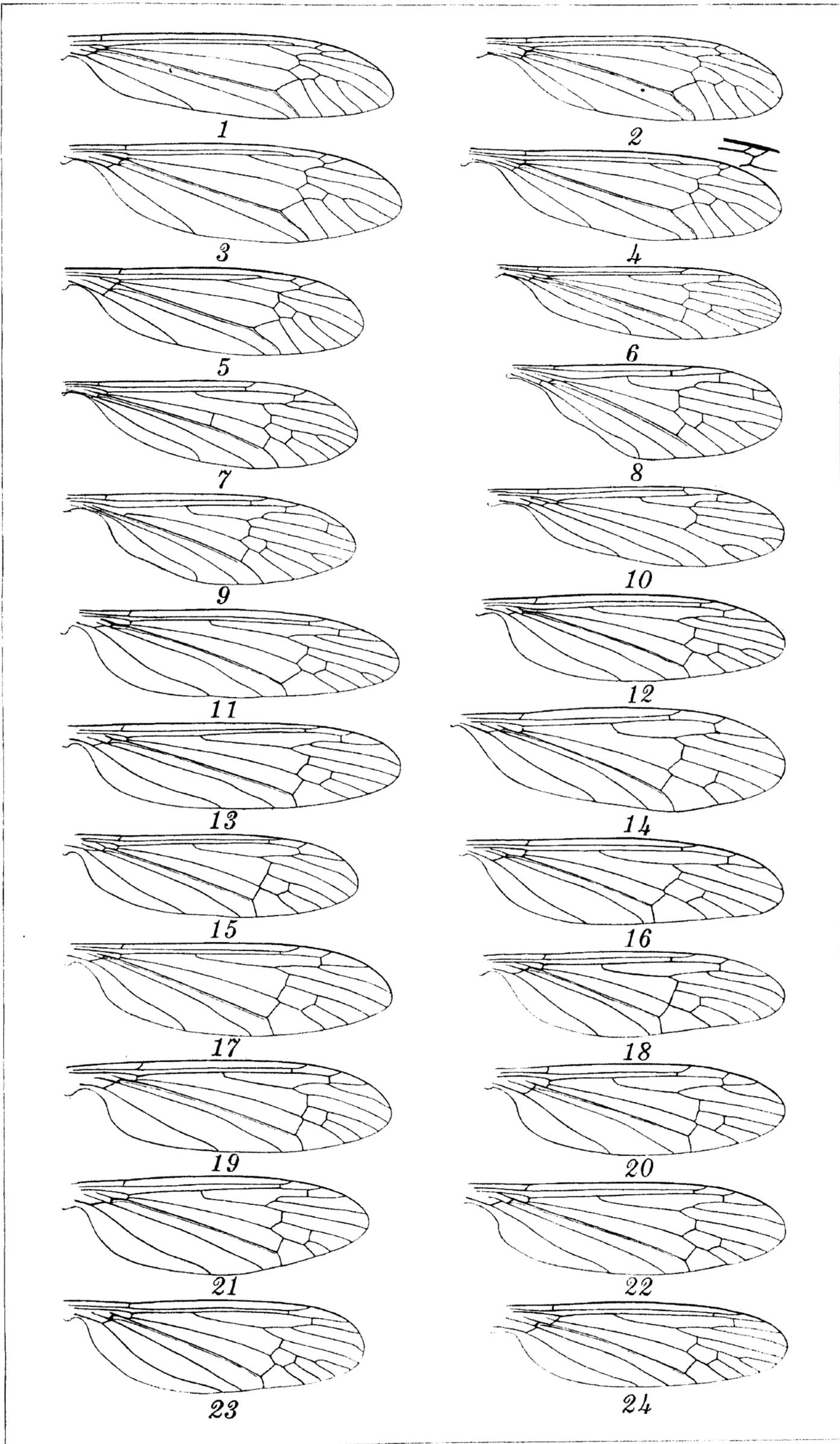


PLATE 1.

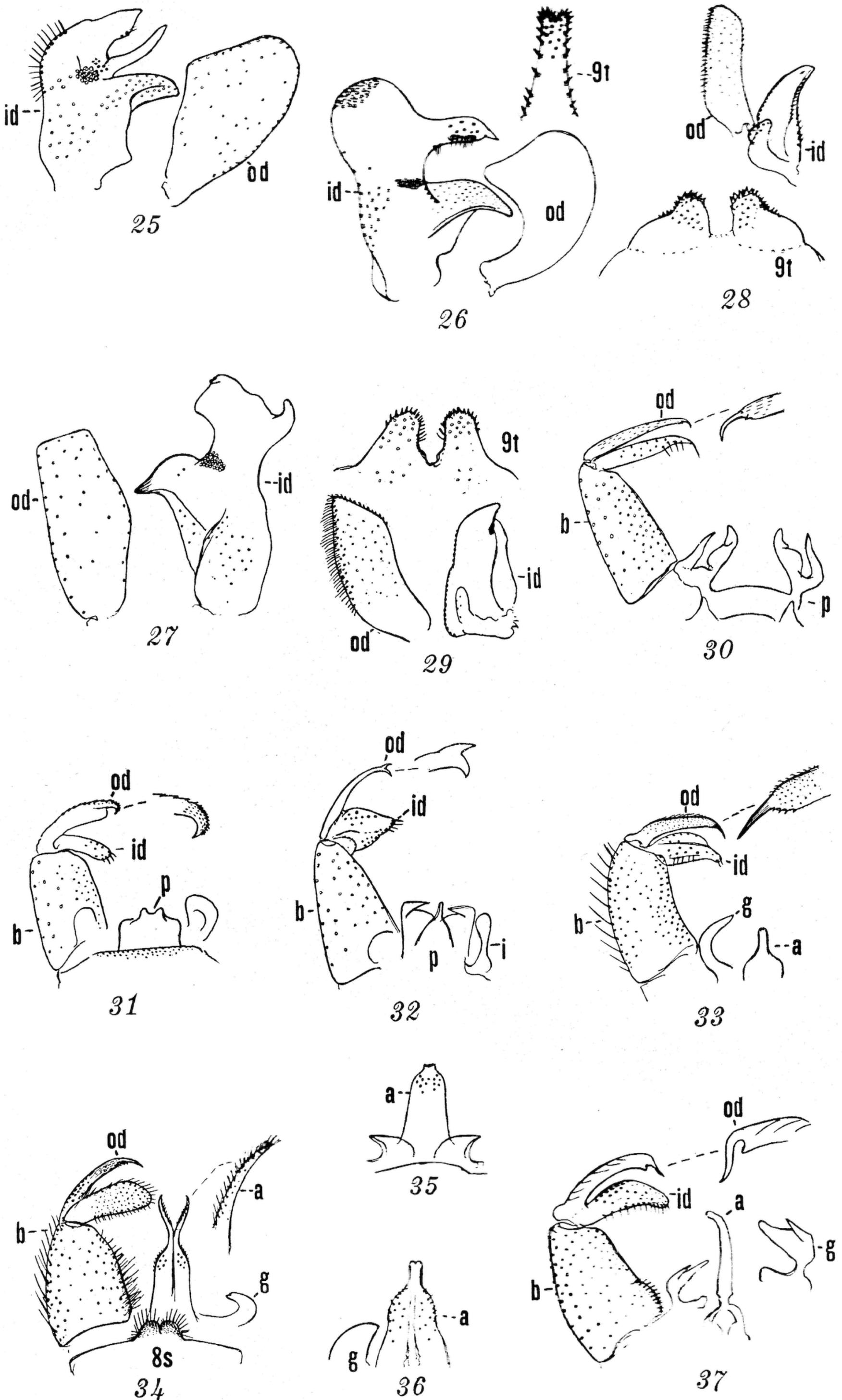


PLATE 2.