

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

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FIVE PLATES

The crane flies discussed at this time are virtually all from China, most of them being included in a collection made by a German collector, Herr Klapperich, in the highest mountains of western Fukien. This important series was sent to me by Dr. Ernst Cremer, of the Zoologisches Forschungsinstitut und Museum Alexander Koenig, Reichsinstitut, Bonn, Germany, where the types and uniques of the included species are preserved. One of the stations in Fukien is indicated as having an altitude up to 3,000 meters (9,750 feet), which is greater than any indicated on the maps of the National Geographic Society or in Goode's "School Atlas", 1925, for this region. My friend and former co-worker, Professor Claude Kellog, for many years resident in Foochow, Fukien Province, informs me that it is his belief that such high altitudes actually occur in western Fukien. Certain of the flies taken at this station, notably the subgenus *Pedicia* Latreille, add to the impression of an unusually high altitude at this particular latitude. Other important material from China is from Mount Omei, Szechwan, where it was collected by Mr. Tsen, through the continued friendly interest of the Reverend Mr. George M. Franck, and by the native collectors of the Reverend David C. Graham, the latter material being preserved in the United States National Museum. Still further Chinese material was kindly presented to me by Mr. Gaines Liu, collected in Szechwan and Anhwei. A number of records of little-

known Japanese species are given. A few additional species are from other sources that have been indicated in the text. Unless otherwise stated, all types are preserved in my private collection of these flies.

TIPULINÆ

PSELLIOPHORA SCURRA sp. nov. Plate 1, fig. 1; Plate 2, fig. 25.

General coloration yellow; mesonotal præscutum with three conspicuous, dark-brown stripes; antennæ with branches of flagellum (male) relatively short; posterior tibiæ with a broad, whitish ring beyond base; wings yellow, handsomely patterned with brown, cells C and Sc yellow; abdominal segments yellow, lateral and posterior borders of segments restrictedly darkened; outer segments uniformly black; male hypopygium with caudal margin of tergite with a small median lobe; outer dististyle with margin deeply incised; eighth sternite with a depressed-flattened median lobe.

Male.—Length, about 16 millimeters; wing, 15; antennæ, about 7.

Female.—Length, about 20 to 21 millimeters; wing, 16 to 17; antennæ, about 2.5.

Frontal prolongation of head yellow, very high, in virtual alignment with vertex; nasus stout; palpi obscure yellow, terminal segment at tip passing into dark brown. Antennæ (male) relatively long; basal three segments obscure yellow, succeeding segments bicolored, base and branches brown, outer end of stem yellow; outer flagellar segments uniformly darkened; branch of first flagellar segment relatively long and pointed; succeeding branches relatively short, as compared with *scalator*, the longest from two to two and one-half times the segments, provided with long, erect, white pubescence. Head yellow, vertex except medially with abundant, dark setæ.

Pronotum yellow. Mesonotal præscutum yellow, with three dark-brown stripes; scutum yellow, each lobe with two conspicuous dark-brown areas that are posterior prolongations of the lateral præscutal stripes; scutellum yellow; postnotum yellow. Pleura yellow. Halteres yellow, base of knob more infuscated. Legs with coxæ and trochanters yellow; fore- and middle legs reddish yellow, tarsal segments darker; posterior femora reddish yellow, tips very narrowly blackened; tibiæ brown with a broad, whitish ring immediately beyond base; tarsi brown. Wings

(Plate 1, fig. 1) deep yellow, handsomely patterned with brown, the latter including wing tip; a narrowly interrupted band at level of origin of Rs, widened behind in cells Cu and 1st A; posterior border of wing in cell 2d A darkened; basal portions of cells included in the darkened wing tip with small yellow, central spots, these involving cells R_2 to M_3 , inclusive; cells C and Sc yellow; veins brown, yellow on basal third of wing and in costal region; obliterative areas relatively restricted, white. Venation: Rs rather commonly spurred at origin; cell M_1 broadly sessile; cell 2d A wide.

Abdomen with basal segments yellow, caudal margins narrowly, lateral borders somewhat more extensively blackened; terminal segments in both sexes black. Ovipositor with cerci slender, straight. Male hypopygium with tergite (Plate 2, fig. 25, 9t) blackened, margin emarginate, with a low, median lobule in notch; lateral lobes subtruncate. Outer dististyle, *od*, black, sinuous at base, margin deeply incised, as shown; inner dististyle, *id*, long and relatively narrow, black, beak slender; below beak a smaller, blackened spine. Margin of ninth sternite with brushes of very long yellow setæ. Gonapophyses, *g*, appearing as blackened spikes, slender, straight, apex slightly decurved. Eighth sternite, 8s, with caudal margin prolonged into a flattened-depressed, median lobe that is about one and one-half as long as broad, very densely provided with long yellow setæ.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, May 29, 1938 (*Klapperich*). Allotopotype, female, June 15, 1938. Paratopotypes, 2 females, June 13 to 17, 1938.

The nearest relative of the present fly seems to be *Pselliophora scalator* Alexander, which, while generally similar, has the pattern of the wings and abdomen different, the antennal branches longer, and the structure of the male hypopygium distinct.

TANYPTERA SUBCOGNATA sp. nov. Plate 1, fig. 2; Plate 2, fig. 26.

General coloration of mesonotal præscutum obscure brownish yellow, disc almost covered by three confluent, polished, black stripes; flagellar branches black, relatively elongate; halteres uniformly pale yellow throughout; wings with a strong brownish-yellow suffusion, stigma and a narrow seam along cord darker brown; Rs long and straight; R_3 long, straight, approximately three times as long as R_{1+2} ; cell M_1 long-petiolate; cell 1st M_2

small; abdominal tergites obscure yellow, trivittate with black, median stripe continuous; inner dististyle of male hypopygium acutely pointed at apex.

Male.—Length, about 14 millimeters; wing, 14, antennæ, about 4.

Frontal prolongation of head dull black; palpi black. Antennæ black throughout; outer branch of first flagellar segment longer and slenderer than basal tubercle; paired branches of segments relatively slender, about two and one-half times as long as simple outer branch. Head dull black.

Pronotum black, yellow behind. Mesonotal præscutum with ground color restricted, obscure brownish yellow, humeral region clearer yellow, disc chiefly covered by three confluent, polished, black stripes, region of usual interspaces with a row of transverse impressions; posterior sclerites of notum polished black, posterior portion of mid area of scutum and mediotergite sparsely pruinose; parascutella paler. Pleura variegated obscure yellow and dark, surface more or less pruinose; obscure, brownish-yellow areas on dorsal sternopleurite, clear yellow on ventral pleurotergite; dorsopleural membrane buffy yellow. Halteres uniformly pale yellow. Legs with coxæ black, sparsely pruinose; trochanters brownish yellow; all legs broken beyond one-third length of femora, this portion obscure brownish yellow, passing into black. Wings (Plate 1, fig. 2) with a strong brownish-yellow suffusion, prearcular and costal portions clearer yellow; stigma medium brown, nearly concolorous with a narrow brown seam on cord; veins dark brown, paler in brightened areas. Venation: Rs long and straight, about twice m-cu; R_{1+2} oblique, about one-third length of long, straight R_3 ; cell M_1 only a little longer than its petiole; cell 1st M_2 small.

Abdomen with tergites obscure yellow, with a broad, continuous, median black stripe, and narrower, sublateral vittæ that are broken on the basal rings of segments, lacking on first segment and basal half of second; lateral margins of tergites pale; outer segments, including moderate-sized hypopygium, polished black. Male hypopygium with outer dististyle (Plate 2, fig. 26, *od*) a black, ear-shaped blade, narrowed to subacute apex, surface with microscopic punctures, including a group of about six or seven larger punctures on upper portion. Inner dististyle, *id*, strongly curved, heavily blackened, at apex suddenly narrowed into a long, straight spine; surface of style, especially near apical spine, with long, yellow setæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Yien Lao Dong, altitude 6,500 feet, August 5, 1935 (*Graham*).

The most similar described species is *Tanyptera cognata* Alexander, likewise from western China, which differs in the coloration of the body and halteres and in the wing venation, especially the more arcuated R_s and R_3 .

TANYPTERA ANTICA ANTICOIDES subsp. nov.

Female.—Length, about 17 millimeters; wing, 11.5; antennæ, about 2.9 mm.

Head and thorax dull black, the latter more or less roughened and alutaceous. Antennæ (female) black throughout, 13-segmented; first flagellar segment a very little longer than second; succeeding segments gradually decreasing in length but becoming more convex on ventral face; terminal segment abruptly reduced, about one-fourth size of penultimate but of approximately similar shape. Legs about as in the typical form; white ring of foretibia very broad, including about one-half of total length of segment; posterior tibia uniformly pale brown, distal half not differentiated in color from base. Wings with a brownish-yellow tinge; outer radial field except at apex, together with adjacent portions of cells M_1 , 1st M_2 , and 2d M_2 conspicuously dark brown; veins yellowish brown to pale brown. Venation: R_s long and more nearly straight than in typical *antica*, exceeding three times length of m-cu; r-m reduced to a point by approximation of veins R_{4+5} and M_{1+2} ; cell 1st M_2 about one and one-half as long as wide. Abdomen black, with a subbasal and a subterminal reddish ring. Ovipositor with cerci unusually broad and compressed, hypoalvæ slenderer.

Habitat.—China (Fukien).

Holotype, female, Kuatun, altitude 2,500 to 3,000 meters, May 23, 1938 (*Klapperich*).

DICTENIDIA STALACTITICA sp. nov. Plate 1, fig. 3; Plate 2, figs. 27 to 30.

General coloration of mesonotum black, præscutum yellow with three black stripes; antennæ elongate, about one-half length of body, flagellar branches long and slender; posterior tibiæ brown, with a narrow, yellowish-white, subbasal ring; wing subhyaline, with a relatively heavy brown pattern; no macrotrichia in cells of wing; male hypopygium with outer dististyle unusually long and attenuated; inner dististyle with beak produced into a lobe or flange on lower face.

Male.—Length, about 14 millimeters; wing, 12.5; antennæ, about 7.

Frontal prolongation of head short, obscure yellow, blackened above, provided with abundant black setæ; palpi black. Antennæ (Plate 2, fig. 27) elongate; scape brown, remainder of organ black with only distal ends of flagellar segments somewhat paler; branches of flagellum unusually long, basal branch longer and somewhat stouter than outer branch, at and before apex with conspicuous setæ; branch of first flagellar segment nearly twice as long as segment, without setæ; terminal segment elongate, simple, a little shorter than apical branch of penultimate segment. Head dark brown, polished; anterior vertex broad, about twice diameter of scape.

Pronotum obscure yellow, darker laterally. Mesonotal præscutum with surface dull or only feebly shiny, obscure yellow, with three black stripes; scutum and scutellum uniformly blackened, parascutella a little paler; mediotergite blackened, pleurotergite paler. Pleura obscure yellow, variegated with darker; dorsopleural membrane buffy yellow. Halteres with stem obscure yellow, knob dark brown. Legs with coxæ brownish yellow; trochanters obscure yellow; femora brownish yellow, tip blackened, preceded by a very vague, clearer yellow, subterminal ring; tibiæ brown, posterior pair with a narrow yellowish-white, subbasal ring that is a little wider than darkened base; tarsi black. Wings (Plate 1, fig. 3) subhyaline, with a relatively heavy brown pattern, as follows: Postarcular in basal fourth of cell R; origin of Rs; along anterior cord and as a broad apex in cells R₂ to 2d M₂, inclusive; posterior cord more narrowly seamed; prearcular field and basal half of cell C more yellowish; veins dark brown. No macrotrichia in cells of wing. Venation: petiole of cell M₁ shorter than m.

Abdomen obscure yellow, tergites with a conspicuous, median, black stripe, areas of individual segments widened behind; lateral stripes poorly indicated; sternites extensively darkened on posterior portions; terminal segments, including hypopygium, black. Male hypopygium (Plate 2, fig. 28) with outer dististyle (Plate 2, fig. 29, *od*) geniculate, distal portion about twice as long as elongate, slender base, swollen on posterior third. Inner dististyle, *id*, with crest high, beak with a conspicuous lobe or flange on lower margin. Gonapophysis, *g*, slender, gently curved, surface with numerous appressed setæ.

In *Dictenidia glabrata* (Plate 2, fig. 30) the outer dististyle, *od*, is much shorter, from a shortened base. Inner dististyle, *id*, with beak slender and without flange. Gonapophysis, *g*, shorter.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, May 23, 1938 (*Klapperich*).

Dictenidia stalactitica is closest to *D. glabrata* Alexander, of western China, which, in the male sex, has the wings almost unpatterned, the antennæ with shorter branches, and the details of structure of the male hypopygium distinct.

DICTENIDIA LUTEICOSTALIS LONGISECTOR subsp. nov.

Very similar to the typical form, differing in the venation, especially the very long Rs which is about one and one-fourth as long as R₃. The wing pattern is much more distinct, including a short-oval, dark-brown stigma and a conspicuous, dark-brown apex, the inner margin of the latter lying shortly beyond the level of the fork of M₁₊₂. In typical *luteicostalis* the stigma is poorly indicated, pale brown, while the wing apex is clear or virtually so; Rs and R₃ subequal in length.

Habitat.—China (Fukien).

Holotype, female, Kuatun, Fukien, altitude 2,500 to 3,000 meters, May 12, 1938 (*Klapperich*). Paratype, 1 female, Tienmu-shan, Chekiang, July 27, 1936 (*Piel*); Museum Heude, Shanghai.

DICTENIDIA PICTIPENNIS FASCIATA Coquillett.

Dictenidia fasciata COQUILLETT, Proc. U. S. Nat. Mus. 21 (1898) 304.

Dictenidia pictipennis fasciata ALEXANDER, Philip. Journ. Sci. 60 (1936) 170.

Widely distributed in Japan.

HONSHIU, Lake Chuzenji Shimotsuke, 4,800 feet, July 22, 1923 (*Esaki*); Okkai, Kotsuke, July 28, 1923 (*Esaki*); Tokyo, Imperial University, May 24 to 28, 1922 (*Esaki*); Kofu, Kai (*L. Drouart de Lezey*), Paris Museum; Mount Minomo, Settsu, June 22, 1922 (*Esaki*); Kibune, Kyoto, April 20, 1930 (*Tokunaga*); Otaka Village, Tohaku County, near Mount Daisen, Hoki, June 6, 1930 (*Hibi*); Province of Harima, May 1916. KIUSHIU, Gokanosho, Higo, June 5, 1936 (*Issiki*).

CTENOPHORA NOHIRAI Matsumura.

Ctenophora nohiræ MATSUMURA, Thous. Ins. Japan Addit. 2 (1916) 452-453.

Cnemoncosis hilgendorfi ENDERLEIN, Zool. Anzeig. 52 (1921) 219, 220.

Ctenophora nohirai ALEXANDER, Philip. Journ. Sci. 60 (1936) 167.

HOKKAIDO, Jozankei, Ishikari, July 29, 1923 (*Kuwayama*). HONSHIU, Kofu, Kai (*L. Drouart de Lezey*), Paris Museum.

PLOCIMAS MAGNIFICUS ENDERLEIN. Plate 2, fig. 31.

Plocimas magnificus ENDERLEIN, Zool. Anzeig. 52 (1921) 226, 227.

Plocimas magnificus ALEXANDER, Philip. Journ. Sci. 66 (1938) 93, 94.

Known from Kwangtung and southern Kiangsi Provinces, southeastern China. A male from Kuatun, western Fukien, altitude 2,500 to 3,000 meters, June 8, 1938 (*Klapperich*).

There is no essential difference in structure between the antennæ of the two sexes, in this regard differing markedly from the condition found in the restricted ctenophorine groups (*Ctenophora* Meigen, *Tanyptera* Latreille, *Pselliophora* Osten Sacken, *Diitenidia* Brullé) where the male has conspicuous branches on the antennal flagellar segments, while the female has the antenna unusually reduced and simple.

Male hypopygium (Plate 2, fig. 31) massive but not conspicuously enlarged. Eight tergite narrow on middorsal portion, sides more expanded. Tergite and sternite entirely fused but their point of union indicated by a glabrous strip. Suture of basistyle indicated only beneath. Ninth tergite with caudal margin broadly and evenly emarginate. Outer dististyle, *od*, darkened, narrowed outwardly; marginal setæ elongate, those of disc very small, subspinous. Inner dististyle, *id*, bilobed, outer lobe a narrow sclerotized blade, its tip subacute. Eighth sternite moderately projecting unarmed.

LONGURIO PULVEROSA (Matsumura).

Togotipula pulverosa MATSUMURA, Thous. Ins. Japan Addit. 2 (1916) 464, 465.

Widely distributed throughout the more southern islands of Japan.

HONSHIU, Mount Akagi, Kotsuke, altitude 6,695 feet, July 28, 1923 (*Esaki*); Hakkotsu, Shinano, July 17, 1918 (*Shiraki*); Mount Ibuki, Mino, June 4, 1921 (*Takeuchi*); Chichibu, Musashi, May 30, 1919 (*Takahashi*); Kobe, Settsu; Dietz Collection, Academy of Natural Sciences, Philadelphia; Kyoto, Yamashiro, altitude 490 feet, July 15, 1928 (*Tokunaga*); Mount Kyusho, Hoki, altitude 860 feet, June 13, 1930 (*Hibi*). SHIKOKU, July 4, 1926 (*Issiki*); KIUSHIU, Near Fukuoka, Chikuzen, June 11, 1924 (*H. Hori*).

CTENACROSCELIS MIKADO (Westwood).

Tipula Mikado WESTWOOD, Trans. Ent. Soc. London (1876) 504.

HONSHIU, Wakayama, Kii, 1928 (*Sakaguchi*); Mount Kyusho, Hoki, altitude 860 feet, June 13, 1930 (*Hibi*); Tokusa, Nagato, August 6, 1922 (*Shiraki*). SHIKOKU, Mount Ishitsuchi, altitude 2,600 feet, August 10, 1925 (*Harukawa*).

CTENACROSCELIS CLAVIPES Edwards.

Ctenacroscelis clavipes EDWARDS, Ann. & Mag. Nat. Hist. (9) 8 (1921) 111-113.

FORMOSA, Chipon, altitude 500 feet, July 4, 1927 (*Issiki*); Hassensan, altitude 2,450 to 6,200 feet, June 7 to 24, 1934 (*Gressitt*).

CTENACROSCELIS HERCULEANUS sp. nov. Plate 3, fig. 32.

Belongs to the *brobdignagius* group; mesonotal scutum brown, median region not brightened; scutellum brownish gray, parascutella dark brown; mediotergite clear ashy gray, darkened laterally in front; wings with a strong grayish tinge, prearcular field and costal border more yellowish brown; stigma brownish yellow, inconspicuous; abdomen blackish gray, central portion of basal tergite brightened; male hypopygium with lateral tergal lobes relatively long; eight sternite with margin bilobed.

Male.—Length, about 35 millimeters; wing, 40; wing expanse, 87; antennæ, about 5.3.

Frontal prolongation of head relatively long, reddish brown above, darker brown on ventral half; nasus conspicuous; palpi brownish black. Antennæ medium brown; flagellar segments only moderately convex beneath; terminal segment elongate. Head yellowish gray in front, clearer gray behind; vertical tubercle simple.

Pronotum yellow, weakly darkened medially. Mesonotal præscutum with ground color yellow, restricted to humeral and lateral portions, disc occupied by four dark-gray stripes that are broadly margined with black, median vitta and interspaces dark brown; scutum brown, median region not brightened, each lobe with two nearly contiguous, dark-gray areas; scutellum brownish gray, parascutella dark brown; mediotergite chiefly clear ashy gray, sides in front darkened, posterior border more buffy. Pleura and pleurotergite clear light yellow; a very narrow and partly broken dorsolongitudinal stripe extending from cervical region and lateral margin of pronotum caudad beneath anterior spiracle to wing root; dorsal posterior angle of pleurotergite darkened. Halteres brown, base of stem restrictedly reddish yellow. Legs with coxæ and trochanters yellow; femora yellow, tips narrowly and rather inconspicuously blackened; tibiæ yellow, tips narrowly blackened, the amount a little less than femoral darkening; posterior tibiæ only a little swollen at tips; tarsi obscure yellow, passing through brownish yellow to brownish black. Wings with a strong grayish tinge, prearcular field and costal border more yellowish brown; stigma pale brownish yellow, inconspicuous; veins brown. Venation: Rs short, less than m-cu; R₂ meeting R₃₊₄ nearly its own length before fork of latter; R₄ angularly bent at near two-

thirds its length; petiole of cell M_1 less than m ; $m-cu$ a short distance before fork of M_{3+4} .

Abdomen blackish gray, central portion of first tergite a little brightened; lateral borders of tergites buffy; basal sternites brownish ochreous, soon passing into blackish gray; hypopygium dark, more ventral portions brighter colored. Male hypopygium with tergite (Plate 3, fig. 32, 9t) longer than in *brobdignagius*, median notch deeper, lateral lobes correspondingly longer and with a very abundant delicate pubescence and longer yellow setæ along outer margin. Both dististyles, *id*, *od*, longer than in *brobdignagius*, outer dististyle exceeding inner in length, its apex obtusely rounded. Conformation and armature of eighth sternite, 8s, much as in *brobdignagius*.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, May 24, 1938 (*Klapperich*).

Ctenacroscelis herculeanus is allied to *C. brobdignagius* (Westwood), yet quite distinct in the coloration of the body and wings and in the structure of the male hypopygium.

CTENACROSCELIS GOLIATH sp. nov. Plate 1, fig. 4; Plate 3, fig. 33.

Belongs to the *brobdignagius* group; mesonotal præscutum with four conspicuous, gray stripes that are insensibly bordered by blackish, mesal edges of intermediate pair forming a more conspicuous, median vitta; scutellum dark brown, parascutella much paler, testaceous yellow; mediotergite brownish gray, lateral and posterior borders yellow; pleura yellow, dorsolongitudinal dark stripe reduced or lacking; legs long, brownish yellow, tips of femora narrowly blackened; wings strongly suffused with reddish brown, prearcular field blackened, cell *Sc* and stigma more yellowish brown; abdominal tergites dark reddish brown, not at all brightened medially, lateral borders obscure yellow; male hypopygium with eighth sternite unprovided with lobes or hair tufts.

Male.—Length, about 35 millimeters; wing, 43; wing expanse, 92; antennæ, about 5.

Frontal prolongation of head brown; nasus long and conspicuous; palpi brownish black. Antennæ pale brown throughout; flagellar segments scarcely produced beneath, verticils short. Head fulvous brown, posterior vertex and occiput with a narrow, dark-brown, median vitta.

Pronotum infuscated medially, paling to yellow on sides. Mesonotal præscutum brownish yellow with four conspicuous

gray stripes that are insensibly bordered by blackish, mesal edges of intermediate stripes forming a continuous median vitta; scutum reddish brown medially, each lobe with two confluent, gray areas; scutellum dark brown, much darker than testaceous yellow parascutella; mediotergite brownish gray, lateral and posterior borders yellowish. Pleura yellow, without a continuous dark dorsal line, this line represented only by small dark dots above anterior spiracle and before wing root; ventral sternopleurite and ventral anepisternum slightly infuscated. Halteres slender, dark brown, base of stem restrictedly pale. Legs with coxæ and trochanters yellow; femora brownish yellow, tips narrowly blackened; tibiæ yellowish brown, tips very narrowly and insensibly darkened, posterior pair not swollen; tarsi passing through light brown to brownish black; legs long and conspicuous, especially posterior pair. Wings (Plate 1, fig. 4) with a strong reddish-brown tinge, prearcular field more blackened; cell Sc and stigma more yellowish brown; veins brownish yellow. Venation: Sc_2+R_1 short, only a little longer than free tip of Sc_2 ; R_2 before fork of R_{3+2} ; petiole of cell M_1 about one-half m ; $m-cu$ long, just before fork of M_{3+4} .

Abdominal tergites dark reddish brown, sublateral and subapical portions darker brown, very narrow posterior margins and broader lateral borders obscure yellow; sternites more reddish brown; hypopygium reddish brown, tergal lobes velvety black, the color produced by abundant black setæ. Male hypopygium with the ninth tergite (Plate 3, fig. 33, 9t) relatively short, apical notch V-shaped, lateral lobes narrowly obtuse at apex; setæ of lobes extending around entire apical margin, not restricted to outer edge as in several allied species. Outer dististyle, *od*, shaped like a dog's ear, narrowed to obtuse tip; setæ sparse and scattered. Inner dististyle, *id*, relatively short, apex with a small, upturned flange; before apex with a long flange or lateral lobe. Eighth sternite, *8s*, moderately sheathing, caudal margin evenly, convexly rounded, without lobes or tufts of any kind, the only armature being relatively short and inconspicuous setæ that are more aggregated on the median portion.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, June 8, 1938 (*Klapperich*).

The nearest ally of the present fly is *Ctenacroscelis brobdignus* (Westwood), which differs conspicuously in the colora-

tion and in the structure of the male hypopygium. In *brobdignagius* there is a conspicuous, pale, median stripe extending from the mesonotal suture caudad onto the abdomen. The present fly is well distinguished by the simple eighth sternite of the male hypopygium.

TIPULA (NIPPOTIPULA) KLAPPERICHI sp. nov. Plate 1, fig. 5.

General coloration yellow, mesonotal præscutum and scutum very conspicuously patterned with dark brown; antennal flagellum uniformly black; legs black, femoral bases obscure yellow; wings with a brownish tinge, patterned with darker brown; a narrow, continuous seam around wing apex, not broken by pale spots in medial field; an incomplete yellow band beyond stigma; abdomen dark brown, posterior borders of outer segments reddish brown.

Female.—Length, about 42 millimeters; wing, 24.

Frontal prolongation of head brownish yellow, with golden setæ; nasus lacking; palpi black. Antennæ with scape and pedicel yellow, flagellum black; basal flagellar segments subcylindrical, with poorly developed basal enlargements, the outer segments with the swellings more developed; thirteenth segment elongate, only a little shorter than penultimate, strongly narrowed outwardly; verticils very slightly exceeding segments in length. Head orange-yellow; vertical tubercle very low.

Pronotum light yellow, infuscated medially. Mesonotal præscutum light yellow with three very conspicuous, entire, dark-brown stripes, median stripe split by a capillary, gray, median vitta; lateral stripes straight; scutum yellow, each lobe with two confluent, dark-brown areas; scutellum yellow, weakly infuscated, parascutella light yellow; postnotum light yellow, mediotergite with paired darkened areas on posterior portion; mesonotum with abundant erect setæ, longer and more conspicuous on the more posterior sclerites. Pleura yellow, anepisternum suffused with reddish brown; ventral sternopleurite and meron abruptly gray pruinose; dorsopleural membrane yellow. Halteres with stem pale brown, knob pale yellow. Legs with coxæ yellow-pollinose, fore pair darkened in front; trochanters yellow; femora brownish black, the bases obscure yellow; tibiæ and tarsi black. Wings (Plate 1, fig. 5) with a brownish tinge, patterned with darker brown; stigma brown, encircled by light yellow, much more extensive and distinct outwardly as a poststigmatal brightening in cells Sc_2 , R_2 , and R_3 ; major dark areas at origin of R_s , on anterior cord and at near midlength of outer

radial field; less distinct brown washes at near midlength and at outer end of cell M, at near midlength of cell Cu and at axillary border; continuous brown seams include wing tip and along vein 2d A; cell Sc a trifle darker than cell C; no pale marginal spots in any cells of wing; dark postarcular area in cells R and M virtually lacking; veins brown. R_{1+2} without trichia; remaining outer radial branches, together with M_{1+2} , with trichia. Venation: Rs exceeding three times m-cu, the latter shortly before midlength of M_{3+4} .

Abdomen elongate, dark brown, yellowish gray-pruinose; posterior borders of intermediate and outer segments, especially sternites, reddish brown; lateral tergal borders paler gray. Ovipositor with cerci relatively stout and straight, outer faces grooved, tips obtusely rounded; hypovalvæ shorter and deeper, paler yellow, tips narrowly obtuse to subtruncate.

Habitat.—China (Fukien).

Holotype, female, Kuatun, altitude 2,500 to 3,000 meters, April 14, 1938 (*Klapperich*).

Tipula (*Nippotipula*) *klapperichi* is named in honor of the collector, who has added most materially to our knowledge of the insect fauna of the higher mountains of western Fukien. The fly is entirely distinct from other species of the subgenus so far discovered in eastern Asia. The continuous darkened border of the wing apex readily differentiates it from other regional species.

TIPULA (FORMOTIPULA) SPOLIATRIX sp. nov. Plate 1, fig. 6; Plate 3, fig. 34.

General coloration black, præscutum with four dark-gray stripes; antennæ black throughout; wings with a weak blackish tinge, stigma long oval, dark brown; R_{1+2} preserved; abdomen with segments two to four orange, outer segments black; male hypopygium with ninth tergite very large and massive, caudal margin with six small, blackened, decurved points; dististyle with two conspicuous, black spines.

Male.—Length, about 12 millimeters; wing, 14; antennæ, about 3.8.

Female.—Length, about 13 millimeters; wing, 13 to 14; antennæ, 3.

Frontal prolongation of head black, sparsely pruinose; nasus distinct; palpi black. Antennæ black throughout; flagellar segments with basal swellings only feebly developed; verticils subequal in length to segments. Head velvety black, pruinose on orbits and behind; vertical tubercle low, weakly bifid.

Pronotum black. Mesonotal præscutum black, with four dark-gray stripes; scutum blackish gray; posterior sclerites of notum pruinose. Pleura black, sparsely pruinose. Halteres black. Legs black, femoral bases vaguely and restrictedly brightened. Wings (Plate 1, fig. 6) with a weak blackish tinge; stigma long-oval, dark brown; veins brownish black. Venation: Rs subequal in length to long m-cu; R_{1+2} preserved.

Abdomen with basal tergite orange, brownish black on sides; segments two to four, inclusive, orange; outer segments, including genitalia of both sexes, intense black. Male hypopygium (Plate 3, fig. 34) relatively small but compact. Ninth tergite, 9t, very large and massive, provided with abundant erect, dark setæ; caudal margin beneath with six small, blackened points, separated by shallow, rounded notches. Apex of lobe of basistyle short and stout, with coarse setæ that are nearly as long as the apex itself. Dististyle, *d*, with apical beak slender, decurved; face of style with two blackened spines, basal spine long and slender, nearly straight.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, June 7, 1938 (*Klapperich*). Allotopotype, female, June 5, 1938. Paratopotypes, 2 females, May 23 to June 12, 1938.

Tipula (*Formotipula*) *spoliatrix* is entirely different from the other somewhat similar regional species of the subgenus. The structure of the male hypopygium furnishes the most distinctive specific characters.

TIPULA (ACUTIPULA) PLATYCANTHA Alexander.

Tipula (*Acutipula*) *platycantha* ALEXANDER, Philip. Journ. Sci. 54 (1934) 314, 315.

SZECHWAN, Kingfoo Shan, July 1932 (*Gaines Liu*) Collector's No. 769; Kwanshien, altitude 3,500 feet, August 6, 1937 (*Franck*); Beh Luh Din (Peluhing), altitude 6,000 feet, July 27, 1933 (*Graham*).

TIPULA (ACUTIPULA) LUTEINOTALIS sp. nov. Plate 1, fig. 7; Plate 3, figs. 35 and 36.

Mesonotal præscutum light gray with four darker-gray stripes; postnotal mediotergite clear golden-yellow; wings brownish gray, unpatterned, costal border and stigma darker; a yellowish-white obliterative area before stigma; abdominal tergites brownish gray, with a broken, sooty black, sublateral stripe, median stripe more diffuse and poorly defined; male hypopygium with ninth tergite broadly produced, its apex split by a deep notch

into two lobes; outer dististyle long and narrow; inner dististyle with apical beak slender, blackened; face of style with two powerful spines.

Male.—Length, about 20 to 22 millimeters; wing, 24 to 26; antennæ, about 5 to 5.3.

Female.—Length, about 26 to 27 millimeters; wing, 22 to 23.

Frontal prolongation of head brown; nasus long and conspicuous; palpi dark brown. Antennæ with scape light brown, pedicel yellow, flagellum brown; verticils very long. Head gray, posterior orbits narrowly more buffy; vestiture of head black.

Pronotum light yellow, weakly darker laterally. Mesonotal præscutum light gray, with four darker-gray stripes, mesal edges of intermediate pair slightly darker; setæ of interspaces sparse and weak; scutum gray, each lobe with two entirely separate, darker-gray areas; scutellum brownish yellow with golden pubescence, parascutella darker; mediotergite clear golden yellow. Pleura buffy yellow, scarcely variegated with darker; dorsopleural membrane somewhat darker yellow. Halteres with stem black, knob a little paler, base of stem restrictedly yellow. Legs with coxæ buffy yellow; trochanters yellow; femora yellow, tips rather narrowly and weakly darkened; tibiæ brownish yellow, tips very narrowly dark brown; tarsi passing through dark brown to black. Wings (Plate 1, fig. 7) with a brownish-gray tinge, prearcular field and costal border a little darker, especially cell Sc; stigma brown, preceded by a pale yellowish-white, oblitative area; pale areas across cell 1st M_2 less conspicuous, more whitened; veins dark brown. Venation: Rs variable in length, from slightly longer than m-cu to one and one-half as long as this vein; petiole of cell M_1 subequal to m; m-cu at or very close to fork of M_{3+4} .

Abdominal tergites brownish gray, with a broken, sooty-black, sublateral, stripe, lateral borders narrowly paler; median tergal vitta paler and more diffuse; sternites brownish gray, outer segments and hypopygium darker gray. Male hypopygium of moderate size. Ninth tergite (Plate 3, fig. 35, 9*t*) with median projection broad, at apex divided by a deep median split into two lobes. Outer dististyle (Plate 3, fig. 36, *od*) unusually narrow, length exceeding three times greatest width, margin entire. Inner dististyle, *id*, with apical beak long and narrow, blackened; dorsal crest relatively low; on face of style with two powerful spines, the more basal spine larger and more nearly straight.

Habitat.—China (Fukien).

Holotype, male, Kuantun, Fukien, altitude 2,500 to 3,000 meters, April 14, 1938 (*Klapperich*). Allotopotype, female, April 8, 1938. Paratopotypes, 1 male and 1 female, April 12 to 14, 1938; paratype, 1 male, Tien-mu-shan, northern Chekiang, May 21, 1937 (*Suenson*).

Tipula (*Acutipula*) *luteinotalis* is quite distinct from the other now numerous Chinese species of the subgenus having unpatterned wings. The clear yellow postnotum, and especially the structure of the male hypopygium, readily separate it from species with a somewhat similar inner dististyle, as *T. (A.) biramosa* Alexander and *T. (A.) bihastata* sp. nov.

TIPULA (ACUTIPULA) BIHASTATA sp. nov. Plate 1, fig. 8; Plate 3, figs. 37 and 38.

Mesonotum yellowish gray, præscutum with four more brownish-gray stripes; pronotum orange-yellow; pleura and ventral pleurotergites uniformly yellow; antennæ relatively long, flagellum brownish black; wings grayish brown, stigma and cell Sc darker brown; a restricted, dark seam on m-cu; abdominal tergites obscure yellow, with sublateral, black stripes, terminal segments uniformly darkened; median lobe of ninth tergite of hypopygium relatively broad, bifid at apex; inner dististyle with apical portion produced into two strong, slender spines; eighth sternite with a setiferous lobe on caudal margin on either side of median line.

Male.—Length, about 18 millimeters; wing, 21.5; antennæ, about 5.

Frontal prolongation of head brownish black; nasus conspicuous; palpi with basal two segments brownish black; outer two segments dark brown, with paler incisures. Antennæ relatively long, as shown by measurements, if bent backward extending to beyond base of halteres; scape and pedicel yellow, first flagellar segment light brown, remaining segments brownish black; basal enlargements of segments small but distinct, with conspicuous verticils that are a little longer than the segments. Head dark gray, posterior orbits narrowly paler; anterior vertex about two and one-half times diameter of scape at its base.

Pronotum clear orange-yellow throughout. Mesonotal præscutum with four more brownish-gray stripes, centers of intermediate pair a little paler, leaving brown borders that are subequal in width to median interspace; mesal edge of lateral stripe merging gradually into ground color of interspace; scutum yellowish gray, each lobe variegated with darker-brown

areas; posterior sclerites of notum yellowish gray, lateral borders of mediotergite more yellow pollinose, posterior lateral angles darkened. Pleura and pleurotergite uniformly yellow, unmarked, anatergite of pleurotergite gray-pruinose. Halteres dark brown, base of stem and apex of knob pale yellow. Legs with coxæ and trochanters yellow; femora narrowly yellow at base, passing through brown to black; tibiæ and tarsi brownish-black; claws with basal tooth. Wings (Plate 1, fig. 8) with a grayish-brown tinge, cell Sc and stigma darker brown; prearcular field and cell C slightly more yellow than remainder of ground; a narrow, dark seam on m-cu; oblitative areas before cord conspicuous; veins black. Venation: Rs subequal in length to m-cu; m a little longer than petiole of cell M₁.

Abdominal tergites obscure yellow, with sublateral black stripes that are narrowly interrupted at posterior borders; lateral margins of tergites paling to gray; basal sternites yellow; outer segments, including hypopygium, passing into black. Male hypopygium with caudal lobe of tergite (Plate 3, fig. 37, 9t) relatively broad, bifid at apex, lobes rounded and set with blackened, peglike spines. Outer dististyle entirely pale, rather broadly dilated on basal three-fourths, apex strongly narrowed. Inner dististyle (Plate 3, fig. 39, id) with apical portion produced into two strong, slender spines from a common, fused, basal portion; outer spine stouter and a little longer than inner; rostral portion of style heavily blackened. Eighth sternite sheathing, apex with two lobes that are provided with conspicuous setæ, one lobe on either side of pale membrane of median line.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Hwa Ien Ting Temple, altitude 6,500 feet, June 15, 1939 (*Tsen*).

The male hypopygium of the present fly most resembles that of *Tipula* (*Acutipula*) *biramosa* Alexander and *T. (A.) luteinotalis* sp. nov., which differ in the details of structure of the male hypopygium.

TIPULA (ACUTIPULA) STENOTERGA sp. nov. Plate 1, fig. 9; Plate 4, fig. 39.

General coloration of mesonotum yellowish gray, præscutum with four narrow, darker stripes, intermediate pair dark-bordered; antennæ relatively short, flagellum brown; knobs of halteres yellow; wings patterned, including a major area in cell Cu; outer radial field chiefly darkened; abdominal tergites

orange-yellow, narrowly trivittate with brown, outer segments uniformly blackened; male hypopygium with median tergal lobe narrow but bifid at tip; eight sternite with a median, pale lobe that is densely clothed with long, yellow setæ; additional groups of long setæ on either side of middle of sternite.

Male.—Length, about 18 millimeters; wing, 21.5; antennæ, about 3.5.

Frontal prolongation of head grayish brown; nasus distinct; palpi pale brown. Antennæ relatively short; scape and pedicel yellow; first flagellar segment yellow, succeeding segments brown; basal enlargements of segments very small; verticils long. Head gray; anterior vertex approximately three times as wide at base as scape.

Pronotum obscure yellow. Mesonotal præscutum yellowish gray, with four stripes, narrow, darker brownish-gray intermediate pair with inner margins on anterior half narrowly more blackened, cephalic portion of sclerite more extensively darkened; lateral stripes less clearly defined; posterior sclerites of notum gray, variegated with darker on mediotergite, forming a more or less distinct V-shaped figure. Pleura yellow, pleurotergite darkened. Halteres elongate, brown, extreme base of stem and knob more yellowish. Legs with coxæ and trochanters yellow; remainder of legs black, femoral bases narrowly obscure yellow; claws (male) toothed. Wings (Plate 1, fig. 9) grayish subhyaline, patterned with darker, including usual cloud at near midlength of cell Cu; outer radial field chiefly darkened, only distal half of cell R₅ more brightened, this area similarly involving more than one-half of cell 1st M₂ and narrow seams along most anterior medial veins; outer fourth of cell M darkened; cell Sc and stigma uniformly dark; prearcular field and cell C slightly more yellow than ground; a clearer hyaline, obliterative area along cord, further involving bases of cells M₁, 2d M₂, M₃, and M₄; veins brown. Venation: Rs subequal to or a trifle longer than m-cu; cell 2d A wide.

Abdominal tergites orange-yellow, narrowly trivittate with dark brown, becoming more distinct on second and succeeding tergites, interrupted at posterior borders of segments; basal sternites yellow, outer segments more obscure; outermost segments, including hypopygium, uniformly blackened. Male hypopygium (Plate 4, fig. 39) with median lobe of tergite, 9*t*, unusually narrow but distinctly bilobulate at apex, lobules and lateral margins of stem back from apex with scattered, blackened spines. Outer dististyle, *od*, entirely pale, strongly nar-

rowed and attenuated outwardly, apex acute. Inner dististyle, *id.*, of peculiar conformation, outer lobe shaped somewhat like head and beak of a bird, such as a *Phasianus*, with conspicuous, appressed, antrorse, spinous setæ; beak relatively slender, chiefly pale. Eighth sternite, 8s, with a conspicuous median lobe that is densely clothed with long, delicate, silken, yellow setæ that are longer than the lobe itself; ventral surface of sternite, below lobe, on either side of median line with extensive areas of long, pale setæ, the total providing three conspicuous sternal groups of setæ of unusual length (in order to avoid confusion, only a few of the actual setæ are figured, but the stippled dots and punctures indicate their position).

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Summit, altitude 11,000 feet, June 17, 1938 (*Tsen*).

Tipula (Acutipula) stenoterga is entirely distinct from other described members of the subgenus, differing especially in the structure of the male hypopygium, notably the inner dististyle and the eighth sternite.

TIPULA (VESTIPLEX) CREMERI sp. nov. Plate 1, fig. 10.

General coloration of præscutum obscure yellow, with four pale-gray stripes that are vaguely bordered by darker; præscutum with a capillary, black, median vitta; scutellum yellow with a brownish-black median line; femora brownish yellow, tips rather narrowly blackened; wings with a strong brown suffusion, unpatterned; cells Sc, Cu₁, and stigma slightly darker brown; Rs long and straight, nearly three times m-cu; abdominal tergites yellow with a very broad, black, median stripe and narrow inconspicuous lateral lines; teeth of the cerci small but numerous.

Female.—Length, about 23 millimeters; wing, 20.

Frontal prolongation of head relatively long, black, sparsely gray-pruinose; nasus elongate; palpi black. Antennæ black, pedicel a little paler; flagellum with verticils that slightly exceed the segments in length; terminal segment oval. Head dark gray with black vestiture; a very delicate, scarcely evident, capillary, median vitta; anterior vertex broad, tubercle scarcely apparent.

Pronotum broadly darkened medially, more buffy on sides. Mesonotal præscutum with ground color obscure yellow, usual four stripes pale gray, inconspicuous against ground, their borders barely indicated by darker; a very conspicuous but narrow, black, median vitta on anterior three-fourths of sclerite,

becoming obsolete behind; scutum yellow, lobes pale gray, vaguely margined with slightly darker; scutellum yellow, with a conspicuous, brownish-black, median vitta, parascutella dusky; postnotum buffy yellow. Pleura yellow-pollinose, ventral sternopleurite slightly grayish; dorsopleural membrane weakly infumed. Halteres with stem pale brown, knob blackened. Legs with coxæ yellow pollinose; trochanters yellow; femora brownish yellow, tips rather narrowly blackened; tibiæ yellowish brown, tips narrowly darker; tarsi black, proximal ends of basitarsi paler. Wings (Plate 1, fig. 10) with a strong brown suffusion, without pattern; cells Sc and Cu₁, with stigma, slightly darker brown; obliterative areas poorly indicated, lying before stigma and across base of cell 1st M₂; veins brown. Venation: Rs long and straight, nearly three times m-cu, its base narrowly pale to subobsolete; vein R₁ incrassated to point of fusion with Sc₂, then markedly weaker and arcuated; cell 1st M₂ long, basal section of M₁₊₂ less than one-half second section; m-cu at fork of M₃₊₄.

Abdominal tergites yellow, with a very broad, black, continuous, median stripe; lateral stripes very narrow and poorly indicated, beginning as a faint stripe on third tergite, becoming somewhat wider and more conspicuous on outer segments, lateral borders of segments narrowly buffy; posterior borders of tergites narrowly gray-pruinose; basal sternites brownish yellow, outer segments more uniformly infuscated; genital shield polished black. Cerci with lower teeth unusually numerous (approximately 30 in number) and acute, especially intermediate teeth.

Habitat.—China (Fukien).

Holotype, female, Kuatun, altitude 2,500 to 3,000 meters, April 11, 1938 (*Klapperich*).

I am greatly pleased to name this fly in honor of Dr. Ernst Cremer, of the Zoologisches Forschungsinstitut in Bonn, to whom I am indebted for the opportunity of studying the Klapperich collection. Very few of the known species of *Vestiplex* have unpatterned wings. The present fly is readily told from the latter by the very strongly infumed wings, the broad, continuous, median, black stripe on the abdominal tergites, and by the unusually small and numerous teeth of the cerci.

TIPULA (VESTIPLEX) BIFIDA Alexander.

Tipula (Vestiplex) bifida ALEXANDER, Bull. Mus. d'Hist. Nat. Paris (1921) 539, 540.

One male, Kuatun, Fukien, altitude 2,500 to 3,000 meters, May 26, 1938 (*Klapperich*). The antennæ are a little longer and the antennal flagellum more uniformly darkened than in other specimens before me.

TIPULA (OREOMYZA) LIUI sp. nov. Plate 1, fig. 11; Plate 4, fig. 40.

Large (wing, male, over 25 millimeters); general coloration yellow, præscutum with four narrow, brown stripes; scutellum and mediotergite with narrow, median vittæ; pleura yellow, with a narrow, more or less interrupted, dorsal, brown stripe; femora yellow, the tips blackened; midfemora broadly blackened beyond base; wings pale yellow, sparsely patterned with brown; m-cu very long, nearly equal in length to distal section of Cu_1 and only a little shorter than long Rs; cell 1st M_2 pointed at inner end; M_{3+4} long; abdomen yellow, lateral borders conspicuously blackened; male hypopygium with tergite large, outer lateral angles produced into very long, conspicuous blades; a single dististyle of relatively simple structure; eighth sternite simple, scarcely produced.

Male.—Length, about 22 millimeters; wing, 26.5; antennæ, about 4.5.

Frontal prolongation of head relatively short, yellow; nasus stout; palpi dark brown, outer segment paler. Antennæ of moderate length; scape, pedicel, and basal three or four flagellar segments yellow, outer segments passing into light brown; flagellar segments weakly incised; longest verticils exceeding segments in length. Head yellow, genæ more darkened; vertical tubercle low and flat.

Pronotum yellow. Mesonotal præscutum yellow with four narrow, brown stripes, intermediate pair narrowly separated by a brownish-yellow, median line; posterior sclerites of notum yellow, each scutal lobe with two brownish areas; median line of scutellum broadly, of mediotergite very narrowly, darkened. Pleura yellow, with a narrow, interrupted, brown, longitudinal stripe, extending from cervical region across ventral pronotum and dorsal pleurites to abdomen, passing through root of halteres. Halteres with stem unusually long, pale yellow, knob small, brown. Legs with coxæ and trochanters yellow; fore femora yellow, tips rather broadly dark brown; tibiæ yellow, tips weakly darkened; basitarsi obscure brownish yellow, remainder of tarsi passing into black; midfemora beyond narrow, yellow base with succeeding fourth of segment blackened, followed by an even wider, yellow ring before narrowly blackened

tip; tibiae and tarsi as in forelegs; hind legs broken but from analogy presumably with black subbasal ring of femora present and even more extensive than on middle legs; claws (male) with basal tooth; femora with abundant erect setae. Wings (Plate 1, fig. 11) pale yellow, sparsely patterned with brown, including small spots at origin of Rs, anterior cord and tip of vein R_{1+2} ; stigma brownish yellow, a little darker than ground; veins yellow. Macrotrichia well distributed on veins beyond cord, including base of R_{1+2} ; squama naked; postsquamal fringe very long and conspicuous. Venation: R_{1+2} preserved, apex bullate; Rs long, about a fourth longer than very long m-cu; r-m reduced; inner end of cell 1st M_2 strongly pointed; m-cu at fork of long M_{3+4} ; m-cu nearly as long as distal section of Cu_1 , cell M_4 very wide at base.

Abdomen yellow, tergites with conspicuous, black, lateral borders to form evident stripes. Male hypopygium (Plate 4, fig. 40) with tergites entirely separate from sternite; basistyle partly fused with sternite, suture indicated on ventral portion. Ninth tergite, 9t, very extensive, longer than broad, with a narrow but deep median notch, very long and conspicuous lateral lobes produced caudad and slightly laterad into flattened, pale blades; viewed from above these blades appear narrower and subacute; surface of tergite with very abundant setae, lacking on about cephalic fifth, longer and more conspicuous on lateral portions and on outer blades, shorter and more spinous adjoining median incision. Basistyle not produced apically beyond point of insertion of dististyle. A single dististyle, *d*, consisting of an outer, flattened, disclike lobe with darkened border, and a small, more posterior, truncated lobe that is produced into a small spine; from base of style on mesal face a flattened blade that narrows into a blackened rod, pointed at tip. Eighth sternite relatively short, caudal border very slightly produced medially without lobes or other armature; median area at margin provided with short, erect setae.

Habitat.—China (Anhwei).

Holotype, male, Taipinghsien, May 1932 (*Liu*), collector's No. 758.

I take very great pleasure in dedicating this species to Mr. Gaines Liu, to whom I am very much indebted for many interesting Chinese Tipulidæ. I cannot indicate any close allies of this very distinct and conspicuous crane fly. The great length of m-cu is suggestive of species of *Schummelia* Edwards, but the

assignment to *Oreomyza* Pokorný seems to be more nearly correct.

TIPULA (OREOMYZA) KUATUNENSIS sp. nov. Plate 1, fig. 12; Plate 4, figs. 41 and 42.

Belongs to the *mutila* group; general coloration of mesonotum gray, with four entire, brown stripes, intermediate pair confluent behind; setigerous punctures very conspicuous; antennæ elongate, flagellum black; legs brownish black, femoral bases restrictedly obscure yellow; wings subhyaline, restrictedly patterned with brown; R_{1+2} atrophied; abdominal tergites reddish brown, dark brown medially; outer segments brownish black; male hypopygium with tergite broadly notched medially, lateral lobes obliquely truncated, dorsal face of sclerite with a conspicuous furrow; blade of outer dististyle unusually broad; inner dististyle with beak relatively stout; eighth sternite with a conspicuous fringe of yellow setæ.

Male.—Length, about 11 millimeters; wing, 12.8; antennæ, about 5.

Frontal prolongation of head relatively long, a little shorter than remainder of head, brown, dorsal surface heavily pruinose; nasus elongate; palpi black. Antennæ relatively long, as shown by measurements; scape pale, sparsely pubescent; pedicel brownish yellow, flagellum black, proximal portion of first segment paler; flagellar segments moderately incised; longest verticils unilaterally arranged, a little shorter than segments; verticils of lower face very short, subspinous. Head light gray, with a poorly indicated, slightly impressed, median vitta; setigerous punctures moderately conspicuous; vertical tubercle low.

Pronotum gray. Mesonotal præscutum gray, with four entire, brown stripes, intermediate pair of stripes widely separated in front, narrowed behind, confluent before suture; on posterior half of median interspace with an additional brown vitta that likewise becomes confluent behind with intermediate stripes; lateral stripes narrow; setigerous punctures very large and conspicuous, brown; scutum gray, each lobe variegated by two dark-brown areas, median region further darkened; scutellum gray, vaguely darkened medially; postnotum gray, with a capillary, dusky, median vitta. Pleura light gray; dorsopleural membrane more yellowish. Halteres dusky, base of stem paler. Legs with coxæ light gray; trochanters yellow; femora brownish black, bases restrictedly obscure yellow; tibiæ and tarsi black. Wings (Plate 1, fig. 12) subhyaline, restrictedly patterned with brown;

cell C beyond *h* infumed; cell Sc yellow; stigma dark brown; restricted brown clouds at origin of Rs, along cord, and in distal end of outer radial field; a conspicuous, brown seam along distal three-fourths of vein Cu in cells M and Cu₁, interrupted by a pale spot toward outer end of cell M; veins of outer radial and medial fields very narrowly seamed with darker; vein 2d A narrowly seamed by brown throughout its length; veins brown. Venation: R₁₊₂ atrophied, represented only by a short basal spur; Rs of moderate length, about twice m-cu; m-cu a short distance before fork of M₃₊₄; petiole of cell M₁ more than one and one-half as long as m.

Abdominal tergites reddish brown, dark brown medially, on segments uniformly brownish black; basal sternites reddish, outer segments gray-pruinose. Male hypopygium (Plate 4, fig. 41) with basistyle entire, unarmed. Ninth tergite, 9*t*, with caudal margin broadly notched, dorsal surface back from base of this notch conspicuously furrowed; lateral lobes obliquely truncated. Outer dististyle (Plate 4, fig. 42, *od*) with blade unusually broad, width approximately two-thirds the length. Inner dististyle (Plate 4, fig. 42, *id*) with beak blackened, relatively stout. Eighth sternite (Plate 4, fig. 41, 8*s*) with caudal margin very evenly rounded, provided with abundant yellow setæ arranged in two groups, outermost setæ longest, inner setæ short and inconspicuous; besides the major groups of setæ, disc of sternite back from margin provided with a very dense transverse row of setæ.

Habitat.—China (Fukien).

Holotype, male, Kuatan, altitude 2,500 to 3,000 meters, May 26, 1938 (*Klapperich*).

The nearest allied species is *Tipula* (*Oreomyza*) *savionis* Alexander, occurring at lower altitudes than the present fly in eastern China. This latter species is readily told from the present fly by the bicolored antennæ, yellow halteres, distinct wing pattern and venation, and especially in the structure of the male hypopygium, as the tergite and both dististyles.

TIPULA (LUNATIPULA) FURIOSA sp. nov. Plate 1, fig. 13, Plate 4, fig. 43.

General coloration yellow, præscutum in front with a conspicuous, brown, median area; antennæ (male) relatively elongate; wings with a brown tinge, prearcular and costal fields more yellowish; stigma conspicuous, dark brown; male hypopygium large; ninth tergite with two submedian lobes and a third,

more depressed, median blade; inner dististyle large and complex, its posterior portion produced into a blackened, trispinous blade; eighth sternite with two pale lobes on caudal margin.

Male.—Length, about 14 to 15 millimeters; wing, 19 to 20; antennæ, about 6.

Female.—Length, about 21 millimeters; wing, 20.

Frontal prolongation of head obscure brownish yellow, darker on sides and beneath; nasus conspicuous; palpi brownish black, incisures and extreme tip of terminal segment paler. Antennæ (male) relatively long; basal three segments yellow, succeeding flagellar segments weakly bicolored, pale brown, basal enlargements darker; outer segments uniformly dark brown; basal enlargements of segments relatively conspicuous; verticils shorter than segments; terminal segment reduced. Front and anterior vertex yellow, posterior vertex and occiput brownish gray; vertical tubercle relatively conspicuous, very weakly notched medially.

Pronotum broadly dark brown medially, paling to yellow on sides. Mesonotal præscutum light yellow, patterned with three olive-green stripes, median stripe expanded and dark brown on cephalic half; scutum yellow, lobes chiefly olive-brown, mesal-cephalic portions a little darker; scutellum obscure yellow; mediotergite yellow. Pleura yellow. Halteres relatively long, stem yellow, knob infuscated. Legs with coxæ and trochanters yellow; femora obscure yellow to brownish yellow, tips narrowly dark brown; tibiæ and tarsi dark brown, tibial tips narrowly darker; claws (male) with basal tooth. Wings (Plate 1, fig. 13) with a brownish tinge, prearcular and costal fields more yellow; stigma conspicuous, dark brown; a small brown cloud on anterior cord; obliterative areas restricted; veins brown. Squama with setæ; veins beyond cord with trichia. Venation: R_{1+2} persistent, naked; m-cu at fork of M_{3+4} .

Abdomen yellow, tergites with a broken median stripe beginning on second segment, becoming more expanded on outer segments, on sixth and succeeding segments uniformly blackened; third and succeeding segments with poorly indicated, lateral stripes; hypopygium large. Ovipositor with cerci elongate, straight, moderately compressed, tips a trifle expanded, obtuse; hypoalvæ a little deeper, tips blunt, obtuse. Male hypopygium (Plate 4, fig. 43) with tergite and sternite separated; basistyle large, cut off by a suture on ventral half, on dorsal half position of suture indicated by a depression; caudal mar-

gin of basistyle gently emarginate, not produced. Ninth tergite, 9t, with an earlike triangular lobe on either side of a deep median incision, with a further median lobe between and at a slightly lower level. Dististyle, *d*, virtually single, usual outer style represented by a small cylindrical lobe on margin of the very large, compressed, inner style; posterior portion of style produced into a blackened blade that bears three unequal spines, intermediate spine largest. Eighth sternite, 8s, moderately sheathing, black, on either side of a median incision produced into a pale, flattened lobe that bears numerous, very long, yellow setæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Shuang Fei Chiao (Flying Bridges Temple), altitude 3,000 feet, June 22, 1935 (Graham). Allotopotype, female. Paratopotype, male.

Tipula (Lunatipula) furiosa is very distinct from the other regional species of the subgenus. The rather remarkable male hypopygium is quite distinctive.

TIPULA TETRACANTHA Alexander.

Tipula tetracantha ALEXANDER, Philip. Journ. Sci. 35 (1928) 457, 458.

Well distributed in southern Japan.

HONSHIU, Mount Daisen, Hoki, July 2, 1931 (Tokunaga), SHIKOKU, July 4, 1926 (Issiki), type. KIUSHIU, Inunakitoge, Chikuzen, June 7, 1931 (Esaki, Hori & Yasumatsu).

TIPULA PARVAURICULA sp. nov. Plate 1, fig. 14; Plate 4, fig. 44.

Belongs to the *flicornis* group; general coloration orange, præscutum unpatterned; antennæ of male subequal in length to body; wings with a pale-brown tinge, stigma a little darker; abdomen yellow, with a conspicuous subterminal black ring in both sexes; male hypopygium large, compressed; caudal margin of ninth tergite produced into two slender, erect, spinous points; ventrolateral portions of tergite produced into low lobes that are densely set with blackened points; both dististyles pale, broadly flattened, without spinous points.

Male.—Length, about 17 to 18 millimeters; wing, 17.5 to 19; antennæ, about 18 to 21.

Female.—Length, about 18 to 19 millimeters; wing, 18 to 20.5; antennæ, about 3.7 to 3.8.

Frontal prolongation of head obscure yellow; nasus distinct; palpi pale brown. Antennæ of male very elongate, as shown by measurements; scape and pedicel yellow, flagellum dark brown;

flagellar segments long-cylindrical, with an abundant, erect, pale pubescence, and long, black verticils that are well distributed over the length of the segments, the longest less than one-half length of segment; antennæ of female normal, short. Head orange; anterior vertex glabrous, broad, without tubercle.

Thorax uniformly orange, unpatterned; setæ of præscutal interspaces pale, small, sparse. Halteres with stem yellow, knob weakly darkened. Legs with coxæ orange-yellow; trochanters yellow; remainder of legs brownish yellow, terminal tarsal segments darker; claws of male with a strong tooth, of female simple. Wings (Plate 1, fig. 14) with a pale-brown tinge, stigma a little darker, cell Sc more brownish yellow; veins brown. Venation: R_{2+3} straight, in alignment with Rs, the latter nearly one and one-half as long as m-cu; cell 2d A broad.

Abdomen yellow, with a conspicuous, subterminal, black ring in both sexes, in male including almost all of segments six and seven; hypopygium orange. Male hypopygium (Plate 4, fig. 44) large and compressed. Caudal margin of tergite, 9t, produced into two slender, earlike, erect, spinous points; ventrolateral portions of tergite produced into low lobes that are densely set with blackened points. Dististyles, *id*, *od*, pale, broadly flattened, shaped as figured; outer style with a slender, pale rod along cephalic or upper border, close to margin. Ovipositor with small, fleshy valves, as in group.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, May 14, 1938 (*Klapperich*). Allotopotype, female, pinned with type. Paratopotypes, 6 males and females, May 10 to 27, 1938.

Tipula parvauricula is very distinct from the members of the *filicornis* group so far described. In an earlier report¹ I had referred this group to the subgenus *Acutipula* Alexander. Later this position became untenable, and at the present time I do not regard it as advisable to definitely refer the members of the group to any existing subgeneric division.²

TIPULA RESERVATA sp. nov. Plate 1, fig. 15.

General coloration of mesonotal præscutum buffy with four conspicuous dark-brown stripes, cephalic ends of intermediate pair of stripes more pruinose; head light gray, with three brown areas on posterior vertex; mediotergite light gray with a ca-

¹ Philip. Journ. Sci. 36 (1928) 458, 459.

² Ibid. 57 (1935) 85.

pillary dark-brown median vitta; wings grayish, cell Sc and proximal end of stigma yellow; vein Sc₁ preserved as a short, erect element; R₁₊₂ entire; cell M₄ at base about one and one-third as wide as at apex; abdomen brownish yellow, with a broad, dark-brown, median stripe; ovipositor with long, slender cerci.

Female.—Length, about 17 millimeters; wing, 18.5.

Frontal prolongation of head brownish gray; nasus elongate, buffy gray, palpi black. Antennæ 13-segmented; scape and pedicel yellow; first flagellar segment brownish yellow, remainder of flagellum pale brown; basal enlargements of segments small; verticils relatively long, a little shorter than segments; terminal segment reduced to a small thimble that is subequal in size to basal enlargement of penultimate segment. Head light gray, with a conspicuous, brown, median stripe that is narrowed at either end, extending from the scarcely developed vertical tubercle to occiput; on either side of this stripe, occupying sides of posterior vertex, a broad, diffuse, paler-brown area.

Pronotum buffy gray with a very delicate median brown dash. Mesonotal præscutum buffy with four conspicuous dark-brown stripes, cephalic ends of intermediate pair of stripes more pruinose; posterior interspaces obscured, lighter brown than stripes; lateral and humeral portions of præscutum broadly yellow, the latter including a more pruinose area on cephalic border immediately before lateral stripes; setæ of interspaces very short and sparse, pale; scutum with median portion dark brown, lobes gray, each with two separated, dark-brown areas; scutellum dark; mediotergite light gray, with a capillary, dark-brown, median vitta that narrows to a hairlike point before posterior margin. Pleura light ashy gray, ventral sternopleurite and anepisternum a trifle darker gray; dorsopleural membrane buffy yellow. Halteres relatively long, brownish black, base of stem restrictedly brownish yellow. Legs with coxæ light ashy gray; trochanters yellow; femora yellow, tips narrowly and gradually dark brown; tibiæ yellow, tips very narrowly infuscated; basal tarsal segments pale brown, narrowly tipped with darker; terminal segments brownish black. Wings (Plate 1, fig. 15) with a grayish tinge; prearcular field and cell Sc light yellow; stigma brownish yellow, its proximal end clear yellow; obliterative areas restricted; veins brown. Squama small, naked; veins beyond cord with sparse trichia, there being none on R₃ or any of the outer branches of M. Venation: Sc₁ preserved as

a vertical element; Sc_2 joining R_1 some distance before fork of Rs ; R_{1+2} entire; Rs long, a little less than twice long m-cu; cell 1st M_2 relatively large, inner end pointed; petiole of cell M_1 and m subequal; m-cu on M_4 some distance beyond fork of M_{3+4} ; base of M_4 perpendicular; cell 2d A relatively narrow.

Abdomen brownish yellow, with a broad, dark-brown, median stripe that is narrowly interrupted at the posterior borders of the segments which are testaceous yellow; sublateral stripes less distinct, lateral tergal borders light gray; sternites brown, surface, especially of outer segments, gray-pruinose. Ovipositor with cerci unusually long and slender, smooth, gently up-curved; hypovalvæ extending about to midlength of cerci, their tips obtusely rounded.

Habitat.—China (Fukien).

Holotype, female, Kuatun, altitude 2,500 to 3,000 meters, March 23, 1938 (*Klapperich*).

I am very uncertain as to the subgeneric position of the present fly. In the retention of vein Sc_1 it agrees with the otherwise very distinct *Brithura* Edwards; the long m-cu, with cell M_4 unusually wide at base, is a character of the otherwise entirely different *Schummelia* Edwards. In its general appearance it much more suggests an *Acutipula* Alexander or a *Lunatipula* Edwards, but the squama is without major setæ. The fly should be recognized readily by the diagnostic features listed above, and it is certain that the male sex, when discovered, will assist in more accurately placing the species in a subgeneric group.

NEPHROTOMA SINENSIS (Edwards).

Pachyrrhina sinensis EDWARDS, Ann. & Mag. Nat. Hist. VIII 18 (1916) 268, 269.

Kuatun, Fukien, altitude 2,500 to 3,000 meters, April 21, 1938 (*Klapperich*).

NEPHROTOMA IMPIGRA Alexander.

Nephrotoma impigra ALEXANDER, Philip. Journ. Sci. 57 (1935) 137, 138.

Kuatun, Fukien, altitude 2,500 to 3,000 meters, April 21, 1938 (*Klapperich*).

NEPHROTOMA GRAHAMIANA sp. nov. Plate 1, fig. 16; Plate 5, fig. 45.

General coloration yellow; præscutum with three polished, black stripes, lateral pair of stripes with an opaque black spot laterad of outer end; antennæ (male) relatively long, flagellar segments incised; occipital brand lacking; mesonotal scutellum

and mediotergite uniformly yellow; wings with a faint brown tinge, stigma darker brown; m-cu at or close to fork of M; male hypopygium with outer dististyle having posterior border conspicuously dilated; inner dististyle unusually massive, its dorsal crest elevated into a small flange; eighth sternite sheathing, submedian lobes with abundant, long, yellow setæ.

Male.—Length, about 13 to 14 millimeters; wing, 13 to 14; antennæ, about 6.

Frontal prolongation of head yellow, dorsal surface, including nasus, brownish black; palpi with basal segments brown, terminal two segments obscure brownish yellow. Antennæ (male) relatively elongate, as shown by measurements; scape relatively short, bright yellow; succeeding two segments yellow; intermediate flagellar segments bicolored, basal enlargement dark brown, remainder brownish yellow; outer flagellar segments uniformly brownish black; flagellar segments strongly incised, especially the more basal ones. Head orange-yellow without a differentiated occipital band; vertical tubercle weakly notched.

Pronotum yellow. Mesonotal præscutum yellow with three polished, black stripes, lateral pair of stripes with outcurved, opaque, black spots at anterior ends, these ends not reaching margin of sclerite; remainder of stripes very narrowly and insensibly bordered by velvety black; scutum yellow, each lobe with two confluent, polished, black areas, lateral portion of transverse suture opaque black; scutellum and postnotum uniformly yellow. Pleura yellow, more reddish yellow on ventral sternopleurite and ventral anepisternum. Halteres brown, base of stem and apex of knob obscure yellow. Legs yellow, outer tarsal segments passing into brown. Wings (Plate 1, fig. 16) with a very faint brown tinge, prearcular field and cell Sc more yellowish; stigma brown, conspicuous; veins brown. Venation: Sc₂ ending opposite origin of Rs; cell M₁ sessile; m-cu at fork of M or virtually so.

Abdominal tergites yellow, with a broad, black, median stripe that is narrowly interrupted at posterior borders of segments, lateral portions of segments less evidently darkened; sternites yellow; segments seven to nine, inclusive, intensely black. Male hypopygium (Plate 5, fig. 45) with ninth tergite, 9*t*, black, lateral spines or lobes relatively short; caudal margin with a U-shaped median notch, sublateral lobes with unusually numerous blackened spines; median area behind emargination filled with whitish membrane. Outer dististyle, *od*, moderately attenuated, posterior border widely dilated. Inner dististyle, *id*,

unusually massive, posterior portion of dorsal crest elevated into a small, triangular flange; beak moderately slender, not heavily blackened. Gonapophyses, *g*, short and compressed, tips obtusely rounded. Eighth sternite sheathing, median area filled with pale membrane, lateral lobes with abundant long, yellow setæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Shuang Fei Chiao (Flying Bridges Temple), altitude 3,000 feet, June 14, 1935 (*Graham*). Paratopotypes, 5 males, June 14 to 23, 1935.

Nephrotoma grahamiana is named in honor of the Reverend Mr. David C. Graham, who has sent vast collections of zoological specimens from Szechwan and the Tibet Border to the United States National Museum. The fly is readily told from the other regional species by the pattern of the mesonotum, especially the præscutum, scutellum, and mediotergite. The structure of the male hypopygium, especially of the inner dististyle, is distinctive of the species.

NEPHROTOMA AURANTIOCINCTA sp. nov. Plate 1, fig. 17; Plate 5, fig. 46.

General coloration black, abdominal segments four and five abruptly orange; antennæ, legs, and halteres black; wings with a very strong blackish tinge; male hypopygium with apical beak of inner dististyle slender; a very high, glabrous, posterior, dorsal crest.

Male.—Length, about 15 millimeters; wing, 14; antennæ, about 5.

Female.—Length, about 18 to 19 millimeters; wing, 14 to 15.

Frontal prolongation of head black; nasus long and slender; palpi black. Antennæ black throughout, longer in male; basal flagellar segments rather strongly incised, outer segments less evidently so; verticils shorter than segments. Head uniformly dull black; vertical tubercle relatively conspicuous; occipital brand not evident.

Mesonotal præscutum with ground dull blackish gray throughout, almost covered by three blackish stripes that are poorly indicated against the ground; remainder of notum dull black except for median area of scutum and base of scutellum. Pleura uniformly dull black, sparsely pruinose. Halteres black, base of stem restrictively paler. Legs with coxæ black, sparsely pruinose; remainder of legs black, tibiæ a very little paler. Wings (Plate 1, fig. 17) with a very strong blackish tinge, prearcular and costal regions, together with stigma, darker; cells distad of cord a trifle paler than proximal portion of wing; veins brownish

black. Venation: Sc_2 ending about opposite one-third length of Rs , Sc_1 represented by a short spur; $m-cu$ at or just beyond fork of M , M_{3+4} thus very short or obliterated; cell M_1 sessile.

Abdomen opaque velvety black; a broad, orange ring including all of segments four and five and, in cases, posterior portion of segment three; genital shield of female black, cerci paler; male hypopygium black. Male hypopygium (Plate 5, fig. 46) with ninth tergite, $9t$, with caudal margin transverse, notched medially, lobes with abundant blackened, spinous points; on ventral surface a further armature consisting of a bilobed structure, inner arm a spine, outer arm terminating in three or four small, obtuse points. Margin of basistyle below point of insertion of dististyles with a conspicuous, blackened plate, the surface of which is microscopically roughened. Outer dististyle, od , moderately attenuated. Inner dististyle, id , with apical beak slender; posterior dorsal crest very high and glabrous. Gonapophyses, g , appearing as very small glabrous blades, at base nearly as wide as long, apex obtusely rounded. Eighth sternite, $8s$, deeply emarginate, notch filled with pale membrane, entire median area provided with abundant long, dark setæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Shuang Fei Chiao (Flying Bridges Temple), altitude 3,000 feet, June 14, 1935 (Graham). Allotopotype, female, June 22, 1935. Paratopotype, female, June 22, 1935. Paratopotype, female, with the holotype.

Nephrotoma aurantiocincta is quite distinct from all described regional species of the genus. It is most similar to the Formosan *N. takeuchii* Alexander which differs in the different position of the orange abdominal band and in other features. Both of these flies bear a superficial resemblance to species of the genus *Tipula* belonging to the subgenus *Formotipula* Matsumura.

DOLICHOPEZA (OROPEZA) CANDIDIPES (Alexander).

Oropeza candidipes ALEXANDER, Ann. Ent. Soc. America 14 (1921) 122.

Widely distributed in the main island of Japan.

HONSHU, Hinoemata, Iwashiro, July 24, 1923 (*Esaki*); Tamagawa, Musashi, August 30, 1920; August 22 to September 7, 1922 (*Machida*); Chichibu, Nakatsugawa, Musashi, August 24, 1930 (*Machida*); Mount Ohdai, Yamato, June 5, 1930 (*Sakaguchi*); Mount Minomo, Settsu, June 22, 1922 (*Esaki*); Saga, Yamashiro, altitude 490 feet, May 1927 (*Tokunaga*); Mount

Daisen, Hoki, altitude 2,600 feet, June 7, 1930 (*Hibi*); this specimen with cell M_2 of wings open by atrophy of m ; Mount Kyusho, Hoki, altitude 860 feet, June 13, 1930 (*Hibi*).

DOLICHOPEZA (OROPEZA) SAITAMENSIS Alexander.

Dolichopeza (Oropeza) saitamensis ALEXANDER, Philip. Journ. Sci. 43 (1930) 510, 511.

KARAFUTO, Toyohara, July 16, 1922 (*Esaki*). HOKKAIDO, Kamiotoineppu, August 23, 1922 (*Esaki*).

DOLICHOPEZA (OROPEZA) SATSUMA (Alexander).

Oropeza satsuma ALEXANDER, Journ. N. Y. Ent. Soc. 26 (1918) 67.

HONSHIU, Mount Ibuki, Mino, June 4, 1921 (*Takeuchi*); Kyoto, Yamashiro, September 20, 1923 (*Takeuchi*); Shirokita-mura, Settsu, July 10, 1924 (*Teranishi*).

DOLICHOPEZA (NESOPEZA) ALBITIBIA (Alexander).

Nesopeza albitibia ALEXANDER, Insec. Inscit. Menst. 10 (1922) 187, 188.

HONSHIU, Chuzenji, Shimotsuke, altitude 4,800 feet, July 22, 1923 (*Esaki*); Mount Ohdai, Yamato, June 5, 1930 (*Sakaguchi*); Saga, Yamashiro, altitude 490 feet, July 27, 1929 (*Tokunaga*); Mount Daisen, Hoki, altitude 4,550 feet, June 7, 1930 (*Hibi*); Mount Kyusho, Hoki, altitude 860 feet, June 13, 1930 (*Hibi*). KIUSHIU, Wakasugiyama, Chikuzen, May 28 and 29, 1931 (*Esaki & Hori*).

DOLICHOPEZA (NESOPEZA) GENICULATA (Alexander).

Nesopeza geniculata ALEXANDER, Ann. Ent. Soc. America 11 (1918) 448.

HOKKAIDO, Jozankei, Ishikari, altitude 1,000 feet, August 16, 1923 (*Esaki*). HONSHIU, Mount Shirouma (*Hakuba*), Shinano, August 8 and 9, 1931 (*Machida*). Mount Minomo, Settsu, June 22, 1922 (*Esaki*). KIUSHIU, Kagoshima, Satsuma (*Esaki*).

DOLICHOPEZA (NESOPEZA) TARSALIS (Alexander).

Nesopeza tarsalis ALEXANDER, Ann. Ent. Soc. America 12 (1919) 347.

HONSHIU, Mount Kiyozumi, Boso Peninsula, Kazusa, altitude 1,035 feet, May 5, 1931 (*Oda*); Saga, Yamashiro, altitude 490 feet, July 27, 1929 (*Tokunaga*).

CYLINDROTOMINÆ

TRIOGMA NIMBIPENNIS sp. nov. Plate 1, fig. 18; Plate 5, fig. 47.

General coloration dark gray; wings with a strong brown tinge, long-oval stigma dark brown, conspicuous; fusion of

R_{4+5} on M_{1+2} variable, from punctiform to extensive; male hypopygium with lateral lobes of tergite slender, earlike.

Male.—Length, about 14 to 15 millimeters; wing, 11 to 12; antennæ, about 4 to 4.2.

Female.—Length, about 13 to 14 millimeters; wing, 12 to 12.5.

Rostrum gray; palpi black. Antennæ of male relatively long, of female of moderate length, black throughout; flagellar segments (male) triangularly produced, each with a short glabrous basal pedicel. Head brownish gray, clearer gray on wide anterior vertex; posterior vertex longitudinally furrowed but without circular punctures.

Mesonotum opaque, dark brown, surface sparsely pruinose; præscutal interspaces deeply grooved and furrowed, clearly delimiting stripes. Pleura opaque brownish gray, dorsopleural membrane more buffy. Halteres infuscated, stem paler, its base narrowly yellow. Legs with coxæ gray pruinose; trochanters brownish yellow; remainder of legs chiefly brownish black, femoral bases obscure yellow, involving approximately basal half or less, least extensive on forelegs; tibial bases restrictedly brightened. Wings (Plate 1, fig. 18) with a strong brown tinge, long-oval stigma dark brown, conspicuous; veins brown. Venation: Sc_1 preserved except at tip; R_{2+3} arcuated below stigma; fusion of R_{4+5} and M_{1+2} punctiform to extensive, in rare cases, r-m present as a short element.

Abdomen elongate, especially in male, blackish gray, including genitalia. Male hypopygium with lateral lobes of tergite (Plate 5, fig. 47, 9t) produced into long, slender ears. Dististyle, *d*, simple, only a little narrower on distal half than at base. Ædeagus much as in *kuwanai*, protruding conspicuously from the genital chamber.

Habitat.—China (Fukien, Chekiang).

Holotype, male, Kuatun, Fukien, altitude 2,500 to 3,000 meters, March 25, 1938 (*Klapperich*). Allotopotype, female, March 27, 1938. Paratopotypes, 5 males and females, March 23 to 29, 1938. Paratype, 1 male, Mogan Shan, Chekiang, April 24, 1936 (*Piel*); Museum Heude, Shanghai.

Triogma nimbipennis is very closely allied to the Japanese *T. kuwanai* (Alexander), differing especially in slight details of coloration, especially the darkened wings with a very conspicuous, dark-brown stigma. It is possible that the present fly will eventually be considered as being a subspecies of *kuwanai*. The genus *Triogma* Schiner had not been recorded from China hitherto.

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) WHITEÆ sp. nov. Plate 1, fig. 19; Plate 5, fig. 48.

General coloration yellow, variegated with brownish black; antennæ black throughout, flagellar segments with short, glabrous, apical necks; anterior vertex very broad; mesonotal præscutum with a blackened shield that sends an arm to the lateral margin behind the pseudosutural foveæ; a broken, transverse, black girdle on mesepisternum; legs black, at least posterior tarsi snowy white; wings with a strong blackish tinge, oval stigma darker brown; Sc long, free tip of Sc₂ lying a short distance before level of R₂; m-cu shortly before fork of M; abdominal segments black, caudal margins broadly yellow; male hypopygium with a single rostral spine, arising from a long, basal tubercle; gonapophyses blackened, broad mesal-apical lobes bispinous.

Male.—Length, about 6 millimeters; wing, 6.4.

Rostrum and palpi black. Antennæ black throughout; flagellar segments passing through oval to long-oval, with short, glabrous, apical necks that become longer and more constricted on outer segments. Head black, possibly pruinose in fresh specimens, discolored in unique type; anterior vertex very broad, nearly three times as wide as diameter of scape.

Pronotum brown. Mesonotal præscutum with restricted ground color obscure brownish yellow; posterior portion of disc covered by a blackened shield composed of usual three stripes that are entirely confluent, sending a lateral extension to margin, leaving a pale lateral area before suture; scutal lobes black, median area paler; scutellum pale; mediotergite pale brownish yellow, each cephalic lateral angle with major blackened areas; pleurotergite blackened. Pleura yellow, including propleura, pteropleurite, and meron; major black areas on anepisternum and ventral sternopleurite, forming a slightly interrupted transverse girdle. Halteres brownish black. Legs with all coxæ and trochanters yellow; remainder of legs black, outer tarsal segments of at least hind legs snowy white; other legs broken beyond tibæ. Wings (Plate 1, fig. 19) with a strong, blackish tinge, prearcular and costal fields a very little darker; stigma oval, darker brown; veins dark brown. Venation: Sc long, Sc₁ ending about opposite three-fifths length of Rs, Sc₂ a short distance from its tip; free tip of Sc₂ lying a short distance before level of R₂; R₁₊₂ preserved as a short spur; m-cu shortly before fork of M.

Abdomen conspicuously ringed with black and pale yellow; segments chiefly black with about distal third yellow; outer segments, including hypopygium, more uniformly blackened. Male hypopygium (Plate 5, fig. 48) with tergite, 9t, transverse, caudal margin gently and convexly rounded, thickened. Dorsal dististyle a gently curved, blackened sickle. Ventral dististyle, vd, small and rounded, its area less than one-half that of basistyle; rostral prolongation slender, cylindrical, bearing a single long, straight spine from a long, basal tubercle; spine nearly twice length of tubercle which is placed near extreme outer end of prolongation, latter terminating in an acute spine. Gonapophysis, g, with mesal-apical lobe broad, blackened, conspicuously bispinous. Apex of ædeagus bilobed.

Habitat.—India (Madras Presidency).

Holotype, male, Manamadura, 1939 (*Laura White*). Received through the friendly interest of Mr. George E. Erikson.

Limonia (Limonia) whiteæ is named in honor of the collector. Although the legs of the unique type are partly broken I would believe that this fly might afford a case comparable to *L. (L.) longivena* (Edwards) where only the posterior tarsi are white, the others being concolorous with the darkened tibiæ and femora. The rostral spines of the male hypopygium somewhat resemble the condition found in the East Indian *L. (L.) albitarsis* Alexander, an entirely distinct fly in all other regards. *L. (L.) palniensis* Alexander has the pattern of the wings and abdomen somewhat similar to that of the present fly, but the coloration of the body and legs is different.

PEDICIINI

PEDICIA (PEDICIA) SUBFALCATA sp. nov. Plate 1, fig. 20.

General coloration of mesonotal præscutum silvery yellow, with a single, brown, median stripe; fore femora blackened, posterior femora obscure yellow with only the distal sixth blackened; wings strongly subfalcate in outline, whitish subhyaline, with a conspicuous dark pattern; origin of Rs and cord with veins pale, adjoining membrane light yellow; a whitish spot in base of cell R₂ beyond vein R₂; cell M₁ short-petiolate; abdominal tergites with a brown median area, bordered sublaterally by brownish-black, lateral triangles broadly silvery gray.

Female.—Length, about 32 millimeters; wing, 27.

Frontal prolongation of head dark gray; palpi black. Antennæ 15-segmented; scape and pedicel black, flagellum dark

brown; flagellar segments with verticils unilaterally distributed. Head dark gray, anterior vertex blackened; central portion of posterior vertex with a linear blackened streak; vertical tubercle small, without a circular depressed area.

Pronotum brownish black, scutum deep orange on either side of midline. Mesonotal præscutum silvery yellow, with a single, broad and conspicuous, median, dark-brown stripe, usual lateral stripes scarcely differentiated from ground; scutal lobes brown, median area paler; scutellum whitish gray with a brown central spot; mediotergite brownish gray, more silvery white in front, with a blackened median stripe. Pleura silvery yellow, pleurotergite more infuscated. Halteres with stem yellow, knob infuscated. Legs with coxæ brownish gray; trochanters dark brown; femora black, bases obscure yellow, most restricted on forelegs where only extreme base is brightened; posterior femora chiefly obscure yellow with about distal sixth blackened; tibiæ and tarsi brownish black. Wings (Plate 1, fig. 20) strongly subfalcate in outline, tip in cell R_4 strongly produced; whitish subhyaline with usual pattern of subgenus; cell C much paler, especially on basal portion where it is virtually clear; base of Rs and cord with veins and adjoining membrane pale, abruptly contrasting with dark pattern; two isolated clear spots, one in cell R, before vein R_2 , the other in base of cell R_2 ; dark seam along vein Cu broadly reaching wing margin and expanded backward at tip to beyond 1st A; dark areas in outer radial field much paler brown than seam along cord vein R_4 ; veins pale. Venation: Rs oblique at origin, thence straight; cell 1st M_2 short-subquadrate; cell M_1 very short-petiolate.

Abdominal tergites brown medially, bordered sublaterally by brownish black, leaving silvery-gray lateral borders that are widened posteriorly, narrowed to a point at cephalic margin of each segment; sternites brownish gray, darkened posteriorly, lateral borders broadly silvery gray, nearly parallel-sided; cerci short and relatively deep.

Habitat.—China (Fukien).

Holotype, female, Kuatun, altitude 2,500 to 3,000 meters, March 29, 1938 (*Klapperich*).

Pedicia (*Pedicia*) *subfalcata* is most generally similar to *P. (P.) gifuensis* Kariya, of Japan, which has the wing of normal outline, not subfalcate, and with the coloration of the thorax, wings, and abdomen quite distinct. The present is the first record of the subgenus *Pedicia* Latreille in China.

PEDICIA (TRICYPHONA) ELEGANS INVARIPIES subsp. nov.

Female.—Length, about 7 millimeters; wing, 7.

Rostrum and palpi pale. Antennæ 15-segmented, pale brown, basal flagellar segments enlarged. Head ochreous.

Mesonotum grayish ochreous, præscutum with four scarcely evident darker stripes; scutal lobes weakly darkened, median area, scutellum, and postnotum pale yellow. Pleura weakly infumed, especially mesepisternum. Halteres pale yellow, knob dark brown. Legs pale yellow, outer tarsal segments weakly darkened; no sign of dark color at tips of femora and tibiæ. Wings ochreous, with a spare, pale-brown pattern, as follows: Origin of Rs; cord; outer end of cell 1st M_2 ; forks of R_{4+5} and M_{1+2} ; small marginal clouds at ends of longitudinal veins, none conspicuously enlarged; stigma with pale centers, encircled by a brown ring, ends delimited by tip of vein Sc_1 and R_2 ; veins yellow, darker in clouded areas. Venation: Rs long, angulated at origin; r-m connecting with R_{4+5} a short distance beyond origin; R_2 transverse, shorter than R_{1+2} ; cell 1st M_2 closed; m-cu shortly beyond fork of M.

Abdomen with tergites yellow, basal rings narrowly darkened; sternites more uniformly yellow, lateral margins narrowly dark.

Habitat.—Assam (Khasi Hills).

Holotype, female, Cherrapunji, altitude 4,000 feet, May 1937 (*Sircar*).

Close to typical form (Kurseong, Himalayas), legs with femora and tibiæ entirely pale, with no indications of darkened tips; wings with stigma ringed, with pale center; outer end of cell 1st M_2 nearly truncate, not strongly pointed, as in typical form.

HEXATOMINI

LIMNOPHILA FOKIENSIS sp. nov. Plate 1, fig. 21.

General coloration polished black, pleura pruinose; antennæ (male) elongate, black throughout; wings with a weak brown tinge, sparsely patterned with slightly darker brown; cell M_1 lacking; m-cu beyond midlength of lower face of cell 1st M_2 .

Male.—Wing, 7.6 millimeters; antennæ, about 3.6.

Rostrum and palpi black. Antennæ (male) elongate, nearly one-half length of wing, black throughout; flagellar segments elongate, slightly fusiform with truncated ends, greatest diameter just before midlength; verticils shorter than segments; a coarse, erect, pale pubescence over entire segment, setæ about

one-half as long as verticils; terminal segment about one-third length of penultimate. Head black, sparsely pruinose; anterior vertex broad, with a low tubercle.

Thorax uniformly black, surface polished, median area of scutum and base of scutellum more heavily pruinose. Pleura black, heavily pruinose. Halteres pale yellow, knobs very weakly infuscated. Legs with coxæ and trochanters black, pruinose; remainder of legs black, femoral bases restrictedly paler; femora with short, delicate setæ. Wings (Plate 1, fig. 21) with a weak brown tinge, prearcular and costal regions slightly brighter; stigma and weak seams at origin of Rs, along cord and outer end of cell 1st M_2 , and in cell Cu slightly darker brown; veins brown, brighter in prearcular field. Venation: Sc_1 ending shortly before fork of R_{2+3+4} , Sc_2 shortly before fork of Rs; R_2 very faint, about one-half as long as R_{1+2} ; R_{2+3+4} a little longer than basal section of R_5 ; cell M_1 lacking; m-cu beyond midlength of lower face of cell 1st M_2 ; anterior arcus preserved.

Abdomen black, broken beyond fifth segment.

Habitat.—China (Fukien).

Holotype, male, Kuatun, altitude 2,500 to 3,000 meters, March 25, 1938 (*Klapperich*).

Limnophila fokiensis appears to belong to the subgenus *Priornolabis* Osten Sacken, differing from all regional species in the venation and pattern of the wings, and especially in the elongate antennæ which are nearly one-half as long as the wing and with a somewhat peculiar vestiture. Unfortunately the tip of the abdomen was lacking on the unique type specimen.

LIMNOPHILA (ADELPHOMYIA) REDUCTANA sp. nov. Plate 1, fig. 22.

General coloration of mesonotum and pleura black, heavily pruinose to appear dark gray, præscutum without stripes; basal antennal segments pale brown; femora obscure yellow, tips weakly infuscated; wings brownish yellow, prearcular and costal portions clearer yellow; a restricted brown pattern, especially along cord and vein Cu; R_{2+3+4} very short; r-m strongly arcuated; abdomen black, sparsely pruinose, basal sternites paler.

Female.—Length, about 8.5 millimeters; wing, 8.2.

Rostrum black, sparsely pruinose; palpi black. Antennæ with basal flagellar segments pale brown; outer flagellar segments darker; flagellar segments long-oval, with verticils that exceed segments in length. Head dark gray.

Mesonotum almost uniform dark gray, without distinct stripes, the median region of præscutum a little more blackened, un-

polished. Pleura black, pruinose. Halteres yellow, apex of knob weakly darkened. Legs with fore coxæ brownish black; midcoxæ yellow, weakly darkened on basal portion; posterior coxæ yellow; trochanters yellow; femora obscure yellow, tips weakly infuscated; tibiæ and basal two tarsal segments pale brown, their apices very restrictedly darkened; outer tarsal segments brownish black. Wings (Plate 1, fig. 22) brownish yellow, prearcular and costal fields clearer yellow; stigma brown; more diffuse brown seams at origin of Rs, along cord and outer end of cell 1st M_2 and along vein Cu; veins brown, pale yellow in flavous basal portions. Very sparse macrotrichia in outer ends of cells R_3 to M_1 , inclusive. Venation R_{2+3+4} very short, about one-half basal section of R_5 , cell R_3 thus short-petiolate; r-m strongly arcuated; cell M_1 nearly twice its petiole; m-cu about one-half its length beyond fork of M.

Abdomen black, sparsely pruinose; basal sternites obscure brownish yellow; bases of cerci and hypovalvæ blackened, remainder horn-yellow.

Habitat.—China (Fukien).

Holotype, female, Kuatun, altitude 2,500 to 3,000 meters, March 28, 1938 (*Klapperich*).

Limnophila (*Adelphomyia*) *reductana* is most similar to species such as the Japanese *L. (A.) pilifer* Alexander, differing most evidently in the great reduction in number of trichia in the cells of the wing, as well as in the wing pattern and venation.

HEXATOMA (ERIOCERA) PYRRHOPYGA Alexander.

Hexatoma (*Eriocera*) *pyrrhopyga* ALEXANDER, Philip. Journ. Sci. 52 (1933) 162, 163.

ANHWEI, CHINA, Taipinghsien, October 1932 (*Liu*); collectors No. 755.

HEXATOMA (ERIOCERA) REGINA Alexander.

Hexatoma (*Eriocera*) *regina* ALEXANDER, Notes d'Ent. Chinoise, Mus. Heude 4 fasc. 5 (1937) 82–84.

ANHWEI, CHINA, Taipinghsien, October 1922 (*Liu*); collector's No. 766.

HEXATOMA (ERIOCERA) REGINA KIUHUANA subsp. nov.

As in typical form, differing as follows: femora extensively yellow, in all legs broken at near one-third length but probably with only tips darkened. Wings with a large, pale area in cell Cu at near midlength. Abdomen with segments two to four

chiefly reddish orange, narrowly margined with blackish. Genital shield orange. Mesonotum opaque, as in typical *regina*.

It is probable that better-preserved material will give this fly full specific ranking.

Holotype, female, Kiuhua-shan, Anhwei, China, September 1932 (*Liu*); collector's No. 754. Paratopotype, sex?; No. 759.

ERIOPTERINI

SIGMATOMERA (AUSTROLIMNOBIA) RARISSIMA sp. nov. Plate 1, fig. 23; Plate 5, fig. 49.

General coloration of mesonotum and propleura orange, parascutella, pleurotergite, and remainder of pleura abruptly black; anterior vertex polished black, posterior of head more plumbeous; antennæ (male) elongate, black throughout; flagellar segments long-cylindrical; legs black, fore coxæ and trochanters, with base of fore femora yellow; wings pale yellow, heavily patterned with black, including prearcular and costal regions, and more or less complete bands at origin of Rs and along cord; wing tip broadly darkened; cell 1st M₂ longer than any of veins beyond it; abdominal tergites orange, first black; tergites five and six, together with all sternites beyond the basal sternite, with blackened caudal borders; subterminal segments uniformly blackened, hypopygium yellow; male hypopygium with caudal margin of tergite with a very deep V-shaped notch; inner dististyle with smooth margins.

Male.—Length, about 17 millimeters; wing, 13; antennæ about 8.5.

Rostrum and palpi black. Antennæ (male) black throughout, elongate, equal to one-half length of body; flagellar segments cylindrical, with abundant coarse, erect pubescence that exceeds scattered verticils in length; terminal segment small, less than one-fourth as long as penultimate. Head polished black, posterior vertex more plumbeous; anterior vertex a little narrower than diameter of scape, eyes correspondingly enlarged.

Pronotum orange. Mesonotum orange, unmarked, only parascutella and pleurotergite abruptly black. Propleura orange, remainder of pleura abruptly black. Halteres black throughout. Legs with fore coxæ and trochanters orange; middle and hind coxæ and trochanters black; fore femora black, bases narrowly yellow; remaining femora entirely black; tibiæ and tarsi black. Wings (Plate 1, fig. 23) with ground color pale yellow, very heavily patterned with brownish black, the latter including prearcular field, cells C and Sc, stigma, and major areas on

disc, as follows: Narrow bases of cells R and M; a posterior extension at origin of Rs, extending caudad to beyond midwidth of cell M and not quite reaching extensive dark clouds in outer ends of cells Cu, 1st A, and 2d A; a complete but relatively narrow dark crossband at cord; wing tip broadly blackened, extending basad to level of R_2 and shortly before outer end of cell 1st M_2 ; veins yellow in ground areas, abruptly dark brown in darkened portions. Venation: Rs of moderate length, arcuated at origin, in longitudinal alignment with short basal section of vein R_5 ; R_{2+3+4} relatively short and strongly arcuated; cell 1st M_2 long, exceeding in length any of the veins issuing from it; m-cu erect, shortly beyond fork of M.

Abdomen with basal segment black, caudal border of sternite narrowly yellow; tergites two to four, inclusive, uniform orange-yellow; tergites five and six orange with narrow, black caudal borders; segments seven and eight uniformly black; sternites yellow, caudal borders of all segments beyond first conspicuously black; hypopygium yellow. Male hypopygium (Plate 5, fig. 49) with caudal margin of tergite, 9t, with a very deep V-shaped notch, lateral lobes thus formed relatively narrow and widely separated. Outer dististyle small and pointed. Inner dististyle, id, with margins entirely smooth, apex of elongate rostrum subtruncate.

Habitat.—North Queensland.

Holotype, male, Prince of Wales Island, February 17, 1939 (R. G. Wind).

Sigmatomera (Austrolimnobia) rarissima is a fly of unusual beauty and distinctness. It is so different from the other Australian species so far known that any comparison is unnecessary. The discovery of this new species makes it appear very doubtful that *Astelobia* Edwards (1923) can be maintained as distinct from *Austrolimnobia* Alexander (1922).

MOLOPHILUS (MOLOPHILUS) KIUSHIUENSIS sp. nov. Plate 1, fig. 24; Plate 5, fig. 50.

Belongs to the *gracilis* group and subgroup; general coloration polished black; halteres pale yellow; legs dark brown, femoral bases restrictedly obscure yellow; wings with a weak brown tinge; male hypopygium with longest dististyle appearing as a flattened, sinuous blade, apex truncate and irregularly toothed, face of blade at near midlength with about 15 to 18 erect, acute spines.

Male.—Length, about 3.5 to 3.6 millimeters; wing, 4.3 to 4.5.

Female.—Length, about 5 millimeters; wing, 5.

Rostrum and palpi black. Antennæ with scape and pedicel black, flagellar segments oval. Head black, sparsely pruinose.

Mesonotum uniformly polished black. Halteres pale yellow. Legs with coxæ black; trochanters yellow; remainder of legs dark brown, femoral bases restrictedly obscure yellow. Wings (Plate 1, fig. 24) with a weak brown tinge, prearcular and costal fields more yellowish; veins pale brown, yellow in brightened portions; macrotrichia dark brown. Venation: R_2 lying just proximad of level of r-m; petiole of cell nearly twice m-cu; vein 2d A of moderate length, ending nearly opposite posterior end of m-cu.

Abdomen, including hypopygium, intense black. Male hypopygium (Plate 5, fig. 50) with dorsal lobe of basistyle, *db*, relatively slender, with long setæ to very apex; mesal lobe, *mb*, low, armed with about a score of short, blackened points. Outer dististyle, *od*, longest, appearing as a flattened sinuous blade, apex truncated and irregularly toothed; on face of blade at near midlength with about 15 to 18 erect, acute spines, with one or two similar spines lying more distad. Inner dististyle, *id*, small, appearing as a flattened blade, tip acute, before apex with microscopic spinulæ.

Habitat.—Japan (Kiushiu).

Holotype, male, Fugandake, altitude 2,500 to 4,360 feet, at end of May 1922 (J. E. A. Lewis); in the Dietz Collection, Academy of Natural Sciences, Philadelphia. Allotopotype, female. Paratopotype, 1 male, 1 broken.

Molophilus (Molophilus) kiushiensis is readily told from all other polished black species with unvariegated legs by the structure of the male hypopygium, especially the styli.

ILLUSTRATIONS

[Legend: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *db*, dorsal lobe of basistyle; *g*, gonapophysis; *id*, inner dististyle; *mb*, mesal lobe of basistyle; *od*, outer dististyle; *s*, sternites; *t*, tergites; *vd*, ventral dististyle.]

PLATE 1

- FIG. 1. *Pselliophora scurra* sp. nov.; venation.
 2. *Tanyptera subcognata* sp. nov.; venation.
 3. *Dictenidia stalactitica* sp. nov.; venation.
 4. *Ctenacroscelis goliath* sp. nov.; venation.
 5. *Tipula* (*Nippotipula*) *klapperichi* sp. nov.; venation.
 6. *Tipula* (*Formotipula*) *spoliatrix* sp. nov.; venation.
 7. *Tipula* (*Acutipula*) *luteinotalis* sp. nov.; venation.
 8. *Tipula* (*Acutipula*) *bihastata* sp. nov.; venation.
 9. *Tipula* (*Acutipula*) *stenoterga* sp. nov.; venation.
 10. *Tipula* (*Vestiplex*) *cremeri* sp. nov.; venation.
 11. *Tipula* (*Oreomyza*) *liui* sp. nov.; venation.
 12. *Tipula* (*Oreomyza*) *kuatunensis* sp. nov.; venation.
 13. *Tipula* (*Lunatipula*) *furiosa* sp. nov.; venation.
 14. *Tipula parvaauricula* sp. nov.; venation.
 15. *Tipula reservata* sp. nov.; venation.
 16. *Nephrotoma grahamiana* sp. nov.; venation.
 17. *Nephrotoma aurantiocincta* sp. nov.; venation.
 18. *Triogma nimbipennis* sp. nov.; venation.
 19. *Limonia* (*Limonia*) *whiteæ* sp. nov.; venation.
 20. *Pedicia* (*Pedicia*) *subfalcata* sp. nov.; venation.
 21. *Limnophila fokiensis* sp. nov.; venation.
 22. *Limnophila* (*Adelphomyia*) *reductana* sp. nov.; venation.
 23. *Sigmatomera* (*Austrolimnobia*) *rarissima* sp. nov.; venation.
 24. *Molophilus* (*Molophilus*) *kiushiuensis* sp. nov.; venation.

PLATE 2

- FIG. 25. *Pselliophora scurra* sp. nov.; male hypopygium, details.
 26. *Tanyptera subcognata* sp. nov.; male hypopygium, dististyles.
 27. *Dictenidia stalactitica* sp. nov.; antenna, male.
 28. *Dictenidia stalactitica* sp. nov.; male hypopygium, lateral.
 29. *Dictenidia stalactitica* sp. nov.; male hypopygium, details.
 30. *Dictenidia glabrata* Alexander; male hypopygium, details.
 31. *Plocimas magnificus* Enderlein; male hypopygium, details.

PLATE 3

- FIG. 32. *Ctenacroscelis herculeanus* sp. nov.; male hypopygium, details.
 33. *Ctenacroscelis goliath* sp. nov.; male hypopygium, details.
 34. *Tipula* (*Formotipula*) *spoliatrix* sp. nov.; male hypopygium, details.

35. *Tipula* (*Acutipula*) *luteinotalis* sp. nov.; male hypopygium, ninth tergite.
36. *Tipula* (*Acutipula*) *luteinotalis* sp. nov.; male hypopygium, dististyles.
37. *Tipula* (*Acutipula*) *bihastata* sp. nov.; male hypopygium, ninth tergite.
38. *Tipula* (*Acutipula*) *bihastata* sp. nov.; male hypopygium, inner dististyle.

PLATE 4

- FIG. 39. *Tipula* (*Acutipula*) *stenoterga* sp. nov.; male hypopygium, details.
40. *Tipula* (*Oreomyza*) *liui* sp. nov.; male hypopygium, details.
 41. *Tipula* (*Oreomyza*) *kuatunensis* sp. nov.; male hypopygium, details.
 42. *Tipula* (*Oreomyza*) *kuatunensis* sp. nov.; male hypopygium, dististyles.
 43. *Tipula* (*Lunatipula*) *furiosa* sp. nov.; male hypopygium, details.
 44. *Tipula* *parvauricula* sp. nov.; male hypopygium, details.

PLATE 5

- FIG. 45. *Nephrotoma* *grahamiana* sp. nov.; male hypopygium; details.
46. *Nephrotoma* *aurantiocincta* sp. nov.; male hypopygium, details.
 47. *Triogma* *nimbipennis* sp. nov.; male hypopygium, details.
 48. *Limonia* (*Limonia*) *whiteæ* sp. nov.; male hypopygium.
 49. *Sigmatomera* (*Austrolimnobia*) *rarissima* sp. nov.; male hypopygium.
 50. *Molophilus* (*Molophilus*) *kiushiensis* sp. nov.; male hypopygium.

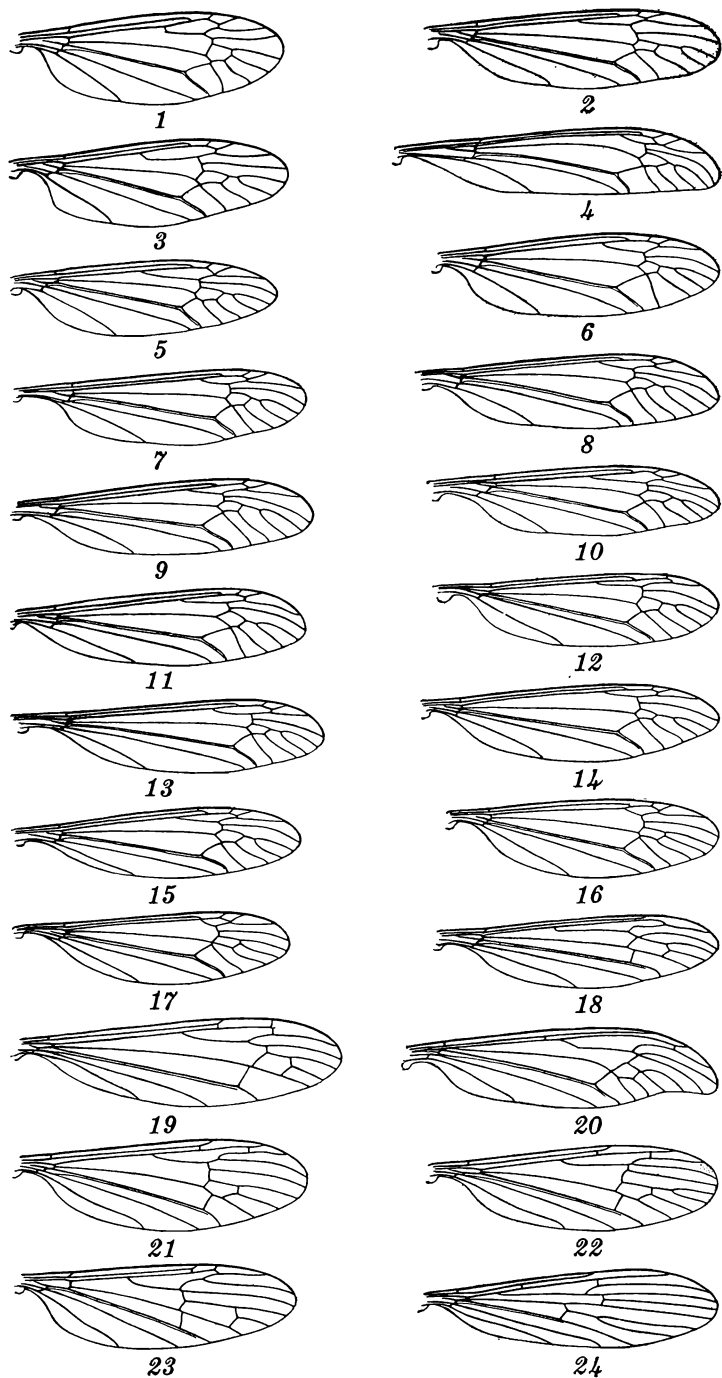


PLATE 1.

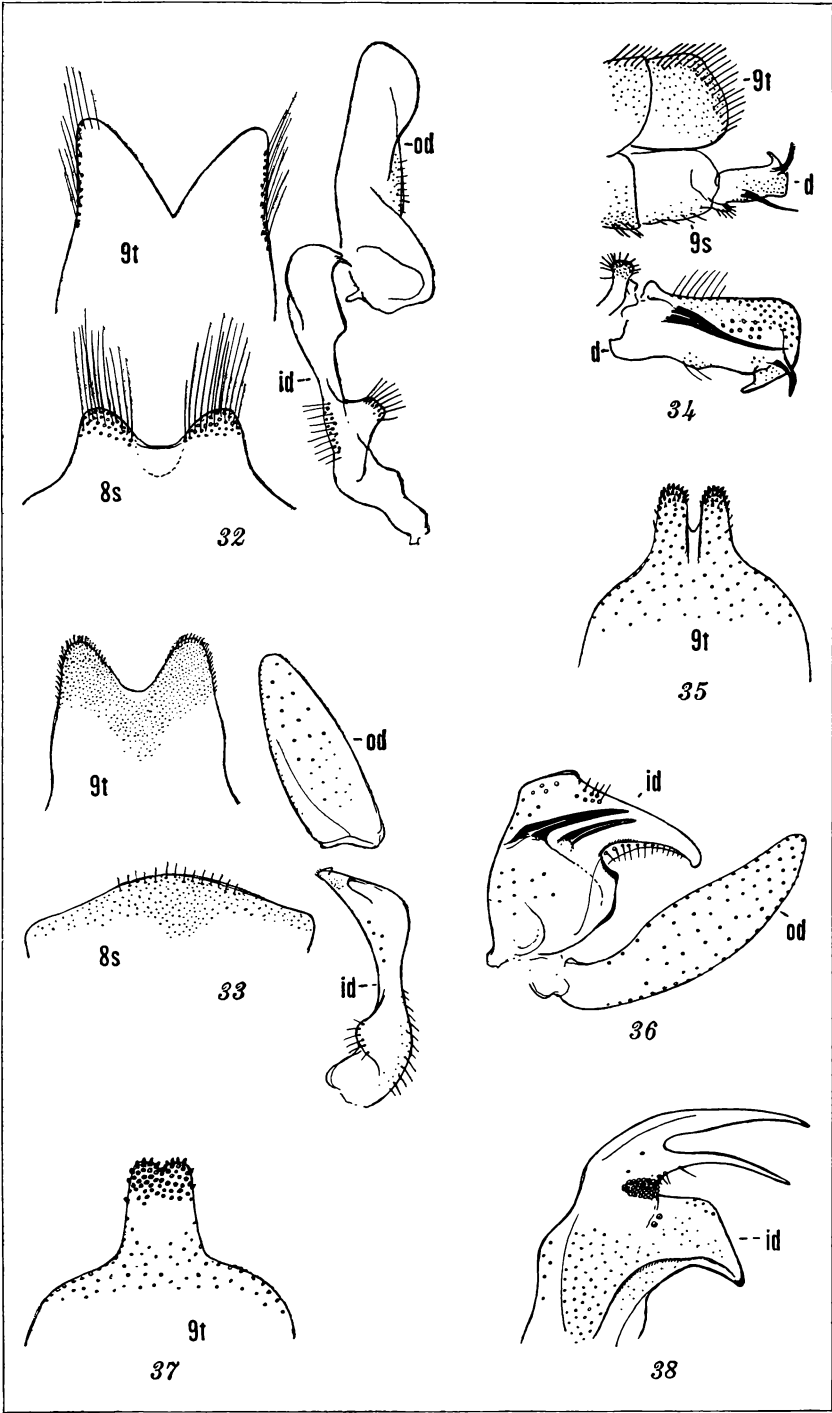


PLATE 3.

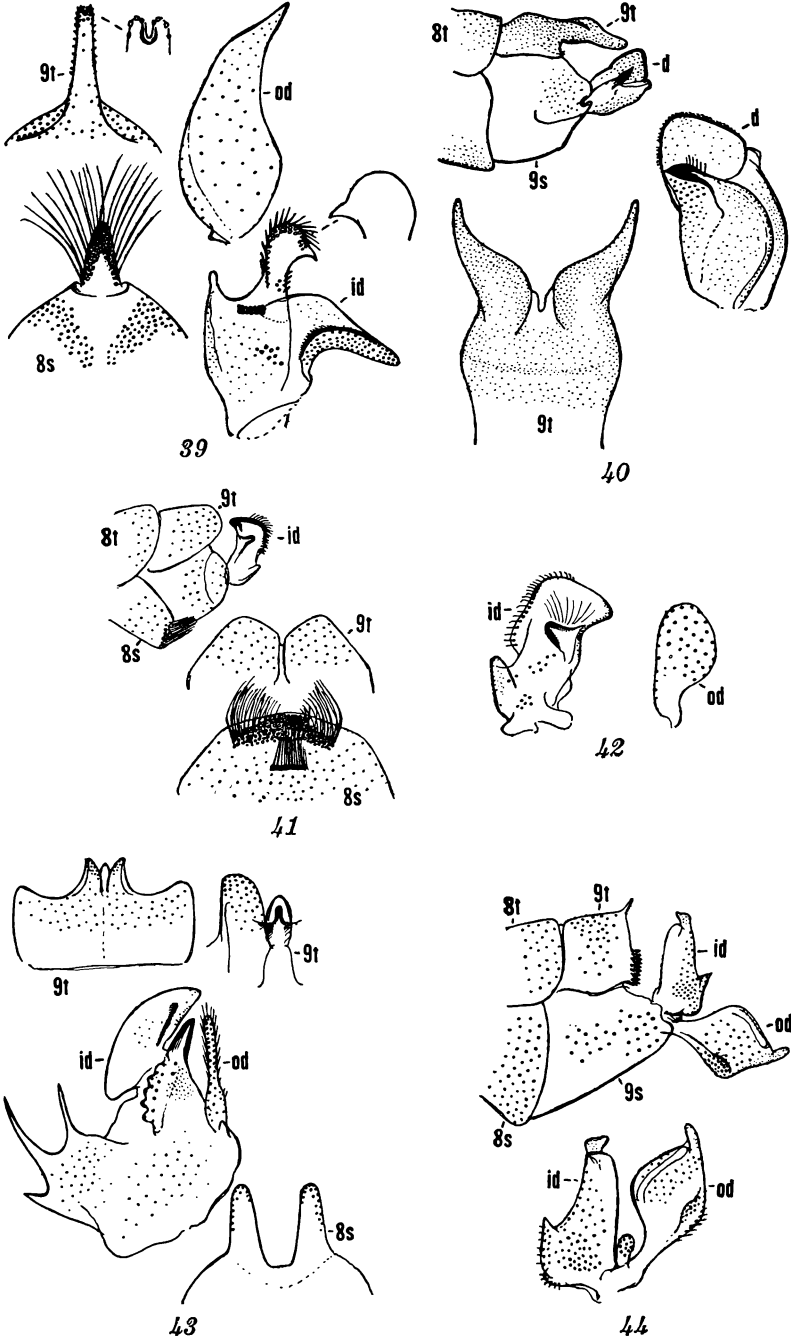


PLATE 4.

