

NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN ASIA (DIPTERA), XII¹

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THREE PLATES

The crane flies discussed in the present report are chiefly from the mountains of western China, where they were taken by the Reverend Mr. Franck. A few additional records are based on the very extensive collections of Tipulidæ taken on the border between China and Tibet by the Reverend David C. Graham. The Japanese Tipulidæ discussed herewith were included in extensive series of these flies taken in the Japanese Alps by Dr. Jiro Machida, and in smaller collections made by Dr. Masaaki Tokunaga and by Mr. H. Yokouchi, the latter received through the kindly interest of Prof. Teiso Esaki. I am very greatly indebted to all of the entomologists above mentioned for this continued coöperation in making known the vast crane fly fauna of the mountains of eastern Asia. Except where noted to the contrary, the types of all novelties in this paper are preserved in the collection of the writer.

TRICHOCERIDÆ

I am including this family in the present series of papers on the eastern Asian crane flies.

TRICHOCERA RETICULATA sp. nov. Plate 1, fig. 1.

Belongs to the *maculipennis* group; general coloration dark; knobs of halteres blackened; femora yellowish brown, with a narrow black subterminal ring, the tips narrowly light yellow; wings yellow, with a heavy reticulate brown pattern.

Female.—Length, about 7.5 millimeters; wing, 7.8.

Rostrum and palpi black. Antennæ black throughout. Head blackish.

Mesonotum chiefly dark-colored, the præscutum with a yellowish pollen that leaves brown stripes on the disk. Pleura dark

¹ Contribution from the entomological laboratory, Massachusetts State College.

gray, variegated by blackish areas. Halteres pale yellow, the knobs blackened. Legs with the coxæ dark-colored, pruinose, the fore coxæ more yellowish beneath; femora yellowish brown, with a narrow black subterminal ring, the extreme tips light yellow; tibiæ brown, the bases and tips slightly darker; tarsi dark brown. Wings (Plate 1, fig. 1) light yellow, with a heavy, reticulate, dark brown pattern, including larger areas at origin of Rs, anterior cord and in outer radial field about opposite the end of vein R_{1+2} ; narrow, transverse, brown lines in all cells of wing excepting the small 1st M_2 and 2d A; in cell C about fourteen such areas, in cell M about nine, in cell Cu about twelve; in the outer radial field the areas narrower and more widely separated; in cell 1st A the individual areas are irregularly doubled; veins obscure yellow, darker in the infuscated areas. Venation: Cell 2d A relatively wide.

Abdomen black, the caudal margins of the segments narrowly paler.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 11,000 feet, July 18, 1931 (*Franck*).

Trichocera reticulata is most nearly allied to the Oriental *T. ocellata* Walker and *T. punctipennis* Brunetti, differing from these and all other known members of the family in the closely reticulated, dark brown pattern of the light yellow wings, with no indication of the areas being arranged to form ocelliform patterns.

TIPULIDÆ

TIPULINÆ

TIPULINI

TIPULA NIGROBASALIS sp. nov.

Large (wing, female, over 25 millimeters); antennæ bicolorous; mesonotal præscutum with the ground color golden yellow, with four brown stripes that are narrowly bordered by slightly darker brown, the stripes confluent or nearly so; scutellum velvety black; postnotal mediotergite and central portion of pleura light golden yellow; propleura, dorsopleural region, and pleurotergite dark brown; halteres blackened; legs long, yellow, the femoral tips narrowly blackened; wings brownish yellow, the prearcular region conspicuously blackened; abdominal tergites reddish brown, the lateral margins darker brown.

Female.—Length, about 33 millimeters; wing, 27.5.

Frontal prolongation of head relatively long, brown, darker laterally; nasus unusually long and powerful; palpi black. Antennæ with the elongate scape dark brown; pedicel obscure yellow; flagellar segments bicolorous, yellow, with the basal enlargements dark brown; verticils exceeding the segments. Head brown, the posterior orbits narrowly obscure yellow; region of anterior vertex more velvety dark brown; front grayish brown; anterior vertex relatively narrow, about twice the greatest diameter of scape.

Pronotum dark brown, sparsely gray pruinose. Mesonotal præscutum golden yellow laterally, with four brown stripes that are nearly confluent, the anterior portion of interspaces being infuscated; stripes very vaguely bordered by a slightly darker brown margin, the intermediate pair being divided only by this capillary darkened vitta; scutum similarly dark brown, the median region not paler; scutellum velvety black, the parascutella obscure yellow; postnotal mediotergite light golden yellow. Pleura chiefly light golden yellow, this color occupying the anepisternum, dorsal sternopleurite, pteropleurite, and meron; dorsopleural region and propleura conspicuously blackened; ventral sternopleurite dark gray; pleurotergite dark brown. Halteres blackened. Legs elongate; coxæ dark brown, the mid-coxæ more yellow dusted; trochanters brownish black; femora yellow, the tips narrowly but conspicuously blackened; tibiæ obscure yellow, the tips narrowly and weakly infuscated; tarsi elongate, obscure yellow, the terminal segments blackened; spur formula 1-?-2, the mid-legs and all claws being broken. Wings with a strong brownish yellow suffusion, the prearcular region abruptly blackened; cell C and stigmal region weakly infumed; vague dusky seams near outer end of cell M and at two-fifths the length of cell Cu; a dusky seam along anterior cord, interspersed with conspicuous oblitative areas before stigma and along cord; clearer yellow areas in the bases of cells Cu, 1st A and 2d A, and before the dusky spot in cell M; veins deep yellow. Macrotrichia of veins small but abundant, including almost the entire extent of both anal veins; squama with small setæ. Venation: Rs a trifle longer than m-cu; R_{1+2} entire; m-cu at fork of M_{3+4} .

Abdominal tergites reddish brown, the lateral margins darker brown; sternites brown, the basal rings darker, the caudal margins somewhat more fulvous. Ovipositor with the cerci smooth and slender, nearly straight.

Habitat.—China (Szechwan).

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

This very striking *Tipula* requires comparison with no described member of the genus. The general coloration of the wings is somewhat as in *T. moiwana* (Matsumura), *T. ultima* Alexander, and other similar species, but the highly contrasting wing bases and the striking thoracic pattern are clearly different.

TIPULA MACHIDAI sp. nov. Plate 1, fig. 2; Plate 2, figs. 25 to 28.

General coloration gray, the præscutum with four conspicuous dark brown stripes; nasus lacking; antennal flagellum black; tibiæ and tarsi black; wings yellowish, the stigma dark brown, the apex narrowly darkened; R_{1+2} entire; basal abdominal tergite gray; segments two and three yellow, the tergites trivittate with black, the remaining segments blackened; male hypopygium with the tergite broadly emarginate caudally, the median area produced into a deflexed plate.

Male.—Length, about 15 millimeters; wing, 18.5.

Frontal prolongation of head gray, without nasus; palpi black. Antennæ with the scape and pedicel light yellow; flagellum black throughout; basal enlargements of segments small; verticils elongate, subequal in length to the basal segments, longer than the outer ones. Head gray, the center of vertex infuscated; no vertical tubercle.

Mesonotal præscutum gray, with four conspicuous dark brown stripes, the intermediate pair separated by a capillary gray line; pseudosutural foveæ lacking; scutum gray, the centers of lobes dark brown; scutellum dark gray, with a capillary vitta on basal portion; postnotum dark gray. Pleura light gray. Halteres yellow, the knobs dark brown. Legs with the coxæ gray; trochanters yellow; femora brownish yellow, clearer yellow basally, the tips broadly blackened, most extensively so on the fore femora; remainder of legs black; tibial spur formula 1-2-2; claws small, simple. Wings (Plate 1, fig. 2) with the ground color yellowish, the prearcular and costal regions deeper yellow; stigma oval, dark brown; wing apex narrowly but conspicuously darkened; very narrow dark seams along cord; distal half of vein 2d A seamed with brown; veins dark brown, Sc, R_1 , and R_{1+2} more yellowish. No macrotrichia on squama, those of veins small and scanty. Venation: Rs long, about twice m-cu; R_{1+2} entire, sinuous; cell 1st M_2 elongate, about equal in length to cell M_1 ; distal section of M_3 strongly sinuous.

Abdomen with basal tergite light gray; segments two and three yellow, the tergites trivittate with black; on outer segments, including hypopygium, uniformly blackened. Male hypopygium (Plate 2, fig. 25) with the tergite, 9*t*, entirely distinct from the sternite, 9*s*; basistyle, *b*, entirely fused with sternite. Ninth tergite (Plate 2, fig. 26, 9*t*) transverse, the lateral angles produced, the median area extended into a deflexed plate that is invisible from above; caudal half of tergite with very abundant small setæ. Ninth sternite (Plate 2, fig. 27, 9*s*,) with the median area entirely but narrowly membranous; eighth sternite, 8*s*, unarmed, its margin transverse. Outer dististyle (Plate 2, fig. 28, *od*) a pale, flattened lobe, its length about two and one-half times its greatest width. Inner dististyle (Plate 2, fig. 28, *id*) simple, relatively long and narrow, the distal third blackened, the "heel" portion produced into a small spine.

Habitat.—Japan (Honshiu).

Holotype, male, Mitake, Musashi, April 26, 1931 (*J. Machida*).

I take great pleasure in naming this crane fly in honor of my old friend Dr. Jiro Machida. A careful study of the approximately one hundred Japanese species of *Tipula* known to me has failed to show a single one with which the present fly can be compared profitably. *Tipula nipponalpina* Alexander likewise lacks the nasus but is in all other respects a very different fly. In its general appearance, the present form bears a superficial resemblance to *T. dichroistigma* Alexander, but the relationship between the two seems remote. Likewise, I cannot satisfactorily place this fly in any of the subgenera of *Tipula* as defined by Edwards.²

TIPULA (FORMOTIPULA) LUTEICORPORIS sp. nov. Plate 1, fig. 3; Plate 2, figs. 29 to 31.

Thorax and abdomen orange-yellow; head black; antennæ black, the pedicel light yellow; knobs of halteres dark brown; legs black, the femoral bases obscure yellow; wings dusky, R₁₊₂ preserved; male hypopygium with a single dististyle; eighth sternite broad, each caudolateral angle produced into a small setiferous lobule.

Male.—Length, about 10 millimeters; wing, 11.8.

Frontal prolongation of head black; nasus distinct, black, slightly deflexed; palpi black. Antennæ 12-segmented, black, with the exception of the light yellow pedicel; basal enlargements of flagellar segments small; terminal segment subequal

² Ann. & Mag. Nat. Hist. X 8 (1931) 73–82.

in length to penultimate, but with outer half strongly narrowed; longest verticils about equal to the segments. Head black; vertical tubercle scarcely developed.

Mesothorax entirely light orange-yellow. Halteres pale yellow, the knobs dark brown. Legs with the coxæ and trochanters orange; femora obscure yellow basally, the distal third passing into black; tibiæ and tarsi black, the latter elongate. Wings (Plate 1, fig. 3) with a strong dusky tinge; stigma oval, dark brown; veins black; obliterative areas at distal third of R_s , all of basal section of M_{1+2} , basal third of second section of M_{1+2} , and virtually all of basal section of M_3 . Venation: R_{1+2} entirely preserved and provided with about ten macrotrichia.

Abdomen, including hypopygium, entirely orange-yellow. Male hypopygium (Plate 2, fig. 29) with the tergite, $9t$, entirely separate from the sternite, $9s$; basistyle, b , with about the central third fused with the sternite, the dorsal suture shorter than the ventral. Ninth tergite (Plate 2, fig. 30, $9t$) narrowly transverse; viewed from above with an acute blackened point on either side of midline; viewed laterally, each of these blackened points is seen to be very high and with the profile irregularly toothed. Eighth sternite (Plate 2, fig. 31, $8s$) broad, forming a sheath, each caudolateral angle produced into a small lobe that bears long setæ; caudal margin between these lobes truncate or nearly so. Apparently a single dististyle (Plate 2, fig. 29, d), the apical beak very slender, acute.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,000 feet, August 14, 1931 (*Franck*).

Tipula (*Formotipula*) *luteicorporis* is readily told from all other described species of the subgenus by the uniform orange-yellow coloration of the thorax and abdomen, in conjunction with the persistence of vein R_{1+2} . *Tipula* (*F.*) *exusta* Alexander (western China) has a somewhat similar coloration but with vein R_{1+2} atrophied and with a distinctly different male hypopygium.

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) LACKSCHEWITZIANA sp. nov. Plate 1, fig. 4; Plate 2, fig. 32.

Belongs to the *tripunctata* group; general coloration yellow, the pronotum, præscutum, and postnotal mediotergite with an intense black median vitta, the scutum and scutellum with a common V-shaped black pattern, the point at the caudal margin

of scutellum; knobs of halteres infuscated; femora and tibiæ yellow, narrowly tipped with black; wings light yellow, almost immaculate, the stigmal area restricted; abdomen yellow, the tergites with a median black stripe; caudal margins of basal sternites narrowly blackened; male hypopygium with the dististyle bidentate at apex; gonapophyses with delicate setulæ over most of surface.

Male.—Length, about 7 to 7.5 millimeters; wing, 8.5 to 9.

Female.—Length, about 8 to 8.5 millimeters; wing, 9 to 9.5.

Rostrum brownish yellow; palpi black. Antennæ with the scape, pedicel, and basal two or three flagellar segments yellow, the outer segments passing into dark brown; flagellar segments elongate-oval, the verticils exceeding the segments. Head yellow, the central portion of vertex more infuscated.

Pronotum yellow, with a black median line. Mesonotal præscutum yellow with a single median vitta, intensely black and very clearly defined, widest in front, more narrowed behind, ending at the suture; scutum and scutellum yellow, with two black areas that begin at the suture, converging behind, meeting to form a V at the posterior margin of scutellum; postnotal mediotergite yellow laterally, broadly blackened medially. Pleura and pleurotergite yellow. Halteres with the stem yellow, the knobs infuscated. Legs with the coxæ and trochanters yellow; femora yellow, the tips narrowly but conspicuously black, the amount subequal on all legs; tibiæ yellow, the tips narrowly blackened; tarsi black. Wings (Plate 1, fig. 4) light yellow, more saturated on cephalic third, almost unmarked; stigmal darkening evidenced only by narrow seams to free tip of Sc_2 and R_2 ; veins dark brown. Venation: Sc_1 ending about opposite midlength of R_s , Sc_2 longer; free tip of Sc_2 longer than R_2 , in cases as much as one-half longer; m-cu variable in position, from before to shortly beyond the fork of M.

Abdominal tergites yellow, with a very distinct black median vitta that tends to widen out at the caudal margins of the individual segments, forming triangular or L-shaped markings; hypopygium chiefly blackened; sternites yellow, the caudal margins of the basal segments narrowly blackened. Male hypopygium (Plate 2, fig. 32) with the tergite, $9t$, large, narrowed outwardly, the nearly truncate apex about as wide as the length of the sclerite. A single dististyle, d , the apex bidentate, the outer face at base protuberant and with abundant erect setæ. Gonapophyses, g , with the mesal-apical angle long and slender, the surface of apophysis covered with microscopic setulæ almost

to apex of spine. *Ædeagus* very large, with a subapical marginal lobe.

Habitat.—Western China to Tibet.

Holotype, male, Mount Omei, Szechwan, China, altitude 9,000 feet, July 29, 1931 (*Franck*). Allotopotype, female. Paratopotypes, 6 males and females, July 20 to 29, 1931. Paratypes, 1 female, Mount Omei, altitude 8,500 feet, July 29, 1931; 1 male, Tang-Gu, China-Tibet border, altitude 14,000 feet, August 3 to 6, 1930 (*Graham*), in United States National Museum.

I take great pleasure in naming this interesting high-altitude *Limonia* in honor of Dr. P. Lackschewitz, distinguished authority on the Tipulidæ of the Palæarctic Region. The species is closest to western palæarctic forms such as *stigma* (Meigen) and *tripunctata* (Fabricius). By Lackschewitz's key to the European species of *Limonia* sensu strictu³ it runs to *stigma*, differing especially in the details of the coloration of the thorax and wings and in the structure of the male hypopygium. There appears to be no closely allied form among the described Himalayan and Japanese species.

LIMONIA (LIMONIA) COMMIXTA sp. nov. Plate 1, fig. 5; Plate 2, fig. 33.

Belongs to the *pendleburyi* group; general coloration uniform ocher-yellow, the dorsal pleural region infuscated; eyes confluent above; legs yellow, the femoral tips weakly infuscated; wings with a yellow tinge, the subcircular stigma dark brown; Sc₁ ending beyond the fork of Rs, Sc₂ at its tip; m-cu beyond fork of M; abdomen bicolorous, the bases of the individual segments pale; male hypopygium with a complex development of the ventromesal lobe of basistyle.

Male.—Length, about 5.4 millimeters; wing, 6.2.

Rostrum brown, of moderate length; palpi with the basal two segments infuscated, the terminal two segments somewhat paler. Antennæ dark brown throughout; flagellar segments oval, the verticils exceeding the segments. Head dark gray; eyes confluent on anterior vertex.

Pronotum dark brown. Mesonotum almost uniformly ocher-yellow, without distinct markings, the postnotum darker. Pleura with the dorsal portion extensively infuscated, the ventral pleurites narrowly yellow. Halteres weakly infuscated. Legs with the coxæ obscure yellow, the fore coxæ more infuscated; trochanters yellow; femora yellow, the tips weakly infuscated; tibiæ and tarsi obscure yellow. Wings (Plate 1, fig. 5) with

³ Ann. Naturhist. Mus. Wien 42 (1928) 233–234.

a yellowish tinge, the costal region somewhat clearer yellow; stigma subcircular, dark brown; veins pale brown, more yellowish in the flavous areas. Venation: Sc of unusual length for a member of this subgenus, Sc₁ ending beyond the fork of Rs, Sc₂ at its tip; Rs in oblique alignment with basal section of R₄₊₅, nearly three times the length of the latter vein; free tip of Sc₂ and R₂ in transverse alignment; cell 1st M₂ elongate, subequal to vein M₁₊₂ beyond it; m-cu more than one-fourth its length beyond the fork of M; anal veins slightly convergent at bases.

Abdomen bicolorous, the bases of the individual segments obscure yellow, the apices brownish black, the amount of the latter including more than one-half the segment on the tergites, much narrower on the sternites; hypopygium obscure yellow. Male hypopygium (Plate 2, fig. 33) with the caudal margin of the large tergite, 9*t*, transversely rounded. Basistyle, *b*, with the ventromesal lobe very large, fully as long as the style itself, complex in structure, the outer margin being notched and bearing two slender lobes, *mb*, that are of unequal stoutness, both bearing elongate setæ at tips. A single complex dististyle, *d*. Gonapophyses, *g*, usually broad, the mesal-apical beak slender, the surface with delicate parallel striæ, as in the group.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,000 feet, August 3, 1931 (*Franck*).

Limonia (*Limonia*) *commixta* is allied to species such as *L.* (*L.*) *pendleburyi* Edwards (Pahang), differing most evidently in the more *Libnotes*-like venation, as the straight Rs and position of m-cu, together with the structure of the male hypopygium, which is quite different from the other described members of the group. The venation as found within the limits of this single restricted aggregation of species in eastern Asia closely connects the two types of venation held as typical of the subgenera *Limonia* and *Libnotes*.

LIMONIA (DICRANOMYIA) SHINANOENSIS sp. nov. Plate 1, fig. 6.

General coloration brownish black (probably pruinose in dry specimens); antennal scape and pedicel black, the flagellar segments bicolorous, their bases yellow, the apices pale brown; legs yellow, the tips of femora narrowly but conspicuously blackened; tibiæ uniformly obscure yellow; wings whitened, with a heavy brown pattern that is chiefly costal in distribution, the dark areas approximately as wide as the interspaces.

Female.—Length, about 8.5 millimeters; wings, 7.2.

Described from an alcoholic specimen.

Rostrum and palpi brownish black. Antennæ with the scape and pedicel black, the flagellum abruptly brownish yellow, somewhat bicolorous, the basal half of each segment more yellow than the apex; flagellar segments oval, the verticils shorter than the segments; terminal segment about one-third longer than the penultimate, narrowed apically. Head blackish; anterior vertex narrow.

General coloration of thorax brownish black, the præscutum apparently darker medially; pleura variegated with paler on pteropleurite and dorsal sternopleurite; thorax probably heavily pruinose in fresh specimens. Halteres pale, the knobs blackened. Legs with the coxæ blackened, narrowly paler at tips; trochanters obscure yellow; femora yellow, the tips narrowly but conspicuously blackened; tibiæ obscure yellow throughout; tarsi obscure yellow, the terminal three segments blackened; claws with a conspicuous subbasal spine, with an additional series of about three more basal teeth, these being progressively larger outwardly. Wings (Plate 1, fig. 6) whitish, including the prearcular region; a heavy dark brown pattern, chiefly costal and apical in distribution; four major costal areas before the more extensively darkened apex, the fourth area being the stigmal; these areas solidly darkened in the costal and subcostal cells, their centers paling to grayish in the radial field; subquadrate in outline, not strongly narrowed in the radial field (as in *frivola* and *shirakii*), a very little more extensive than the pale interspaces; additional dark areas include a large spot at fork of Rs, confluent with the stigma; a smaller area on r-m; cord and outer end of cell 1st M₂ seamed with brown; large, paler brown areas at ends of veins Cu, 1st A, and 2d A; dusky washes covering most of cell M and crossing the basal portions of cells Cu, 1st A, and 2d A to the axillary margin; veins dark, paler in the whitened areas. Venation: Sc₁ ending shortly beyond origin of Rs; Sc₂ (or a supernumerary crossvein) far from tip of Sc₁, at near midlength of Sc; m-cu close to fork of M.

Abdomen dark brown, the caudal margins of the segments narrowly but conspicuously ringed with pale; ovipositor with the shields pale yellow, the valves darker. Cerci slender and nearly straight.

Habitat.—Japan (Honshiu).

Holotype, alcoholic female, Kumanoyu, Shinano, July 6, 1931 (*H. Yokouchi*). Type in collection of Kyushu Imperial University.

I consider it somewhat doubtful that *Limonia* (*Dicranomyia*) *shinanoensis* belongs to the *pulchripennis* group, all other known members of which have the bases and apices of the tibiæ conspicuously darkened. The present fly has a wing pattern that is most like that of *L. (D.) kirishimana* Alexander (Japan), differing most evidently in the much broader costal interspaces, which are here nearly as extensive as the dark areas; in *kirishimana* the pale areas in cell C are scarcely one-third to one-fourth as extensive as the dark markings.

LIMONIA (DICRANOMYIA) TRISPINULA sp. nov. Plate 1, fig. 7; Plate 2, fig. 34.

General coloration light yellow; femora with more than distal half brownish black; tibiæ brownish black; wings with a faint brownish tinge, the oval stigma dark brown; Sc_1 subequal in length to Rs; m-cu more than one-third its length before the fork of M; male hypopygium with the rostral prolongation of the ventral dististyle trispinous.

Male.—Length, about 4.5 millimeters; wing, 5.

Most of head destroyed; posterior vertex extensively yellowish, sparsely pruinose.

Mesonotum and pleura uniformly pale yellow. Halteres pale, the knobs weakly infuscated. Legs with the coxæ and trochanters pale yellow; femora pale yellow basally, more than distal half brownish black; tibiæ brownish black; tarsi broken. Wings (Plate 1, fig. 7) with a faint brown tinge, the oval stigma dark brown, conspicuous; veins dark brown, those of the basal third of wing paler. Macrotrichia of veins beyond cord long and conspicuous; basad of cord sparse to lacking, there being none on 1st A and only three or four at outer end of 2d A. Venation: Sc_1 ending just before origin of Rs, Sc_2 far from its tip, Sc_1 alone being nearly as long as Rs alone; cell 1st M_2 closed; m-cu more than one-third its length before the fork of M.

Abdomen, including hypopygium, pale. Male hypopygium (Plate 2, fig. 34) with the caudal margin of tergite, 9t, broadly emarginate. Basistyle, *b*, short, the ventromesal lobe large. Ventral dististyle, *vd*, large and fleshy, its rostral prolongation small and relatively slender, provided with three rostral spines that are placed in a row on basal half of prolongation, the outermost somewhat smaller. Dorsal dististyle strongly curved, the actual tip slightly recurved. Gonapophyses, *g*, with the mesal-apical lobe relatively slender, gently curved, the tips acute.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,000 feet, August 3, 1931 (*Franck*).

Limonia (Dicranomyia) trispinula is readily told from similar regional species by the dark stigma of wings, the long Sc_1 , basal position of m-cu, and other characters. Since the type is unique, it is not entirely certain that the feature of a trispinous rostral prolongation is constant.

LIMONIA (RHIPIDIA) GARÇULA sp. nov. Plate 1, fig. 8; Plate 2, fig. 35.

Belongs to the *rostrifera* group; general coloration dark brown, the thoracic pleura yellowish gray, variegated with dark brown; antenna (male) with all but the terminal flagellar segment long-bipectinate; tarsi extensively snowy white; wings with the apex and stigma conspicuously darkened; extensive milky white areas before and beyond stigma; abdominal segments black, the caudal margins buffy yellow; male hypopygium with two rostral spines.

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

Rostrum about one-half the length of remainder of head, black; palpi concolorous. Antennæ (male) with the scape dark brown; pedicel brownish yellow; flagellar segments with the basal enlargement and branches dark brown, the long apical pedicel whitish; terminal segment uniformly darkened; flagellar segments 1 to 11, inclusive, each with two long branches, those of the first and eleventh segments slightly more than one-half longer than the segment; longest branches (at midlength of organ) slightly exceeding three times the segments; terminal segment simple, slightly exceeding twice the penultimate segment. Head gray.

Mesonotum dark brown, opaque; humeral region of præscutum obscurely brightened. Pleura yellowish gray, the ventral sternopleurite extensively dark brown; a small brown spot on ventrocephalic portion of anepisternum. Halteres pale yellow. Legs with the fore coxæ small, dark brown; remainder of coxæ and all trochanters yellow; femora and tibiæ yellowish brown to light brown, the tips of the former narrowly darkened; proximal half of basitarsi dark brown, with almost the remainder of tarsi snowy white, only the terminal segment again infuscated; claws with a sharp basal spine. Wings (Plate 1, fig. 8) with the ground color very faintly brownish, the large oval stigma and a confluent cloud over anterior cord dark brown; wing apex in cells R_2 and R_3 conspicuously darkened; very large and conspicuous milky white areas before and beyond stigma; origin of Rs and posterior cord very narrowly and insensibly seamed with brown; veins pale brown, more whitish in the milky areas. Ve-

nation: Sc_1 ending about opposite one-third the length of Rs , Sc_2 exactly opposite origin of Rs ; free tip of Sc_2 lying a little distad of level of R_2 ; cell M_2 open by atrophy of m ; $m-cu$ a short distance beyond fork of M .

Abdominal segments black, their caudal margins broadly and conspicuously ringed with buffy yellow, the latter color including from about one-fourth to nearly one-half the entire segment, the amount decreasing on outer segments; terminal segments dark brown; ventral dististyle of male hypopygium conspicuously whitened. Male hypopygium (Plate 2, fig. 35) with the tergite, $9t$, transverse, the caudal margin very gently emarginate. Basistyle, b , small, the ventromesal lobe proportionately large. Ventral dististyle, vd , a large fleshy lobe, the rostral prolongation small, with two short, gently curved spines that arise from a short, common tubercle. Gonapophyses, g , with the mesal-apical angle slender.

Habitat.—China (Szechwan).

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

Limonia (Rhipidia) garrula is very different from all other described members of the group. White tarsi are likewise found in *morionella* Edwards and *luteipleuralis* Alexander, but these species have the wings clear except for the stigma and with the mesonotum polished black. As stated elsewhere, I am inclined to believe that the members of the *rostrifera* group are a quite different offshoot from typical *Rhipidia* and may well warrant the erection of a new subgeneric group.

LIMONIA (GERANOMYIA) BIFURCULA sp. nov. Plate 1, fig. 9; Plate 2, fig. 36.

General coloration of mesonotum reddish brown, the præscutum with three blackish stripes, the median one continued caudad onto base of scutellum; rostrum and antennæ black throughout; knobs of halteres brownish black; legs brownish yellow to brown; wings brownish yellow, with a heavy brown pattern that is chiefly costal in distribution; a supernumerary crossvein in cell Sc ; Sc_1 ending about opposite two-thirds the length of Rs ; cell 1st M_2 long and narrow; male hypopygium with the rostral prolongation of the large ventral dististyle long and slender, at its base bearing a single, powerful, decurved spine, the two taken together forming a conspicuous fork; dorsal dististyle a small, nearly straight, needlelike rod.

Male.—Length, excluding rostrum, about 6 to 6.5 millimeters; wing, 6 to 6.5; rostrum, about 2.2 to 2.5.

Female.—Length, excluding rostrum, about 7 to 8 millimeters; wing, 6 to 7.5; rostrum, about 2.2 to 3.

Rostrum and palpi black. Antennæ black throughout; flagellar segments suboval, with short, inconspicuous verticils. Head gray, the posterior vertex with a blackish area on either side of the median line.

Mesonotum brown, more or less pruinose; a capillary, median, blackish vitta extending from the præscutum, crossing the scutum onto the scutellum; slightly broader blackish sublateral stripes; lateral margins and posterior interspaces of præscutum, median area of scutum, and the scutellum somewhat more reddish brown; postnotum black, gray pruinose. Dorsal pleurites brownish black, the ventral sclerites, including the sternopleurite and meron, more yellowish. Halteres yellow, the knobs brownish black. Legs with the coxæ and trochanters yellow; femora obscure brownish yellow; tibiæ and tarsi somewhat darker brown. Wings (Plate 1, fig. 9) with a brownish yellow ground color, the prearcular and costal regions clearer yellow; a restricted dark brown pattern, including about seven costal areas, the third at origin of Rs and fourth at tip of Sc separate; last two areas at ends of the outer radial veins; cord and outer end of cell 1st M₂ narrowly seamed with brown; scarcely evident marginal washes at ends of medial, cubital, and anal veins; veins brown, darker in the infuscated areas. Venation: A supernumerary crossvein in cell Sc at shortly beyond midlength; Sc₁ ending about opposite two-thirds the length of Rs, Sc₂ at its tip; cell 1st M₂ long, exceeding the veins beyond it; m-cu close to fork of M; anal veins at origin very gradually divergent.

Abdominal tergites dark brown, the caudal margins very narrowly pale; basal sternites obscure yellow, the subterminal segments darker; hypopygium dark brown. Male hypopygium (Plate 2, fig. 36) with the tergite, 9*t*, deeply and narrowly notched medially, the lobes broadly obtuse. Basistyle, *b*, small. Ventral dististyle, *vd*, large and fleshy, the rostral prolongation long and slender, at base bearing a single, powerful, decurved spine that is evidently formed by the union of the usual two spines, the suture being faintly indicated. Dorsal dististyle a small, nearly straight, slender rod, the tip very acute. Gonapophyses, *g*, with the mesal-apical lobe slender. Lateral portions of ædeagus with delicate setulæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 3,500 feet, July 9, 1931 (*Franck*). Allotopotype, female. Paratopotypes, 8 of both sexes, with the types; 2 females, August 17, 1931.

Limonia (*Geranomyia*) *bifurcula* is generally similar to species such as *L. (G.) avocetta* (Alexander), differing from all such species where the male sex is known by the peculiar structure of the rostral prolongation of the ventral dististyle and its spine. A few members of the same group are known only from the female sex (as *septemnotata* Edwards, of Formosa, and *flaviventris* Brunetti, of the eastern Himalayas); these differ most evidently in the details of coloration. The type of male hypopygium found in *bifurcula* is somewhat approached by that of *L. (G.) feuerborni* Alexander (East Indian Islands), but the latter species has unspotted wings.

ANTOCHA (ANTOCHA) PALLIDELLA sp. nov. Plate 1, fig. 10; Plate 3, fig. 37.

General coloration pale yellow, including the antennæ and halteres; tips of femora and tibiæ narrowly blackened; wings subhyaline, with a sparse dark pattern, indicated chiefly by cloudings of the veins comprising the cord and outer end of cell 1st M_2 ; m-cu a little more than its own length before fork of M; male hypopygium with each caudal-lateral angle of tergite bearing a small rounded tubercle; gonapophyses simple; phallosome apparently reduced to the elongate ædeagus.

Male.—Length, about 4.5 millimeters; wing, 5.3.

Rostrum pale yellow, the palpi slightly darker. Antennæ short, pale yellow throughout; flagellar segments oval, the verticils not exceeding the segments. Head testaceous-yellow.

Mesonotum and pleura pale yellow. Halteres pale throughout. Legs pale yellow, the tips of the femora narrowly but conspicuously blackened; tibiæ similarly but even more narrowly blackened; terminal tarsal segments blackened. Wings (Plate 1, fig. 10) broad, subhyaline, the small oval stigma darker; veins pale, the cord, m-cu, and outer end of cell 1st M_2 darker brown. Venation: R_2 lying some distance proximad of r-m, R_{2+3} being about one-half as long as R_{4+5} ; m-cu more than its own length before fork of M.

Abdomen yellow, the outer tergites marked with brownish at centers of disk; hypopygium pale yellow. Male hypopygium (Plate 3, fig. 37) with the tergite, 9t, transverse, the outer lateral angles of the caudal margin produced into low, rounded, seti-

ferous lobes. Outer dististyle, *od*, a gently arcuate darkened blade, the apex obtuse. Gonapophyses, *g*, appearing as simple flattened rods, their tips acutely pointed, these rods subtending the simple, sinuous ædeagus, *a*.

Habitat.—China (Szechwan).

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

The nearest ally of the present fly is undoubtedly *Antocha* (*Antocha*) *nigrbasis* Alexander, likewise from the mountains of Szechwan, which differs most evidently in the usually darkened wing base, even more basal position of m-cu, and the details of the male hypopygium, as the tuberculate caudal margin of the ninth tergite. The two species differ from all allied regional members of the genus in the pale yellow coloration of the body, the narrowly blackened tips of the femora, the basal position of m-cu, and the details of venation of the radial field, as the brevity of R_{2+3} when compared with R_{4+5} .

ANTOCHA (ANTOCHA) SETIGERA sp. nov. Plate 1, fig. 11; Plate 3, fig. 38.

General coloration gray; præscutum with a median brown stripe; antennal flagellum black; knobs of halteres infuscated; legs brown; wings whitish, especially the prearcular region; m-cu about one-half its length before the fork of M; veins beyond cord with unusually abundant macrotrichia; abdominal tergites dark brown, the basal sternites dark medially, paler laterally; male hypopygium with the phallosome relatively narrow, at apex dividing into two short arms.

Male.—Length, about 5.3 millimeters; wing, 6.

Rostrum brown; palpi dark brown. Antennæ (male) of moderate length, if bent backward extending to just beyond the wing root; scape brown, remainder of organ black; flagellar segments oval, terminal segment two-thirds the length of the penultimate; verticils shorter than the segments. Head gray.

Mesonotum dark gray, the præscutum with a median brown stripe and with scarcely indicated lateral stripes. Pleura gray. Halteres pale, the knobs infuscated. Legs with the coxæ yellow, the fore coxæ infuscated on basal half; trochanters yellow; remainder of legs brown. Wings (Plate 1, fig. 11) whitish subhyaline, the prearcular region more milky white; stigma pale brown, ill-delimited; veins brown, pale in the prearcular region. Macrotrichia of veins unusually abundant and conspicuous, being found on distal half of R_3 , all of outer section of R_{4+5} , the entire length of all veins issuing from cell 1st M_2 , almost the

entire length of distal section of Cu_1 and outer half of M_{3+4} ; a few scattered trichia on second section of M_{1+2} and with three or four trichia on distal half of vein 2d A, these widely separated. Venation: R_2 unusually faint, about in transverse alignment with r-m; cell 1st M_2 small, shorter than vein M_{1+2} beyond it; m-cu about one-half its length before fork of M.

Abdominal tergites dark brown; basal sternites darkened medially, paler laterally; hypopygium dark brown. Male hypopygium (Plate 3, fig. 38) with the tergite, $9t$, transverse, the central portion of cephalic half with very numerous setæ, the more-lateral ones larger and coarser. Outer dististyle, od , gently arcuated, the distal half blackened, the tip obtusely rounded. Inner dististyle with the apex provided with abundant coarse setæ. Gonapophyses, g , appearing as simple, flattened, dusky rods, their tips subacute. Phallosome, p , of moderate size, narrowed outwardly, the apex dividing into two short, divergent arms.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 7,000 feet, July 17, 1931 (*Franck*). Paratopotype, male, altitude 3,500 feet, August 16, 1931 (*Franck*).

Antocha (Antocha) setigera is told from all regional species of the genus by the structure of the male hypopygium, especially of the phallosome. The coloration of the body and wings and the trichiation of the wing veins likewise furnish somewhat distinctive features.

PEDICIINI

PEDICIA BRACHYCERA sp. nov. Plate 1, fig. 12; Plate 3, fig. 40.

Female.—Length, about 30 millimeters; wing, 25.

Characters much as in *Pedicia daimio* (Matsumura).

Rostrum and palpi black, the terminal segment of the latter subequal to the penultimate. Antennæ much shorter than in *daimio*, 15-segmented, shorter than the head, dark brown throughout; flagellar segments relatively short and crowded. Head gray, the vertical tubercle with a circular depression.

Præscutum light gray, with three darker gray stripes, the median one split on anterior half by a vague paler median vitta. Halteres and legs about as in *daimio*. Wings (Plate 1, fig. 12) with the usual pattern of the genus, the dark seam on distal section of vein Cu_1 becoming obsolete before midlength of vein and thus not reaching the margin, as is the case in *daimio*.

Abdomen conspicuously gray, much darker and more extensively suffused than in *daimio*, the dorsomedian line of tergites darker grayish brown, very narrowly interrupted by the rufous incisures; sternites with the lateral margins broadly gray. Ovipositor with the cerci longer than in *daimio*.

Habitat.—Japan (Honshiu).

Holotype, female, Shirouma-dake, Japanese Alps, August 8, 1931 (*Machida*).

The present insect certainly appears to be distinct from *daimio* in the characters outlined above, notably the short antennæ with small crowded flagellar segments. The antennæ of both of these species have only fifteen segments, whereas the normal number for the genus is sixteen. The condition in the larger members of the closely allied genus (or subgenus) *Tricyphona*, where the number of antennal segments ranges from eleven to sixteen, shows clearly that we are here dealing with a very plastic character that cannot be trusted for generic or tribal separation. The antennal flagella of *daimio* (Plate 3, fig. 39) and of *brachycera* (Plate 3, fig. 40) are herewith compared, the organs being drawn to scale.

PEDICIA SUBTRANSVERSA sp. nov. Plate 1, fig. 13; Plate 3, fig. 41.

General coloration light gray, the præscutum with three brown stripes, the median one split by a capillary gray vitta; wings whitish subhyaline, with the usual triangular dark pattern on disk, the seam on vein Cu_1 continued to margin; cord more nearly transverse than in other species of the genus; R_{1+2} about two-thirds as long as m-cu; abdomen with the basal segments yellow, the tergites with a nearly continuous median stripe; male hypopygium with the dististyle single, terminal in position, the outer margin with four or five spines.

Male.—Length, about 19 millimeters; wing, 17.

Rostrum very short, black; palpi black, the terminal segment about one-half longer than the penultimate. Antennæ with the scape and pedicel black; remainder of organ broken. Head dark gray, with a moderately developed vertical tubercle.

Pronotum fulvous, infuscated laterally. Mesonotal præscutum light gray, with three brown stripes, the median one somewhat darker, divided by a capillary gray vitta, the stripe narrowed behind and not reaching the suture; lateral stripes more pruinose; scutum gray, the median area more brownish fulvous; scutellum obscure yellow; postnotal mediotergite dark brown, sparsely pruinose, the cephalic portion narrowly more yellowish. Pleura chiefly light gray, the dorsopleural region and pleuro-

tergite more infuscated. Halteres pale yellow, the knobs weakly darkened. Legs with the coxæ light gray; trochanters obscure yellow; femora and tibiæ yellow, the tips narrowly blackened; tarsi black, the proximal portions of basitarsi more or less brightened. Wings (Plate 1, fig. 13) whitish subhyaline, the costal margin light brown, paler beyond the humeral crossvein and before stigma; the usual dark pattern of the genus, including extensive darkenings of cells R and M, a semicircular area at origin of Rs, and a continuous darkening in cells R_2 and R_3 ; seam along vein Cu_1 continued to margin; veins pale yellow, including the darkened areas, in contrast with which they are very conspicuous. Venation: R_{1+2} relatively long, approximately two-thirds of m-cu; cord subtransverse, much less oblique than in the typical members of the genus.

Abdomen with the basal segments yellow, with a nearly continuous dorsomedian brown vitta, narrower and paler on the basal ring; sternites with their caudal margins narrowly light brown; lateral triangular areas on both tergites and sternites near caudal margins of segments, the areas becoming larger on the outer segments. Male hypopygium (Plate 3, fig. 41) with the dististyle, *d*, single, terminal in position; outer margin of style with a series of four or five spines, the more-distal ones larger; disk of style set with smaller black spines. Interbasal process, *i*, a small, narrowly spatulate blade.

Habitat.—Japan (Honshiu).

Holotype, male, Shirouma-dake, Japanese Alps, August 8, 1931 (*Machida*).

Pedicia subtransversa differs from the other species of the genus in the less oblique cord of the wings, which is here almost exactly as in some species of *Tricyphona*. The present species is placed in *Pedicia* chiefly on the possession of the characteristic wing pattern of the group, since the male hypopygium is likewise scarcely typical of the genus, the dististyle being terminal in position. There are two species of *Tricyphona* in Japan (*gaudens* Alexander and *grandior* Alexander) that closely approach *Pedicia*, and the characters hitherto used for the separation of the two groups are gradually becoming untenable.

DICRANOTA (DICRANOTA) NIPPOALPINA sp. nov. Plate 1, fig. 14; Plate 3, fig. 42.

General coloration pale yellow; head light gray; wings relatively long and narrow; Rs more than twice R_{2+3+4} ; cell M_2 open; male hypopygium with the interbase at apex extended into a long powerful spine.

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

Rostrum pale; basal segments of palpi pale, the outer segments infuscated. Antennæ broken. Head clear light gray; vertex very broad.

Pronotum, mesonotum, and pleura entirely pale yellow, unmarked. Halteres pale, the knobs weakly infuscated. Legs with the coxæ and trochanters pale yellow; femora very pale brown; tibiæ and tarsi whitish, the terminal segments of the latter darkened. Wings (Plate 1, fig. 14) long and narrow, pale yellow throughout; veins pale, not clearly apparent in balsam mounts. Venation: Sc_1 ending shortly before the supernumerary crossvein in cell R_1 , Sc_2 not clearly evident in the unique type; R_{2+3+4} about one-third longer than R_{2+3} ; cell M_2 open.

Abdomen yellow. Male hypopygium (Plate 3, fig. 42) with the caudal margin of tergite, $9t$, nearly transverse, conspicuously hairy; lateral arms appearing as small, flattened, gently curved, pale blades, their tips obtuse. Basistyle, b , with the outer lobe short and stout, with long setæ and a few spines; mesal face of basistyle near cephalic end with a group of very long coarse setæ. Interbase, i , at apex bent at nearly a right angle into a long acute spine.

Habitat.—Japan (Honshiu).

Holotype, male, Shirouma-dake, Japanese Alps, August 8, 1931 (*Machida*).

Dicranota (*Dicranota*) *nippoalpina* is very distinct from the other species of the subgenus in eastern Asia in the almost uniform pale yellow color of the body and wings and in the long, nearly straight, radial sector.

DICRANOTA (RHAPHIDOLABIS) SINOALPINA sp. nov. Plate 1, fig. 15; Plate 3, fig. 43.

General coloration gray; antennæ black throughout, 13-segmented; mesonotal præscutum with a median blackish stripe; knobs of halteres infuscated; legs pale yellow; wings subhyaline, the stigmal area very slightly darkened; R_{2+3+4} distinct; cell 1st M_2 open; male hypopygium with the tergite not or scarcely produced medially, setiferous; interbase a stout rod, the apex acute.

Male.—Length, about 4.5 millimeters; wing, 5.

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

Rostrum and palpi black. Antennæ short, black throughout. Head gray.

Pronotum and mesonotum dark gray, the præscutum with a conspicuous, median, blackish stripe, the lateral stripes much

less conspicuous. Pleura dark gray. Halteres pale, the knobs infuscated. Legs with the coxæ infuscated; trochanters whitish; remainder of legs pale yellow, the outer tarsal segments darkened; in female, the tips of femora and tibiæ weakly infumed. Wings (Plate 1, fig. 15) subhyaline, the stigmal area very diffusely and faintly darkened; veins very pale. Venation: R_{2+3+4} distinct, subequal to $r-m$; R_{1+2} about one-half of R_2 ; cell 1st M_2 open; $m-cu$ oblique, more than one-half its length beyond fork of M .

Abdomen, including hypopygium, brownish black. Male hypopygium (Plate 3, fig. 43) with the caudal margin of the tergite, $9t$, nearly transverse to slightly convex, densely setiferous; lateral angles of tergite produced into small, slender rods. Basistyle, b , with the outer apical lobe slightly produced, with small setæ but no spines. Interbase, i , a stout rod, the apex narrowed into a slender spine, the surface of style beyond midlength with five or six small setæ. Outer dististyle, od , with spinous setæ. Inner dististyle, id , slender, the apex obtusely rounded. Phallosome, p , depressed, clothed with abundant delicate setulæ, each outer lateral angle a little produced into a slender lobe. Ovipositor with the long valves horn-colored.

Habitat.—China (Szechwan).

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

Dicranota (*Rhaphidolabis*) *sinoalpina* is most readily told from its few allies in the Himalayas and Japan by the structure of the male hypopygium, in conjunction with the coloration of the body, legs, and wings, and the number of antennal segments. The Himalayan species described by Brunetti (*brunettii* Edwards, synonym *aperta* Brunetti, preoccupied; *fascipennis* Brunetti; *sordida* Brunetti, synonym *indica* Brunetti) all have the antennæ 15-segmented. The range in number of antennal segments in *Rhaphidolabis*, where in a single species (*stigma* Alexander, of western North America) or even in a single specimen, the antennal segments range in number from twelve to fourteen, has been indicated by the writer in another paper.⁴

HEXATOMINI

TROGLOPHILA SZECHWANENSIS sp. nov. Plate 1, fig. 16.

General coloration light brown; wings with cell M_1 present; R_{1+2} shorter than R_{2+3+4} , the latter more than three times R_{2+3} alone.

⁴Proc. U. S. Nat. Mus. 64, art. 10 (1924) 14-15.

Female.—Length, about 4 millimeters; wing, 5.

Rostrum and palpi brown. Antennæ dark brown throughout; flagellar segments cylindrical, the verticils becoming longer and more conspicuous on the outer segments. Head light brown.

Mesonotum light brown, without evident markings. Pleura testaceous-brown, slightly variegated by darker areas on anepisternum, dorsal sternopleurite, and meron. Halteres dusky, the base of stem narrowly yellow. Legs with the coxæ and trochanters yellowish testaceous; femora and tibiæ brown, the tarsi a trifle paler. Wings (Plate 1, fig. 16) with a strong brown tinge; stigma lacking; veins pale brown, the macrotrichia darker. Venation: R_{1+2} shorter than R_{2+3+4} , the latter more than three times R_{2+3} alone and longer than cell 1st M_2 ; cell M_1 present; m-cu at fork of M.

Abdomen dark brown. Ovipositor with the cerci fleshy, oval, narrowed outwardly, each valve terminating in a slender yellow point; hypovalvæ short and very obtusely rounded.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 3,500 feet, August 17, 1931 (*Franck*).

Troglophila szechwanensis requires comparison only with *T. seticornis* Alexander (eastern China), which differs especially in the venation of the radial field, having R_{2+3+4} short, less than R_{1+2} and shorter than cell 1st M_2 .

ERIOCERA (ERIOCERA) HEMICERA sp. nov. Plate 1, fig. 17.

Belongs to the *spinosa* group; general coloration of head and thorax black, gray pruinose; antennæ (male) elongate, a little shorter than the body; mesonotal præscutum with three black stripes; fore and middle femora yellow, their tips narrowly blackened; posterior femora chiefly black; wings with a strong fulvous-brown tinge, the oval stigma pale brown; cell M_1 present; abdomen chiefly fulvous-brown, including the genitalia of both sexes.

Male.—Length, about 16 millimeters; wing, 16; antenna, about 14.

Female.—Length, about 23 millimeters; wing, 19; antenna, about 6.

Rostrum and palpi black. Antennæ (male) 7-segmented, relatively elongate but still shorter than body, black throughout; basal two flagellar segments with long, spinous setæ, there being about twelve to fifteen to each of these segments; on outer segments these spines are more appressed and merge with the

ordinary setæ; terminal segment very small; antennæ (female) 11-segmented, black, the scape slightly paler beneath. Head blackish, gray pruinose.

Mesonotal præscutum with three black stripes, the humeral and sublateral portions more golden yellow pollinose, the interspaces more infuscated; extreme lateral margins of præscutum velvety black; posterior sclerites of mesonotum black, the scutum slightly pollinose, the scutellum more heavily so. Pleura black, gray pruinose. Halteres with the stem brownish yellow, the knobs black. Legs with the coxæ gray pruinose; fore trochanters brown, the others more yellowish; fore and middle femora yellow, their tips narrowly blackened; posterior femora black, only the extreme bases obscure yellow; tibiæ and tarsi black. Wings (Plate 1, fig. 17) with a strong fulvous-brown tinge, the prearcular region and cell Sc light yellow; stigma oval, slightly darker brown than the ground; vague whitish longitudinal streaks in basal cells R to 2d A, inclusive; veins of radial field, M, Cu, and 2d A, narrowly bordered by yellow; veins pale brownish yellow, those of outer medial field very slender and faint. Macrotrichia of costa short but very dense; a few trichia on veins of outer radial field; Sc, Rs, and veins of medial, cubital, and anal fields without trichia. Venation: R_{2+3+4} a little shorter than basal section of R_5 ; R_{2+3} longer than R_{1+2} but a little shorter than R_3 alone; cell M_1 present, longer than its petiole.

Abdomen with basal tergite black, the succeeding segments fulvous-brown; sternites clearer fulvous; genital segments of both sexes fulvous. Ovipositor with the valves long and slender.

Habitat.—China (Szechwan).

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

I consider that the present species is most nearly allied to *Eriocera* (*Eriocera*) *stricklandi* Edwards, and a few related regional forms. The body is not strikingly hairy and the fulvous-brown ground color of the wings is quite different from the other described members of the *spinosa* group. By Edwards's key to the Old World species of *Eriocera*⁵ the present fly runs to couplet 27, disagreeing with the various indicated characters by the presence of a stigma and in the fact that R_{1+2} is approximately twice as long as R_2 .

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

ERIOPTERINI

LIPSOTHRIX TOKUNAGAI sp. nov. Plate 1, fig. 18; Plate 3, fig. 44.

General coloration pale yellow, including the body, halteres, and wings; veins pale yellow.

Male.—Length, about 7 millimeters; wing, 6.

Antennæ broken. Head brownish yellow.

Mesonotum, pleura, and halteres entirely pale yellow. Legs with the coxæ and trochanters pale yellow; femora pale yellow, broken before tips; remainder of legs broken. Wings (Plate 1, fig. 18) entirely pale yellow; veins pale yellow, some of the elements almost invisible in microscopic mounts; macrotrichia brown. Venation: Sc_1 ending just beyond fork of R_s , Sc_2 faint, placed close to its tip; veins R_3 and R_4 extending parallel to one another for most of their length, a little divergent at tips.

Abdomen entirely pale yellow, only the outer dististyle darkened. Male hypopygium (Plate 3, fig. 44) with the outer dististyle, *od*, bearing the usual appressed tooth on inner margin at about two-thirds the length. Interbase, *i*, long and sinuous.

Habitat.—Japan (Honshiu).

Holotype, male, Mount Daisen, Tottori, July 2, 1931 (*Tokunaga*).

It is with great pleasure that I dedicate this striking new *Lipsothrix* to Dr. Masaaki Tokunaga. The present fly is readily told from the other species in eastern Asia by the uniform pale yellow coloration of the body and wings. The other species are from Formosa and the Riukiu Islands, the present record being the first from the major islands of Japan. The name *Electrolabis* Alexander⁶ should be placed in the synonymy of *Lipsothrix* and extends the range of the genus back to the Lower Oligocene (Baltic amber).

GONOMYIA (PTILOSTENA) ABJECTA sp. nov. Plate 1, fig. 19; Plate 3, fig. 45.

General coloration gray; basal two segments of antennæ yellow, the remainder black; pleura striped; femora and tibiæ yellow, the tips of the latter, together with the tarsi, black; wings with a strong yellow tinge; stigma small, pale brown; Sc_1 ending about opposite midlength of R_s , Sc_2 before this origin; veins R_{1+2} and R_3 closely approximated at wing margin; male hypopygium with the outer dististyle bifid, each arm terminating in an acute spine; inner dististyle a simple spine; ædeagus without blackening.

Male.—Length, about 4.5 millimeters; wing, 5 to 5.2.

⁶ Bernsteinforschungen Heft 2 (1931) 58–59, figs. 68–70.

Female.—Length, about 5.5 to 6 millimeters; wings, 5 to 5.6.

Rostrum and palpi brownish black. Antennæ with the scape and pedicel light yellow; flagellum black, the basal segment somewhat paler; flagellar segments elongate to fusiform, the verticils exceeding the segments. Head flesh-colored, the center of the posterior vertex gray.

Pronotum grayish brown medially above, the lateral portions and the anterior lateral pretergites light yellow. Mesonotal præscutum light gray, the humeral and lateral portions restrictedly yellow; posterior sclerites of mesonotum uniformly darkened, gray pruinose. Pleura with the dorsal portion gray pruinose, clearer brown along the ventral margin, the ventral sternopleurite more reddish brown; an obscure yellow longitudinal stripe extending from behind the fore coxæ to beneath the halteres, this sometimes poorly indicated. Halteres pale yellow, the knobs infuscated. Legs with the fore coxæ darkened, the remaining coxæ and all trochanters yellowish testaceous; femora and tibiæ yellow, the latter narrowly darkened at tips; tarsi black. Wings (Plate 1, fig. 19) with a strong yellowish tinge; stigma small, pale brown; veins pale yellowish brown. Venation: Sc_1 ending about opposite midlength of R_s , Sc_2 some distance before origin of R_s ; R_{1+2} and R_3 approximated to practically contiguous at margin.

Abdominal tergites blackened, their lateral margins narrowly yellow, in cases, also with the caudal margins narrowly pale; sternites yellow, vaguely darkened medially. Male hypopygium (Plate 3, fig. 45) with the apical lobe of basistyle, *b*, simple, obtusely rounded. Outer dististyle, *od*, bifid, both arms ending in acute black spines. Middle dististyle, *md*, with both arms expanded, the inner shorter, suboval in outline, the margin of the notch of the style blackened. Inner dististyle, *id*, simple, terminating in a blackened spine. Ædeagus, *a*, without blackening, subtended by a narrow flange, at its widest part with about a dozen pale setæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 7,000 feet, July 17, 1931 (*Franck*). Allotopotype, female, with the type. Paratopotypes, 4 females; paratype, 1 male, altitude 4,000 feet, July 21, 1931 (*Franck*).

Gonomyia (Ptilostena) abjecta is quite distinct from the other described regional species of the subgenus in the structure of the male hypopygium, taken in conjunction with the wing pattern and details of venation. In the male hypopy-

gium, especially the entirely pale ædeagus, the fly comes closest to *G. (P.) shantungensis* Alexander (China and Japan), which has a distinct radial venation and a profoundly divided outer dististyle of the hypopygium. The species *pallens* Alexander and *teranishii* Alexander, both of Japan, have the ædeagus heavily blackened and variously toothed near the apex.

GONOMYIA (LIPOPHLEPS) ANGULIFERA sp. nov. Plate 1, fig. 20; Plate 3, fig. 46.

General coloration dark grayish brown; posterior margin of scutellum obscure yellow; pleura dark, with a silvery longitudinal stripe; halteres pale yellow; femora yellow, with a conspicuous, dark brown, subterminal ring; wings broad, pale brownish, variegated with whitish hyaline areas; Sc short; male hypopygium with the outer dististyle entirely blackened, profoundly bifid at base, the two arms microscopically toothed and roughed at tips.

Male.—Length, about 2.8 millimeters; wing, 3.2.

Rostrum and palpi blackish. Basal segments of antennæ obscure yellow above, darker beneath; flagellum black. Head dark grayish brown.

Anterior lateral pretergites very restrictedly yellow. Mesonotum dark grayish brown, the posterior margin of scutellum obscure yellow; pseudosutural foveæ shiny black. Pleura brownish black, with a single, silvery, longitudinal stripe. Halteres pale yellow, the base of stem narrowly darkened. Legs with the fore coxæ chiefly silvery, remaining coxæ more yellowish, their bases narrowly darkened; trochanters obscure yellow, the fore pair darker; femora yellow, with a conspicuous dark subterminal ring; remainder of legs pale yellow, the terminal tarsal segments darker. Wings (Plate 1, fig. 20) broad, the ground color pale brownish, conspicuously variegated by more-whitish hyaline areas, including a nearly complete crossband before cord, with other smaller clear areas beyond stigma, in cell 1st M_2 , and in the outer medial cells; cells Cu and 1st A less evidently variegated by pale areas; stigma pale brown, a little darker than the ground; prearcular and costal regions slightly clearer yellow; veins pale, darker in the clouded areas. Venation: Sc short, Sc_1 ending before origin of Rs, the distance about equal to one-half the length of the latter, Sc_2 not clearly apparent in the unique type but apparently placed close to tip of vein; anterior branch of Rs diverging strongly from

the posterior branch, about one-fourth longer than Rs; cell 1st M_2 closed.

Abdomen chiefly dark brown, the caudal margins of the more-basal segments slightly more yellowish; hypopygium dark. Male hypopygium (Plate 3, fig. 46) with what appears to represent lateral tergal lobes, 9*t*, cylindrical, each tipped with a small blackened spine. Outer dististyle, *od*, heavily blackened, profoundly bifid at extreme base, the two arms divergent at about a right angle; basal arm shorter, its apex a little expanded into a microscopically roughened head; outer arm similarly expanded at distal end, the outer margin with a few, small, retrorse spines. Inner dististyle a slender, simple, pale rod, with numerous setæ, including two larger fasciculate setæ at apex. Phallosome, *p*, not in condition to be described or figured in the unique type, consisting of two slender, curved, blackened arms, in addition to a complicated development of the ædeagus.

Habitat.—China (Szechwan).

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

Gonomyia (Lipophleps) angulifera is very distinct from all other regional species known to me in the structure of the male hypopygium, especially of the outer dististyle. By Edwards's key to the Oriental species of *Lipophleps*⁷ the present fly runs to *subnebulosa* Edwards (Pahang), which is still known only from the female sex. This species has a quite different venation and pattern of the wing.

ORMOSIA LÆVISTYLA sp. nov. Plate 1, fig. 21; Plate 3, fig. 47.

Belongs to the *aculeata* group; large (wing, male, 7.5 millimeters); halteres light yellow; male hypopygium with the outer dististyle smooth, with a rounded basal lobe; inner dististyle obtuse at tip.

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

Palpi and antennæ black. Head black, probably pruinose in fresh specimens.

Mesothorax discolored in the unique type, black, presumably gray pruinose in fresh specimens. Halteres pale. Legs with the coxæ concolorous with the thorax; trochanters obscure yellow; remainder of legs broken. Wings (Plate 1, fig. 21)

⁷ Journ. Fed. Malay St. Mus. 14 (1928) 104–105.

with the ground color whitish; stigma and narrow seams along cord, Sc_2 , tip of R_3 , and m infuscated; outer end of cell $2d M_2$ less evidently clouded; veins brown; a more-whitish obliterative area across the fork of vein M . Venation: R_2 just beyond fork of R_{2+3+4} ; veins R_3 and R_4 slightly upcurved at tips; cell $1st M_2$ open; m transverse, meeting the outer section of M_3 at a spurred right angle; $m-cu$ just before fork of M ; vein $2d A$ sinuous.

Abdomen black, pruinose, with numerous white setæ; hypopygium brownish black. Male hypopygium (Plate 3, fig. 47) with the basistyle, b , produced at apex into a small chitinized spine, as in the group. Outer dististyle, od , smooth, with a flattened, earlike lobule at base. Inner dististyle, id , blunt at apex, the distal third with small setulæ.

Habitat.—Japan (Honshiu)..

Holotype, male, Kibune, Kyoto-fu, altitude 750 feet, April 20, 1930 (*Tokunaga*).

Ormosia lævistyla is allied to *O. aculeata* Alexander and *O. horiana* Alexander, likewise from Japan, differing especially in the large size and structure of the male hypopygium. The small, obtuse, basal lobe of the outer dististyle is quite different from that found in the two species mentioned, where this lobe is prolonged into acute spines (two smooth spines in *horiana*; a single roughened to spiculose arm in *aculeata*).

ORMOSIA AURICOSTA sp. nov. Plate 1, fig. 22.

General coloration of mesonotal præscutum and scutum reddish brown, the postnotum and pleura abruptly blackened; antennæ chiefly pale; legs yellow, the femora with a scarcely indicated subterminal brown ring; wings infuscated, the costal border conspicuously golden yellow, the cord and apices of the marginal longitudinal veins with narrow seams and spots of darker brown; $m-cu$ more than one-half its length before the fork of M .

Female.—Length, about 4.6 millimeters; wing, 5.

Rostrum and palpi black. Antennæ chiefly pale; flagellar segments subcylindrical, with long conspicuous verticils. Head dark.

Mesonotal præscutum and scutum reddish brown, the scutellum a little darker. Pleura and postnotum blackened. Halteres with the stem pale, knobs broken. Legs with the coxæ

brownish black; trochanters brownish yellow; femora golden yellow, with a narrow, scarcely indicated, brown, subterminal ring; fore femora with an additional pale brown ring at about one-third the length, this ring subequal in width to the subterminal darkening and about one-third as extensive as the yellow medial annulus; tibiæ and basitarsi light yellow, the terminal tarsal segments dark brown. Wings (Plate 1, fig. 22) with the ground color strongly infuscated, the costal region broadly golden yellow; cells C and Sc variegated with darker only at arculus and Sc₂; outer ends of cells Sc₁, R₂, and R₃ with similar yellow marginal areas that are evidenced chiefly by the yellow costal vein; an oblique, more-whitish area across the cord, including the outer end of cell R and the extensive basal portion of the united cell 1st M₂ and M₃; narrow darker seams and spots at ends of longitudinal veins, along cord, and at fork of M₁₊₂; a pale spot before outer end of vein 2d A; axillary margin narrowly pale yellow; veins dark, luteous in the yellow areas. Venation: Sc₁ ending just beyond R₂, Sc₂ about opposite two-fifths the length of Rs; tips of veins R₂ and R₁ slightly upcurved; inner end of cell 2d M₂ almost squarely truncated; m-cu about one-half its length before fork of M; vein 2d A only gently sinuous on distal third.

Abdomen black, the genital shield of ovipositor obscure yellow; cerci powerful, horn-colored, very gently upcurved to their acute tips.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, altitude 3,500 feet, August 16, 1931 (*Franck*).

Ormosia auricosta is readily told from other regional allied species by the pattern of the wings and legs. The yellow femora distinguish it from the Himalayan and Chinese species so far described.

ERIOPTERA (ERIOPTERA) JUVENILIS sp. nov. Plate 1, fig. 23.

General coloration of mesonotum light gray, the præscutum with a more-brownish median stripe that is further split on cephalic half by a capillary blackened vitta; antennæ with the basal three flagellar segments partly united into a fusion segment; basal segments of flagellum yellow; knobs of halteres blackened; legs beyond trochanters black; wings broad, light yellow; vein 2d A unusually long and sinuous; abdomen dark brown.

Female.—Length, about 5 millimeters; wing, 5.7.

Rostrum and palpi black. Antennæ with the scape and pedicel dark brown; basal five segments of flagellum light yellow, the terminal segments passing to brown; basal three flagellar segments large and partly fused into a single structure, the succeeding segments distinct; verticils nearly as long as the segments. Head with the center of vertex brownish black, the orbits narrowly light gray.

Pronotum narrowly darkened medially above, yellow on sides. Mesonotal præscutum light gray, with a broad, more brownish gray, median stripe that is delimited laterally by the darkened punctures of the interspaces; a further more-blackened capillary line on cephalic half of sclerite, broadest in front, narrowed to a point about opposite the level of the pseudosutural foveæ; humeral region and lateral margins of præscutum restrictedly pale yellow; posterior sclerites of mesonotum more grayish brown, the postnotal mediotergite even darker. Pluera plumbeous gray, the dorsopleural membrane testaceous-yellow; no trichia on pteropleurite except near extreme dorsocaudal portion. Halteres pale yellow, the knobs and outer end of stem blackened. Legs with the fore coxæ brownish plumbeous, the remaining coxæ a trifle paler; trochanters obscure yellow; remainder of legs black. Wings (Plate 1, fig. 23) broad, clear light yellow, somewhat more obscured beyond cord; stigmal region insensibly darkened; veins deep yellow; macrotrichia pale brown. Venation: M_3 very strongly deflected cephalad at outer end, M_4 and Cu_1 less strongly so; vein 2d A unusually long and sinuous, cell 1st A being strongly widened at midlength.

Abdomen dark brown. Ovipositor with the cerci yellowish horn-color, smooth; hypovalvæ blackened, except for a paler ventral coloration at base.

Habitat.—Japan (Honshiu).

Holotype, female, Shirouma-dake, Japanese Alps, August 8, 1931 (*Machida*).

Erioptera (*Erioptera*) *juvenilis* is most nearly allied to *E. (E.) horii* Alexander and *E. (E.) orbitalis* Alexander, both of northern Japan, differing very evidently in the black legs, the broad wings, and the details of the body coloration.

ERIOPTERA (ERIOPTERA) LEUCOSTICTA sp. nov. Plate 1, fig. 24; Plate 3, fig. 48.

Belongs to the *alboguttata* group; general coloration of mesonotum yellowish brown; pleura obscure yellow, striped longi-

tudinally with dark brown; wings brown, with a conspicuous white-spotted pattern, including a large area in outer ends of both anal cells, basad of the spot at end of vein 2d A; male hypopygium with the outer dististyle without lateral spine; inner dististyle with a linear groove or incision at apex; gonapophyses terminating in long slender blackened points, the concave portion of these structures densely setiferous.

Male.—Length, about 3 millimeters; wing, 3.5.

Rostrum brownish black; palpi black. Antennæ with the scape and pedicel black, the flagellum more brownish black, with long, conspicuous verticils. Head light yellow.

Pronotum brownish yellow. Anterior lateral pretergites whitish. Mesonotum brown laterally, the disk of præscutum and the scutal lobes more yellowish brown; scutellum and post-notal mediotergite more infuscated. Pleura obscure yellow, longitudinally striped with dark brown, the dorsal stripe narrow, the ventral one broader, including the ventral sternopleurite and meral regions. Halteres pale yellow, with yellow setæ. Legs with the coxæ dark brown; trochanters obscure yellow, their tips weakly darkened; femora deep reddish yellow; tibiæ and tarsi light golden yellow. Wings (Plate 1, fig. 24) brown, with a conspicuous white-spotted pattern as in the group, including the following areas: Origin of Rs; marginal series at ends of all longitudinal veins with the exception of R_5 , that at M_{1+2} very small; areas becoming progressively larger backwards from the wing tip, that at 2d A again reduced in size; a major white area occupies cells 1st A and 2d A at the level of the origin of Rs; a continuous white band along cord; a spot at fork of M_{3+4} ; basal portion of wing more yellowish brown, the posterior arcular region strongly infuscated; veins yellow, almost invisible in the white areas. Venation: Vein 2d A rather strongly sinuous.

Abdomen brownish black, the hypopygium somewhat brighter. Male hypopygium (Plate 3, fig. 48) much as in *alboguttata*. Outer dististyle, *od*, without lateral spine at base of club, as in *paivai*. Inner dististyle, *id*, with the apex split by a deep linear groove, the terminal spine blackened; surface of style with only one or two punctures. Gonapophyses, *g*, with long, slender, black, apical points, the concave face of the structures with numerous setæ.

Habitat.—China (Szechwan).

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

Erioptera (Erioptera) leucosticta is most nearly allied to *E. (E.) alboguttata* Edwards (Formosa) and *E. (E.) paivai* Alexander (eastern Himalayas), differing from both in the structure of the male hypopygium and in the presence of an added white spot in the outer ends of both anal cells basad of the one at end of vein 2d A. In *alboguttata* this region of the wing is vaguely paler but without a clearly defined white area similar to those elsewhere on the wing surface.

ILLUSTRATIONS

[Legend: *a*, Aedeagus; *b*, basistyle; *d*, dististyle; *dd*, dorsal dististyle; *g*, gonapophysis; *i*, interbase; *id*, inner dististyle; *mb*, ventro-mesal lobe of basistyle, detail; *md*, middle dististyle; *od*, outer dististyle; *p*, phallosome; *s*, sternite; *t*, tergite; *vd*, ventral dististyle.]

PLATE 1

- FIG. 1. *Trichocera reticulata* sp. nov., venation.
2. *Tipula machidai* sp. nov., venation.
3. *Tipula (Formotipula) luteicorporis* sp. nov., venation.
4. *Limonia (Limonia) lackschewitziana* sp. nov., venation.
5. *Limonia (Limonia) commixta* sp. nov., venation.
6. *Limonia (Dicranomyia) shinanoensis* sp. nov., venation.
7. *Limonia (Dicranomyia) trispinula* sp. nov., venation.
8. *Limonia (Rhipidia) garrula* sp. nov., venation.
9. *Limonia (Geranomyia) bifurcula* sp. nov., venation.
10. *Antocha (Antocha) pallidella* sp. nov., venation.
11. *Antocha (Antocha) setigera* sp. nov., venation.
12. *Pedicia brachycera* sp. nov., venation.
13. *Pedicia subtransversa* sp. nov., venation.
14. *Dicranota (Dicranota) nippostalpina* sp. nov., venation.
15. *Dicranota (Rhaphidolabis) sinoalpina* sp. nov., venation.
16. *Troglophila szechwanensis* sp. nov., venation.
17. *Eriocera (Eriocera) hemicera* sp. nov., venation.
18. *Lipsothrix tokunagai* sp. nov., venation.
19. *Gonomyia (Ptilostena) abjecta* sp. nov., venation.
20. *Gonomyia (Lipophleps) angulifera* sp. nov., venation.
21. *Ormosia lævistyla* sp. nov., venation.
22. *Ormosia auricosta* sp. nov., venation.
23. *Erioptera (Erioptera) juvenilis* sp. nov., venation.
24. *Erioptera (Erioptera) leucosticta* sp. nov., venation.

PLATE 2

- FIG. 25. *Tipula machidai* sp. nov., male hypopygium, lateral aspect.
26. *Tipula machidai* sp. nov., male hypopygium, ninth tergite.
27. *Tipula machidai* sp. nov., male hypopygium, ninth sternite.
28. *Tipula machidai* sp. nov., male hypopygium, dististyles.
29. *Tipula (Formotipula) luteicorporis* sp. nov., male hypopygium, lateral aspect.
30. *Tipula (Formotipula) luteicorporis* sp. nov., male hypopygium, ninth tergite.
31. *Tipula (Formotipula) luteicorporis* sp. nov., male hypopygium, eighth sternite.
32. *Limonia (Limonia) lackschewitziana* sp. nov., male hypopygium.
33. *Limonia (Limonia) commixta* sp. nov., male hypopygium.
34. *Limonia (Dicranomyia) trispinula* sp. nov., male hypopygium.
35. *Limonia (Rhipidia) garrula* sp. nov., male hypopygium.
36. *Limonia (Geranomyia) bifurcula* sp. nov., male hypopygium.

PLATE 3

- FIG. 37. *Antocha (Antocha) pallidella* sp. nov., male hypopygium.
38. *Antocha (Antocha) setigera* sp. nov., male hypopygium.
39. *Pedicia daimio* (Matsumura), antennal flagellum, female.
40. *Pedicia brachycera* sp. nov., antennal flagellum, female.
41. *Pedicia subtransversa* sp. nov., male hypopygium.
42. *Dicranota (Dicranota) nipponalpina* sp. nov., male hypopygium.
43. *Dicranota (Rhaphidolabis) sinoalpina* sp. nov., male hypopygium.
44. *Lipsothrix tokunagai* sp. nov., male hypopygium.
45. *Gonomyia (Ptilostena) abjecta* sp. nov., male hypopygium.
46. *Gonomyia (Lipophleps) angulifera* sp. nov., male hypopygium.
47. *Ormosia laevistyla* sp. nov., male hypopygium.
48. *Erioptera (Erioptera) leucosticta* sp. nov., male hypopygium.

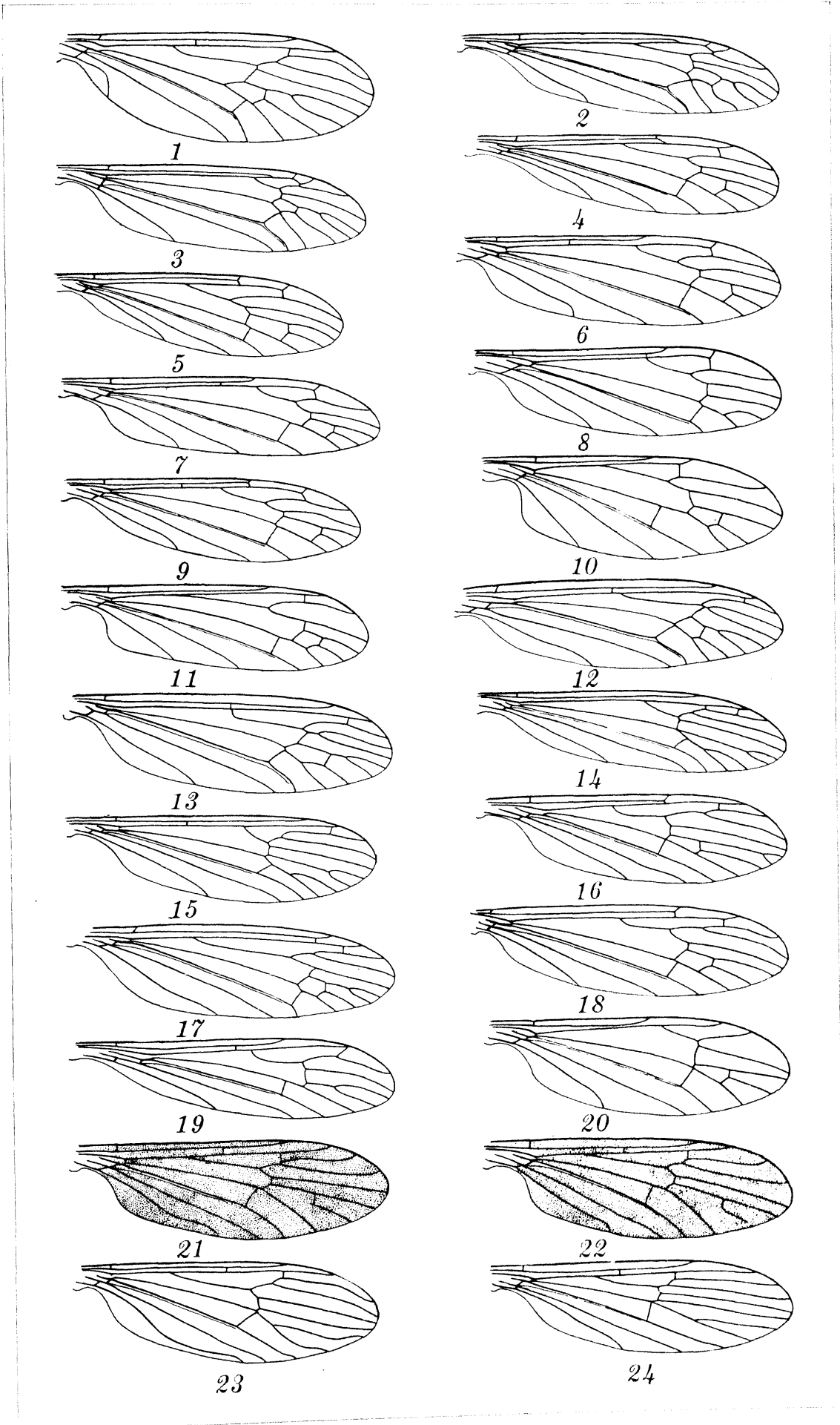


PLATE 1.



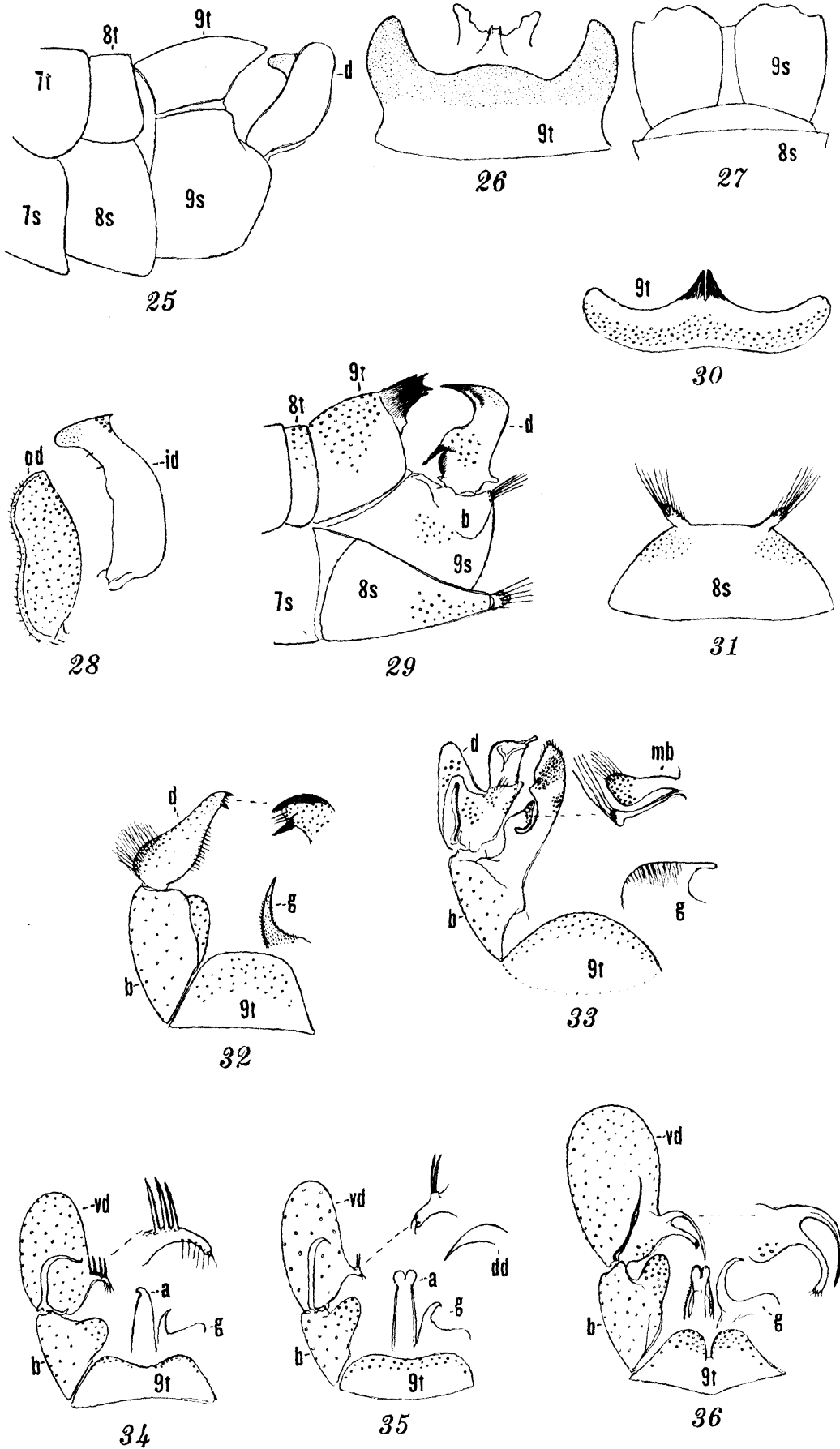


PLATE 2.



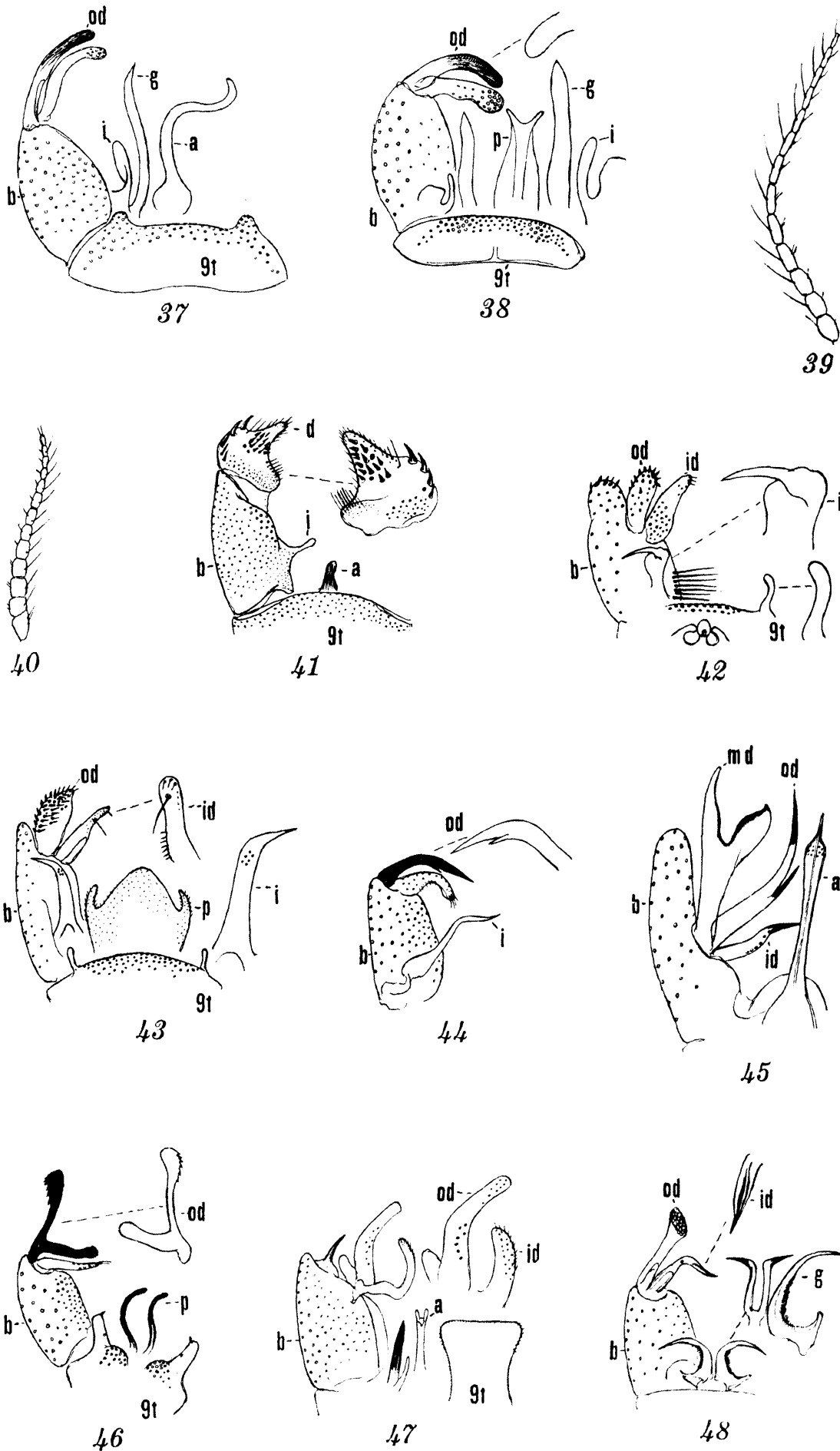


PLATE 3.

