

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

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Separate from
THE PHILIPPINE JOURNAL OF SCIENCE
Published by the Bureau of Science, Department of Agriculture
and Commerce, Manila, P. I.
VOLUME 59, No. 2, FEBRUARY, 1936

MANILA
BUREAU OF PRINTING
1936

NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN ASIA (DIPTERA), XXIX¹

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TWO PLATES

The species of crane flies discussed below are chiefly from western China, where they were collected by the Rev. Mr. David C. Graham, the material being preserved in the United States National Museum. A second important series is from Japan, collected by Dr. Masaaki Tokunaga, the material being contained in my collection, with duplicates of the species being retained by Doctor Tokunaga. A few additional species from other sources are acknowledged in the text. My sincere thanks are extended to all parties who have thus contributed to this further study of the Asiatic Tipulidæ.

TIPULINÆ

TANYPTERA COGNATA sp. nov. Plate 1, fig. 1.

General coloration black, sparsely variegated by yellow; antennæ (male) unusually long, if bent backward extending to beyond base of abdomen; paired branches of flagellar segments long, approximately three times the long-oval unpaired outer branch; posterior femora elongate, black, the extreme base brightened; male hypopygium with dististyle small, dark-colored, narrowed into an acute apical point.

Male.—Length, about 14 millimeters; wing, 13.2.

Rostrum and palpi black. Antennæ black throughout; outer flagellar branch relatively short, long-oval, only about one-third the length of the basal paired branches; antennæ unusually long, if bent backward extending to beyond base of abdomen. Head black.

Pronotum yellow medially, darkened on sides. Mesonotal præscutum polished black, the humeral region restrictedly yellow; scutum, including median area, black, scutellum black, the parascutella obscure yellow; mediotergite black, its cephalic

¹ Contribution from the entomological laboratory, Massachusetts State College.

border yellow; pleurotergite chiefly yellow. Pleura dull black, the dorsopleural membrane obscure yellow. Halteres brownish black, the base of stem restrictedly pale. Legs with the coxæ black; trochanters obscure yellow; fore femora obscure yellow basally, the distal third or more passing into black; posterior femora black, only the bases narrowly pale; tibiæ and tarsi black; posterior femora and tibiæ unusually long. Wings (Plate 1, fig. 1) with a strong brownish yellow tinge; prearcular field narrowly clear yellow; stigma oval, brown; a scarcely evident brown wash on anterior cord; veins dark brown. Venation: R_{1+2} entire; R_3 rather strongly upcurved at extreme tip; petiole of cell M_1 longer than m ; $m-cu$ on M_4 just beyond origin.

Basal abdominal tergites yellow laterally, blackened medially; third and succeeding tergites uniformly blackened; sternites of basal half of abdomen yellow, the outer half black. Male hypopygium only moderately enlarged; dististyle small, dark-colored, narrowed to an acute apical point.

Habitat.—China (Szechwan).

Holotype, male, west of Yachow, altitude 2,000 to 7,500 feet, June 14 to 18, 1922 (*Graham*).

The nearest described allies of the present fly are *Tanyptera angustistyla* Alexander, of Japan, and *T. indica* (Brunetti), of the eastern Himalayan region. The former is readily told by the venation and the structure of the male hypopygium, especially the conformation of the outer dististyle. The latter species differs in the coloration of the thorax and abdomen. Both forms apparently have shorter antennæ, with the paired flagellar branches shorter in relation to the unpaired median one. The genus *Tanyptera* had not hitherto been recorded from China.

PSELLIOPHORA STABILIS sp. nov. Plate 1, fig. 2.

Size relatively small (wing, female, 14 millimeters); thorax and outer segments of abdomen uniformly and intensely blackened; head dark liver brown; basal four abdominal segments clear fiery orange; femora uniformly brownish black, with short setæ; posterior tibiæ slender, pale yellowish brown, the proximal fifth paler but not forming an evident ring; wings subhyaline or very faintly tinged with brown; stigma small, pale yellow, inconspicuous; R_s short.

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

Frontal prolongation of head deep brown, short, with powerful nasus; palpi brown. Antennæ dark brown throughout, 10-seg-

mented, the outer flagellar segments becoming more globular; terminal segment pointed at apex, apparently formed by the fusion of two segments. Head uniformly dark liver brown.

Entire thorax black, only feebly nitidous to opaque. Halteres black, the base of stem narrowly paler. Legs with the coxæ dull black; trochanters brownish black; femora uniformly brownish black; tibiæ slender, pale yellowish brown, the basal fifth of the posterior pair more whitish but not forming any sort of a ring; tip of tibia weakly darkened; tarsi dark brown; femora with relatively short and inconspicuous setæ; hind tibiæ unusually slender. Wings (Plate 1, fig. 2) subhyaline or with a very faintly indicated brownish tinge; stigma small, pale yellow, scarcely differentiated; veins brown. Setæ of posterior border beyond squama long and conspicuous. Venation: Rs unusually short in relation to basal section of R_{4+5} being only slightly more than twice as long; R_2 short to punctiform; vein R_3 long-extended; m-cu at fork of M_{3+4} .

Abdomen with basal four segments, together with the very narrow cephalic border of the fifth tergite and the much more extensive corresponding portions of the fifth sternite, fiery orange, immaculate; remainder of abdomen, except tips of valves of ovipositor, black.

Habitat.—China (Yunnan).

Holotype, female, Psaotung (*Graham*).

In its general appearance, the present fly resembles a small *Pseliophora ctenophorina* Riedel or *P. speciosa* Edwards, but is readily told by the subhyaline wings and lack of a white ring on the tibiæ, including the posterior pair.

PSELLIOPHORA LAUTA sp. nov. Plate 1, fig. 3.

General coloration black, the præscutum with the lateral borders brightened; fore and middle femora yellow, posterior femora black, the tips narrowly yellow; tibiæ orange-yellow, with a vague, poorly defined, whitish ring close to base; wings dark brown, the narrow basal portion, costal border, and a cross-band before cord yellow; abdominal tergites ringed yellow and black, the apices of the latter color.

Female.—Length, about 19 millimeters; wing, 15.

Rostrum and palpi black, the terminal segment of the latter elongate. Antennæ with the scape and pedicel black, flagellum brownish black to brown, the segment oval, sessile. Head velvety black.

Pronotum velvety black. Mesonotum black, the intermediate præscutal stripes more reddish; lateral borders of præscutum between the humeral region and suture conspicuously reddish yellow. Pleura black throughout. Halteres black. Legs with the coxæ and trochanters black, the apices of the latter narrowly brightened; fore and middle femora yellow; posterior femora black, the apices narrowly yellow; tibiæ orange-yellow, with a very ill-defined more whitish yellow ring near base; tarsi broken. Wings (Plate 1, fig. 3) with the ground color rather dark brown, conspicuously variegated by yellow, the latter color including the prearcular region, very narrow bases of cells R to 2d A, inclusive, and almost all of cells C and Sc, the outer ends of the latter being darkened; an arcuated yellow crossband extending across wing from stigma to outer end of cell Cu, traversing the outer ends of cells R and M just before their extreme tips; a yellow spot in outer end of cell 1st A; all cells beyond cord uniformly darkened; extreme wing base darkened; postsquamal setæ long and conspicuous; veins brown in the darkened areas, more yellowish where traversing yellow areas. Venation: Cell M_1 narrowly sessile; cell M_4 narrowed at margin.

Abdomen with basal tergite velvety black; succeeding tergites with bases yellow, the apices black, the amount of the latter color increasing outwardly until on the seventh tergite only the lateral basal angles are brightened; outer tergite uniformly darkened; second and third sternites very extensively yellow, the outer sternites patterned about as on the corresponding tergites.

Habitat.—China (Szechwan).

Holotype, female, Fulin, altitude 3,000 to 7,000 feet, August 18 to 21, 1928 (*Graham*).

The most closely allied species are *Pselliophora bifasciipennis* Brunetti and *P. fumiplena* (Walker), which have a very different leg pattern. The possibility is not excluded that the present fly may be only subspecifically distinct from *fumiplena*, but it certainly appears to represent a valid species.

DICTENIDIA LUTEICOSTALIS sp. nov. Plate 1, fig. 4.

General coloration yellow, the mesonotal præscutum with an elongate, median, wedge-shaped, blackened mark, the long point directed backward; femora yellow; posterior tibiæ enlarged, yellow, the narrow tips and broader ring on basal half black;

wings strongly suffused with yellow, especially the wide costal border, the disk almost immaculate; veins black; macrotrichia in outer ends of cells R_3 to M_1 , inclusive; abdomen orange-yellow, the tergites with a narrow, interrupted, median vitta on the basal four segments.

Female.—Length, about 14 millimeters; wing, 12.

Frontal prolongation of head yellow, without clearly defined nasus, the outer end more dusky; palpi yellow, the elongate terminal segment a trifle darkened at outer end. Antennæ chiefly yellow, the scape and outer edges of flagellar serrations more dusky; antennæ 11-segmented, the six intermediate flagellar segments moderately produced on ventral face, the serrations truncate or subtruncate; terminal two segments closely approximated or fused, the last pointed. Head yellow, the anterior vertex with a transverse brown fascia extending from eye to eye, the color continued backward to occiput as a median line.

Pronotum narrow, chiefly infuscated. Mesonotal præscutum polished yellow, with three more reddish yellow stripes, the median one on cephalic portion replaced by an elongate-triangular black wedge, the long point directed behind; posterior sclerites of mesonotum uniformly reddish yellow. Pleura yellow, conspicuously variegated by more reddish areas on the anepisternum. Halteres yellow, the knobs infuscated, the extreme tips slightly paler. Legs with the coxæ and trochanters yellow; forelegs broken; middle legs with femora and tibiæ uniformly yellow; basitarsi brownish black, the remainder of tarsi black; posterior legs with femora uniformly yellow; tibiæ longer and stouter, rather conspicuously arcuated, with long conspicuous setæ; yellow, the tip narrowly black and with a broader black ring occupying the outer end of the basal half; tarsi black. Wings (Plate 1, fig. 4) strongly suffused with yellow, virtually immaculate except for the small brown stigma; narrow and insensibly indicated seams along cord and the wing apex extensively but very slightly infumed; cells R and M a trifle more tinged with brown, the latter with a central pale streak in outer third; cells C, Sc, and Cu_1 more intensely saturated yellow; veins black, conspicuous, the prearcular veins, together with C, Sc, and R, yellow. Rather numerous but small macrotrichia in outer ends of cells R_3 , R_5 , and M_1 , inclusive. Venation: Petiole of cell M_1 subequal to m; cell 1st M_2 small, pentagonal.

Abdomen orange-yellow, the tergites with a narrow, slightly interrupted, median black stripe on basal four segments, the line becoming narrower and more attenuated behind; lateral borders of tergites slightly paler, margined internally by dusky; sternites unmarked. Ovipositor with both cerci and hypovalvæ compressed and with tips obtuse or truncated, the hypovalvæ much shorter.

Habitat.—China (Szechwan).

Holotype, female, between Chengtu and Mowchow, altitude 1,400 to 4,500 feet, July 3 to 10, 1924 (*Graham*).

Despite the fact that the present species is known only from the female sex, I feel certain that the generic reference is correct. The venation and presence of numerous macrotrichia in the apical wing cells is much as in all other known species of the genus, with the exception of the aberrant *Dictenidia inæquipectinata* Alexander, of the high mountains of Formosa. The very strongly yellowish wings and the coloration of the body will serve to separate the present fly from its other relatives in eastern Asia. The genus is new to the fauna of China.

TIPULA (OREOMYZA) CLADOMERA sp. nov. Plate 1, fig. 5; Plate 2, figs. 25, 26.

General coloration brown, pruinose, the præscutum with four brown stripes; antennæ (male) extending nearly to base of abdomen; flagellar segments black, their apices narrowly pale; femora brownish yellow, the tips narrowly blackened; claws (male) toothed; wings pale brown, restrictedly variegated by paler areas before and beyond stigma and across cord; male hypopygium with the outer dististyle very large and of unusual shape, expanded outwardly, the apex with a U-shaped notch to form two conspicuous lobes; eighth sternite with nine or ten very coarse setæ on either side of midline of caudal margin.

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

Frontal prolongation of head reddish brown; nasus long and powerful; palpi brownish black. Antennæ moderately long, if bent backward extending nearly to base of abdomen; scape and pedicel light yellow; first flagellar segment light brown, paler at tip; succeeding flagellar segments black, their apices narrowly pale; flagellar segments weakly incised; verticils subequal in length to the segments. Head reddish brown, with a narrow brownish median vitta on vertex, becoming narrower and more attenuated behind.

Mesonotal præscutum brown, pruinose with gray, apparently with four brown stripes that are bordered by darker, this region of body badly discolored in type; scutum brownish gray, the lateral portions darker; scutellum and mediotergite gray with a capillary brown median vitta. Pleura chiefly gray. Halteres pale yellow, the knobs infuscated, with their tips restrictedly pale. Legs with the coxæ brownish gray; trochanters obscure yellow; femora brownish yellow, the tips narrowly blackened, preceded by a vague, clearer yellow ring; tibiæ brown, the tips narrowly blackened; tarsi reddish brown; tibial spur formula 1-2-2; claws (male) toothed. Wings (Plate 1, fig. 5) with a pale brown tinge, cell Sc somewhat darker; stigma small, brown; very restricted paler areas before and beyond stigma and across cell 1st M_2 ; a more or less distinct brown seam along vein Cu in cell M; veins brown. Venation: R_{1+2} long, entire, with macrotrichia on basal fourth; cell 1st M_2 small, pentagonal.

Basal abdominal tergites yellow, lined with darker; hypopygium yellow. Male hypopygium (Plate 2, fig. 25) with the suture between tergite, 9t, and sternite, 9s, short. Basistyle at apex produced into a flattened lobule. Ninth tergite (Plate 2, fig. 26, 9t) short, entirely pale, with pale setæ; caudal margin with a narrow, U-shaped, median notch that extends fully to mid-length of the sclerite; the broad lateral lobes obliquely truncated. Outer dististyle (Plate 2, fig. 26, od) very large and of unusual shape, being expanded outwardly and deeply bifid by a U-shaped apical notch; margins of lobes darkened and sclerotized. Inner dististyle (Plate 2, fig. 26, id) much smaller, as shown by the figures. Eighth sternite broadly and shallowly notched, the median area with restricted pale membrane, the margin on either side of midline with nine or ten long, unusually coarse setæ, the more lateral ones smaller.

Habitat.—China (Szechwan).

Holotype, male, Wan-hsien, September 14, 1921 (American Museum of Natural History, accession No. 23974).

The very remarkable male hypopygium will serve to separate this species from all others in the genus described to this date. I have compared the fly with my almost complete series of species of this particular faunal area and can find no form with which it may be profitably compared. The great size and unusual conformation of the outer dististyle of the male hypopygium is different from the normal condition in *Oreomyza*, but I believe the species to be correctly referred to this subgenus.

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) ARTHRITICA sp. nov. Plate 1, fig. 6.

General coloration of thorax green, the præscutum with three orange stripes; head orange; legs yellowish white, the femoral tips strongly swollen and blackened; all tarsi white, the three outer segments pale brown; wings long and narrow, rich brown, the outer margin in radial field deeper brown; a restricted darker brown pattern on certain of the veins and crossveins; Rs very elongate, angulated at origin; cerci small, slender, strongly upcurved.

Female.—Length, about 5.5 millimeters; wing, 7.5.

Rostrum short, polished black; palpi black. Antennæ with scape and pedicel intense black; flagellum dull black, the proximal ends of the segments indistinctly and vaguely paler; flagellar segments oval to long-oval. Head fiery orange.

Pronotum green. Mesonotal præscutum green, with three orange stripes that are nearly confluent, the interspaces indicated only by delicate vittæ of the ground color; scutum green, the lobes variegated by orange; scutellum and mediotergite green. Pleura strongly suffused with green, presumably fading to yellow in older specimens. Halteres obscure brownish yellow, the knobs infuscated. Legs with the coxæ and trochanters greenish; femora yellowish white, the tips very strongly swollen and heavily blackened, the degree of incrassation and blackening subequal on all legs; tibiæ yellow, the extreme bases blackened, the tips broadly blackened, the amount of the latter involving approximately the distal fifth; all tarsi with basal two segments snowy white, the outer segments pale brown, with segments three and four weakly swollen. Wings (Plate 1, fig. 6) long and narrow, with slender basal petiole; ground color strongly rich brown, the margin in outer radial field suffused with dark brown; restricted darker brown spots and clouds, arranged as follows: Origin of Rs; fork of Sc; free tip of Sc₂ and R₂; cord and outer end of cell 1st M₂; veins pale, somewhat darker in the clouded areas. Macrotrichia of veins beyond cord abundant and well distributed. Axillary angle of wing just beyond squama strongly dilated. Venation: Sc moderately long, Sc₁ ending just before midlength of Rs, Sc₂ close to its tip; Rs very long, angulated at origin; free tip of Sc₂ lying some distance before R₂, the latter gently curved into R₁, with no sign of a spur of R₁₊₂; inner end of cell 1st M₂ strongly arcuated; m at beyond one-third the

length of the cell; veins M_{1+2} and M_3 exceeding cell 1st M_2 in length; m-cu at or just before the fork of M; anal veins parallel or very gently divergent at origin.

Abdominal tergites brown, the sternites more greenish yellow; terminal segments more buffy. Ovipositor with the cerci much shorter than the hypovalvæ, slender, strongly upcurved.

Habitat.—Java (west).

Holotype, female, Goenoeng Tjimerang, Djampang, March, 1935 (*M. E. Walsh*); in author's collection.

The present fly is so different from all other members of the subgenus yet described that comparison with any other species would be unprofitable. The strongly swollen and blackened tips of all femora give to the insect a very strange appearance. It is very probable that the rich green tints of the thorax will fade to yellow or greenish yellow in old specimens.

LIMONIA (LIMONIA) NOMINATA sp. nov.

General coloration of præscutum black, with three reddish brown stripes; pleura almost uniformly darkened; apices of knobs of halteres yellow; femora yellow, the distal end, including apex, blackened, inclosing a narrow yellow ring; wings cream-yellow, very extensively clouded by brown washes that restrict the ground color to narrow, broken, chiefly transverse bands; Sc_2 ending before level of fork of Rs; R_{1+2} shorter than R_{2+3} ; cell 1st M_2 relatively small; m-cu beyond the fork of M; abdominal tergites bicolorous, black, the bases of the segments narrowly yellow.

Female.—Length, about 12 millimeters; wing, 12.5.

Rostrum and palpi black. Antennæ brownish black throughout; flagellar segments elongate, the longest verticils somewhat exceeding the segments. Head brownish black.

Pronotum dark brown above, paler on sides. Mesonotal præscutum with the ground color black, with three reddish brown stripes; scutal lobes chiefly blackened, the median region restrictedly pale; scutellum reddish brown; mediotergite dark. Pleura almost uniformly dark brown or brownish black. Halteres relatively long, yellow, the basal half of knob dark brown. Legs with the fore and middle coxæ dark brown, the posterior coxæ paler; trochanters obscure yellow; femora yellow, the tip and a subterminal ring blackish, the two latter inclosing a yellow annulus that is a little more extensive than the darkened apex and much narrower than in the allied *prudencia*; tibiæ and

tarsi brown. Wings with the ground color cream-yellow, chiefly concealed by unusually extensive brown clouds and washes, restricting the ground to broken transverse bands beyond the arculus, at middistance between the latter and origin of Rs, beyond the origin of Rs and a long cord; small isolated spots of the ground before and beyond the stigma, near outer end of cell 1st M_2 , outer end of cell 2d M_2 , and as a spot at near midlength of cell 2d A; cell Cu_1 almost uniformly darkened; veins brown, more yellowish in the ground areas. A series of macrotrichia distributed over almost the whole length of vein Rs, lacking on the basal ascending portion. Venation: Sc relatively short, Sc_2 ending some distance before the fork of Rs, in *prudentia* slightly beyond this fork; Sc_1 shortly removed from the tip of Sc_2 ; R_{1+2} elongate but shorter than R_{2+3} ; cell 1st M_2 small, shorter than the veins issuing from it; m-cu about one-third to one-fourth its length beyond the fork of M.

Abdominal tergites black, the incisures narrowly yellow, including the bases of the sclerites; basal sternites yellow, the outer segments bicolorous, black and yellow, the bases of the latter color. Cerci small and slender.

Habitat.—China (Szechwan).

Holotype, female, Wen Chuan, November 15 to December 5, 1934 (*Graham*).

The nearest allied species appears to be *Limonia* (*Limonia*) *prudentia* Alexander, likewise from western China, which has the leg pattern somewhat similar but with the wing pattern and venation quite distinct.

LIMONIA (DICRANOMYIA) PENITA sp. nov. Plate 1, fig. 7; Plate 2, fig. 27.

Belongs to the *morio* group; size relatively large (wing, male, 8 millimeters); halteres dusky, the base of stem narrowly pale; vein 2d A longer than in *paramorio* but much shorter than in *kongosana*; abdomen black, the posterior portions of the intermediate sternites paler; male hypopygium with the tergal lobes slender; ventromesal lobe of basistyle very broad and obtuse; apex of dorsal dististyle acute; ventral dististyle oval, the rostral prolongation long and slender, subequal in length to the rostral spine.

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

Rostrum and palpi black. Antennæ black throughout; flagellar segments long-oval, with short apical pedicels. Front conspicuously silvery white; posterior region of head dull brownish black.

Thoracic dorsum polished black, the posterior sclerites a trifle more pruinose. Pleura rather heavily dusted with gray. Halteres elongate, dusky, the base of stem narrowly paler. Legs with the fore coxæ black, remaining coxæ more brownish yellow; trochanters obscure yellow; femora obscure yellow, the tips narrowly and weakly darkened; remainder of legs dark brown to brownish black. Wings (Plate 1, fig. 7) strongly tinged with brown, the stigma still darker brown; veins brown. Venation: Sc_1 ending a short distance beyond origin of Rs , Sc_2 far removed from its tip, Sc_1 alone subequal in length to Rs ; free tip of Sc_2 and R_2 in approximate transverse alignment; m-cu shortly before fork of M ; vein 2d A elongate.

Abdomen black, the apical portions of the intermediate sternites vaguely paler. Male hypopygium (Plate 2, fig. 27) with the lobes of the tergite, $9t$, moderately stout, but considerably narrower than the width of the U-shaped emargination separating them. Ventromesal lobe of basistyle, b , very broad and obtuse, its apex rounded. Dorsal dististyle a slender, gently curved, blackened rod, gradually narrowed to the acute tip. Ventral dististyle, vd , of moderate size, pale, oval in outline, the rostral prolongation dusky, slender; a single stout pale spine that is subequal in length to the rostral prolongation beyond its insertion.

Habitat.—China (Szechwan).

Holotype, male, Wen Chuan, November 15 to December 5, 1934 (*Graham*).

The nearest allies of the present fly are *Limonia* (*Dicranomyia*) *kongosana* Alexander, of Korea, and *L. (D.) paramorio* (Alexander), of Japan and eastern China, both of which have the dorsal dististyle acute at apex, the rostral prolongation of the ventral dististyle evident, and the ninth tergite more or less produced into lobes. The present insect is about intermediate in its characters between the indicated species but is amply distinct in the details of the hypopygium.

LIMONIA (RHIPIDIA) ISOSPILOTA sp. nov. Plate 1, fig. 8.

Allied to *maculata*; general coloration (in spirit) dark, the thoracic pleura distinctly striped longitudinally with dark; wings whitish subhyaline, the entire surface abundantly dotted with brown and grayish brown, the latter covering most of disk and being subequal in area to the interspaces; darker costal areas of small size, the spot at end of Sc widely separated from the one at origin of Rs ; Sc_1 at or beyond midlength of Rs .

Female.—Length, about 7 to 7.5 millimeters; wing, 5.5 to 6.

Described from alcoholic specimens.

Rostrum and palpi black. Antennæ brownish black, the apical pedicels of the flagellar segments white; flagellar segments moderately produced (female). Head grayish brown.

Mesonotum uniformly darkened, in fresh specimens probably pruinose; lateral portions of præscutum paler. Pleura narrowly lined with still darker, appearing as longitudinal stripes across the ventral anepisternum and ventral sternopleurite. Halteres pale. Legs with the coxæ darkened; trochanters pale; remainder of legs dark brown, the femoral bases a little brightened. Wings (Plate 1, fig. 8) whitish subhyaline, the entire surface abundantly dotted with brown or paler grayish brown areas, of which the former are subequal in size to the latter; none of the darkenings of large size, as is the case in *maculata* and allies; dark spots at tip of Sc₁ and origin of Rs widely separated; stigmal area and clouds at fork of Rs and along m-cu slightly larger; dots in the cells almost equal in area and comparable to the pale interspaces; veins yellowish brown, darker in the clouded areas. Venation: Sc long, Sc₁ ending at or beyond midlength of Rs, Sc₂ at its tip; m-cu approximately one-half its length before the fork of M.

Abdomen relatively pale brown.

Habitat.—Japan (Honshiu).

Holotype, alcoholic female, Kibune, Kyoto, October 16, 1934 (Tokunaga). Paratopotype, alcoholic female.

Limonia (Rhipidia) isospilota is most readily told from *L. (R.) maculata* (Meigen) by the unusually long Sc, with the darkened area at its tip widely separated from that at origin of Rs; from *L. (R.) triarmata* Alexander it is told by the elongate Sc, which ends opposite or beyond midlength of Rs.

LIMONIA (RHIPIDIA) HYPOMELANIA sp. nov. Plate 1, fig. 9; Plate 2, fig. 23.

Mesonotum and pleurotergite pale yellowish brown, contrasting abruptly with the blackened ventral pleurites and sternum; antennæ (male) with eight bipectinate segments; femora yellow, the bases weakly darkened; wings pale yellow, with very abundant pale brown dots in the cells; Sc relatively long, Sc₁ ending beyond one-third the length of Rs; male hypopygium with five or six long curved spines placed far out near apex of rostral prolongation.

Male.—Length, about 6.5 to 7 millimeters; wing, 7.5 to 8.

Female.—Length, about 7.5 millimeters; wing, 8.

Male.—Rostrum and palpi black. Antennæ with eight bipectinate segments (flagellar segments two to nine, inclusive); scape and pedicel black; flagellar segments with basal enlargements and branches black, the long apical pedicel yellow; longest branches (about flagellar segments four to six) approximately one-half longer than the segment; first flagellar segment merely produced; flagellar segments ten and eleven with a single branch, on the former segment nearly as long as the enlargement; terminal segment about one-half longer than the penultimate. Head black, pruinose, paler behind.

Mesonotum almost uniformly pale yellowish brown, this color including the dorsopleural region and pleurotergite, contrasting abruptly with the blackened propleura, anepisternum, sternopleurite, sternum, and meral region. Halteres pale yellow, the knobs weakly darkened. Legs with the coxæ blackened; trochanters brownish black; femora yellow, the bases weakly darkened; tibiæ and tarsi yellow, the terminal segments of the latter passing into black. Wings (Plate 1, fig. 9) pale yellow, with abundant, very pale brown dots in the cells, these so indistinct as to make the wing appear virtually unicolorous; similar sized but slightly darker dots at the supernumerary crossvein in cell Sc, origin of Rs, fork of Sc, along cord, and on outer end of cell 1st M_2 ; veins yellow, a little darker in the clouded areas. Venation: Sc relatively long, Sc_1 ending beyond one-third the length of Rs, Sc_2 at its tip; m-cu slightly variable in position in different specimens, from immediately before fork of M to nearly one-half its length before this point.

Abdomen yellowish brown. Male hypopygium (Plate 2, fig. 28) with the caudal margin of tergite, 9t, almost evenly, convexly rounded. Basistyle, *b*, with the ventromesal lobe broad, with abundant setæ. Dorsal dististyle nearly straight, a little expanded at apex, suddenly narrowed to an apical spine. Ventral dististyle, *vd*, of moderate size, the rostral prolongation long, with five or six long curved spines placed far out near apex.

Female.—Characters as in male, differing only in the sexual features. Flagellar segments simply produced on ventral face.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 5,500 to 11,000 feet, August 16 to 20, 1934 (*Graham*). Allotopotype, female, in fragmentary condition, altitude 11,000 feet, August 18, 1934 (*Graham*). Paratopotype, male, with the allotype.

The present fly is very distinct from all other regional species of the subgenus, especially in the peculiar pattern of the thorax and in the weakly patterned wings.

ANTOCHA (ANTOCHA) SPICATA sp. nov. Plate 1, fig. 10; Plate 2, fig. 29.

Size small (wing, about 4 to 5 millimeters); general coloration dark; halteres pale; wings grayish, the prearcular field paling to white; veins pale brown, contrasting but little with the ground; vein Sc short; male hypopygium with both dististyles simple; outer gonapophysis bluntly rounded at apex.

Male.—Length, about 3.5 to 4 millimeters; wing, 4 to 5.2.

Described from alcoholic specimens.

Rostrum and palpi brown. Antennæ with the scape brown, the pedicel and flagellum darker brown; flagellar segments subglobular to very short-oval, the outer segments slightly more elongate. Head dark brown.

Thorax almost uniformly darkened (in spirit), undoubtedly pruinose in fresh specimens; præscutal stripes not clearly evident. Halteres pale. Legs with the coxæ and trochanters brown; remainder of legs uniformly darkened. Wings (Plate 1, fig. 10) with a grayish tinge, the prearcular field paling to white; veins pale brown, contrasting but little with the ground. Venation: Sc short; as in *brevinervis*, Sc₁ ending about opposite two-thirds to three-fourths the length of Rs; r-m at or before one-third the length of cell 1st M₂; m-cu before the fork of M.

Abdomen, including hypopygium, uniformly dark brown. Male hypopygium (Plate 2, fig. 29) with the tergite, 9^t, transverse, the posterior border emarginate medially. Basistyle, *b*, with a setiferous lobe on mesal face at base; setæ of outer face at apex longer and more powerful. Both dististyles, *d*, simple and of generally similar outline, the tip of the outer or glabrous style a trifle more pointed. Ædeagus, *a*, notched at apex. Inner gonapophyses, *g*, appearing as straight simple spikes; outer apophyses shorter, ending in obtuse flattened blades.

Habitat.—Japan (Hokkaido, Honshiu, Kiushiu).

Holotype, alcoholic male, Kibune, Kyoto, Honshiu, October 11, 1934 (*Tokunaga*). Paratypes, 1 male, Date, Hokkaido, September 4, 1923 (*S. Kuwayama*); 1 male, Jozankei, Ishikari, Hokkaido, August 19, 1922 (*T. Esaki*); 1 male, Takaharu, Hiuga, Kiushiu, November 1, 1923 (*T. Esaki*). Types in author's collection.

The nearest described ally is *Antocha (Antocha) brevinervis* Alexander, which has the subcostal vein similarly abbreviated and likewise agrees in its general appearance. The present fly is most readily told by its small size, whitened wing bases, pale wing veins, and differences in the conformation of the ædeagus and outer gonapophyses. In the original definition of *brevinervis*,² the present species was confused in the type series; the true holotype of *brevinervis* being from Sapporo, Hokkaido, June 25, 1921, collected by Kuwayama.

ORIMARGA (ORIMARGA) DISTALIS sp. nov. Plate 1, fig. 11; Plate 2, fig. 30.

Mesothorax dark brown; wings uniformly pale yellow, the veins a trifle darker; macrotrichia of veins beyond cord relatively numerous; R_{2+3} about twice R_{1+2} ; M_{3+4} a little longer than M_4 ; m-cu lying unusually far distad, approximately two or two and one-half times its own length before the fork of M and opposite the distal end of Rs; spines at apex of ædeagus long and needlelike.

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

Described from an alcoholic specimen.

Rostrum, palpi, and antennæ dark brown; flagellar segments oval, the terminal segment smaller than the penultimate. Head dark brown; anterior vertex about equal to twice the diameter of the scape.

Pronotum elongate, pale brown. Mesonotum (in spirit) uniformly dark brown, without clearly defined markings excepting the slightly brightened humeral region and a very ill-defined, capillary, median pale vitta that extends almost the entire length of the mesonotum. Pleura brown. Halteres white throughout. Legs with the coxæ and trochanters yellowish brown; remainder of legs uniformly brown. Wings (Plate 1, fig. 11) with a uniform pale yellow tinge; veins yellowish brown; costal fringe relatively short; macrotrichia of veins beyond cord relatively numerous, including outer ends of veins R_{1+2} to Cu_1 , inclusive. Venation: Sc_1 ending shortly before the fork of Rs; R_{2+3} about twice R_{1+2} alone; free tip of Sc_2 distinct; R_1 a little shorter than R_{1+2} ; M_{3+4} a little longer than M_4 ; m-cu lying unusually far distad, approximately two to two and one-half times its own length before the fork of M and opposite the distal end of Rs.

² Philip. Journ. Sci. 24 (1924) 567.

Abdomen brown, the sternites a little brighter. Male hypopygium (Plate 2, fig. 30) with the paired spines at apex of *ædeagus*, *a*, long and needlelike; inner gonapophyses, *g*, unusually narrow, weakly notched at tips.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Mount Daisen, Hoki, July 2, 1931 (Tokunaga).

Orimarga (Orimarga) distalis is readily distinguished from the other Japanese species of the genus having vein R_{2+3} elongate, by the position of *m-cu*, which lies far distad, opposite the outer end of *Rs*. In all other species of this group so far described from China and Japan, *m-cu* lies three or more times its own length before the fork of *M* and opposite or before mid-length of *Rs*. The most nearly allied single species is *O. (O.) yakushimana* Alexander (Kiushiu, Honshiu), which has the inner gonapophyses of the male hypopygium unusually broad, with their apices entire.

HELIUS (HELIUS) LONGINERVIS Edwards.

Helius longinervis EDWARDS, Journ. Fed. Malay States Mus. 14 (1928) 87-88.

Described from a unique male taken at Cameron's Highlands, Pahang, altitude 4,800 feet, March 13, 1924.

One male, Tjibodas, western Java, altitude 4,200 feet, February 4, 1934 (*M. E. Walsh*); in author's collection.

LECHRIINI

TRICHONEURA (XIPHOLIMNOBIA) JAVANENSIS sp. nov. Plate 1, fig. 12.

General coloration dark brown; head silvery gray; extreme lateral border of *præscutum* narrowly silvery; *pleura* with a narrow, pale, longitudinal stripe; legs brown; wings with a strong brown tinge; *Rs* about one-fifth longer than *R*.

Female.—Length, about 3.5 millimeters; wing, 3.2.

Rostrum and palpi black. Antennæ black throughout; flagellar segments oval to long-oval, with long conspicuous verticils. Head clear silvery gray.

Mesonotum uniformly dark brown, the extreme lateral border of *præscutum* more silvery. *Pleura* dark brown, with a poorly defined, pale, longitudinal stripe extending from behind the fore *coxæ*, across the dorsal sternopleurite, to the abdomen, passing above the fore *coxæ*. Halteres dusky. Legs with the *coxæ* and trochanters dark brown; remainder of legs brown. Wings (Plate 1, fig. 12) with a strong brownish tinge; stigma lack-

ing; veins darker brown. Macrotrichia of veins more restricted than in *bontocensis*, there being only two or three at extreme distal end of Rs and none on the main stem of M. Venation: Sc₁ ending about opposite four-fifths the length of Rs, Sc₂ close to its tip; Rs of moderate length, about a fifth longer than R; m-cu a little less than its own length before fork of M₃₊₄.

Abdomen dark brown; valves of ovipositor very long and straight, as in the subgenus.

Habitat.—Java (west).

Holotype, female, Soekaboemi, altitude 1,800 feet, January, 1934 (*M. E. Walsh*); in author's collection.

By my key to the Asiatic species of *Xipholimnobia*³ the present species runs to *Trichoneura (Xipholimnobia) bontocensis* Alexander (Luzon), which seems undoubtedly to be its nearest ally. The present species differs in the details of coloration and the more-restricted trichiation of the wing veins.

PEDICIINI

DICRANOTA (RHAPHIDOLABIS) TUBERCULATA sp. nov. Plate 1, fig. 13.

General coloration reddish brown, the præscutum with a single median brown stripe; pleura reddish brown; pronotum with a small median tubercle on the cephalic border; knobs of halteres weakly darkened; wings pale grayish subhyaline, unmarked except for the yellowish brown stigma.

Female.—Length, about 6 millimeters; wing, 5.5.

Described from alcoholic specimens.

Rostrum brown; palpi dark brown. Antennæ black throughout, 13-segmented; flagellar segments oval. Head dark, probably pruinose in fresh specimens.

Pronotum dark brown, with a conspicuous, erect, median tubercle on cephalic border. Mesonotal præscutum gibbous, reddish brown, with a single median brown stripe that becomes obsolete before the suture. Pleura uniformly reddish brown. Halteres pale, the knobs weakly darkened. Legs with the coxæ reddish brown; trochanters paler; remainder of legs broken. Wings (Plate 1, fig. 13) pale grayish subhyaline, unmarked except for the pale yellowish brown stigma; veins pale brown, with abundant macrotrichia. Venation: Rs straighter and somewhat longer than in *consors*; R₂₊₃₊₄ moderately long, subequal to m-cu; R₂ considerably exceeding R₁₊₂; m-cu nearly its own length beyond the fork of M.

³ Philip. Journ. Sci. 53 (1934) 440.

Abdomen light brown; valves of ovipositor horn yellow.

Habitat.—Japan (Honshiu).

Holotype, alcoholic female, Kibune, Kyoto, October 11, 1934 (*Tokunaga*). Paratopotype, female.

The nearest described ally of the present fly is *Dicranota* (*Rhaphidolabis*) *consors* (Alexander), likewise from Japan, which agrees in the nearly immaculate wings with vein R_{2+3+4} preserved, differing in the 12-segmented antennæ, the lack of a pronotal tubercle, and the coloration of the thorax.

DICRANOTA (RHAPHIDOLABIS) BILOBA sp. nov. Plate 1, fig. 14; Plate 2, fig. 31.

General coloration dark gray, the præscutum with three more blackish stripes; pleura heavily gray pruinose; antennæ 15-segmented, black throughout; halteres with darkened knobs; legs black, the femoral bases restrictedly brightened; wings tinged with gray, the prearcular field conspicuously light yellow; stigma and seams along cord and distal half of vein Cu_1 weakly infuscated; R_{2+3+4} longer than basal section of R_5 ; male hypopygium with the extensive tergite profoundly bilobed by a narrow U-shaped median notch, the lobes with obtuse lateral shoulders before apices.

Male.—Length, about 7 millimeters; wing, 8.5.

Rostrum and palpi black. Antennæ black throughout, 15-segmented, short; flagellar segments beyond the elongate first one oval, becoming smaller and more crowded at outer end. Head dark gray.

Pronotum and mesonotum dark gray, the præscutum with three more blackish stripes, the lateral pair crossing the suture onto the scutal lobes. Pleura heavily gray pruinose. Halteres with stem pale yellow, the knob dark brown. Legs with the coxæ pruinose; trochanters dark brown; remainder of legs long and slender, black, the femoral bases restrictedly paler. Wings (Plate 1, fig. 14) tinged with gray, the prearcular field conspicuously light yellow; costal region less conspicuously brightened; stigma and seams along cord and distal half of vein Cu_1 weakly infuscated; veins brown, yellow in the flavous areas. Venation: R_{2+3+4} from one-half longer to approximately twice the basal section of R_5 , the latter subequal to r-m; cell M_1 approximately one-half as deep as cell M_3 .

Abdomen black, pruinose. Male hypopygium (Plate 2, fig. 31) with the tergite, 9t, extensive, the caudal margin profoundly bilobed by a narrow U-shaped notch; lateral margins of lobes before apex with an obtuse lateral shoulder. Outer lobe of basi-

style, *b*, relatively slender, with long setæ. Dististyle, *d*, very broadly flattened, extended into a moderately slender beak. Interbase, *i*, deeply bifid before apex, the outer lobe slender, the inner more obtuse, with a lateral flange back from its apex, the margin of lobes microscopically serrulate.

Habitat.—China (Szechwan).

Holotype, male, Wen Chuan, November 15 to December 5, 1934 (Graham).

Dicranota (Raphidolabis) biloba has no close ally among the described regional species of the subgenus. In its general appearance it is most like *D. (R.) flavibasis* (Alexander), of Japan, which has the wing pattern and venation somewhat similar, but with the details of structure of the male hypopygium entirely different. The profoundly bifid ninth tergite is quite distinct from the condition found in all other species of *Dicranota* known to me.

ULA PROVECTA sp. nov. Plate 1, fig. 15.

General coloration brownish black to black; antennæ elongate; halteres black, the bases restrictedly pale; wings with a strong blackish tinge, the stigma entire, slightly deeper in color; a darkened cloud on r-m; abdomen black.

Female.—Length, about 6 millimeters; wing, 7.4.

Rostrum and palpi black. Antennæ black throughout, relatively elongate for the female sex in this genus; flagellar segments cylindrical; longest verticils subequal to or just exceeding the segments in length; terminal segment a little longer than the penultimate. Head brownish black.

Mesothorax almost uniformly brownish black, without clearly defined markings or pruinosity. Halteres black, the base of stem narrowly paler. Legs with the coxæ and trochanters dark brown; remainder of legs brownish black to black. Wings (Plate 1, fig. 15) with a strong blackish tinge, the stigma and a cloud on r-m deeper in color; stigma uniformly darkened; scarcely evident paler areas at Sc₂, origin of Rs, and outer end of cell 1st M₂; veins brownish black. Macrotrichia lacking in proximal ends of all basal cells (presence of trichia indicated by stipplings in figure). Venation: Rs long, angulated at origin; r-m connecting with Rs immediately before fork; cell 1st M₂ relatively small, shorter than vein M₄ beyond it; m-cu near proximal end of cell 1st M₂, in approximate transverse alignment with r-m.

Abdomen black; valves of ovipositor horn yellow.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 5,500 to 11,000 feet, August 16 to 20, 1934 (*Graham*).

Ula provecta is very distinct from the only other species of the genus so far made known from western China, *Ula comes* Alexander, in the nearly unpatterned wings. It is most generally similar to *Ula fuscistigma* Alexander (Formosa) in its general appearance, differing in the unusually dark ground color of the wings, the position of Sc_2 at about two-thirds the distance between arculus and origin of Rs, and the considerably larger cell 1st M_2 .

HEXATOMINI

ADELPHOMYIA MAJUSCULA sp. nov. Plate 1, fig. 16.

Size large (wing, female, 8 millimeters); general coloration of thorax and abdomen black, the præscutum subnitidous; legs yellow, the femoral tips narrowly blackened, the outer tarsal segments black; wings strongly tinged with brown, the stigma darker; trichia of wing cells unusually abundant, occurring in cells Sc_2 to Cu, inclusive; vein R_2 obsolete or virtually so; veins R_3 and R_4 rather strongly divergent; cell M_1 small.

Female.—Length, about 9 millimeters; wing, 8.

Rostrum and palpi black. Antennæ black, the flagellar segments beyond the basal two or three becoming very slender to setaceous, with very long, conspicuous setæ. Head dark brownish gray, somewhat clearer gray on front.

Pronotum black, sparsely pruinose. Mesonotal præscutum black, subnitidous, the posterior sclerites of notum more heavily pruinose. Pleura black, sparsely pruinose. Halteres pale yellow throughout. Legs with the coxæ brownish black, the fore coxæ more intensely darkened; trochanters obscure yellow; femora yellow, the tips narrowly but conspicuously blackened; tibiæ and tarsi brownish yellow, the outer segments of the latter blackened. Wings (Plate 1, fig. 16) with a strong brownish tinge, the stigma darker brown; veins brown, the prearcular and basal veins somewhat more yellowish. Trichia in outer cells of wing unusually abundant and well distributed, involving the outer portions of cells Sc_2 to Cu, inclusive (indicated in figure by stippled dots). Venation: Sc_1 ending a short distance before fork of Rs, Sc_2 some distance from its tip; R_2 obsolete or nearly so, placed at or just beyond fork of vein R_{3+4} , represented by a weak spur on R_3 close to the fork; vein R_{1+2} strongly sinuous upon entering the stigma; veins R_3 and R_4 rather strongly di-

vergent; cell R_3 at margin wider than cell R_2 ; cell M_1 small; m-cu just before midlength of cell 1st M_2 .

Abdomen black throughout, only the cerci horn brown.

Habitat.—China (Szechwan).

Holotype, female, Beh Luh Din, altitude 4,000 feet, October 10 to 24, 1934 (*Graham*).

Adelphomyia majuscula is readily told from the other described Asiatic species by the large size, in conjunction with the abundant macrotrichia of the outer wing cells, the black coloration of the thorax and abdomen, and the unmarked wings, with vein R_2 obsolete or virtually so.

EPIPHRAGMA (EPIPHRAGMA) SUBOBOLETA sp. nov. Plate 1, fig. 17.

General coloration of præscutum dark brown, the usual stripes confluent, buffy in front, before the suture passing into brown; knobs of halteres with outer portion whitish; legs yellow, the femora with a very narrow, subobsolete brown ring shortly before tip; wings whitish hyaline, with the usual brown pattern of the subgenus, the areas not bordered by darker; outer radial field with pattern paler, more buffy yellow; m-cu at near one-third the length of cell 1st M_2 ; abdominal tergites dark brown, the sternites obscure yellow.

Female.—Length, 11 to 12 millimeters; wing, 9.5 to 10.

Rostrum and palpi black. Antennæ with scape and pedicel black; basal flagellar segment yellow, the succeeding segments black; flagellar segments cylindrical, with long conspicuous verticils that exceed the segments in length. Head above rich brown, a little brightened on orbits.

Pronotum dark brown. Mesonotal præscutum with the ground color dark brown, the usual stripes confluent, buffy in front, before the suture resolving into four more brownish areas, the intermediate pair separated by a pale line; posterior sclerites of mesonotum chiefly darkened, more or less pruinose. Pleura black, variegated by slightly more pruinose areas. Halteres dusky, the distal half of knob paling to whitish. Legs with the coxæ brownish black; trochanters obscure yellow; femora yellow with a very narrow and indistinct, pale brown ring some distance before apex, in the holotype this ring very faintly to scarcely indicated; remainder of legs yellow, the terminal tarsal segments a trifle darker. Wings (Plate 1, fig. 17) whitish hyaline, with the usual brown pattern, the areas in outer

radial field conspicuously paler, more buffy yellow; small darker brown dots at ends of veins R_{1+2} , R_3 , and R_4 ; dark areas not bordered by deeper colors, as in several allied forms; cord and outer end of cell 1st M_2 narrowly seamed with brown; veins brown, somewhat paler in the hyaline areas. Venation: Supernumerary crossvein in cell C transverse in position; basal section of R_5 reduced (as shown) or of normal length; m-cu at near one-third the length of cells 1st M_2 .

Abdominal tergites chiefly dark brown; sternites obscure yellow. Valves of ovipositor deep cherry red.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 5,500 to 11,000 feet, August 16 to 20, 1934 (*Graham*). Paratopotype, female.

The only other species of the genus known from western China is *Epiphragma* (*Epiphragma*) *bicinctifera* Alexander, readily told by the two darkened femoral rings. In the combination of body coloration and leg and wing pattern, the present insect similarly differs from all other species hitherto described from eastern Asia.

LIMNOPHILA (ELÆOPHILA) LILLIPUTINA sp. nov. Plate 1, fig. 14; Plate 2, fig. 32.

Size very small (wing, male, less than 4 millimeters); antennal flagellum pale; femora with a brown apical ring; wings broad, whitish subhyaline, heavily patterned with brown, including a series of about six major costal areas; dark dots in interspaces restricted in number, lacking in cephalic portion; male hypopygium with the flange of the outer dististyle subacute; apical spine of style smooth, the margin basad of this point microscopically roughened.

Male.—Length, about 3.5 millimeters; wing, 3.8.

Described from an alcoholic specimen.

Rostrum and palpi dark brown. Antennæ with scape and pedicel dark flagellum yellow, the outer segments a trifle darker; flagellar segments oval. Head dark brown.

Mesonotum chiefly dark brown, in fresh specimens presumably pruinose and more or less patterned. Pleura brown. Halteres pale, the knobs dark brown. Legs with the coxæ and trochanters dark brown; femora yellow, the tips rather broadly and abruptly dark brown, not blackened as in *dietziana*; remainder of legs yellow, the tips of the tibiæ very narrowly darker. Wings (Plate 1, fig. 18) whitish subhyaline, heavily patterned with brown, including a series of about six larger costal areas that are subequal to or narrower than the pale interspaces; dark dots in the

pale discal areas restricted in number, lacking in the costal and subcostal fields; band at origin of Rs and along the supernumerary crossvein narrow but complete. Venation as in *dietziana*.

Abdomen dark brown, the incisures somewhat paler. Male hypopygium with the outer dististyle (Plate 2, fig. 32, *od*) having the outer lobe or flange subacute, not rounded at apex as in *dietziana*; apical spine of style slender, smooth, the margin basad of the apex with microscopic spinulæ.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Kibune, Kyoto, August 17, 1932 (*Tokunaga*).

The nearest regional ally of the present fly is *Limnophila* (*Elæophila*) *dietziana* Alexander, which differs especially in the larger size, black femoral apices, more heavily dotted wing pattern, and the details of the male hypopygium, notably the obtuse flange of the outer dististyle, the more strongly curved apical spine, and the entirely smooth margin basad of this point.

LIMNOPHILA (PRIONOLABIS) PILOSULA sp. nov. Plate 1, fig. 19; Plate 2, fig. 33.

General coloration black, sparsely pruinose; antennæ 16-segmented, black throughout; halteres unusually elongate, whitish, the knobs weakly darkened; legs brownish black to black; wings broad, whitish subhyaline, the stigma and a restricted cloud on anterior cord pale brown; numerous coarse macrotrichia in cells of wing beyond cord; cell M_1 present; m-cu lying far distad, at or beyond three-fourths the length of cell 1st M_2 ; male hypopygium with the outer dististyle bearing a single, slender, erect spine before the curved, acute, terminal spine; inner dististyle terminating in a simple yellow blade.

Male.—Length, 8 to 10.5 millimeters; wing, 10 to 13.5.

Rostrum and palpi black. Antennæ 16-segmented, black throughout; flagellar segments oval, becoming smaller outwardly, the terminal segment exceeding the penultimate. Head dull black; anterior vertex wide.

Thorax almost uniformly dull black, the surface very sparsely pruinose. Halteres of unusual length, whitish, the knobs weakly darkened. Legs with coxæ and trochanters black; remainder of legs brownish black to black, moderately hairy. Wings (Plate 1, fig. 19) broad, whitish subhyaline, the stigma and a restricted cloud on anterior cord pale brown; veins brown. Conspicuous coarse macrotrichia in cells of wing beyond cord (in figure represented by stippled dots). Venation: Sc_1 ending

shortly before fork of R_{2+3+4} , Sc_2 nearly opposite the fork of R_s ; R_2 faint, subequal to R_{1+2} ; cell M_1 present; m-cu lying far distad, at near three-fourths to four-fifths the length of cell 1st M_2 .

Abdomen, including hypopygium, black, sparsely pruinose. Male hypopygium (Plate 2, fig. 33) with the median region of tergite, 9t, gently emarginate, the lateral portions of the notch a trifle produced. Outer dististyle, *od*, with the basal half swollen and provided with elongate setæ, the distal portion narrowed to an acute, gently curved spine, with a smaller, more slender denticle back from tip; inner dististyle, *id*, a simple yellow blade. *Ædeagus*, *a*, and gonapophyses, *g*, both appearing as compressed yellow blades, as shown, the latter wider than in most other species of the subgenus.

Habitat.—China (Szechwan).

Holotype, male, Wen Chuan, November 15 to December 5, 1934 (*Graham*). Paratopotypes, 12 males.

The present fly is amply distinct from the remaining score of species of the subgenus in the pilosity of the outer cells of the wing. In its size and general appearance it is most like such a species as *Limnophila (Prionolabis) rufipennis* Alexander, of Japan, yet is very distinct. The subgenus had not been recorded previously from China.

ERIOPTERINI

GONOMYIA (GONOMYIA) LUTEIPLEURA sp. nov. Plate 1, fig. 29.

General coloration yellow, the præscutum and scutum conspicuously patterned with dark brown; thoracic pleura immaculate yellow or virtually so; wings strongly tinged with yellow, the stigma vaguely darkened; Sc short, Sc_1 ending exactly opposite origin of R_s ; cell 1st M_2 open by atrophy of m; abdominal tergites dark brown medially.

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

Described from an alcoholic specimen.

Rostrum and palpi obscure yellow. Antennæ moderately elongate, pale brown; flagellar segments passing through oval, elongate-oval to linear. Head light brown.

Thorax yellow, the præscutum with three conspicuous dark brown stripes that are subconfluent, the median stripe narrowly split at cephalic end; scutal lobes chiefly darkened, the posterior fourth of each yellow; median area of scutum and the scutellum yellow; mediotergite weakly darkened. Pleura, including pleurotergite, yellow, without clearly defined darkenings. Halteres elongate, pale. Legs with the coxæ and trochanters yellow; re-

mainder of legs brownish yellow, the terminal tarsal segments darker. Wings (Plate 1, fig. 20) strongly tinged with yellow, the stigmal region vaguely darkened; veins brownish yellow. Venation: Sc short, Sc₁ ending exactly opposite origin of Rs, Sc₂ not clearly evident in the type but presumably at the extreme tip of Sc₁; r-m at fork of Rs; R₂₊₃₊₄ elongate, approximately five-sixths Rs; cell 1st M₂ open by the atrophy of m; m-cu shortly beyond fork of M.

Abdomen with the tergites dark brown medially, pale yellow laterally; sternites yellow.

Habitat.—Japan (Honshiu).

Holotype, alcoholic female, Mount Daisen, Hoki, July 2, 1931 (*Tokunaga*).

The nearest described ally is *Gonomyia* (*Gonomyia*) *gilvipennis* Alexander, which differs especially in the pattern of the thorax and in the venation, as the elongate Sc, which ends at or beyond one-third the length of Rs. The open cell 1st M₂ in the present species may be an abnormality of the unique type, but certainly appears to represent a normal condition, being virtually the same on both wings. If the cell is normally closed it would be of unusual length, since vein M₃₊₄ is longer than M₄.

TRENTEPOHLIA (MONGOMA) PLATYLEUCA sp. nov. Plate 1, fig. 21.

Allied to *tenera*; head dark brown; mesonotal præscutum almost uniformly dark brown or brownish black; scutellum and mediotergite obscure yellow; pleura chiefly yellow; femora dark brown throughout, tibiæ paling to yellowish white on distal half; tarsi yellowish white; a series of about ten small erect spines at base of femur; wings grayish subhyaline; inner end of cell M₃ lying far proximad of other outer cells.

Female.—Length, about 9.5 millimeters; wing, 7.6.

Rostrum brownish yellow; labial palpi pale; maxillary palpi with outer segment darkened. Antennæ with scape brown; pedicel and flagellum black; flagellar segments long-oval, with scattered setæ of moderate length. Head dark brown; anterior vertex reduced to a linear strip.

Pronotum dark brown above, narrowly yellow laterally. Mesonotal præscutum almost uniformly dark brown or brownish black; median region of scutum obscure yellow, the lobes darkened; scutellum and mediotergite obscure yellow. Pleura with the dorsopleural region, propleura, and anepisternum darkened, the remaining pleura and pleurotergite yellow. Halteres dusky, the base of stem restrictedly pale. Legs with the fore coxæ

darkened, the remaining coxæ and all trochanters yellow; femora dark brown throughout; tibiæ with about the basal half pale brown, the distal portion passing into yellowish white; tarsi yellowish white; a series of about ten small erect spines at base of each femur. Wings (Plate 1, fig. 21) grayish subhyaline, cells C and Sc a trifle darker in color; stigma narrow, darker brown; veins brown. Venation: Rs of moderate length, about a third longer than the basal section of R_5 ; R_5 a little shorter than the cephalic face of cell 1st M_2 ($R_5 + M_{1-2}$); inner end of cell M_3 lying far proximad of other cells; m-cu very close to fork of M; apical fusion of Cu_1 and 1st A slight; cell 2d A relatively wide.

Abdomen with the tergites brown, the basal sternites light yellow, the outer ones more infuscated. Ovipositor with valves horn-colored.

Habitat.—Formosa.

Holotype, female, Kuraru, August 12, 1934 (Gressitt); in author's collection.

Despite the uniformly darkened femora, I regard the present fly as being most nearly allied to *Trentepohlia* (*Mongoma*) *tenera* (Osten Sacken), of the Philippine Islands. By Edwards's arrangement of the Oriental species of *Mongoma*,⁴ the fly traces to *pallidiventris* Brunetti, *pallidipes* Edwards, and other forms, differing in the pattern of the body and legs. By my key to the Philippine species of the genus,⁵ the fly runs to *T. (M.) albo-terminalis* Alexander, a very different fly. There is no very closely allied species hitherto made known from China, Japan, or Formosa.

ORMOSIA BIANNULATA sp. nov. Plate 1, fig. 22; Plate 2, fig. 34.

Mesonotum brownish gray, the posterior sclerites and pleura brownish black, more or less pruinose; femora black, paler basally, with two narrow yellow rings, the apical one narrower; tibiæ and tarsi black; wings pale brown, conspicuously variegated by whitened areas, including a series in outer ends of the cells before the margin; R_2 a short distance before the fork of R_{3+4} ; veins R_3 and R_4 upcurved at outer ends; male hypopygium with the outer dististyle a slender curved spine, the basal portion more dilated; inner style shorter, unequally bidentate at

⁴ Journ. Fed. Malay States Mus. 14 (1928) 110-111.

⁵ Philip. Journ. Sci. 53 (1934) 442-444.

apex; gonapophysis blackened, flat, the apex bispinous, the upper and lower margins with appressed serrations.

Male.—Length, about 4.5 millimeters; wing, 5.5.

Rostrum and palpi black. Antennæ black throughout, of moderate length, if bent backward extending to beyond the wing root; flagellar segments long-oval, with long, second setæ on the more basal segments. Head brownish gray.

Mesonotum brownish gray, injured in the type, the præscutum apparently without stripes. Pleura and posterior sclerites of notum brownish black, more or less pruinose. Halteres pale, the base of knob a trifle darker. Legs with the coxæ brownish black; trochanters brownish yellow; femora black, narrowly yellowish at base; a narrow yellow ring at near two-thirds the length, together with the apex narrowly of the same color; tibiæ and tarsi black. Wings (Plate 1, fig. 22) pale brownish, conspicuously variegated by clearer whitened areas, distributed as follows: In cell R, before and beyond origin of R_s; most of cell R₁ and adjoining portion of Sc₁; conspicuous white spots in outer ends of cells R₂, R₃, R₄, R₅, 1st M₂, 2d M₂, M₄, and 1st A; basal portion of cell 1st A similarly whitened; stigmal area slightly darker brown; veins and trichia of the darkened areas of the cells deeper brown. Venation: R₂ a short distance before the fork of R₃₊₄ the tips of the latter veins gently upcurved; inner end of cell 1st M₂ truncate; m-cu sinuous, before the fork of M; vein 2d A strongly sinuous.

Abdomen, including the hypopygium, brownish black. Male hypopygium (Plate 2, fig. 34) with the tergite, 9t, broad. Basistyle, b, with the apical margin produced into a flattened glabrous lobe, its apex obtusely rounded. Two dististyles, d, one a slender curved spine from a more dilated basal portion, the second shorter, unequally bidentate at apex. Gonapophyses, g, appearing as blackened flat blades, terminating in two major acute spines, with additional appressed serrations on both the upper and lower margins of the structure. Ædeagus, a, slender.

Habitat.—China (Szechwan).

Holotype, male, Beh Luh Din, altitude 4,000 feet, October 10 to 24, 1934 (*Graham*).

The nearest ally of the present fly is *Ormosia pulchra* (Brunetti), of the western Himalayas, which differs especially in the details of coloration of the body and in the pattern of the wings. The male sex of the latter species is still unknown.

ERIOPTERA (ERIOPTERA) ALBOGUTTATA DAISENICA subsp. nov. Plate 2, fig. 35.

Male.—Length, about 3.5 millimeters; wing, 3.8.

Generally similar to *Erioptera (Erioptera) alboguttata* Edwards (Formosa), differing especially in hypopygial characters. Wings somewhat broader, with the white spots smaller and more clearly delimited; white band at cord disconnected from the area on Sc; spots in outer radial field much smaller than the interspaces.

Male hypopygium (Plate 2, fig. 35) with the distal portion of the inner dististyle, *id*, more slender than in the typical form, the long pale setæ at the bend of the style exceeding in length the apical spine beyond the point of their insertion. Outer gonapophyses, *og*, short and broad, more or less boomerang-shaped, the setæ restricted to outer half; apical blackened spine short and cultriform.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Mount Daisen, Hoki, July 2, 1931 (Tokunaga).

ERIOPTERA (CHEILOTRICHIA) LÆTIPENNIS sp. nov. Plate 1, fig. 23; Plate 2, fig. 36.

General coloration pale yellow to brownish yellow; antennal flagellum yellow; tips of femora narrowly darkened; tibiæ conspicuously ringed with brownish black and yellow, clothed with elongate setæ; wings pale yellow, sparsely variegated by brown dots on the crossveins and deflections, and by a more extensive dusky cloud at wing apex; veins R_{2+3+4} and R_{3+4} subequal in length; male hypopygium with dististyles and gonapophyses entirely pale; outer dististyle a simple sinuous rod.

Male.—Length, about 2.5 millimeters; wing, 2.6.

Female.—Length, about 2.8 millimeters; wing, 2.9 to 3.

Described from alcoholic specimens.

Rostrum and palpi brown. Antennæ with scape and pedicel brown; flagellum yellow.

Mesonotal præscutum almost uniformly yellow, the posterior sclerites slightly darker. Pleura yellow, the sternopleurite a little darker. Halteres pale yellow. Legs with the coxæ and trochanters yellow; legs chiefly detached, conspicuously hairy; a middle leg still in position is colored as follows: Femur yellow, the tips narrowly darkened; tibia brown at both ends, the slightly more extensive central portion yellowish white; basal two tarsal segments whitish, the terminal three segments darker; setæ of tibia longer and darker in color on the infus-

cated portions than on the pale central area. Other detached legs show the femora chiefly darkened, with a narrow pale ring before outer end; a further leg, apparently representing the posterior pair, has the entire basal three-fourths of the tibia yellow, the distal fourth darkened, the vestiture conforming in color to the region where borne, the setæ of the apical fourth long and conspicuous. Wings (Plate 1, fig. 23) pale yellow, sparsely variegated by dark dots on many of the crossveins and deflections, and by a more extensive pale brown wash in outer ends of outer radial and medial fields, involving cells R_4 to $2d M_2$, inclusive; dark seams and dots distributed as follows: At arculus, origin of R_s , Sc_2 , along all elements of the cord and outer end of cell $1st M_2$, R_2 , and as smaller marginal dots at ends of all longitudinal veins; veins pale yellow, a little darkened in the clouded areas. Venation: Sc_2 at extreme tip of Sc_1 ; R_{2+3+4} subequal to R_{3+4} , R_2 being at near midlength of the anterior branch of R_s ; veins R_3 and R_4 relatively long and lying generally parallel to one another; cell $1st M_2$ closed; m-cu erect, more than one-half its length before the fork of M ; anal veins divergent.

Abdomen pale brownish yellow. Male hypopygium (Plate 2, fig. 36) with apex of basistyle produced into a pale lobe. Both dististyles entirely pale, the outer, *od*, a long, sinuous, simple, acicular rod that gradually narrows to an acute point. Inner dististyle, *id*, bifid, entirely pale. Gonapophyses, *g*, entirely pale, appearing as two, slender, submedian rods, lying generally parallel to one another, and with smaller, lateral, spiniform blades.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Kibune, Kyoto, August 17, 1932 (*Tokunaga*). Allotopotype, female. Paratopotype, female.

Erioptera (*Cheilotrichia*) *lætippennis* is very different from the only other member of the subgenus in eastern Asia, *E. (C.) imbuta* Wiedemann, in the variegated wings, patterned tibiæ, and very different structure of the male hypopygium. The latter species likewise occurs in Japan and its hypopygium is shown for comparison (Plate 2, fig. 37). Note especially the entirely pale, expanded outer dististyle, *od*, with a stout marginal spine on basal half; bifid inner dististyle, *id*, with the outer arm blackened and bidentate at apex; conspicuously blackened gonapophyses, *g*, the outer pair spinose on distal half, the inner pair with weaker spinulæ before the apex.

Whether the groups *Cheilotrichia* Rossi (1848) and *Empeda* Osten Sacken (1869) can be maintained as distinct is becoming very questionable in my mind. Almost the only character still available for defining the two groups is found in the extreme distal position of vein Sc_2 , which lies at or very close to the extreme tip of Sc_1 in *Cheilotrichia*. In *Empeda* this element is slightly removed from the tip of Sc_1 while yet lying far more distad than in the remaining subgeneric divisions of *Erioptera*.

MOLOPHILUS POLYCANTHUS sp. nov. Plate 1, fig. 24; Plate 2, fig. 38.

Belongs to the *gracilis* group and subgroup; general coloration brown; antennæ short in both sexes; male hypopygium with two slender pale spines on either side, additional to the blackened dististyles, the inner one of the latter with the distal third set with abundant microscopic spines.

Male.—Length, about 3.5 millimeters; wing, 3.5.

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

Described from alcoholic specimens.

Rostrum and palpi brown. Antennæ short, if bent backward ending about opposite the wing root, pale brown throughout. Head brown.

Thorax almost uniformly brown, without evident markings (in spirit). Halteres white. Legs with the coxæ and trochanters brownish yellow; femora obscure yellow, the tips weakly darkened; remainder of legs yellow, the terminal tarsal segments darker. Wings (Plate 1, fig. 24) tinged with yellow or brownish yellow; veins pale brown. Venation: R_2 lying slightly distad of r-m; vein 2d A nearly straight, ending about opposite m-cu.

Abdomen brown, the hypopygium a trifle paler, yellowish brown. Male hypopygium (Plate 2, fig. 38) with the inner dististyle, *id*, the longest element, its distal third armed with numerous small suberect spines. Outer dististyle, *od*, a smooth, sinuous blackened horn. Ventral lobe of basistyle, *vb*, long and conspicuous. Two very long, slender, pale spines apparently arise from the distal end of the basistyle, one close to the base of the ventral lobe, the other much more distad, possibly arising from the dorsal lobe of the style, but this not clear in the slide mount. Phallosomic plate oval in outline.

Habitat.—Japan (Honshiu).

Holotype, alcoholic male, Kibune, Kyoto, August 17, 1932 (*To-kunaga*). Allotopotype, female. Paratopotypes, 1 male, 1 female.

Molophilus polycanthus is very distinct from other regional species of the genus in the structure of the male hypopygium. The forms that are most similar are *M. ferox* Alexander, *M. takaoensis* Alexander, and *M. triacanthus* Alexander, all differing notably in the details of hypopygial structure.

ILLUSTRATIONS

[a, *Æ*deagus; b, basistyle; d, dististyle; dd, dorsal dististyle; g, gonapophysis; i, interbase; id, inner dististyle; ig, inner gonapophysis; od, outer dististyle; og, outer gonapophysis; s, sternite; t, tergite; vb, ventral lobe of basistyle; vd, ventral dististyle.]

PLATE 1

- FIG. 1. *Tanyptera cognata* sp. nov., venation.
2. *Pselliophora stabilis* sp. nov., venation.
3. *Pselliophora lauta* sp. nov., venation.
4. *Dictenidia luteicostalis* sp. nov., venation.
5. *Tipula (Oreomyza) cladomera* sp. nov., venation.
6. *Limonia (Limonia) arthritica* sp. nov., venation.
7. *Limonia (Dicranomyia) penita* sp. nov., venation.
8. *Limonia (Rhipidia) isospilota* sp. nov., venation.
9. *Limonia (Rhipidia) hypomelania* sp. nov., venation.
10. *Antocha (Antocha) spicata* sp. nov., venation.
11. *Orimarga (Orimarga) distalis* sp. nov., venation.
12. *Trichoneura (Xipholimnobia) javanensis* sp. nov., venation.
13. *Dicranota (Rhaphidolabis) tuberculata* sp. nov., venation.
14. *Dicranota (Rhaphidolabis) biloba* sp. nov., venation.
15. *Ula provecta* sp. nov., venation.
16. *Adelphomyia majuscula* sp. nov., venation.
17. *Epiphragma (Epiphragma) subobsoleta* sp. nov., venation.
18. *Limnophila (Elæophila) lilliputina* sp. nov., venation.
19. *Limnophila (Prionolabis) pilosula* sp. nov., venation.
20. *Gonomyia (Gonomyia) luteipleura* sp. nov., venation.
21. *Trentepohlia (Mongoma) platyleuca* sp. nov., venation.
22. *Ormosia biannulata* sp. nov., venation.
23. *Erioptera (Cheilotrichia) lætipennis* sp. nov., venation.
24. *Molophilus polycanthus* sp. nov., venation.

PLATE 2

- FIG. 25. *Tipula (Oreomyza) cladomera* sp. nov., male hypopygium, lateral aspect.
26. *Tipula (Oreomyza) cladomera* sp. nov., male hypopygium, details.
27. *Limonia (Dicranomyia) penita* sp. nov., male hypopygium.
28. *Limonia (Rhipidia) hypomelania* sp. nov., male hypopygium.
29. *Antocha (Antocha) spicata* sp. nov., male hypopygium.
30. *Orimarga (Orimarga) distalis* sp. nov., male hypopygium.
31. *Dicranota (Rhaphidolabis) biloba* sp. nov., male hypopygium.
32. *Limnophila (Elæophila) lilliputina* sp. nov., male hypopygium, outer dististyle.
33. *Limnophila (Prionolabis) pilosula* sp. nov., male hypopygium.
34. *Ormosia biannulata* sp. nov., male hypopygium.
35. *Erioptera (Erioptera) alboguttata daisenica* subsp. nov., male hypopygium.
36. *Erioptera (Cheilotrichia) lætipennis* sp. nov., male hypopygium.
37. *Erioptera (Cheilotrichia) imbuta* Wiedemann, male hypopygium.
38. *Molophilus polycanthus* sp. nov., male hypopygium.

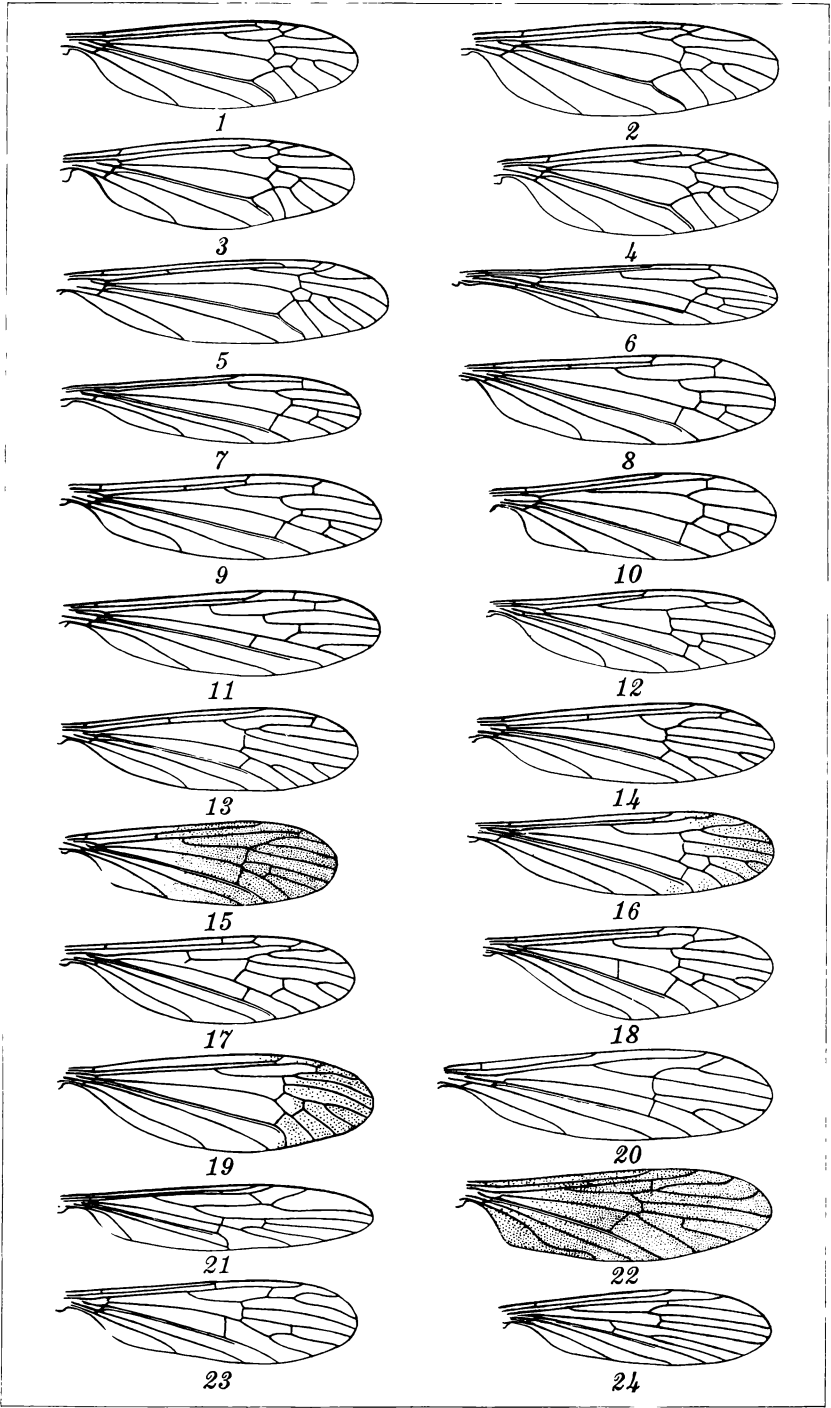


PLATE 1.

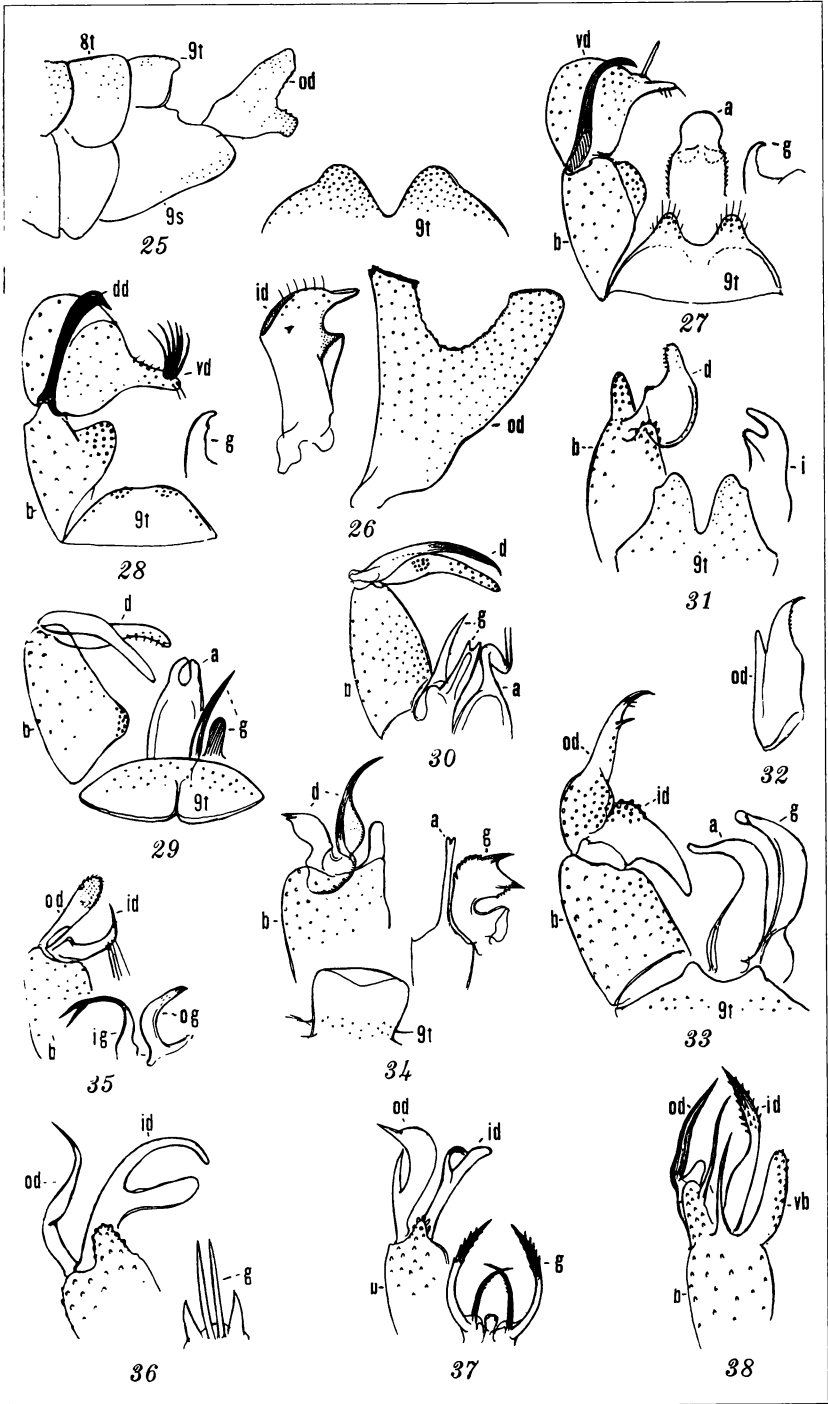


PLATE 2.