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

By CHARLES P. ALEXANDER

Of Amherst, Massachusetts

THREE PLATES

The crane flies discussed in the present report are all from northern Korea (Chosen), where they were collected by Mr. Alexander Yankovsky, well-known entomologist and naturalist. The materials included are from a variety of localities that may be grouped under the following four major categories:

OMPO, altitude 120 to 2,000 feet; average, 600 to 800 feet.

MOUNT CHONSANI (Chonsany), Paiktusan, on the border of Manchuria, altitude 3,000 to 5,100 feet, July 12 to 26, 1937.

SEREN MOUNTAINS, 30 miles above the Ompo River, altitude 2,100 to 6,200 feet.

YANCHEN LAKE, 80 miles northeast of Ompo, altitude 30 to 65 feet.

I wish to express my very deep gratitude to Mr. Yankovsky for the time and care that he has devoted to the collecting of the Korean Tipulidæ. All types are preserved in my collection of these flies. I am including in this report a few species of the families Tanyderidæ and Trichoceridæ, commonly called crane flies though not belonging to the restricted family Tipulidæ.

TANYDERIDÆ

PROTANYDERUS YANKOVSKYI sp. nov. Plate 1, fig. 1.

Large (wing, 14 millimeters or more); antennal flagellum yellow; mesonotal præscutum gray, with four poorly defined more brownish stripes; scutellum testaceous yellow; knobs of halteres dark brown; femora yellow, tips blackened, tibiæ and tarsi black; wings whitish subhyaline with four brown crossbands, the three outer crossbands interconnected by the uniformly brown cell R_4; abdomen with basal five segments brown or yellowish brown, the outer segments, including male hypopygium, black; dististyle of male hypopygium simple.

Male.—Length, about 13 millimeters; wing, 14.

Female.—Length, about 13 millimeters; wing, 14.5.

Rostrum black, a little shorter than remainder of head not including the brown porrect labial palpi; maxillary palpi black. Antennæ relatively short, 16-segmented; scape dark brown, pruinose; pedicel dark, flagellum yellow; flagellar segments cylindrical, longest verticils a little exceeding segments. Head gray; a low darkened tubercle on anterior vertex behind antennal fossa; posterior vertex a little darker.

Cervical sclerites dark brown. Pronotum gray. Mesonotal præscutum gray with four poorly defined, more brownish stripes; setigerous punctures of interspaces somewhat conspicuous; scutal lobes darkened, pruinose, median area and scutellum testaceous yellow; parascutella dark; mediotergite brown. Pleura chiefly dark brownish gray, variegated by paler gray. Halteres with stem yellow, knob dark brown. Legs with coxæ and trochanters yellow; femora yellow, tips passing into black, a little more extensive on fore femora where it includes about distal fifth; tibiæ and tarsi black. Wings (Plate 1, fig. 1) with ground color whitish subhyaline, prearcular and subcostal fields more cream-yellow; a very heavy brown pattern, distributed as follows: Cell C; four complete crossbands, the first postarcular, including basal portion of cell Cu and axillary region of anal cell; second band at cord, widened posteriorly in cells Cu and A; third band at level of fork of R_{2+3} and outer end of cell 1st M_2, more expanded at posterior border; last band apical, involving cells Sc_2 to M_1 inclusive; cell R_4 uniformly darkened, interconnecting the three outer crossbands; a major isolated dark area at origin of Rs and adjoining portion of cell Sc; a small marginal spot at end of vein M_2; veins yellow, darker in clouded areas. Venation: Cell R_2 subequal in length to its cell; cell 1st M_2 longer than any of veins beyond it.

Abdomen with basal five segments brown to yellowish brown; remaining segments, including male hypopygium, black; ovipositor small, orange. Male hypopygium with dististyle relatively long and slender, gradually narrowed outwardly.

Habitat.—Northern Korea.

Holotype, male, Chonsani, Paiktusan, altitude 4,300 feet, July 12, 1937 (*Yankovsky*). Allotopotype, female.

I name this striking species in honor of the collector, Mr. Alexander Yankovsky. The fly is very distinct from the five other members of the genus so far made known. The four Asiatic species of *Protanyderus* may be separated by the following key.

Key to Asiatic species of Protanyderus.

1. Very large (wing, 14 millimeters or more); wings with four brown crossbands, second crossband, at cord, to fourth, at apex, interconnected by uniformly darkened cell R_4 (northern Korea).
P. yankovskyi sp. nov.

Small (wing, under 10 millimeters); wings with crossbands, if present, narrow, not interconnected along cell R_4; interspaces, especially cell C, broken by additional spots and dots ..... 2.

2. Very small (wing, male, about 6.5 to 7 millimeters); wing pattern chiefly dotted and spotted, including a series of spots in cell M adjoining vein Cu (Turkestan) ..... *P. beckeri* (Riedel).

Larger (wing, male, about 8 to 9 millimeters); wing pattern crossbanded, interspaces with restricted dots and spots; dark area at origin of Rs interconnected across cell M with darkened cloud in cells Cu and A, forming a complete oblique crossband near wing base; a continuous dark band along vein Cu, connecting basal two dark fasciæ ..... 3.

3. Wings (male) narrow, not conspicuously widened opposite termination of vein A; cells M_1 and 2d M_2 at margin moderately wide, subequal to cell M_3; ædeagus with median branch much smaller than others, subatrophied (Japan; Kiushiu; Manchuria) ..... *P. esakii* Alexander.

Wings (male) broad, especially opposite termination of vein A; cells M_1 and 2d M_2 very wide at margin, much more extensive than cell M_3; ædeagus with all three branches elongate and subequal (Japan; Honshiu) ..... *P. alexanderi* Kariya.

TRICHOCERIDÆ

TRICHOCERA TUBERCULIFERA sp. nov. **Plate 1, fig. 2; Plate 2, fig. 25.**

Belongs to *major* group; general coloration of mesonotum reddish brown, præscutum with a broad, darker brown, median stripe that is more or less divided by a central pale vitta; legs dark brown; wings with a strong brown tinge, stigma slightly darker; abdomen dark brown; male hypopygium with ventromesal lobes of basistyles not forming a continuous bridge; dististyle with a strong tubercle on mesal face at base; gonapophyses fused into a depressed median phallosome, lateral horns strongly divergent.

Male.—Length, about 7 to 7.5 millimeters; wing, 8 to 8.5.

Female.—Length, about 7.5 millimeters; wing, 8.5.

Rostrum dark brown; palpi black. Antennæ black, pedicel obscure yellow. Head dark brownish gray; vertex broad.

Mesonotum pale reddish brown, sparsely pruinose, with a broad, darker brown to brownish black median stripe that is more or less completely split by a central pale vitta; posterior sclerites of notum paler brown to brownish yellow. Pleura pale brown. Halteres dark brown, base of stem restrictedly yellow.

Legs with coxæ obscure yellow, base of fore coxæ more darkened; trochanters yellow; remainder of legs dark brown. Wings (Plate 1, fig. 2) with a strong brown tinge, the slightly darker stigma lying beyond level of R_2; prearcular field a trifle brighter; veins dark brown. Venation: R_{2+3+4} subequal to or a little shorter than R_{2+3}.

Abdomen dark brown throughout. Male hypopygium (Plate 2, fig. 25) with ventromesal lobes of basistyles, *b*, not forming a continuous bridge, touching at midline. Dististyle, *d*, of moderate length, with a low conspicuous tubercle on mesal face at base. Gonapophyses fused into a depressed median phallosome, *p*, as in the group, lateral horns strongly divergent, apex between horns gently convex. Ovipositor with cerci of moderate length, relatively slender, especially on distal half.

Habitat.—Northern Korea.

Holotype, male, Seren Mountains, altitude 5,000 feet, October 3, 1937 (*Yankovsky*). Allotopotype, female. Paratopotypes, 2 males.

I propose the name *major* for the group of species having the gonapophyses fused into a single depressed-flattened median plate, with their apices protruding laterad or caudad as strong horns. In the majority of species in this group the ventromesal lobes of the basistyles are fused at midline to form a continuous bridge. Three of the species, *Trichocera major* Edwards (northern Europe), *T. longisetosa* Alexander (western United States) and *T. setosivena* Alexander (Alaska) have simple dististyles, while *T. siberica* Edwards (northern and northeastern Asia) and *T. bituberculata* Alexander (Alaska) each have two unusually conspicuous lobes on each dististyle. The present fly is readily told from all these allied forms by possessing a single small basal tubercle on the relatively short dististyle.

TRICHOCERA SIBERICA Edwards.

Trichocera siberica EDWARDS, Ann. & Mag. Nat. Hist. IX 5 (1920) 431.

The unique type, a male, was from Verschininsk, Yenesei River, Siberia, 69° 5′ north latitude, some 3,000 miles northwest of the station here recorded. Seren Mountains, northern Korea, altitude 5,000 feet, October 3, 1937 (*Yankovsky*), males and females. The female, characterized here as allotype, differs, from the male only in sexual characters. The ovipositor has the cerci relatively elongate, only gently curved, the ventral edge nearly straight, the dorsal margin very gently curved.

TRICHOCERA MIRABILIS Alexander.

Trichocera mirabilis ALEXANDER, Philip. Journ. Sci. 55 (1934) 20, 21.

The types were from Kongo San, Korea, taken in October by Machida. NORTHERN KOREA, Yanchen, altitude 40 feet, October 6, 1937. OMPO, altitude 600 feet, November 17, 1937. SEREN MOUNTAINS, altitude 1,800 feet, October 13, 1937 (*Yankovsky*).

TRICHOCERA LATILOBATA sp. nov. Plate 1, fig. 3; Plate 2, fig. 26.

General coloration dark blackish gray, præscutum with two still darker submedian stripes; legs brownish black; wings grayish subhyaline, prearcular field more whitened; stigma and a small cloud on r-m pale brown; R_{2+3+4} longer than R_{2+3}; abdomen, including hypopygium, brownish black; male hypopygium with bridge of basistyles entire; dististyle relatively short and flattened, on mesal face beyond base with a broad-based triangular lobe.

Male.—Length, about 5 millimeters; wing, 5.5.

Rostrum and palpi black. Antennæ black, outer segments paler. Head brownish black.

Mesonotal præscutum dark blackish gray with two still darker submedian stripes; posterior sclerites of notum blackened, sparsely pruinose, posterior border of scutellum somewhat paler. Pleura brownish black, including dorsopleural membrane. Halteres infuscated, base of stem yellow. Legs with fore coxæ brownish black, middle coxæ testaceous, hind coxæ yellow; trochanters yellow; remainder of legs brownish black, extreme femoral bases yellow. Wings (Plate 1, fig. 3) grayish subhyaline, prearcular field more whitened; stigma and a small cloud on r-m pale brown; veins brown. Venation: R_{2+3+4} longer than R_{2+3}; vein 2d A somewhat angularly bent on distal third.

Abdomen, including hypopygium, brownish black. Male hypopygium (Plate 2, fig. 26) with ventromesal lobes of basistyles, *b*, forming a continuous bridge. Dististyle, *d*, relatively short and flattened, on mesal face beyond base with a broad-based triangular lobe. Gonapophyses, *g*, long and slender.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 650 feet, August 11, 1937 (*Yankovsky*).

Trichocera latilobata is readily told from the other described species of the genus by the continuous bridge of the basistyles, in conjunction with the position and shape of the lobe on the mesal face of the dististyle. In other species with a simple lobe

on the mesal face of the dististyle, this is much smaller and nearly basal in position.

TIPULIDÆ

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) VENERABILIS sp. nov. Plate 1, fig. 4; Plate 2, fig. 27.

General coloration black; antennæ black throughout; halteres brownish black, base of stem pale yellow; femora pale brown, narrowly blackened close to tips; tibiæ and tarsi black; wings with a brownish tinge, oval stigma darker brown; R_{2+3} subequal to R_{1+2}; abdomen brownish black, caudal margins of segments narrowly paler; male hypopygium with ninth tergite very extensive; mesal-apical lobe of gonapophysis unusually long and slender, gently curved, tips a little expanded, terminating in a black spine.

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

Rostrum and palpi black. Antennæ black throughout; flagellar segments passing through oval to elongate-cylindrical, with unusually long verticils. Head dark gray; anterior vertex moderately wide, about twice diameter of scape.

Pronotum brownish black, with coarse erect setæ. Mesonotal præscutum and scutum black, setæ of interspaces sparse but long and conspicuous; median area of scutum and scutellum paler than remainder; postnotum black, heavily pruinose. Pleura black, sparsely pruinose; dorsopleural membrane dark. Halteres brownish black, base of stem pale yellow. Legs with fore coxæ black, midcoxæ brown, posterior coxæ brownish yellow; trochanters yellow; femora pale brown, narrowly brighter basally, narrowly blackened close to tips, extreme apices pale; tibiæ and tarsi black; claws long, with an elongate median spine and smaller, more basal teeth. Wings (Plate 1, fig. 4) with a brownish tinge; stigma oval, darker brown; outer radial cells vaguely darker than remainder of ground; cord narrowly and insensibly darker; a dark cloud along vein Cu; veins brown, paler in prearcular field. Venation: Sc_1 ending about opposite one-third length of Rs, Sc_2 longer; R_{2+3} subequal to R_{1+2}; m-cu at fork of M.

Abdomen brownish black, caudal borders of sternites paler, obscure yellow, caudal borders of tergites more narrowly and less distinctly so; hypopygium black, tips of dististyles yellow. Male hypopygium (Plate 2, fig. 27) with tergite, 9*t*, unusually

extensive, divided into three parts by longitudinal lines, median section with caudal border very weakly emarginate. Basistyle, *b*, with ventromesal lobe low. Dististyle, *d*, with basal half darkened, moderately enlarged, with long coarse setæ; distal half narrowed, yellow. Gonapophysis, *g*, with mesal apical lobe unusually long and slender, gently curved, tips a little expanded, terminating in a black spine. Ædeagus, *a*, narrow, terminating in two short divergent points, surface with microscopic acute spicules, more concentrated down median line.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 600 feet, June 23, 1937 (*Yankovsky*).

Limonia (*Limonia*) *venerabilis* is most similar to *L.* (*L.*) *pullata* Alexander and *L.* (*L.*) *tristina* Alexander, differing in the coloration, details of venation, and the structure of the male hypopygium, especially the unusually long slender lobe of the gonapophysis.

LIMONIA (DICRANOMYIA) MESOSTERNATA (Alexander).

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

Northern Korea, Ompo, altitude 700 to 900 feet, October 26, 1937 (*Yankovsky*).

LIMONIA (DICRANOMYA) SPARSA (Alexander).

Dicranomyia sparsa ALEXANDER, Philip. Journ. Sci. 24 (1924) 544, 545.

Northern Korea, Ompo, altitude 120 to 160 feet, June 9 to 15, 1937 (*Yankovsky*). The type was from Saghalien.

LIMONIA (DICRANOMYIA) INFENSA sp. nov. Plate 1, fig. 5; Plate 2, fig. 28.

General coloration obscure brownish yellow, præscutum with three darker brown stripes; antennæ dark brown; pleura yellow; halteres pale, knob darkened at apex; femora yellow, tips very narrowly blackened; tibiæ yellow, extreme base narrowly darkened; wings cream-yellow, with a relatively heavy dark pattern, including four costal areas, last at stigma; Sc_2 far removed from the tip of Sc_1, at near midlength of vein Sc; m-cu shortly before fork of M; abdominal tergites brownish black, sternites obscure yellow; male hypopygium with rostral spines two, placed close together on short stout prolongation.

Male.—Length, about 6.5 to 8 millimeters; wing 7 to 9.

Rostrum brown; palpi black. Antennæ dark brown; flagellar segments oval, incisures well marked; two last segments sub-

equal in length. Head dark brownish gray, paler behind; anterior vertex moderately wide.

Mesonotal præscutum obscure brownish yellow, with three darker brown stripes, in cases the surface more heavily pruinose to obscure these stripes; scutal lobes darkened, median area abruptly paler, more pruinose; scutellum darkened medially, paler on sides; mediotergite darkened. Pleura yellow, more pruinose in more heavily patterned specimens, somewhat darker along suture between anepisternum and sternopleurite. Halteres pale, apex of knob darkened. Legs with coxæ and trochanters pale; femora yellow, tips very narrowly but conspicuously blackened, the amount subequal on all legs; tibiæ yellow, bases very narrowly darkened; tarsi yellow, outer segments passing into black. Wings (Plate 1, fig. 5) cream-yellow, heavily patterned with brown, including four costal areas, last largest, at stigma, confluent with a seam along cord; third area large, involving both tip of Sc and origin of Rs; second major area at Sc_2; basal area smallest; cord and outer end of cell 1st M_2 narrowly seamed with brown; wing tip in outer radial field very narrowly and insensibly seamed with brown; veins yellow, darker in clouded areas. Venation: Sc_1 ending opposite or just beyond origin of Rs, Sc_2 far from its tip, at near mid-distance between arculus and origin of Rs; m-cu shortly before fork of M; cell 2d A wide.

Abdominal tergites brownish black, sternites obscure yellow to brown; hypopygium yellow. Male hypopygium (Plate 2, fig. 28) with caudal margin of tergite, 9*t*, emarginate, lobes obtusely rounded. Ventromesal lobe of basistyle, *b*, subglobular, darkened. Dorsal dististyle strongly curved, tip narrowed. Ventral dististyle, *vd*, subglobular, rostral prolongation short and stout; two rostral spines of moderate length, placed close together. One paratype specimen showing three rostral spines on one style only, evidently an abnormality of the specimen. Gonapophysis, *g*, with mesal-apical lobe curved, tip acute.

Habitat.—Northern Korea.

Holotype, male, Seren Mountains, altitude 2,600 feet, October 3, 1937 (*Yankovsky*). Paratopotypes, 5 males.

Limonia (*Dicranomyia*) *infensa* is most generally similar to *L.* (*D.*) *didyma* (Meigen), differing in the details of coloration and structure of the male hypopygium, as the short, slightly separated rostral spines and the less strongly curved dorsal dististyle.

LIMONIA (DICRANOMYIA) SUBAURITA sp. nov. Plate 1, fig. 6; Plate 2, fig. 29.

Belongs to *morio* group, allied to *aurita;* large (wing, male, over 8 millimeters); halteres with base of stem yellow, remainder black; fore femora extensively blackened, bases narrowly yellow; middle and hind femora yellow basally, passing through brown to brownish black; wings with a strong brownish tinge, stigma darker; abdomen black, caudal borders of segments, especially of tergites, pale; basal sternites on subterminal portion extensively yellow; male hypopygium with tergal arms slender, notch between them about as wide as deep; ædeagus dilated beyond midlength.

Male.—Length, about 7.5 to 8 millimeters; wing, 8.5 to 9.

Rostrum and palpi black. Antennæ black; flagellar segments oval, constricted at incisures, with conspicuous verticils; terminal segment elongate. Head with front and broad anterior vertex silvery white; posterior sclerites of head dull black.

Pronotum grayish black. Mesonotum polished black, median region of scutum, central portion of scutellum, and cephalic end of mediotergite with a yellowish gray pollen. Pleura black, sparsely gray-pruinose. Halteres relatively long, basal half or more of stem yellow, remainder black. Legs with fore coxæ blackened basally, apex narrowly yellow; middle and posterior coxæ uniformly yellow; trochanters yellow; fore femora extensively blackened, bases narrowly yellow; middle and hind femora yellow basally, passing into brown, tips more brownish black; tibiæ brown; tarsi black. Wings (Plate 1, fig. 6) with a strong brown tinge, oval stigma darker brown; cord and outer end of cell 1st M_2 very narrowly and vaguely seamed with darker; prearcular field more yellowish; veins dark, yellow in prearcular field. Venation: Sc_1 long, ending opposite or just beyond origin of Rs; m-cu just before fork of M.

Abdomen black, caudal borders of more basal tergites narrowly pale; basal sternites with subterminal portion conspicuously yellow, caudal borders narrowly grayish; hypopygium black. Male hypopygium (Plate 2, fig. 29) with tergal arms, *9t,* stouter than in *aurita,* notch narrower, about as wide as deep. Basistyle, *b,* with ventromesal lobe shorter than in *aurita,* stem stouter, pendant distal portion shorter than either the stem or the thickness at the bend. Dorsal dististyle, *dd,* with apex expanded, bispinous. Spine of ventral dististyle, *vd,* conspicuous but pale, from a low basal tubercle; apex of prolongation narrow. Gonapophysis, *g,* with mesal-apical lobes relatively

short, nearly straight. Ædeagus, *a*, narrower than in either *aurita* or *pseudomorio*, dilated beyond midlength, sides setiferous.

Habitat.—Northern Korea.

Holotype, male, Ompo, May 28, 1937 (*Yankovsky*). Paratopotype, male, June 12, 1937.

The nearest ally is *Limonia* (*Dicranomyia*) *aurita* Alexander, of Formosa, which differs especially in the details of structure of the male hypopygium, as described above. The fly is more or less intermediate between *aurita* and *L.* (*D.*) *pseudomorio* (Alexander), of Japan, yet evidently distinct from either in the genitalic details.

LIMONIA (GERANOMYIA) GIFUENSIS (Alexander).

Geranomyia (*Geranomyia*) *gifuensis* ALEXANDER, Ann. Ent. Soc. America 14 (1921) 114, 115.

Known hitherto from the Japanese Islands. Northern Korea, Ompo, altitude 160 feet, June 3 to 12, 1937; Seren Mountains, altitude 3,000 to 3,500 feet, October 9, 1937 (*Yankovsky*).

LIMONIA (GERANOMYIA) NEAVOCETTA sp. nov.

Allied to *avocetta;* general coloration of mesonotum dark gray, humeral and sublateral portions of præscutum obscure yellow; median area of scutum, scutellum, and a central triangle on mediotergite paler gray; thoracic pleura chiefly pale yellow; femora yellow, tips of posterior femora brownish black, remaining femora less distinctly darkened; wings brownish yellow, heavily patterned with brown; dark spots at ends of veins R_3 and R_{4+5} interconnected by dark marginal seams; abdominal tergites dark brown, sternites yellow.

Female.—Length, excluding rostrum, about 10 millimeters; wing, 9.8; rostrum alone, about 3.

Rostrum black, relatively long, stout at base; palpi black. Antennæ black, first flagellar segment a trifle paler; flagellar segments oval, outer ones a little more elongate. Head dark brownish gray; anterior vertex narrow.

Pronotum dark brownish gray, lined sublaterally with paler. Mesonotal præscutum with disc dark gray, humeral and sublateral portions posteriorly broadly obscure yellow; a capillary black median vitta on anterior portion of sclerite; scutal lobes dark gray, lateral portions restrictedly paler, mesal edge of each lobe narrowly blackened; median area of scutum, scutellum, and a central triangle on mediotergite paler gray, lateral borders

of mediotergite darker. Pleura chiefly obscure yellow, pleurotergite darker. Halteres pale yellow, knobs weakly darkened. Legs with coxæ and trochanters pale yellow; femora yellow, tips of posterior pair conspicuously brownish black, of remaining femora less distinctly darkened; tibiæ and tarsi brownish yellow, outer tarsal segments blackened. Wings brownish yellow, prearcular region and costal border, especially cell Sc, light yellow; a heavy brown pattern, largest areas costal in distribution, first at arculus, third at origin of Rs, fourth at fork Sc, the two latter separated by a distance a little narrower than diameter of either; stigmal area large, produced behind into cell R_3; areas at ends of veins R_2 and R_{4+5} interconnected by a dark marginal seam in cells R_2 and R_3; narrow brown seams along cord and outer end of cell 1st M_2; a small oval spot at end of vein 2d A; vein 1st A unmarked or virtually so; veins yellow, darker in clouded areas. Venation: Sc long, Sc_1 ending nearly opposite midlength of Rs; m-cu shortly before fork of M.

Abdominal tergites dark brown, caudal borders of segments narrowly paler; sternites yellow; subterminal segments more uniformly darkened.

Habitat.—Northern Korea.

Holotype, female, Ompo, altitude 170 feet, June 3, 1937 (*Yankovsky*).

Closest to *Limonia* (*Geranomyia*) *avocetta* (Alexander), of Japan, differing as follows: Mesonotum dark gray, scutum, scutellum, and central area of mediotergite conspicuously pale; femoral tips darkened.

DICRANOPTYCHA PROLONGATA sp. nov. Plate 1, fig. 7; Plate 2, fig. 30.

General coloration brown; antennæ with basal two segments obscure yellow, flagellum dark brown; halteres pale yellow; femora yellow, tips narrowly blackened, the amount subequal on all legs; wings with a brown tinge, cell Sc clearer yellow; no dark cubital seam; Rs subequal in length to cell 1st M_2; Rs almost in longitudinal alignment with R_{4+5}; abdominal tergites dark brown, proximal segments paler medially, subterminal segments black, hypopygium yellow; male hypopygium with outer dististyle relatively narrow, apex long-produced; lateral tergal arms pale, nearly parallel-sided, tips obtuse.

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

Female.—Length, about 8.5 to 9 millimeters; wing, 9.5 to 10.

Rostrum and palpi black. Antennæ with scape and pedicel obscure yellow, flagellum dark brown; flagellar segments elon-

gate-oval, with conspicuous verticils. Head brownish gray, opaque.

Pronotum opaque brown. Mesonotum brown, humeral region of præscutum a little more reddish brown; scutellum slightly more testaceous; postnotum more pruinose. Pleura brown, sparsely pruinose, ventral anepisternum and meron, with ventral sternopleurite, darker, forming incomplete stripes. Halteres pale yellow. Legs with coxæ and trochanters yellow; femora yellow, tips narrowly but conspicuously blackened, the amount subequal on all legs; tibiæ yellow, extreme bases and tips blackened; basitarsi yellow, outer segments infuscated. Wings (Plate 1, fig. 1) with a brown tinge, cell Sc clearer yellow; very vaguely indicated darker seams at origin of Rs, along cord, and at outer end of cell 1st M_2; no dark cubital seam as in *venosa;* veins brown, Sc yellow. Venation: Sc_1 opposite r-m; Rs moderately long, subequal in length to cell 1st M_2; basal section of R_{4+5} long, almost in alignment with Rs; m-cu variable in position, from about one-fourth to midlength of cell 1st M_2.

Abdominal tergites dark brown, proximal segments with basal portions more brightened, in cases segments almost uniformly pale with lateral borders darkened; subterminal segments uniformly black; hypopygium yellow. Male hypopygium (Plate 2, fig. 30) with outer dististyle, *od,* relatively narrow, apex produced into a long, gently curved, black spine; before apex with numerous erect spinulæ and scabrous points, the former on ventral surface. Inner dististyle, *id,* with apex narrowed. Lateral tergal arms, 9*t,* gently curved, nearly parallel-sided, tips a trifle widened, obtuse.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 800 feet, September 13, 1937 (*Yankovsky*). Allotopotype, female. Paratopotypes, males and females, altitude 800 to 1,750 feet, September 13 to October 27, 1937 (*Yankovsky*). Paratypes, males and females, Seren Mountains, altitude 2,000 to 3,000 feet, October 10 to 15, 1937 (*Yankovsky*).

The nearest regional ally is *Dicranoptycha venosa* Alexander, which differs especially in the coloration of the body, legs, and wings, and in the distinct structure of the male hypopygium. A few specimens of the type series show abnormalities of venation. One paratype has an adventitious crossvein in cell R_3 of both wings, almost immediately beneath R_2. A second paratype, on one wing only, has a short spur on distal section of

vein R_{4+5} at near four-fifths the length, jutting cephalad into cell R_3.

DICRANOPTYCHA DIACANTHA sp. nov. Plate 1, fig. 8; Plate 2, fig. 31.

General coloration black, sparsely pruinose; halteres pale yellow throughout; legs black, femora very restrictedly paler at bases; wings with a weak brown tinge; Rs considerably longer than cell 1st M_2; branches of Rs lying parallel to one another for virtually their entire length; abdomen (male) almost uniformly light yellow, with a dark-brown or brownish-black subterminal ring; hypopygium brown; outer dististyle small, outer margin smooth; gonapophyses conspicuously bispinous.

Male.—Length, about 10 millimeters; wing, 11 to 11.5.

Female.—Length, about 12 millimeters; wing, 11.5.

Rostrum and palpi brownish black. Antennæ brownish black, pedicel a trifle paler. Head light gray; anterior vertex wide, about twice diameter of scape.

Thorax black, sparsely pruinose, præscutum with three more or less distinct darker and more nitidous stripes that are more or less confluent to cover the disc behind; posterior sclerites of notum more heavily pruinose, especially in female. Pleura black, pruinose. Halteres pale yellow throughout. Legs with coxæ yellow, fore pair slightly darker; remainder of legs black, femoral bases very restrictedly paler, tibiæ a little more brownish black. Wings (Plate 1, fig. 8) with a weak brown tinge, prearcular field and costal border a trifle more yellowish, not conspicuously so as in *stygipes;* veins dark brown. Venation: Rs considerably longer than cell 1st M_2; branches of Rs parallel to one another for virtually their whole length, rather strongly deflected caudad at their outer ends; m-cu shortly before mid-length of cell 1st M_2.

Abdomen of male almost uniformly light yellow, subterminal segments dark brown or brownish black; hypopygium brown. In the female, the abdomen is more uniformly darkened. Male hypopygium (Plate 2, fig. 31) with lateral tergal arms, 9*t*, slender, erect, nearly parallel-sided, their tips obtuse. Outer dististyle, *od,* small, much shorter than inner, curved to a long black apical point, outer margin smooth, inner margin before spine with small scabrous points. Ædeagus, *a,* long. Gonapophysis, *g,* produced into two long conspicuous spines.

Habitat.—Northern Korea.

Holotype, male, Seren Mountains, altitude 5,000 to 6,000 feet, October 3, 1937 (*Yankovsky*). Allotopotype, female. Parato-

potype, 1 male; paratype, 1 male, Chonsani, Paiktusan, altitude 3,700 feet, July 22, 1937 (*Yankovsky*).

The closest relative of the present fly is *Dicranoptycha stygipes* Alexander, of Japan, which has somewhat similarly blackened legs, differing especially in the coloration of the body and wings and in the details of venation, as the short Rs. The male sex of *stygipes* is unknown to me.

ANTOCHA (ANTOCHA) BIFIDA Alexander.

Antocha (*Antocha*) *bifida* ALEXANDER, Philip. Journ. Sci. 24 (1924) 564–566.

One male, from Ompo, northern Korea, altitude 900 feet, October 28, 1937, collected by Yankovsky, has cell M_2 open by the atrophy of m. The structure of the male hypopygium does not appear to differ significantly from the type material.

HELIUS (HELIUS) POLIONOTA sp. nov. Plate 1, fig. 9.

General coloration gray, præscutum with three brown stripes; rostrum longer than remainder of head; antennæ with scape and pedicel black, flagellum obscure yellow; halteres pale yellow; femora yellow, tips abruptly and conspicuously black; wings whitish subhyaline, tip broadly but inconspicuously darkened; stigma oval, dark brown; prearcular field and costal border very pale yellow; m-cu less than its own length beyond fork of M.

Female.—Length, including rostrum, 7.5 to 8.5 millimeters; wing, 8.5 to 9; rostrum alone, 1.

Rostrum longer than remainder of head, black; palpi black. Antennæ with scape and pedicel black; flagellum obscure yellow, outer segments a little darker. Head gray, with a very narrow and poorly indicated darker median line on center of vertex; anterior vertex narrow, a little more than diameter of scape; head prolonged behind.

Pronotum gray. Mesonotum gray, præscutum with three brown stripes, median stripe broader and darker, not reaching suture behind; scutellum posteriorly a trifle more reddish brown. Pleura, including dorsopleural membrane, dark brown. Halteres uniformly pale yellow. Legs with coxæ yellow, fore and middle pair somewhat more infuscated basally; trochanters yellow; tips abruptly and conspicuously black, the amount subequal on all legs; tibiæ obscure yellow, tips very narrowly blackened; basitarsi yellow basally, passing into black; remaining tarsal segments black. Wings (Plate 1, fig. 9) whitish

subhyaline, tip broadly but inconspicuously darkened; prearcular field and costal border very pale yellow; stigma oval, dark brown; veins dark brown, paler in yellow areas. Venation: Sc_1 ending about opposite fork of Rs, Sc_2 at its tip; cell 1st M_2 long, a little wider at basal end, subequal in length to vein M_4 beyond it; m-cu less than its own length beyond fork of M.

Abdomen dark brown, very sparsely gray pruinose; valves of ovipositor elongate, horn-colored.

Habitat.—Northern Korea.

Holotype, female, Chonsani, Paiktusan, altitude 3,000 feet, July 18, 1937 (*Yankovsky*). Paratopotypes, 5 females, altitude 3,000 to 3,500 feet, July 18 to 20, 1937 (*Yankovsky*).

Helius (*Helius*) *polionota* is entirely distinct from the other regional species of the genus, the gray coloration of the thorax, the pale antennal flagellum and the distinctive pattern of the legs and wings.

HELIUS (HELIUS) GRACILLIMUS sp. nov. Plate 1, fig. 10; Plate 2, fig. 32.

General coloration of mesonotum obscure yellow, præscutum with faint indications of darker stripes; posterior sclerites of notum darkened, pleura and pleurotergite yellow; rostrum dark, a little longer than remainder of head; halteres yellow, knobs infuscated; legs obscure yellow, tips of femora and tibiæ narrowly dark brown; wings grayish subhyaline, prearcular and costal portions a little more yellowish; a restricted brown pattern, including seams at origin of Rs and along cord; m-cu shortly beyond fork of M; abdominal tergites dark brown, lateral margins yellow; basal sternites more uniformly yellow; male hypopygium with basistyles slender, on mesal face near base with a stout setiferous lobe; outer dististyle an unusually slender blackened rod, apex simple and obtuse.

Male.—Length, including rostrum, about 7 millimeters; wing, 8; antennæ, about 3.

Female.—length, including rostrum, about 9.5 to 11 millimeters; wing, 9 to 10.

Rostrum slightly longer than remainder of head, dark brownish gray; palpi black. Antennæ black, pedicel a trifle brightened; flagellum elongate, especially in male, as shown by measurements; flagellar segments long-cylindrical, with a dense erect pale pubescence and scanty, slightly longer verticils; terminal segment short, approximately one-third to one-fourth penultimate. Head dark gray; anterior vertex narrow.

Pronotum obscure yellow. Mesonotal præscutum obscure yellow, with faint indications of darker stripes, especially behind; scutal lobes conspicuously blackened; posterior sclerites of notum blackened, posterior margin of scutellum narrowly more reddish. Pleura and pleurotergite yellow. Halteres yellow, knobs infuscated. Legs with coxæ and trochanters yellow; femora obscure yellow, tips rather narrowly dark brown; tibiæ obscure yellow, tips narrowly dark brown; tarsi passing into dark brown. Wings (Plate 1, fig. 10) grayish subhyaline in male, somewhat more cream-yellow in female, prearcular and costal regions more yellowish; a restricted brown pattern, including stigma and a confluent seam on cord, together with a smaller cloud at origin of Rs; veins dark brown, pale yellow in luteous areas. Venation: Rs weakly angulated and, in cases, short-spurred at origin; branches of Rs weakly divergent outwardly; cell 1st M_2 rectangular; m-cu shortly beyond fork of M.

Abdominal tergites dark brown, paler yellow laterally, especially conspicuous on outer segments; basal sternites more yellow; ninth segment darkened, styli obscure yellow. Male hypopygium (Plate 2, fig. 32) with basistyle, *b*, unusually long and slender, on mesal face near base with a stout setiferous lobe. Outer dististyle, *od*, an unusually slender blackened rod, very gently curved to simple obtuse tip. Inner dististyle, *id*, longer, tip narrow, gently curved; outer or dorsal portion of style without setæ. Interbases appearing as flattened paddlelike blades, outer margins thickened and darkened.

Habitat.—Northern Korea.

Holotype, male, Seren Mountains, altitude 3,000 to 3,500 feet, October 9, 1937 (*Yankovsky*). Allotopotype, female, altitude 1,800 feet, October 13, 1937. Paratopotypes, 3 males, several females, altitude 1,800 to 3,500 feet, October 3 to 16, 1937; paratypes, 5 females, altitude 1,600 feet, October 27, 1937 (*Yankovsky*).

Helius (*Helius*) *gracillimus* somewhat resembles *H.* (*H.*) *obliteratus* Alexander and *H.* (*H.*) *subfasciatus* Alexander in the general appearance and elongate antennæ in the male sex, but is entirely distinct in the structure of the male hypopygium.

PEDICINI

PEDICIA (PEDICIA) LÆTABILIS sp. nov. Plate 1, fig. 11; Plate 2, fig. 33.

General coloration gray, præscutum with more darker gray stripes that are narrowly bordered by blackish; scutellum yellow; halteres pale yellow; femora brownish yellow, tips not or

scarcely darkened; wings grayish, patterned with brown, markings paler in male than in female; abdomen orange, basal five tergites with three grayish black stripes, outer segments uniformly darkened; basal sternites uniformly light yellow; male hypopygium with outer angle of dististyle terminating in a long black spine from a conspicuous basal tubercle; caudal border of style with a single strong black spine.

Male.—Length, 25 to 27 millimeters; wing, 22 to 25.

Female.—Length, 33 to 35 millimeters; wing, 26 to 27.

Rostrum dark gray; palpi black. Antennæ black, pedicel more reddish; basal segments short and crowded, outer two or three slender and elongate. Head dark gray; vertical tubercle conspicuous, apex truncated and circular in outline, appearing like a scar with slightly raised margins.

Pronotum brownish black, pruinose, posterior border more yellowish. Mesonotal præscutum with humeral region dark brown, disc almost covered by four gray stripes that are narrowly bordered by blackish; posterior sclerites of notum black, sparsely pruinose; scutellum yellow, weakly darkened medially. Pleura dark gray; dorsopleural membrane buffy. Halteres pale yellow. Legs with coxæ gray; trochanters yellow; femora brownish yellow, bases brighter, tips not or scarcely darkened; tibiæ light brown, tips darker brown; tarsi passing into brownish black. Wings (Plate 1, fig. 11) grayish, central portion of disc, including cell R_4 to apex, more yellowish subhyaline; a pale-brown pattern in male, much darker brown in female; cells C and Sc yellow; dark pattern extensive, including major areas in bases of cells R and M and at origin of Rs, these nearly confluent with one another, the latter not quite reaching vein M behind; seam at cord broad, that along vein Cu narrow, in cases more or less obsolete along distal section of Cu_1 but attaining margin; veins brown, more yellow in costal field. Venation: Cord oblique; r-m at or beyond fork of Rs; cell 1st M_2 long.

Abdomen with ground color orange, basal five tergites with three grayish black stripes, lateral pair very narrow, all stripes narrowly interrupted by reddish borders to tergites; sternites uniformly light yellow; outer segments dark brown, more or less pruinose. In female the pattern heavy, median dark tergal stripe distinct, bordered sublaterally by fulvous areas, lateral borders of segments broadly light gray, widened behind; sternites dark brownish gray, narrowly bordered posteriorly by pale. Male hypopygium (Plate 2, fig. 33) with dististyle, *d*,

having outer angle terminating in a long black spine from a conspicuous basal tubercle; inner angle produced, apex truncated; caudal border of style between these angles with a single strong black spine, more or less cultriform in outline; mesal margin of style with a series of black spines, toward base slenderer and passing into setæ.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 160 feet, May 20, 1937 (*Yankovsky*). Allotype, female, Seishin, altitude 70 feet, May 13, 1937. Paratopotypes, males, May 20 to 21, 1937; paratypes, 5 males, 1 female, with the allotype, May 13 to 18, 1937 (*Yankovsky*).

Pedicia (*Pedicia*) *lætabilis* is readily told from other large regional species by the pale wing pattern of the male, the brightened color of the abdomen, and the structure of the male hypopygium.

PEDICIA (PEDICIA) SIMULATA sp. nov. Plate 1, fig. 12; Plate 2, fig. 34.

General coloration gray, præscutum with four more brownish gray stripes; antennæ uniformly blackened, flagellar segments short and crowded; halteres pale yellow; femora yellow, tips broadly blackened; tibiæ brownish black, tarsi black; wings brownish yellow, patterned with darker brown, the two colors not conspicuously contrasting; abdominal tergites gray, with two dusky longitudinal lines, interrupted by broad pale posterior borders of segments; male hypopygium with outer angle produced into a strong spine, apex blackened and acute.

Male.—Length, about 16 to 19 millimeters; wing, 15 to 17.

Rostrum grayish pruinose; palpi black. Antennæ black, basal segments pruinose; flagellum very short, normal number of antennal segments apparently 14 but the number apparently variable, basal segments short, crowded. Head gray, with indications of a dusky capillary median vitta; vertical tubercle low.

Pronotum gray, variegated with brown. Mesonotal præscutum light gray, with four more brownish gray stripes, interspaces with conspicuous yellow setæ; posterior sclerites of notum gray, scutal lobes scarcely darkened. Pleura gray; dorsopleural membrane brownish ochreous. Halteres pale yellow. Legs with coxæ gray; trochanters brownish gray; femora yellow, tips broadly blackened, the amount subequal on all legs and including distal fourth or fifth; in some specimens fore femora more extensively blackened, involving distal third or more; tibiæ brownish black; tarsi black. Wings (Plate 1, fig. 12) with

ground color brownish yellow, patterned with darker brown, colors not conspicuously contrasting as is usual in the subgenus; costal and cubital darkenings and a transverse band on cord present; basal third of cells C and Sc more yellowish; basal third of cells R and M extensively darkened, more or less confluent with a broad seam at origin of Rs; a darkened cloud at outer end of cell 1st M_2; veins brown, Sc yellow. Venation: Cord subtransverse to weakly oblique; Rs angulated to spurred at origin; m-cu close to or beyond fork of M. In one paratype cell M_2 of both wings open by atrophy of m.

Abdominal tergites gray, with two dusky longitudinal sublateral lines, broken by broad ochreous posterior borders of segments, lateral borders more narrowly pale; sternites yellowish gray; hypopygium dark gray. Male hypopygium (Plate 2, fig. 34) with basistyle, *b*, unarmed with spines but with numerous elongate setæ. Dististyle, *d*, with outer angle produced into a strong spine, apex acutely pointed and blackened; inner lobes much as in *baikalica*. In the latter species the apical margin of the basistyle bears a group of several stout black spines; outer margin of dististyle scoop-shaped, obtuse at apex, not blackened or produced into a spine.

Habitat.—Northern Korea.

Holotype, male, Chonsani, Paiktusan, altitude 4,650 feet, July 17, 1937 (*Yankovsky*). Paratopotypes, 4 males, altitude 3,800 to 4,650 feet, July 17 to 19, 1937 (*Yankovsky*).

In the nature of the wing pattern, *Pedicia (Pedicia) simulata* is surprisingly like the Siberian *P.* (*P.*) *baikalica* (Alexander), but differs conspicuously in the details of structure of the male hypopygium, especially the dististyle, which is acutely spined, as is commonly the case in the subgenus *Pedicia*. The series of small-sized members of the subgenus *Pedicia* in eastern Asia, including *baikalica, cubitalis* Alexander, *gaudens* Alexander, *grandior* Alexander, and *subtransversa* Alexander, show a perfect transition in characters between those formerly accepted as distinguishing *Pedicia* from *Tricyphona*. These characters in *Pedicia* include major physical size, the nature of the wing pattern, obliquity of the cord, and presence of a primary spine on the outer angle of the dististyle of the male hypopygium. All of these characters break down in the series of small-sized species listed above, and it is very evident that it will be almost impossible to differentiate *Tricyphona* from *Pedicia* except as a matter of convenience in handling the complex of included forms.

PEDICIA (PEDICIA) SUBTRANSVERSA Alexander.

Pedicia subtransversa ALEXANDER, Philip. Journ. Sci. **50** (1933) 146, 147.

Described from the Japanese Alps, Honshiu, Japan. NORTHERN KOREA, Chonsani, Paiktusan, altitude 5,100 feet, July 21, 1937 (*Yankovsky*). SEREN MOUNTAINS, altitude 2,000 to 3,000 feet, October 2 and 3, 1937 (*Yankovsky*). I can detect no significant differences between the type material and the present series of specimens.

PEDICIA (TRICYPHONA) PATENS sp. nov. Plate 1, fig. 13; Plate 3, fig. 35.

Large (wing, 15 millimeters or more); general coloration yellow, præscutum with more reddish stripes; antennæ with basal segments yellow, remainder brownish black; halteres yellow; femora obscure yellow, tips weakly darkened; tibiæ brown, tips darker; wings tinged with brownish yellow, costal border brown; stigma yellow, ends delimited by slightly darker clouds; r-m at or before fork of Rs; cell M_2 open by atrophy of m; m-cu close to fork of M; abdomen brown, hypopygium blackened; male hypopygium with dististyle bilobed, lobes stout; interbase a strongly curved spine.

Male.—Length, about 14 to 16 millimeters; wing, 15 to 18.

Female.—Length, about 19 to 20 millimeters; wing, 17 to 18.

Rostrum brownish gray; palpi black. Antennæ 16-segmented; scape and pedicel yellow, flagellum brownish black, basal two or three segments paler; flagellar segments passing through oval to long-oval; longest verticils unilaterally distributed, much longer than segments; terminal segment shorter than penultimate. Head gray; vertical tubercle subcircular in outline, darkened.

Pronotum yellow. Mesonotal præscutum testaceous-yellow, chiefly covered by three reddish stripes, posterior interspaces slightly pruinose; scutal lobes reddish; scutellum and postnotum testaceous. Pleura yellow. Halteres relatively long and slender, yellow. Legs with coxæ and trochanters yellow; femora obscure yellow, tips weakly darkened; tibiæ brown, tips darker brown; tarsi black. Wings (Plate 1, fig. 13) with a strong brownish yellow tinge, cells C and Sc darker brown; stigma yellow, both ends delimited by slightly darker color; remainder of disc virtually unmarked or with cord insensibly seamed with darker; veins brown. Venation: Rs variable in length, angulated and spurred at origin; r-m at or before fork of Rs,

latter in longitudinal alignment with R_{4+5}; cell M_2 open by atrophy of m; m-cu at or close to fork of M.

Abdomen brown, outer sternites and hypopygium blackened. Male hypopygium (Plate 3, fig. 35) with dorsal plate of tergite, 9*t*, truncated across caudal margin, with a small U-shaped median notch; ventrad of dorsal plate a fleshy ventral plate, each side bilobed. Basistyle, *b*, without conspicuous lobes; interbase a strong curved spine, tip acute. Dististyle, *d*, bilobed, outer lobe a little longer and more heavily sclerotized than inner, both lobes stout, obtusely rounded at tips.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 190 feet, June 2, 1937 (*Yankovsky*).

Allotopotype, female. Paratopotypes, several males, June 1 and 2, 1937.

Pedicia (*Tricyphona*) *patens* is most closely allied to the Japanese *P.* (*T.*) *confluens* (Alexander) and *P.* (*T.*) *kirishimensis* (Alexander), both of which are smaller, with distinctive wing patterns, and with the male hypopygia quite distinct. All three species normally have cell M_2 open by atrophy of m.

PEDICIA (TRICYPHONA) LONGILOBA sp. nov. Plate 1, fig. 14; Plate 3, fig. 36.

General coloration gray, præscutum with four more blackish gray stripes; antennæ 16-segmented, black throughout; halteres pale yellow; femora yellow, tips brownish black; wings yellowish subhyaline, with a restricted darker cloud on anterior cord; stigma lacking; r-m close to midlength of basal section of R_{4+5}; cell M_1 sessile; male hypopygium with interbase bearing a strong lateral spine; basistyle at apex produced into two lobes, outer one unusually long, subequal in length to style itself, expanded and darkened at apex, clothed with abundant long setæ; shorter lobe of basistyle densely set with short black spines; dististyle subequal in length to inner lobe of basistyle, slender, parallel-sided.

Male.—Length, about 9 to 10 millimeters; wing, 9.5 to 10.5.

Rostrum gray; palpi black. Antennæ short, 16-segmented, black throughout; flagellar segments oval; verticils about equal in length to segments. Head gray; vertical tubercle relatively conspicuous.

Thorax gray, præscutum with four more blackish gray stripes, intermediate pair not attaining suture behind; scutal lobes with darkened centers. Pleura gray; dorsopleural membrane buffy.

Halteres pale yellow. Legs with coxæ yellow, slightly darkened basally; trochanters yellow; femora yellow, tips brownish black, the amount subequal on all legs; tibiæ and basitarsi brownish yellow, tips narrowly darkened; terminal tarsal segments dark brown. Wings (Plate 1, fig. 14) yellowish subhyaline, prearcular field restrictedly bright yellow; a small darkened cloud on anterior cord; stigma lacking; veins brown. Venation: Rs relatively long, angulated, and spurred at origin; r-m close to midlength of basal section of R_{4+5}; cell M_1 sessile; m beyond fork of M_{1+2}.

Abdominal tergites brown, caudal borders narrowly pale; sternites more uniformly grayish yellow or brownish yellow; ninth segment blackened, basistyles yellow. Male hypopygium (Plate 3, fig. 36) with tergal lobes, 9*t*, appearing as glabrous flattened ears, widely separated; surface of tergite with abundant long delicate setulæ. Basistyle, *b*, with interbase, *i*, unusually long, narrowed to a curved apical hook, at near midlength bearing a long conspicuous spine, with long delicate setæ on hook beyond spine; basistyle at apex prolonged into two lobes, outer lobe very long, subequal in length to basistyle itself, expanded and darkened at tips, with abundant long setæ; shorter lobe oval in outline, densely set with short black peglike spines. Dististyle, *d*, subequal in length to shorter lobe of basistyle, narrow, parallel-sided, apex rounded with four or five elongate setæ; base of style with additional setæ.

Habitat.—Northern Korea.

Holotype, male, Ompo, May 28, 1937 (*Yankovsky*). Paratopotypes, 5 males, May 28 to June 15, 1937 (*Yankovsky*).

The present fly rather closely resembles *Pedicia* (*Tricyphona*) *optabilis* (Alexander) and *P.* (*T.*) *ussurica* Alexander, but has the male hypopygium entirely different in construction, the unusually long, clavate outer lobe of the basistyle being quite unique among the species of *Tricyphona* known to me.

PEDICIA (TRICYPHONA) DIAPHANOIDES sp. nov. Plate 1, fig. 15.

Belongs to *diaphana* group; general coloration yellowish gray, præscutum with three dark-brown stripes, median stripe narrowly split behind; antennæ black, 14-segmented; femora dark brown, bases yellow; wings with a brown tinge, oval stigma darker brown; Rs angulated at origin; r-m connecting with vein R_5 about its own length beyond origin.

Female.—Length, about 10 to 11 millimeters; wing, 10 to 10.5.

Rostrum gray; palpi black. Antennæ 14-segmented, black throughout; flagellar segments oval. Head dark brown, anterior vertex and orbits gray.

Pronotum brownish gray. Mesonotal præscutum yellowish gray, with three dark-brown stripes, median stripe broad, slightly divided behind; centers of scutal lobes darkened. Pleura gray; dorsopleural membrane grayish yellow. Halteres with stem yellow, knob brown. Legs with coxæ gray, tips yellow; trochanters yellow; femora dark brown, bases yellow; tibiæ and tarsi brownish black. Wings (Plate 1, fig. 15) with a brown tinge; stigma oval, darker brown, conspicuous against the ground; veins brown. Venation: Rs variable in length, from subequal in length to distance between Sc_2 and its origin to about two-thirds this distance, strongly angulated at origin; cell M_1 present; cell M_2 normally open by atrophy of m, in cases closed; m-cu some distance beyond fork of M.

Abdomen brown, outer segments darker.

Habitat.—Northern Korea.

Holotype, female, Ompo, May 28, 1937 (*Yankovsky*). Paratopotypes, 2 females.

Pedicia (*Tricyphona*) *diaphanoides* is most closely allied to *P.* (*T.*) *diaphana* (Doane) of western North America. It differs in the number and structure of the flagellar segments and in the less extensively divided median præscutal stripe. No representatives of the group have been found hitherto in the eastern Palæarctic Region.

HETERANGAEUS GLORIOSUS (Alexander) var.

Polyangaeus gloriosus ALEXANDER, Philip. Journ. Sci. 24 (1924) 569–571.

The types are from Saghalien. One female, Chonsani, Paiktusan, northern Korea, altitude 3,700 feet, July 14, 1937 (*Yankovsky*).

DICRANOTA (RHAPHIDOLABIS) FLAVIBASIS MINUSCULA subsp. nov.

Male.—Length, about 6.5 millimeters; wing, 7.

Generally similar to the typical form (Japan) but smaller and differing in the following respects: Legs pale brown, outer tarsal segments darker. Wings with stigma poorly indicated, pale brown; no distinct darkened clouds along cord or vein Cu; wing base less conspicuously yellow. Venation: Rs longer, gently arcuated; R_{2+3+4} long, subequal to or exceeding R_2; Sc relatively short, ending before proximal end of stigma or about opposite

one-third length of R_{2+3}; m-cu nearly its own length beyond fork of M. Male hypopygium much as in typical *flavibasis*, differing as follows: Ninth tergite more deeply emarginate, lateral lobes thus more conspicuously, broadly rounded. Outer dististyle narrower; inner style shorter. Lateral tergal arms only gently curved to acute tips, not angularly bent at midlength.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 800 feet, September 22, 1937 (*Yankovsky*).

DICRANOTA (RHAPHIDOLABIS) LUTEOLA sp. nov. Plate 1, fig. 16.

General coloration of thorax and abdomen yellow, gibbous præscutum pale brown; antennæ 13-segmented, scape and pedicel yellow, flagellum black; halteres yellow; femora brown, tibiæ and basitarsi whitish, tips narrowly darkened; wings whitish subhyaline, veins beyond cord a little darker; cell R_2 short- to long-petiolate.

Female.—Length, about 5.5 to 6 millimeters; wing, 6.5 to 7.

Rostrum yellow; basal segments of palpi yellow, terminal two segments black. Antennæ 13-segmented; scape and pedicel yellow, flagellum black; flagellar segments oval, with verticils of moderate length. Head brownish gray.

Mesonotal præscutum pale brown, gibbous; posterior sclerites of notum, together with the pleura, yellow. Halteres pale yellow. Legs with coxæ and trochanters yellow; femora brown; tibiæ and tarsi whitish, tips narrowly darkened; terminal tarsal segments more darkened. Wings (Plate 1, fig. 16) whitish subhyaline, cells beyond cord a trifle darker, best evidenced by darker veins. Venation: Cell R_3 short- to long-petiolate, R_{2+3+4} variable in length, from longer to shorter than basal section of R_5; cell M_1 present; cell M_2 closed; m-cu beyond one-third the length of M_{3+4}.

Abdomen yellow, tergites a little more infumed, especially medially; valves of ovipositor long and powerful.

Habitat.—Northern Korea.

Holotype, female, Ompo, altitude 150 feet, June 7, 1937 (*Yankovsky*). Paratopotype, female.

Dicranota (*Rhaphidolabis*) *luteola* is readily told by the general yellow color of the thorax and abdomen. It is apparently closest to the Japanese *D.* (*R.*) *consors* (Alexander) and *D.* (*R.*) *subconsors* (Alexander) which differ in the dark coloration and details of venation.

DICRANOTA (RHAPHIDOLABIS) NEOCONSORS sp. nov. Plate 1, fig. 17; Plate 3, fig. 37.

Allied to *consors*; general coloration of mesonotum grayish testaceous, præscutum with three conspicuous dark-brown to brownish black stripes; antennæ 12-segmented, halteres pale, knobs weakly darkened; legs pale brown; wings grayish subhyaline, stigma very slightly darker; R_2 transverse; R_{2+3+4} relatively short; male hypopygium with lateral tergal arms appearing as elongate-oval blades; basistyle with a group of strong setæ on mesal face near base; interbase a strongly flattened blade, ventral margin serrulate, apex produced into a strong spine.

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

Female.—Length, about 5.5 millimeters; wing, 6.5.

Rostrum testaceous-yellow; basal segments of palpi pale, terminal segments dark brown. Antennæ 12-segmented; scape pale, remaining segments dark brown; terminal segment longer than penultimate. Head dark brown.

Mesonotum grayish testaceous, the highly convex præscutum with three conspicuous dark-brown stripes, median stripe even more blackened; lateral borders of præscutum paling to yellow; scutal lobes more diffusely darkened; scutellum and mediotergite weakly darkened. Pleura obscure yellow, ventral sternopleurite and ventral pleurotergite more darkened. Halteres pale, knobs weakly darkened. Legs with coxæ brownish yellow; trochanters yellow; remainder of legs pale brown, outer tarsal segments darker. Wings (Plate 1, fig. 17) grayish subhyaline, stigma very slightly darker; veins brown. Venation: R_2 transverse; R_{2+3+4} relatively short, subequal to r-m.

Abdomen dark brown. Male hypopygium (Plate 3, fig. 37) with median lobe of tergite, 9*t*, broad, margin truncate, with numerous strong setæ; lateral tergal arms appearing as flattened, elongate-oval blades, on edge appearing linear. Basistyle, *b*, with a group of strong setæ on mesal face near base, as in *consors;* apex of basistyle without spinous points excepting a very few at inner apical angle. Interbase, *i*, a strongly flattened blade that terminates in a long straight acute spine, lateral or ventral edge with a series of microscopic serrulations.

Habitat.—Northern Korea.

Holotype, male, Seren Mountains, altitude 6,200 feet, October 10, 1937 (*Yankovsky*). Allotype, female, Ompo, altitude 650 feet, August 11, 1937 (*Yankovsky*).

The nearest ally of the present fly is *Dicranota* (*Rhaphidolabis*) *consors* Alexander, of Japan, which differs in the details of coloration and, especially, in the structure of the male hypopygium, notably the interbases.

HEXATOMINI

LIMNOPHILA (PHYLIDOREA) MEGAPYGIA sp. nov. Plate 1, fig. 18; Plate 3, fig. 38.

General coloration of mesothorax yellow, unmarked; antennæ (male) elongate, if bent backward extending about to third abdominal segment; basal three segments obscure yellow, remaining segments black, incisures of the more basal segments pale; femora yellow, tips narrowly blackened, the amount subequal on all legs; wings brownish yellow, prearcular and costal fields clearer yellow; a restricted brown pattern; Rs relatively long, square and spurred at origin; abdomen yellow with a black subterminal ring; male hypopygium large, caudal margin of tergite with a small notch; outer dististyle slender, at apex bent at a right angle, its outer margin roughened; gonapophyses bearing a very slender lateral branch at near midlength.

Male.—Length, about 8.5 to 9.5 millimeters; wing, 7.5 to 8.5; antennæ, about 3.7 to 3.8.

Female.—Length, about 11 millimeters; wing, 10.

Rostrum testaceous-yellow; palpi black. Antennæ (male) elongate, if bent backward extending about to third abdominal segment; basal three segments obscure yellow, succeeding segments black, incisures of more basal segments paler, outer segments uniformly darkened; flagellar segments fusiform, with a dense erect white pubescence; verticils just before midlength of segments. Head brownish gray, posterior portions obscure yellow.

Pronotum brown. Mesothorax uniformly yellow, surface more or less nitidous. Halteres pale, knobs weakly darkened. Legs with coxæ and trochanters yellow; femora yellow, tips rather narrowly but conspicuously blackened, the amount subequal on all legs; tibiæ yellow, tips more narrowly blackened; tarsi black, proximal portions of basitarsi extensively yellow. Wings (Plate 1, fig. 18) with a strong brownish yellow tinge, prearcular and costal fields clearer yellow; stigma oval, varying from pale to dark brown; restricted brown seams at origin of Rs, along cord and at outer end of cell 1st M_2; wing tip in outer radial field more weakly darkened; a central dusky streak in cell R; veins brown, luteous in yellow areas. Venation: Rs relatively long, square, and spurred at origin; R_{2+3+4} in direct longitudinal

alignment with Rs; cell R_3 narrowed at proximal end; m-cu at midlength of cell 1st M_2; vein 2d A sinuous.

Abdomen polished yellow to rusty yellow, incisures, especially laterally on the more basal segments, blackened, the color more or less interrupted at the midline; subterminal segments and base of hypopygium black, styli of large hypopygium rusty. Male hypopygium (Plate 3, fig. 38) with caudal margin of tergite, 9*t*, with a small, very shallow median notch, margin not produced. Outer dististyle, *od*, slender, narrowed outwardly, at apex bent at a right angle, its outer margin roughened. Inner dististyle about two-thirds as long, narrowed to obtuse tip. Interbase, *i*, appearing as a fleshy lobe, apex truncate, mesal edge produced into a small cultriform blade. Gonapophyses, *g*, appearing as long slender curved spines, at near midlength bearing a very slender lateral branch that is about one-half as long as apophysis beyond its insertion.

Habitat.—Northern Korea.

Holotype, male, Chonsani, Paiktusan, altitude 3,800 feet, July 23, 1937 (*Yankovsky*). Paratopotypes, 10 males, altitude 3,500 to 3,800 feet, July 15 to 23, 1937 (*Yankovsky*).

Among the European species the present fly is most generally similar to *Limnophila* (*Phylidorea*) *glabricula* (Meigen), differing conspicuously in the structure of the hypopygium. It is likewise allied to *L.* (*P.*) *poetica* Osten Sacken and *L.* (*P.*) *subpoetica* Alexander, yet is amply distinct. I am following Edwards in placing these species that are allied to *bicolor* (Meigen) in the subgenus *Phylidorea.*

LIMNOPHILA (PHYLIDOREA) SUBPOETICA MULTIDENTATA subsp. nov.

Male.—Length, about 7 to 7.5 millimeters; wing, 7.5 to 8; antennæ, about 3.1 to 3.3.

Female.—Length, about 8.5 millimeters; wing, 7.5.

Differs from typical *subpoetica* Alexander, of Saghalien, as follows: Smaller. Antennal flagellum weakly bicolored, dark brown, incisures yellow, on outer segments the color more uniformly dark brown. Legs with femora yellow, tips rather narrowly blackened, the amount subequal on all legs, including about distal fourth or fifth; tibiæ yellow, tips narrowly dark brown. Wings with dark seams at origin of Rs and along cord more conspicuous; wing tip narrowly but more distinctly darkened and with small darkened marginal clouds at ends of longitudinal veins. Rs square and short-spurred at origin. Abdomen brownish yellow, outer segments uniformly blackened

except obscure yellow to brown basistyles. Male hypopygium with apical lobes of tergite much stouter than in typical form, their apices broadly obtuse. Outer dististyle with apical point elongate, about equal to one-third length of stem. Gonapophysis with lateral appendage consisting of several short blunt points instead of two simple spurs as in *subpoetica*.

Habitat.—Northern Korea.

Holotype, male, Chonsani, Paiktusan, altitude 3,800 feet, July 23, 1937 (*Yankovsky*). Allotopotype, female. Paratopotypes, males and females.

I believe that this fly will be found to represent a valid species when more material of the typical form becomes available.

LIMNOPHILA (PHYLIDOREA) PERNIGRITA sp. nov. Plate 1, fig. 19; Plate 3, fig. 39.

General coloration gray-pruinose, præscutum and scutum with polished black areas; antennæ (male) black, relatively elongate; halteres yellow; femora yellow, tips black; wings cream-yellow, prearcular and costal regions more saturated yellow; a relatively heavy brown wing pattern; R_{2+3+4} short, subequal to basal section of R_5; cell M_1 present; abdomen black throughout; male hypopygium with basistyle produced caudad into a long conical lobe; outer dististyle bispinous at apex, at base on outer face with a setuliferous flange.

Male.—Length, about 9 to 10 millimeters; wing, 9 to 10; antennæ, about 3 to 3.2.

Rostrum and palpi black. Antennæ (male) black throughout, relatively elongate, as shown by measurements, if bent backward extending about to base of abdomen; basal flagellar segments short-oval to subglobular, ventral faces protuberant; longest verticils a little longer than segments; outer flagellar segments passing into oval, terminal segment slender. Head dull brownish gray, front and orbits clearer gray.

Pronotum brownish gray. Mesonotal præscutum with ground color heavily brownish gray-pruinose, conspicuously patterned with three polished black stripes; median stripe broad, not reaching suture behind, posterior third deeply incised; lateral stripes crossing suture onto scutal lobes; pseudosutural foveæ and lateral borders of præscutum black; posterior sclerites of notum heavily brownish gray-pruinose. Pleura heavily gray-pruinose. Halteres uniformly yellow. Legs with coxæ black, pruinose; trochanters obscure yellow; femora yellow, tips broadly and conspicuously blackened, most extensive on fore femora where nearly distal third to half is included, narrower on posterior

femora; tibiæ light brown to yellowish brown, tips narrowly blackened; tarsi black. Wings (Plate 1, fig. 19) with ground color cream-yellow, prearcular region and cells C and Sc more saturated yellow; stigma dark brown; a relatively heavy pale brown pattern, as follows: At near one-third the length of cell R adjoining vein R; origin of Rs; cord and outer end of cell 1st M_2; forks of R_{2+3+4} and M_{1+2}; paler brown washes in outer ends of cells M, Cu, and anals; wing tip in outer radial field a little darkened; costal field unmarked except for a tiny spot on Sc_2; veins yellow in ground areas, infuscated in darkened portions. Venation: Rs relatively long, strongly arcuated at origin; R_{2+3+4} short, subequal to basal section of R_5; cell M_1 subequal to its petiole; m-cu at near midlength of cell 1st M_2; anterior arculus preserved.

Abdomen black throughout. Male hypopygium (Plate 3, fig. 39) with basistyle, *b*, produced into a long conical lobe. Outer dististyle, *od*, with a large basal flange on outer margin, surface with abundant microscopic setulæ; apex of style bispinous. Inner dististyle with apex prolonged into a slender cylindrical point. Ædeagus relatively short, slender, subtended on either side by flattened apophyses, *g*, the truncated apices of which bear three or four spinous points.

Habitat.—Northern Korea.

Holotype, male, Chonsani, Paiktusan, altitude 3,500 feet, July 18, 1937 (*Yankovsky*). Paratopotypes, 5 males.

Limnophila (*Phylidorea*) *pernigrita* is quite distinct from other palæarctic members of the *bicolor* group, as *L.* (*P.*) *abdominalis* (Meigen), *L.* (*P.*) *bicolor* (Meigen), *L.* (*P.*) *conifera* Lackschewitz, *L.* (*P.*) *nigricollis* (Meigen), *L.* (*P.*) *prolixicornis* Lundström, and others. *L. conifera* has the basistyles of the hypopygium conically produced, somewhat as in the present fly, but in all other respects is entirely distinct.

LIMNOPHILA (PRIONOLABIS) ACANTHOPHORA sp. nov. Plate, 1, fig. 20; Plate 3, fig. 40.

General coloration polished black, head and pronotum opaque; antennæ 16-segmented; halteres yellow; legs black, femoral bases narrowly yellow; wings brownish yellow, sparsely patterned with brown; cell M_1 present; male hypopygium with caudal margin of tergite emarginate; inner dististyle simple; gonapophyses pale yellow, stem slender, head expanded, its inner angle produced into a spine, the outer end a deep cultriform blade.

Male.—Length, about 10 millimeters; wing, 11.

Rostrum and palpi black. Antennæ 16-segmented, black throughout; basal flagellar segments subglobular, outer segments more elongate; terminal segment one-half longer than penultimate. Head black, with a yellow pollinosity.

Pronotum dull brownish black. Mesonotum polished black, vestiture sparse but erect. Pleura black, sparsely pruinose, especially on ventral pleurites. Halteres pale yellow. Legs with coxæ black; trochanters brownish black; femora black, bases narrowly (basal fifth or sixth) yellow; tibiæ and basitarsi brownish black, tips darker; remainder of tarsi black. Wings (Plate 1, fig. 20) brownish yellow, prearcular and costal regions clear light yellow; stigma oval, dark brown; restricted brown seams along cord, outer end of cell 1st M_2, along vein Cu, and as a spot at origin of Rs; veins brown, yellow in flavous areas. Venation: Cell M_1 present; m-cu beyond mid-length of cell 1st M_2.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 40) with caudal margin of tergite, 9*t*, with a deep U-shaped median notch. Outer dististyle, *od*, with outer setiferous lobe long and conspicuous; inner lobe terminating in an outer slender spine, inner lobe flattened, vaguely toothed. Inner dististyle, *id*, simple, terminating in four or five strong spines. Ædeagus, *a*, moderately narrow, tip long-produced. Gonapophysis, *g*, distinctive, pale yellow; stem very slender, head expanded, its inner angle produced into a slender spine, opposite end deep, more or less cultriform.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 150 feet, May 29, 1937 (*Yankovsky*).

Limnophila (*Prionolabis*) *acanthophora* is quite distinct from the now rather numerous species of the subgenus in eastern Asia. The shape of the gonapophysis of the male hypopygium is entirely different from that in the forms hitherto described.

LIMNOPHILA (IDIOPTERA) USSURIANA Alexander.

Limnophila (*Idioptera*) *ussuriana* ALEXANDER, Philip. Journ. Sci. 52 (1933) 142, 143.

NORTHERN KOREA, Ompo, June 9, 1937 (*Yankovsky*).

LIMNOPHILA (ELÆOPHILA) SUBAPRILINA Alexander.

Limnophila (*Ephelia*) *subaprilina* ALEXANDER, Ann. Ent. Soc. America 12 (1919) 340, 341.

NORTHERN KOREA, Ompo, altitude 90 to 100 feet, June 10 to 14, 1937 (*Yankovsky*). Differs from the types chiefly in having the abdominal segments of certain of the specimens less evidently bicolored.

ULOMORPHA NIGRICOLOR Alexander var.

Ulomorpha nigricolor ALEXANDER, Ann. Mag. Nat. Hist. IX 15 (1925) 75, 76.

The unique type, a male, was from Lake Ozenuma, Honshiu, Japan. Northern Korea, Ompo, altitude 600 feet, June, 23, 1937 (*Yankovsky*) ; two males. These latter specimens are not entirely typical. The dark pattern of the wings is restricted to a long narrow stigma and a narrow seam along cord. Cell R_3 varies from very short-petiolate to entirely sessile. The male hypopygium shows the caudal margin of the tergite produced into two well-produced blackened lobes, separated by a broad U-shaped notch.

HEXATOMA (ERIOCERA) PERNIGRINA sp. nov. Plate 1, fig. 21.

General coloration opaque black, præscutum with four more glabrous stripes; antennæ, halteres, and legs black throughout; wings with a strong blackish tinge, costal border and stigma darker; macrotrichia of veins beyond cord sparse; R_{2+3+4} much shorter than basal section of R_5; m-cu at near midlength of cell 1st M_2.

Male.—Length, about 11 to 12 millimeters; wing, 10 to 11; antennæ, 3.8 to 4.

Female.—Length, about 17 to 18 millimeters; wing, 13 to 14.

Rostrum and palpi black. Antennæ of male 8-segmented, of female 11-segmented; black throughout, scape slightly more pruinose; flagellar segments gradually decreasing in length. Head dull black; vertical tubercle low.

Thorax dull black, præscutum with four more glabrous stripes that are not conspicuous against the ground; vestiture of thorax abundant, erect. Pleura more heavily dusted with brownish gray. Halteres and legs black throughout. Wings (Plate 1, fig. 21) with a strong blackish tinge, costal border and stigma darker; veins dark, less evidently seamed with darker. Macrotrichia of veins beyond cord very sparse, with two or three on each of veins R_3 and distal section of R_5. Venation: Rs long, exceeding R, arcuated at origin; R_{2+3+4} short, a little more than one-half basal section of R_5 and a little less than R_{1+2};

veins R_3 and R_4 weakly divergent at tips; m-cu at midlength of rectangular cell 1st M_2 longer than distal section of vein Cu_1.

Abdomen uniformly dull black. Ovipositor with elongate valves.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 450 feet, June 14, 1937 (*Yankovsky*). Allotopotype, female. Paratopotypes, several males and females.

Hexatoma (*Eriocera*) *pernigrina* is allied to regional species such as *H.* (*E.*) *kamiyai* Alexander, *H.* (*E.*) *kariyai* Alexander, *H.* (*E.*) *longifurca* (Alexander), and *H.* (*E.*) *pleskei* Alexander, differing from all in the intensely black color of the body, antennæ, halteres, and legs, and in the strongly blackened but virtually unpatterned wings.

ERIOPTERINI

GONOMYIA (IDIOCERA) PERPALLENS sp. nov. Plate 1, fig. 22; Plate 3, fig. 41.

Allied to *pallens;* general coloration brownish yellow, segments sparsely pruinose, pleura unstriped; legs obscure yellow, outer tarsal segments slightly darker; wings pale grayish yellow, unmarked; Sc_1 ending about opposite midlength of Rs; R_{1+2} and R_3 close together at wing margin; male hypopygium with tergal lobes not developed; middle dististyle with outer arm unusually long and slender.

Male.—Length, about 5 millimeters; wing, 6.

Female.—Length, about 5.5 millimeters; wing, 7.

Rostrum brownish yellow; palpi black. Antennæ with scape and pedicel light yellow, flagellum dark brown; flagellar segments oval to long-oval. Head brownish ochreous.

Mesonotal præscutum pale brownish yellow, sparsely pruinose, with poorly defined darker stripes occupying interspaces behind; scutal lobes weakly darkened; posterior sclerites pale brownish yellow. Pleura pale yellow. Halteres pale, knobs weakly darkened. Legs with coxæ and trochanters pale yellow; remainder of legs obscure yellow, outer tarsal segments slightly darker. Wings (Plate 1, fig. 22) pale grayish yellow, unmarked; veins a little darker than ground. Venation: Sc_1 ending opposite or slightly beyond midlength of Rs; R_{1+2} and R_3 close together at wing margin; petiole of cell 2d M_2 a little exceeding one-third the cell; m-cu more than its own length before fork of M.

Abdominal tergites yellowish brown; sternites and hypopygium yellow. Male hypopygium (Plate 3, fig. 41) with tergal

lobes not developed. Outer dististyle, *od*, a slender simple rod, tip blackened; middle style, *md*, with outer arm unusually long and slender; inner style, *id*, deeply bifid, outer arm acutely pointed and blackened. Ædeagus, *a*, trispinous and blackened at apex, the more basal spine much larger.

Habitat.—Northern Korea.

Holotype, male, Ompo, altitude 150 feet, June 7, 1937 (*Yankovsky*). Allotopotype, female, June 20, 1937. Paratopotype, 1 male, pinned with the holotype.

The nearest relative of the present fly is *Gonomyia* (*Idiocera*) *pallens* Alexander (Japan, Honshiu) which differs in the striped thoracic pleura and structure of the male hypopygium. The conspicuous tergal development of *pallens* is not apparent in the present fly. In *pallens* these arms are very long and conspicuous, only a little shorter than the outer dististyle.

GONOMYIA (GONOMYIA) SUPERBA Alexander var.

Gonomyia (*Gonomyia*) *superba* ALEXANDER, Canad. Ent. 45 (1913) 285, 286.

Widely distributed in Japan.

NORTHERN KOREA, Chonsani, Paiktusan, altitude 4,200 feet, July 24 and 25, 1937 (*Yankovsky*). I cannot separate these specimens specifically from the type material.

ERIOPTERA (ERIOPTERA) PALLIDIVENA sp. nov. Plate 1, fig. 23; Plate 3, fig. 42.

General coloration yellow, præscutum with four brownish stripes; antennæ dark brown; ventral thoracic pleura darkened, dorsal pleura yellow; halteres and legs yellow; wings deep saturated yellow, veins pale, poorly defined against ground; male hypopygium with both dististyles slender, simple, narrowed to acute blackened points; gonapophysis bispinous, inner spine nearly straight, outer spine strongly curved.

Male.—Length, about 5 millimeters; wing, 5.5.

Rostrum yellow; palpi black. Antennæ dark brown, scape a little paler. Eyes (male) large, contiguous beneath. Head infuscated, paling to yellow behind.

Pronotum light yellow. Mesonotal præscutum obscure yellow, with four brownish stripes, intermediate pair darker in front, not reaching suture behind; lateral borders yellow; scutum with lobes extensively infuscated, median area yellow; scutellum light yellow; postnotum obscure yellow, posterior portion of both mediotergite and pleurotergite darker. Pleura with dorsal pleurites and dorsopleural membrane yellow, ventral pleurites, in-

cluding ventral anepisternum, sternopleurite, and meron more infuscated. Halteres yellow. Legs with coxæ yellow, fore coxæ a trifle darker; trochanters yellow; remainder of legs yellow, terminal tarsal segments darkened. Wings (Plate 1, fig. 23) deep saturated brownish yellow, veins pale yellow, very difficult to see against the ground. Venation: Vein M_3 at apex deflected strongly cephalad; vein 2d A strongly sinuous.

Abdomen brownish yellow; hypopygium yellow. Male hypopygium (Plate 3, fig. 42) with basistyles, *b*, slender. Both dististyles slender, simple, of approximately similar outline, narrowed gradually to acute blackened tips; outer style, *od*, glabrous; inner style with a few microscopic setulæ before tips. Gonapophyses, *g*, appearing as flattened plates, each bispinous, inner spine nearly straight, the shorter outer spine strongly curved.

Habitat.—Northern Korea.

Holotype, male, Chonsani, Paiktusan, altitude 4,200 feet, July 16, 1937 (*Yankovsky*).

Erioptera (*Erioptera*) *pallidivena* is quite distinct from the other regional members of the subgenus, differing especially in the body coloration, the pale wing veins, and the structure of the male hypopygium. The only other generally similar species in eastern Asia is *E.* (*E.*) *xanthoptera* Alexander, of Saghalien, which differs in the details of body coloration and in the color and venation of the wings. The male of the latter species is still unknown. Among the European species the fly is closest to *E.* (*E.*) *squalida* Loew, yet is amply distinct.

ORMOSIA (ORMOSIA) DUCALIS sp. nov. Plate 1, fig. 24; Plate 3, fig. 43.

Large (wing, male, over 7 millimeters); general coloration black, including antennæ and legs; halteres with conspicuous light yellow knobs; wings strongly tinged with blackish; cell M_2 open by atrophy of m; vein 2d A nearly straight; male hypopygium with caudal border of tergite moderately produced; three dististyles, outer clavate; gonapophyses appearing as slender, straight rods, tips acute.

Male.—Length, about 6.5 millimeters; wing, 7.2.

Rostrum and palpi black. Antennæ black throughout, of moderate length, if bent backward extending about to wing root; flagellar segments long-oval to elongate, especially the outer ones; longest verticils unilaterally arranged, much exceeding segments in length, especially the more basal ones. Head dull black.

Thorax dull black, pronotum and pleura more pruinose; interspaces with abundant long erect black setæ. Halteres with stem black, knob conspicuously light yellow. Legs black throughout. Wings (Plate 1, fig. 24) with a strong blackish tinge, stigmal region a trifle darker; veins and macrotrichia dark. Macrotrichia of cells unusually abundant and conspicuous (indicated in figure by stippled dots). Venation: Sc_1 ending nearly opposite R_2; Rs subequal in length to Sc_1; R_{1+3+4} short, slightly exceeding R_{2+3}; cell M_2 open by atrophy of m; cells beyond cord deep; vein 2d A nearly straight to very feebly concave.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 43) with caudal border of tergite, 9*t*, moderately produced. Three dististyles or primary branches, the outer, *od*, longest, appearing as a dark clavate rod, head scabrous; intermediate style, *md*, about four-fifths as long, blackened, slender, gently sinuous, acute tip strongly curved; inner style, *id*, yellow, compressed, tip obtuse, near base darkened and with numerous setæ. Gonapophyses, *g*, appearing as slender, glabrous, nearly straight rods, tips long and slender, acute, darkened.

Habitat.—Nothern Korea.

Holotype, male, Ompo, altitude 170 feet, May 23, 1937 (*Yankovsky*).

Ormosia (*Ormosia*) *ducalis* is very different from all other species of the genus so far discovered. The open cell M_2, with m lacking, is found also in the otherwise entirely different *O.* (*O.*) *confluenta* Alexander, of Japan.

ILLUSTRATIONS

[Legend: *a*, Ædeagus; *b*, basistyle; *d*, dististyle; *dd*, dorsal dististyle; *g*, gonapophysis; *i*, interbase; *id*, inner dististyle; *md*, intermediate dististyle; *od*, outer dististyle; *p*, phallosome; *t*, tergite.]

PLATE 1

FIG. 1. *Protanyderus yankovskyi* sp. nov.; venation.
2. ***Trichocera tuberculifera*** sp. nov.; venation.
3. ***Trichocera latilobata*** sp. nov.; venation.
4. *Limonia* (*Limonia*) *venerabilis* sp. nov.; venation.
5. *Limonia* (*Dicranomyia*) *infensa* sp. nov.; venation.
6. *Limonia* (*Dicranomyia*) *subaurita* sp. nov.; venation.
7. ***Dicranoptycha prolongata*** sp. nov.; venation.
8. *Dicranoptycha diacantha* sp. nov.; venation.
9. *Helius* (*Helius*) *polionota* sp. nov.; venation.
10. ***Helius*** (*Helius*) ***gracillimus*** sp. nov.; venation.
11. *Pedicia* (*Pedicia*) *lætabilis* sp. nov.; venation.
12. *Pedicia* (*Pedicia*) *simulata* sp. nov.; venation.
13. ***Pedicia*** (*Tricyphona*) ***patens*** sp. nov.; venation.
14. ***Pedicia*** (*Tricyphona*) ***longiloba*** sp. nov.; venation.
15. *Pedicia* (*Tricyphona*) *diaphanoides* sp. nov.; venation.
16. *Dicranota* (*Rhaphidolabis*) *luteola* sp. nov.; venation.
17. ***Dicranota*** (*Rhaphidolabis*) *neoconsors* sp. nov.; venation.
18. *Limnophila* (*Phylidorea*) *megapygia* sp. nov.; venation.
19. *Limnophila* (*Phylidorea*) *pernigrita* sp. nov.; venation.
20. *Limnophila* (*Prionolabis*) *acanthophora* sp. nov.; venation.
21. ***Hexatoma*** (*Eriocera*) ***pernigrina*** sp. nov.; venation.
22. *Gonomyia* (*Idiocera*) *perpallens* sp. nov.; venation.
23. ***Erioptera*** (*Erioptera*) *pallidivena* sp. nov.; venation.
24. *Ormosia* (*Ormosia*) *ducalis* sp. nov.; venation.

PLATE 2

FIG. 25. *Trichocera tuberculifera* sp. nov.; male hypopygium.
26. *Trichocera latilobata* sp. nov.; male hypopygium.
27. *Limonia* (*Limonia*) *venerabilis* sp. nov.; male hypopygium.
28. *Limonia* (*Dicranomyia*) *infensa* sp. nov.; male hypopygium.
29. *Limonia* (*Dicranomyia*) *subaurita* sp. nov.; male hypopygium.
30. *Dicranoptycha prolongata* sp. nov.; male hypopygium.
31. *Dicranoptycha diacantha* sp. nov.; male hypopygium.
32. *Helius* (*Helius*) *gracillimus* sp. nov.; male hypopygium.
33. *Pedicia* (*Pedicia*) *lætabilis* sp. nov.; male hypopygium, dististyle.
34. *Pedicia* (*Pedicia*) *simulata* sp. nov.; male hypopygium.

PLATE 3

FIG. 35. *Pedicia* (*Tricyphona*) *patens* sp. nov.; male hypopygium.
36. *Pedicia* (*Tricyphona*) *longiloba* sp. nov.; male hypopygium.
37. *Dicranota* (*Rhaphidolabis*) *neoconsors* sp. nov.; male hypopygium.
38. *Limnophila* (*Phylidorea*) *megapygia* sp. nov.; male hypopygium.
39. *Limnophila* (*Phylidorea*) *pernigrita* sp. nov.; male hypopygium.
40. *Limnophila* (*Prionolabis*) *acanthophora* sp. nov.; male hypopygium.
41. *Gonomyia* (*Idiocera*) *perpallens* sp. nov.; male hypopygium.
42. *Erioptera* (*Erioptera*) *pallidivena* sp. nov.; male hypopygium.
43. *Ormosia* (*Ormosia*) *ducalis* sp. nov.; male hypopygium.

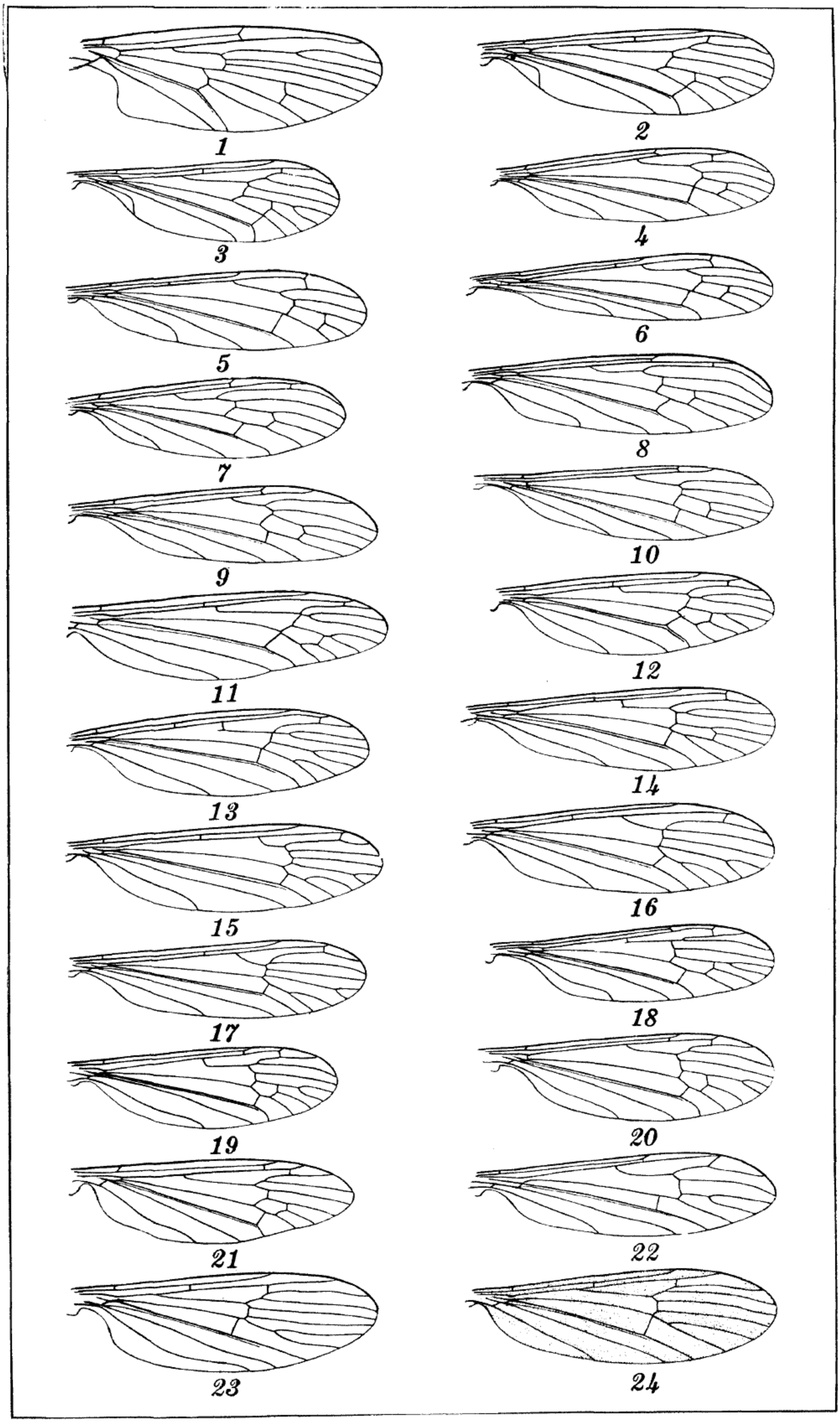
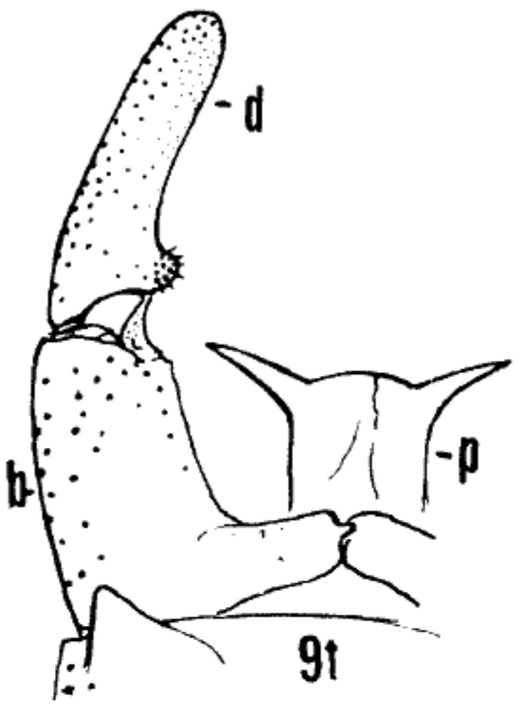
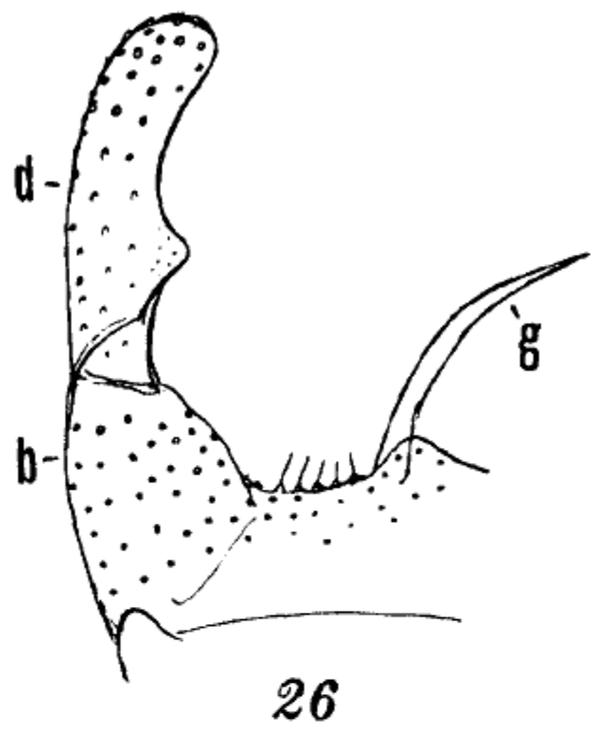


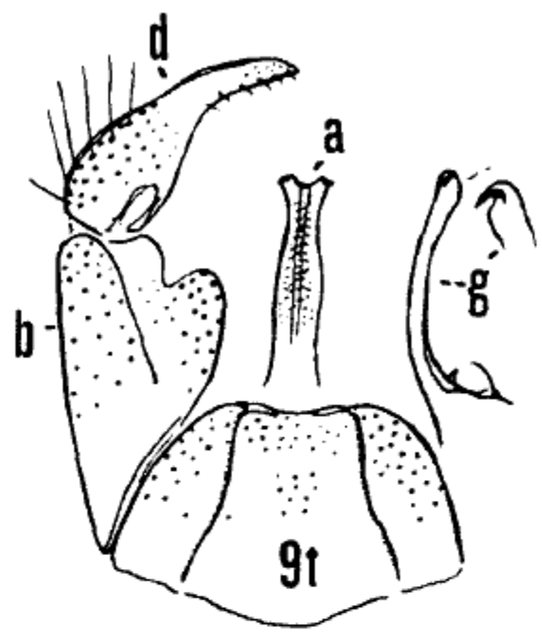
PLATE 1.



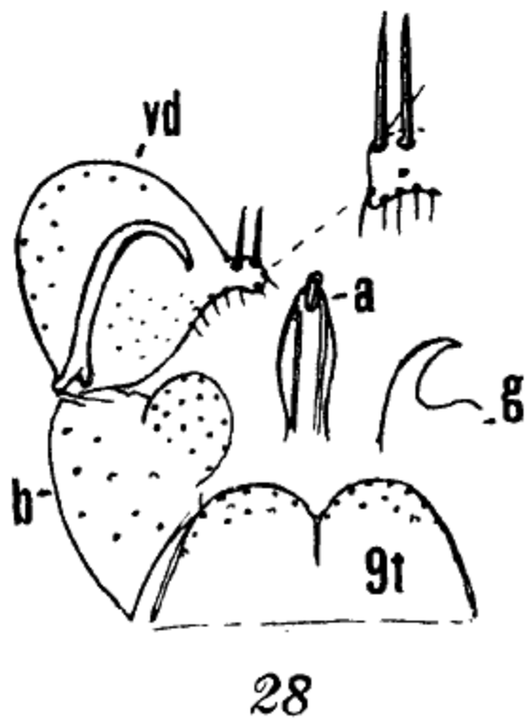
25



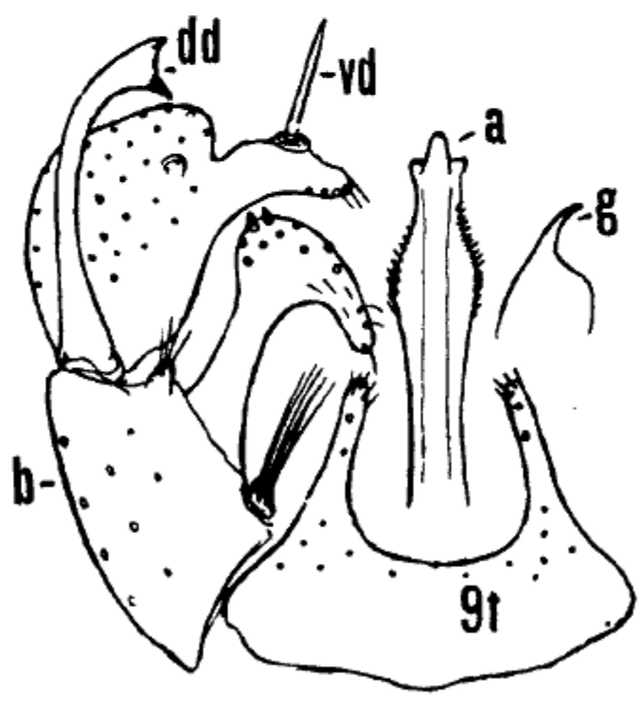
26



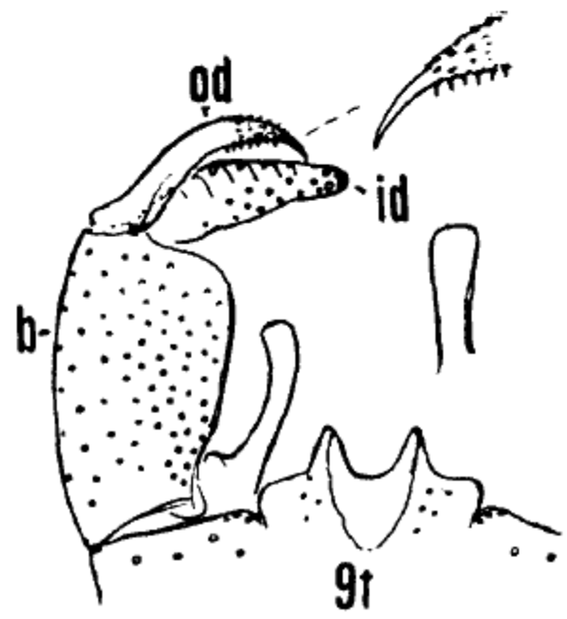
27



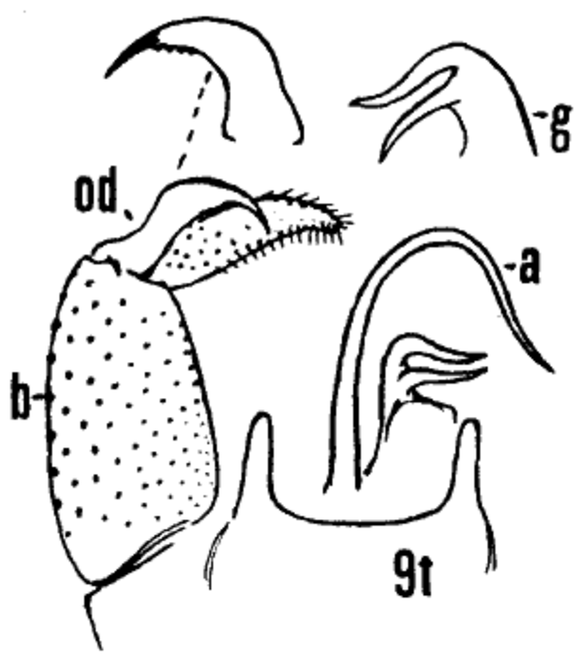
28



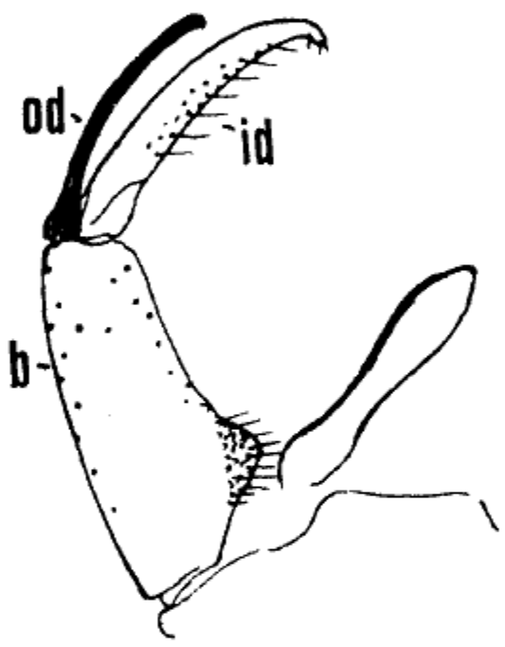
29



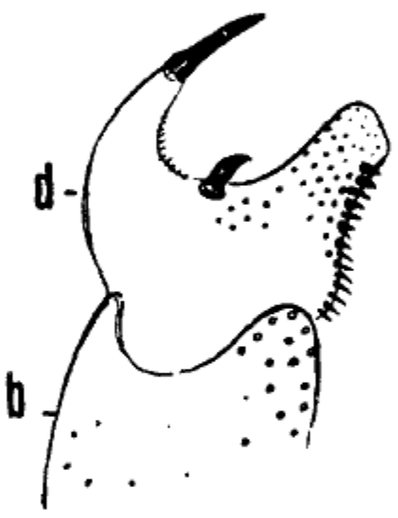
30



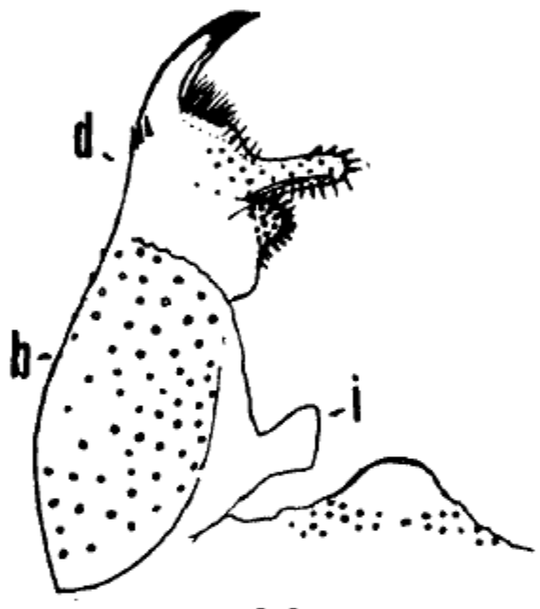
31



32



33



34

PLATE 2.

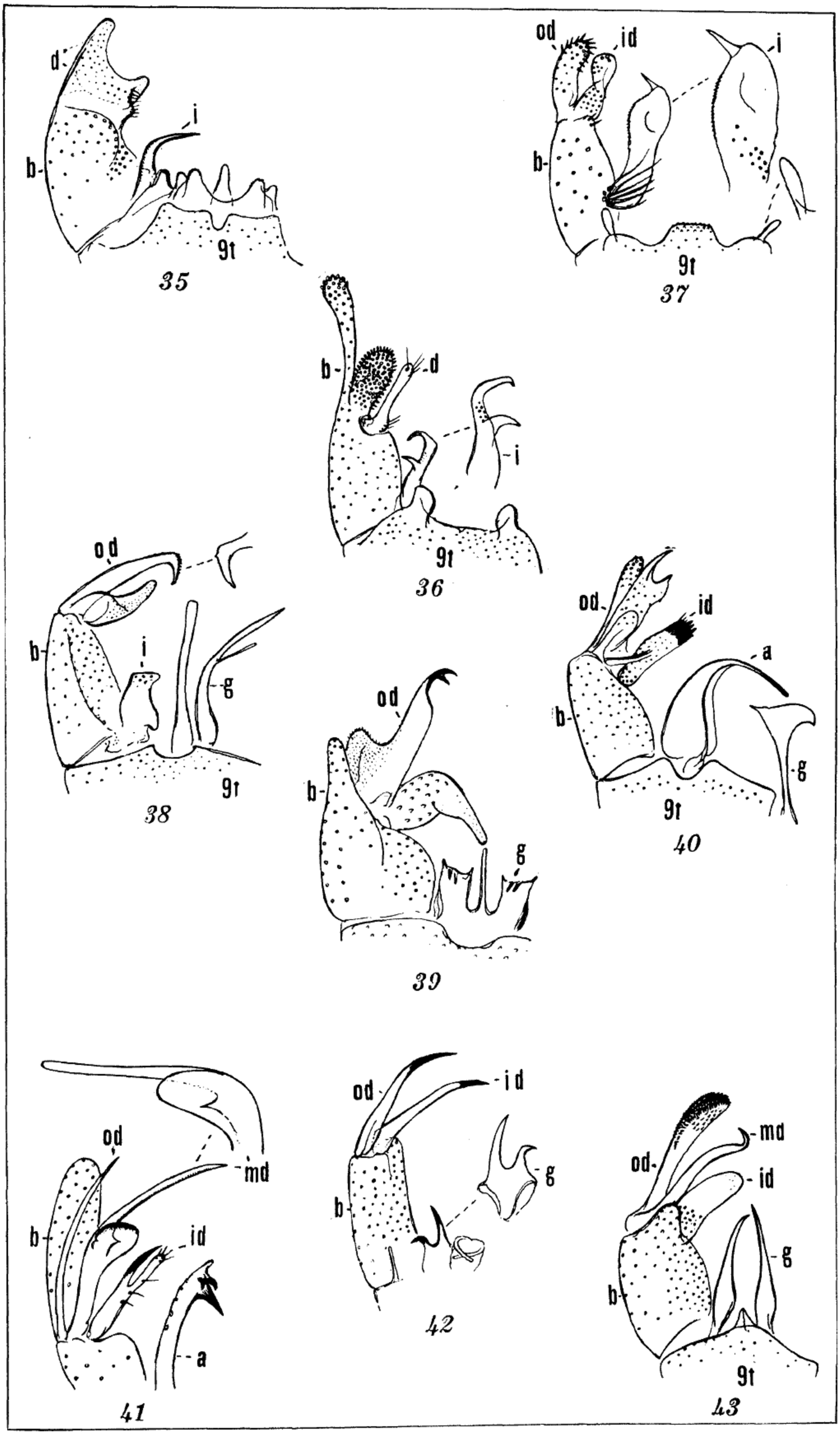


PLATE 3.