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K. SVENSKA VETENSKAPSAKADEMIEN

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SCHWEDISCH-CHINESISCHE WISSEN-  
SCHAFTLICHE EXPEDITION NACH DEN  
NORDWESTLICHEN PROVINZEN CHINAS

UNTER LEITUNG VON DR. SVEN HEDIN UND PROF. SÜ PING-CHANG

INSEKTEN

GESAMMELT VOM SCHWEDISCHEN ARZT DER EXPEDITION  
DR. DAVID HUMMEL 1927—1930

32

DIPTERA

7. TIPULIDAE

BY

CHARLES P. ALEXANDER

WITH 3 PLATES

STOCKHOLM

ALMQVIST & WIKSELLS BOKTRYCKERI-A.-B.

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**Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas,**

unter Leitung von

Dr. **Sven Hedin** und Prof. **Sü Ping-chang.**

**Insekten**

gesammelt vom schwedisch Arzt der Expedition

Dr. **David Hummel** 1928—1930.

32.

**Diptera.**

**7. Tipulidae.**

By

**CHARLES P. ALEXANDER.**

With 3 plates.

Communicated October 25th 1933 by Y. SJÖSTEDT and E. STENSIÖ.

The very interesting crane-fly material collected in the Province of Kansu, northwest China, by Dr. DAVID HUMMEL, while acting as physician for the SVEN HEDIN-Expedition of 1928—1930, has been submitted to me for examination by Prof. YNGVE SJÖSTEDT. Virtually all of this material was collected at the following two stations both in Kina, Kansu:

Drakana, altitude about 3000 meters, mid-August.

Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930 (at light).

The types and most duplicates of the species discussed have been returned to Professor SJÖSTEDT, for deposition in

the Naturhistoriska Riksmuseum, Stockholm. Duplicate specimens where available are preserved in my collection. I am very deeply indebted to Dr. HUMMEL and to Dr. SJÖSTEDT for the opportunity of studying this rich and instructive series of Central Asian Tipulidae.

### Tipulinae.

#### *Tipula (Vestiplex) subcarinata* ALEXANDER.

1921. *Tipula subcarinata* ALEXANDER; Bull. Mus. Hist. Nat. Paris. 1921: 347—348.

Originally described from a small series of specimens taken in Mongolia. Two additional specimens in the present collection, one from Southern Mongolia, 1927; the second from Tabo-al, China (ANDERSSON).

The present specimens are a little smaller than the types (Male. — Length, 13—14 mm.; wing, 14—15 mm.; antenna, about 6 mm.). Nasus long and conspicuous. Antennae (male) relatively long, the basal three segments yellow, the remainder of flagellum black: segments exceeding in length the longest verticils. Wings (Fig. 1) with a pale brown and white pattern, the white color in cell  $R_5$  continued to the wing-apex or nearly so. The male hypopygium has been described but not previously figured (Figs. 13—15). The most conspicuous features lie in the pale tergite,  $9t$ , with the caudal margin broadly emarginate; basistyle,  $b$ , produced, at apex on proximal face with a small blackened tooth, less distinct in the present specimens.

The species falls in that group of the subgenus having the posterior portion of the basistyle unarmed with a spine or lobe.

#### *Tipula (Vestiplex) hummeli* sp. n.

Mesonotal praescutum yellowish gray, with four darker gray stripes that are narrowly bordered by blackish, forming a median black vitta; posterior sclerites of notum gray, with a capillary dark vitta; apices of knobs of halteres yellow; legs chiefly black, the femoral bases narrowly yellow; wings pale cream-yellow, with a diffuse pale and darker brown pattern, the darker brown areas including the bases of cells  $R$  and  $M$ .

Female. — Length, about 20 mm.; wing, 22 mm.

Frontal prolongation of head brownish black, heavily pruinose; nasus stout; palpi black. Antennae with scape

brownish yellow; pedicel clear light yellow; flagellum uniformly brown; flagellar segments simple, the verticils slightly exceeding the segments. Head gray, more yellowish gray on front and anterior vertex; vertical tubercle with a conspicuous dark brown median stripe that ends at near midlength of vertex.

Mesonotal praescutum light yellowish gray, with four darker gray stripes that are narrowly but conspicuously bordered by blackish, the internal borders of the intermediate stripes confluent or virtually so, forming a conspicuous black median vitta; internal borders of lateral praescutal stripes more evidently darkened than the lateral borders; scutal lobes yellowish gray, variegated with brown; scutellum and mediotergite gray, with a narrow blackish median vitta. Pleura gray, slightly variegated by more yellowish gray; dorsopleural region buffy. Halteres yellow, the basal half of knob dark brown. Legs with the coxae gray; trochanters yellow; femora almost entirely blackened, the bases narrowly and conspicuously light yellow, the amount subequal on all legs; tibiae and tarsi brownish black to black. Wings (Fig. 2) with the ground-color chiefly cream-yellow, the prearcular and costal regions extensively clear bright yellow; an extensive pale brown and a much more restricted darker brown pattern, the pale brown including most of the wing-disk, restricting the ground to an incomplete fascia beyond cord, a pre-stigmal brightening, a large area near outer end of cell  $M$ , and a broken fascia across the basal fifth of wing, beginning in cell  $R$ ; the darker brown areas include the stigma and confluent darkenings on anterior cord, the stigma not involving the costal cell except at free tip of  $Sc_2$ ; a small cloud at origin of  $Rs$ ; bases of cells  $R$  and  $M$ , and cell  $C$  on both sides of arculus, darkened; less evident infuscations along vein  $Cu$ ; veins yellow and brown, the outer radial veins entirely yellow, the outer medial veins brown with their apices paling to yellow. Macrotrichia of veins beyond cord small and sparse; veins  $R_{1+2}$ ,  $R_{2+3}$ ,  $R_3$  and 1<sup>st</sup>  $A$  without trichia;  $R_{4+5}$ ,  $M_1$ ,  $M_2$ ,  $M_3$  and tips of  $M_4$  and 2<sup>nd</sup>  $A$  with a few scattered trichia; distal section of  $Cu_1$  with relatively abundant trichia on distal three-fourths. Venation:  $R_{1+2}$  entire but pale; petiole of cell  $M_1$  subequal to or shorter than  $m$ ;  $m-cu$  on  $M_4$  shortly beyond the perpendicular base.

Abdominal tergites obscure yellow basally, the outer portions more darkened and pruinose; a conspicuous median blackish stripe; lateral borders of tergites narrowly pale; sternites gray. Ovipositor broken.

*Holotype*, ♀, Kina, June 19 (D. HUMMEL.)

This splendid fly is named in honor of the collector of this rich series of crane-flies, Dr. DAVID HUMMEL. The nearest ally is *Tipula (Vestiplex) grahami* ALEXANDER (Szechwan-Tibet Border, at high altitudes) which differs in many details of coloration of the body, legs and wings, most evidently in the yellow femora with narrowly blackened tips, and the much darker, more contrasted wing-pattern. In the present unique type the region of the scutum is damaged and it cannot be affirmed that the median black notal vitta is continuous over the entire thoracic dorsum, though this is very probably the case.

### *Tipula (Vestiplex) hedini* sp. n.

Allied to *subcentralis*; antennae with basal three segments yellow, the remaining segments almost uniformly blackened, only the basal segments vaguely bicolorous; mesonotal praescutum gray, with four gray stripes that are narrowly bordered by darker; wings brown, variegated by darker brown and white, the pattern highly contrasted; outer half of cell  $R_5$  pale; male hypopygium with basistyle unarmed; outer dististyle broadly spatulate; inner dististyle bidentate.

Male. — Length, about 18—20 mm.; wing, 19—20 mm.; antenna, about 5,3—5,5 mm.

Female. — Length, about 25 mm.; wing, 22 mm.

Frontal prolongation of head brownish yellow, darker laterally beneath; nasus short and stout; palpi dark brown. Antennae with basal three segments yellow; succeeding segments very weakly bicolorous, the basal enlargements black, the apical portions of the segments dark brown; outer segments more uniformly blackened; longest verticils subequal to or a trifle shorter than the segments. Head gray, with a brown, capillary, median vitta.

Mesonotal praescutum light gray, with four slightly brighter gray stripes that are narrowly bordered by brown; scutum with median area buffy gray, the lobes with two gray areas that are encircled by brown; posterior sclerites of notum gray, with a capillary brown median vitta. Pleura gray, vaguely marked with paler gray; dorso-pleural region buffy. Halteres yellow, the knobs dark brown. Legs with the femora brownish yellow, the tips weakly darkened, less conspicuously so on posterior legs of type; tibiae obscure yellow, the tips darker; tarsi passing into darker brown. In female, the legs are shorter, stouter and generally darker in color. Wings (Fig. 3) with the ground-color relatively dark brown, highly contrasted with whitish areas that include the distal half of cell  $R_5$ ;

conspicuous crossbands before and beyond cord, the former broader; cell *Cu* chiefly pale; base of cell  $1^{st}$  *A* very extensively pale; darker brown areas at stigma, anterior cord, origin of *Rs* and end of *Sc*; cells *R* and *M* not darkened basally; veins brown. In female, the pattern is still darker and more contrasted. Venation:  $M_{3+4}$  subequal to or exceeding basal section of  $M_3$ .

Abdomen with basal tergites yellow, narrowly trivittate with dark brown, the median stripe narrower and darker than the laterals, interrupted at caudal borders of segments; lateral margins of tergites pale; outer segments more uniformly darkened; sternites obscure yellow, the outer segments darkened. In female, sternites more brownish yellow. Male hypopygium much resembling *subcentralis*; tergal saucer (Fig. 16, *9 t*) conspicuous, the caudal margin broadly emarginate, at base of emargination with a further U-shaped notch; two blackened teeth on either side, the more cephalic acute; posterior border of saucer smooth. Basistyle unarmed. Outer dististyle a broad spatulate blade. Inner dististyle conspicuously bidentate, the inner point heavily blackened (Fig. 16, *od, id*).

*Holotype*, ♂, Fu-shu-shi, Tien-shan, August 1928 (D. HUMMEL.)

*Allotype*, ♀, Fu-shu-shan, Tien-shan, altitude 1800—2000 meters (D. HUMMEL). *Paratypes*, 2 ♂♂, with allotype, altitude 2650 meters, June 1928 (D. HUMMEL).

*Tipula (Vestiplex) hedini* is respectfully dedicated to Dr. SVEN HEDIN, distinguished explorer-scientist of Central Asia. The species is most generally similar to *T. (V.) subcentralis* ALEXANDER (Kamtchatka), differing conspicuously in the structure of the styli of the male hypopygium and less evidently in details of coloration, as the more uniformly blackened antennae. The course of vein  $M_4$  of the wings is different in the two flies, in *subcentralis* being very slightly convex, whereas in *hedini* it is equally gently convex.

### ***Tipula (Acutipula) pertinax* sp. n.**

General coloration dark; basal three segments of antennae yellow; wings with the ground-color gray, sparsely variegated by pale brown and whitish, the pattern pale; basal four abdominal segments chiefly yellow, the remainder brownish black; male hypopygium with the median lobe of tergite relatively broad, its apex bifid; inner dististyle with the outer lobe compressed, terminating in two slender, spinous points that are decussate.

Male. — Length, 14—15 mm.; wing, 15—16 mm.; antenna, about 3,5 mm.

Described from alcoholic specimens.

Frontal prolongation of head light brown; nasus long and conspicuous; palpi brown, the incisures of intermediate segments pale, the terminal segment chiefly pale. Antennae relatively short; basal three segments yellow, the succeeding segments weakly bicolorous, the basal enlargements black, the apex passing through brownish yellow to brown; outer segments uniformly darkened. Head brownish gray.

Mesonotal praescutum apparently almost uniform gray or brownish gray, any stripes if normally present little evident; posterior sclerites of notum almost uniformly darkened. Pleura yellow, the anepisternum and ventral sternopleurite variegated with grayish brown. Halteres brown, the apices of the knobs somewhat paler. Legs with the coxae yellow, narrowly darkened basally; trochanters yellow; femora brown, narrowly pale basally, the tips more blackened; tibiae brown, darker apically; tarsi black. Wings with a pale gray ground, sparsely variegated by whitish and pale brown, the latter color including the stigma, bases of outer radial field and the usual spot in cell *Cu*; the white includes a conspicuous obliterative streak before cord, the narrow bases of cells  $M_1$ , 2<sup>nd</sup>  $M_2$  and  $M_3$ ; pale areas on either side of the dusky cubital cloud and a spot in cell *M* at near two-thirds the length; veins brown, pale in the obliterative areas. Venation: Petiole of cell  $M_1$  variable in length, in cases subequal to *m*, in other specimens to one-half longer than this element.

Abdomen yellow on basal four segments, the tergites vaguely trilineate with darker; outer segments, including hypopygium, brownish black, the styli of the hypopygium pale. Male hypopygium with the median lobe of tergite (Fig. 17, 9 *t*) depressed, broadbased, a little narrowed outwardly, the caudal margin with a U-shaped notch, the lobules thus formed with small blackened spinous points. Outer dististyle relatively narrow, the basal portion narrowed. Inner dististyle (Fig. 17, *id*) of characteristic form, the outer blade broadly compressed, terminating in two slender acute spines that are decussate; outer group of setae numbering about 35 to 40; basal lobe of style darkened, with a lateral carina.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL). Paratopotypes, 3 alcoholic ♂♂.

The nearest allies of the present fly are *Tipula* (*Acutipula*) *desidiosa* ALEXANDER (Szechwan-Tibet Border, at high altitudes) and *T. (A.) vana* ALEXANDER (Eastern Siberia), which

have a somewhat similar pale wing-pattern but have the structure of the male hypopygium quite distinct.

***Tipula (Acutipula) captiosa* sp. n.**

Male. — Length, about 17 mm; wing, 17.5 mm.

Very closely allied and generally similar to *T. (A.) pertinax* sp. n., differing especially in the structure of the male hypopygium, notably the unusually slender, simple, median lobe of the ninth tergite and the structure of the inner dististyle. Despite the similarity of the two flies, they fall in two distinct groups of the subgenus, based on the simple or bifid nature of the median lobe of the ninth tergite of the male hypopygium.

Size larger than in *pertinax*. Male hypopygium with the median lobe of the tergite (Fig. 18, 9 t) broad-based, rapidly narrowed outwardly, the apex subacute, densely set with acute blackened points or spicules; basal portion of median lobe and almost all of dorsal surface of tergal plate with very abundant setae that are longer and coarser on the lateral portions of caudal margin. Inner dististyle (Fig. 19, id) with the spines of outer lobe widely separated, the setae surrounding them reduced in number to 9 or 10.

Holotype, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

***Tipula (Yamatotipula) mongolica* ALEXANDER.**

1921. *Tipula mongolica*, ALEXANDER; Bull. Mus. Hist. Nat. Paris, 1921: 349—350.

One broken specimen, Hutjertu Gol, Southern Mongolia.

The fly is most closely allied to *T. (Y.) morigera* ALEXANDER (Eastern Siberia), which may prove to be only a race of the present species.

***Tipula minensis* sp. n.**

Allied to *variipetiolaris* ALEXANDER, but much larger (wing, ♂, 24 mm.); antennae with scape and pedicel brownish yellow, flagellum black, the basal segment paler; femora black; wings brown, streaked with whitish; abdomen yellow, the tergites narrowly trivittate with dark brown; hypopygium generally darkened.

Male. — Length, about 23 mm.; wing, 24 mm.; antenna, about 5 mm.

Fore leg, femur, 13 mm.; tibia, 16 mm.; tarsus 21 mm.



Middle leg, femur, 14,5 mm.; tibia, 14 mm.; tarsus, 22 mm.  
Hind leg, femur, 15 mm.; wing, 20 mm.; tarsus, 27,5 mm.  
Described from an alcoholic specimen.

Frontal prolongation of head obscure yellow; nasus lacking or represented only by a low tubercle; palpi brown. Antennae with the basal two segments brownish yellow; first flagellar segment brown, the remainder of organ passing into black; verticils subequal in length to the segments; terminal segment relatively long, nearly one-half the penultimate. Head brown, brighter on front.

Mesonotal praescutum pale brown, with three darker stripes, the center of the median stripe paler; posterior sclerites of notum brown, the scutal lobes variegated with darker; it cannot be stated as to whether or not the thorax is pruinose. Pleura chiefly brownish yellow, the ventral sternopleurite darker brown; remainder of pleura, including the dorsopleural region, more or less variegated with dusky. Halteres pale, the knobs chiefly dark brown. Legs with coxae darkened basally, the apices paling to yellow; trochanters brownish yellow; femora black; tibiae obscure yellow, the tips narrowly infuscated; tarsi brownish black. Wings (Fig. 4) brown, sparsely variegated with darker brown and conspicuously streaked longitudinally with whitish; the darker areas include the stigma and a confluent seam on anterior cord, origin of *Rs*, and very narrow brown seams along veins *Cu*,  $R_{4+5}$ , outer medial veins and 2<sup>nd</sup> *A*; the whitish areas include cell *M*, bases of Anal cells; a conspicuous white streak involving cells 1<sup>st</sup>  $M_2$ , bases or  $M_1$ , 2<sup>nd</sup>  $M_2$  and  $M_3$ , together with the outer two-thirds of  $R_5$ ; other brightened areas before cord and beyond stigma; in cells *R*, *M*,  $M_3$ ,  $M_4$  and 1<sup>st</sup> *A*, the ground is more or less confined to the centers of the cells, the adjoining veins being broadly bordered by white; veins brown. Venation: *Rs* long;  $R_{1+2}$  entire;  $M_{3+4}$  shorter than basal section of  $M_3$ ; *m* subequal to petiole of cell  $M_1$ , this character probably variable, as in the allied *variipetiolaris*; *m*—*cu* at fork of  $M_{3+4}$ .

Abdominal tergites yellow, narrowly but conspicuously trivittate with dark brown, the sublateral stripes a little wider than the median; lateral borders of segments narrowly pale; sternites obscure yellow, with a broad dark median stripe; hypopygium generally darkened. Male hypopygium with the basistyle and tergite entirely distinct from sternite. Caudal margin and lobes of tergite blackened, the conformation much as in *variipetiolaris*. Outer dististyle (Fig. 20, *od*) more elongate than in *variipetiolaris*; the inner dististyle (*id*) of slightly different structure; setiferous tubercles on outer margin at near midlength unusually conspicuous. Eighth sternite (Fig. 20, *8 s*)

with the caudal margin narrowed and moderately sheathing, the apex with a U-shaped median notch, on either side of which is a flattened brush of long yellow setae that are decussate across the midline; above the notch lies a very flattened, depressed, median lobe, pale in color, its apex expanded and weakly emarginate.

Holotype, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

The present fly is closely related to the comparatively small *Tipula variipetiolaris* ALEXANDER (Szechwan-Tibet Border, at high altitudes), differing in the major size, black femora and details of the male hypopygium.

### *Tipula dolosa* sp. n.

General coloration brown; antennae (♂) relatively long, basal three segments yellow, the remainder black; wings strongly infumed, variegated by restricted darker brown and whitish areas, the latter including a conspicuous obliterative streak before cord and a post-stigmal whitening;  $R_{1+2}$  entire; basal abdominal segments yellow, beyond the fifth blackened; male hypopygium with the ninth tergite notched medially; basistyle entire, its caudal end produced into a flattened obtuse lobe or blade.

Male. — Length, about 20 mm.; wing, 18 mm.; antenna, about 6.8 mm.

Described from an alcoholic specimen.

Frontal prolongation of head brown; nasus elongate; palpi pale. Antennae (male) relatively elongate, if bent backward extending to beyond wing-root; basal three segments yellow, the apex of third darkened, the succeeding segments black; a microscopic button-like 14th segment; verticils subequal in length to segments. Head brown, the vertical tubercle entire.

Mesonotum chiefly brown, any praescutal stripes normally present little evident in alcohol. Pleura dark, the ventral pleurotergite conspicuously yellow; meral region and ventral pteropleurite more obscure yellow. Halteres pale, the knobs infuscated. Legs with the coxae obscure yellow; trochanters yellow; remainder of legs brown, the tips of femora and outer tarsal segments darker. Wings (Fig. 5) with the prearcular and costal regions yellow; ground-color of wings strongly infumed, variegated by darker brown and conspicuous whitish areas, the former including the stigma, anterior cord,  $m-cu$  and  $Cu_1$ ; the pale areas include large markings before cord, extending from before stigma into base of cell  $M_3$ ; a similar post-

stigmal brightening, in cells  $R_1$ ,  $R_2$  and  $R_3$ ; veins brown, whitish in the oblitative areas. Macrotrichia on veins beyond cord relatively abundant. Venation:  $R_{1+2}$  entire;  $Rs$  elongate, approximately twice  $m-cu$ ; cell  $1^{st} M_2$  large, its outer end more or less pointed; petiole of cell  $M_1$  shorter than  $m$ ;  $m-cu$  on  $M_4$  just beyond base.

Abdomen with basal five segments yellow, the terminal segments, including hypopygium, black. Male hypopygium (Fig. 21) with the tergite,  $9t$ , entirely separate from the sternite; basistyle large, complete. Ninth tergite with a deep U-shaped median notch, the lateral lobes obliquely flattened, when viewed from the side appearing slightly decurved to a small point; dorso-median region of tergite narrowly membranous for its entire length. Basistyle,  $b$ , with the caudal end extended into a flattened lobe, as in *pollex*; ventral portion of basistyle a little protuberant, clothed with a group of long setae. Outer dististyle a little flattened but still narrow. Inner dististyle,  $id$ , with a cephalic heavily blackened portion cut off from main mass by white membrane. Eighth sternite,  $8s$ , with the caudal margin broad, nearly transverse, without lobes or emarginations, but with a wide fringe of long yellow setae.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

*Tipula dolosa* has a hypopygium that is suggestive of that of *T. sibiriensis* ALEXANDER (Eastern Siberia), but the apically produced basistyle is more as in *T. pollex* ALEXANDER (Japan). The very different wing-pattern readily serves to separate the species from all such forms having this general type of hypopygium.

#### ***Tipula finitima* sp. n.**

General coloration brown; scutellum yellow with a brown median vitta; mesepisternum dark, the mesepimeron more yellowish; wings strongly tinged with brownish yellow; oblitative areas very restricted; basal abdominal segments yellow, the outer segments blackened; male hypopygium with caudal margin of ninth tergite trilobed, the obtusely truncated lateral lobes blackened; basistyle produced into a blackened point.

Male. — Length, about 15 mm.; wing, 14 mm.; antenna, about 5.5 mm.

Described from an alcoholic specimen.

Frontal prolongation of head brown; nasus long and slender; palpi brown. Antennae of moderate length; scape and

pedicel yellow; flagellum chiefly dark brown, the basal enlargements of the segments a little darker than the remainder; longest verticils a trifle shorter than the segments. Head brownish gray; vertical tubercle relatively low, entire.

Mesonotal praescutum and scutum chiefly brown (in alcohol), the median region of the latter paler; scutellum obscure yellow with a median brown vitta; mediotergite chiefly darkened. Pleura with anepisternum, sternopleurite and meron darkened; pteropleurite and pleurotergite yellowish. Halteres obscure yellow, the knobs more darkened, especially their bases. Legs with the fore and middle coxae darkened, the posterior coxae yellow, darkened only at bases; trochanters yellow; femora brown, the bases restrictedly yellow, the tips gradually darker brown; remainder of legs passing through brown to brownish black. Wings relatively broad, strongly tinged with brownish yellow, the prearcular and costal regions more saturated; stigma brown; oblitative areas before cord and beyond stigma very small and restricted; veins yellowish brown. Macrotrichia of veins beyond cord relatively abundant. Venation:  $R_{1+2}$  entire; petiole of cell  $M_1$  exceeding  $m$ ;  $M_{3+4}$  about one-half the basal section of  $M_3$ .

Abdomen chiefly yellow, the tergites indistinctly trivittate with brown, the stripes very narrow and interrupted; sternites with a narrow dark line before the equally narrow pale caudal border; outer segments, including hypopygium, brownish black. Male hypopygium (Fig. 22) relatively small; tergite entirely separated from sternite; basistyle entire. Ninth tergite,  $9t$ , longer than wide, the cephalic-lateral portions extending beneath the eighth tergite; lateral lobes heavily blackened, obtusely truncated; dorsomedian area of tergite narrowly pale and membranous; a pale median tongue-like lobe jutting caudad between the lateral lobes. Basistyle,  $b$ , with caudal end protruding as a small blackened lobe, the tip apiculate. Ninth sternite with a conspicuous blackened lobe on either side of midline, this clothed with short erect setulae. Eighth sternite,  $8s$ , with the caudal margin gently convex, clothed with long pale setae.

Holotype, alcoholic ♂, Kansu: Drakana, altitude about 3000 meters, mid-August (D. HUMMEL).

The nearest regional ally of the present fly is *Tipula dolosa* sp. n., which differs conspicuously in the wing-pattern and in the structure of the male hypopygium, especially of the tergite and basistyle. The dististyles and eighth sternite are rather similar in the two flies.

**Tipula absconsa** sp. n.

General coloration of head and thorax brownish gray; antennae black, the basal two segments a little paler; wings with the ground-color pale brown, sparsely variegated by pale and darker brown areas; basal abdominal segments yellow, narrowly striped medially with brown, the outer segments darkened; male hypopygium with the eighth sternite unarmed with lobes or setae.

Male. — Length, about 14 mm.; wing, 13 mm.; antenna, about 5 mm.

Described from an alcoholic specimen.

Frontal prolongation of head yellowish brown; nasus conspicuous; palpi brown, the second and third segments paler at tips. Antennae with scape and pedicel brown, flagellum black; flagellar segments elongate, moderately incised; verticils much shorter than the segments; outer flagellar segments broken. Head brownish gray.

Mesonotal praescutum and scutum chiefly brownish gray, without distinct pattern (in alcohol); scutellum somewhat paler brown; scutellum and midline of scutum with a delicate capillary brown line; mediotergite chiefly darkened. Halteres pale, the knobs infuscated. Legs with the coxae brown; trochanters somewhat paler; femora pale brown, the tips narrowly brownish black; tibiae yellowish brown, the tips narrowly blackened; tarsi passing into black. Wings with a pale brown ground, the prearcular and costal regions more yellowish; stigma slightly darker brown, especially its posterior border: pale cream-colored areas that are but little evident, including a post-stigmal brightening in bases of cells  $R_2$  and  $R_3$ ; very restricted oblitative areas at the cord and brightened spots before and beyond midlength of cell  $M$ , adjoining vein  $Cu$ ; veins brown. Macrotrichia of veins beyond cord relatively abundant but not including any section of  $M_{1+2}$  or the basal fourth of  $R_{4+5}$ . Venation:  $R_{1+2}$  entire; petiole of cell  $M_1$  about one-half longer than  $m$ .

Abdomen with basal five or six segments yellow, both tergites and sternites with a delicate median brown line that is slightly interrupted at the sutures; lateral tergal stripes obsolete; terminal abdominal segments brownish black. Male hypopygium (Fig. 23) with the tergite entirely separate from sternite; basistyle,  $b$ , large, the suture separating it from sternite slightly interrupted; ventro-caudal portion of basistyle with numerous yellow setae, but the apical portion unproduced. Ninth tergite,  $9t$ , with the caudal margin shallowly emarginate, the median region with a further small U-shaped incision;

lateral lobes thus formed broad, obliquely truncated, the outer apical angles a trifle produced; ventrad of this point a second small lobule; mid-line of tergite narrowly but entirely divided by pale membrane. Inner dististyle, *id*, deeply incised on posterior margin. Ventral portion of ninth sternite, *9s*, with a stout pendulous lobe, clothed with conspicuous yellow setae. Eighth sternite, *8s*, with caudal margin truncate or very feebly emarginate, without marginal setae.

*Holotype*, alcoholic ♂, Kansu: Drakana, altitude about 3000 meters, mid-August (D. HUMMEL).

Despite the somewhat different general appearance and details of structure of the male hypopygium, as the unarmed eighth sternite, I believe the nearest allies of the present fly to be *Tipula dolosa* sp. n. and *T. finitima* sp. n., which differ conspicuously in the wing-pattern and structure of the hypopygium. The inter-relationships of these three species are shown by the somewhat peculiar structure of the inner dististyle, which is deeply incised on posterior margin to cut off a large pale basal lobe.

#### ***Tipula macarta* sp. n.**

Belongs to the *cruciata* group, allied to *mupinensis*; general coloration of head and thorax dark; abdomen with basal five segments yellow, with a narrow median stripe on both tergites and sternites; outer segments, including hypopygium, darkened; wings with *r—m* at or close to fork of *Rs*; general coloration of wings brown, variegated by whitish fasciae, including a virtually complete band beyond cord; apex of wing uniformly darkened; male hypopygium with outer basal lobe of inner dististyle a broad flattened structure, its tip one or two spinous points.

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

Female. — Length, about 15—17 mm.; wing, 14—15,2 mm.

Described from alcoholic specimens.

Allied and generally similar to *Tipula mupinensis*, differing especially in the structure of the inner dististyle of the male hypopygium.

Frontal prolongation of head brownish yellow. Antennae relatively short, the flagellar segments weakly bicolorous. Head dark.

Thorax chiefly dark, probably pruinose in living specimens, the praescutum presumably with darker stripes. Femora yellow to obscure yellow, the tips narrowly dark brown; tibiae yellow, the tips narrowly darkened; tarsi brownish black. Wings (Fig. 6) brown, handsomely variegated by whitish, the

latter including broad transverse fasciae before and beyond cord, the former comprising a crescentic mark that extends from before stigma into the entirely pale cell *Cu*; band beyond cord complete or virtually so; cells *C* and *Sc* more yellowish brown; stigma and a cloud on anterior cord darker brown. Venation:  $R_{1+2}$  entire;  $r-m$  joining *Rs* at fork, more rarely before or beyond this point; cell 1<sup>st</sup>  $M_2$  small, pentagonal.

Abdomen with basal five segments yellow, both tergites and sternites with a narrow dark brown median stripe that is interrupted by the pale caudal margins of the segments; outer segments, including hypopygium, uniformly blackened. Male hypopygium (Fig. 24) with the tergite and basistyle entirely separate from sternite. Ninth tergite, *9t*, extensive, gradually narrowed outwardly beyond midlength; caudal margin with a very shallow U-shaped emargination, with a small median point; edge of emargination narrowly but heavily blackened and polished; dorsal surface of tergite with scattered, delicate, pale setae; as in many other allied species, the tergite is composed of two closely applied plates, each having a quite identical caudal border. Outer dististyle slender, sinuous at base, the distal end dilated, obliquely truncated and provided with long conspicuous setae. Inner dististyle with the basal lobe broad, the apical angle produced into one or two spinous points (*id*). Eighth sternite, *8s*, moderately sheathing, the slightly produced median portion with a fringe of long yellow setae.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL). *Allotopotype*, ♀. *Paratopotypes*, 1 ♂, numerous ♀♀. *Paratypes*, 4 ♀♀, Tsang, Drakana, altitude about 3000 meters, mid-August (D. HUMMEL).

*Tipula macarta* is most nearly allied to *T. mupinensis* ALEXANDER and *T. pedicellaris* ALEXANDER, both from the Szechwan-Tibet Border, at high altitudes. It differs most conspicuously in the structure of the basal lobe of the inner dististyle of the male hypopygium, which in both of the species above listed is a slender acute spine. *T. cruciata* EDWARDS (Sikkim) is quite distinct in the more variegated wing-pattern and in the structure of the male hypopygium.

#### *Nephrotoma drakanæ* sp. n.

Allied to *hirsuticauda*; antennae with scape and pedicel dark brown; head with a black median stripe extending from vertical tubercle to occiput; praescutum with three black stripes, the outer ones with cephalic ends turned laterad; posterior sclerites of notum with a median black vitta; pleura conspi-

cuously variegated with black; wings subhyaline; stigma small, pale brown; abdomen (male) almost entirely black; male hypopygium with the eighth sternite deeply incised and provided with abundant elongate setae.

Male. — Length, about 12 mm.; wing, 9 mm.

Female. — Length, about 13—14 mm.; wing, 11—12 mm.

Described from alcoholic specimens.

Frontal prolongation of head blackish dorsally, more brownish yellow on sides. Antennae with scape and pedicel dark brown; flagellum black, the segments moderately incised. Head yellow, with a continuous black median streak extending from summit of vertical tubercle to vertex, narrowed to a capillary line behind the tubercle, on vertex expanded into an elongate shield-shaped area; a small black spot on orbits at narrowest part of vertex.

Pronotum medially obscure yellow, blackened on sides. Mesonotal praescutum obscure yellow with three polished black stripes, the outer pair with anterior ends directed laterad, in cases with this portion paler in color; scutal lobes extensively blackened; scutellum and mediotergite brownish yellow, with a median blackish vitta that is expanded on posterior border of the latter sclerite. Pleura brownish yellow, with conspicuous black areas on propleura, ventral anepisternum, ventral sternopleurite, cephalic portion of pteropleurite, ventral meron and less distinctly on pleurotergite. Halteres obscure brownish yellow, the base of knob more blackened. Legs with the coxae black, the mid-coxae a trifle paler at apices; trochanters obscure yellow; femora yellow, the tips narrowly blackened; tibiae obscure yellow, the tips slightly more blackened; tarsi black. Wings subhyaline; stigma small, pale brown; cell *Sc* light yellow; a scarcely indicated brown cloud on anterior cord; veins brown, *Rs* chiefly pale and subobliterated. Venation: Cell  $M_1$  rather narrowly sessile.

Abdomen, including hypopygium, chiefly black, the sublateral portions of tergites one and two a little paler. In female, the sternites are somewhat paler sublaterally. Abdomen (male) with the ventral surface of sternites with conspicuous erect setae, becoming very long on the profoundly incised eighth sternite. Male hypopygium with the tergite (Fig. 25) deeply notched medially.

*Holotype*, alcoholic ♂, Kansu: Drakana, altitude about 3000 meters, mid-August (D. HUMMEL). *Allotopotype*, ♀. *Paratopotype*, ♀.

*Nephrotoma drakane* is allied to *N. hirsuticauda* ALEXANDER (Northern Japan), the general appearance of the hypo-



pygia of the two being very similar. The coloration of the present fly is very different from that of *hirsuticauda*.

### *Nephrotoma perobliqua* sp. n.

General coloration yellow, the praescutum and scutum variegated with polished black; antennal scape and pedicel yellow, the flagellum black; postnotal mediotergite with central portion pale; pleura yellow, scarcely variegated with darker; wings pale yellow, the cord and outer section of vein  $Cu_1$ , together with the wing-tip, pale brown; stigma darker brown;  $m-cu$  long and unusually oblique in position; abdomen yellow, the tergites with a median dark stripe that is interrupted at the sutures; sternites with three such stripes, the lateral ones paler; terminal segments more uniformly blackened; male hypopygium with the ninth sternite bearing a small pendulous lobe, the tip pale and obtuse.

Male. — Length, about 12 mm.; wing, 11,5 mm.

Described from an alcoholic specimen.

Frontal prolongation of head obscure yellow, the mid-dorsal region narrowly darkened; nasus black; palpi black. Antennae with scape and pedicel light yellow; flagellum black, the proximal end of the first segment a little paler; flagellar segments moderately incised. Head yellow, the occipital brand brownish black, triangular, sending a narrow dark line cephalad to summit of vertical tubercle; genae more or less darkened.

Pronotum light yellow medially, more darkened on sides. Mesonotal praescutum yellow with three polished black stripes, the lateral pair straight or with only a weak brown suffusion laterad of their anterior ends; scutal lobes conspicuously variegated with black; remainder of mesonotum yellow, the mediotergite broadly pale yellow medially, more infuscated on either side. Pleura yellow, only vaguely marked with darker along the suture between the mesopleural episternum and epimeron and on the ventral meron. Halteres pale, the knobs bicolored, partly darkened, partly whitish. Legs with the coxae and trochanters yellow; femora obscure yellow, the tips narrowly but conspicuously blackened; tibiae brownish yellow, the tips blackened; tarsi black. Wings (Fig. 7) pale yellowish, the prearcular and costal regions very pale yellow; stigma oval, dark brown; wing-tip broadly but insensibly darkened; narrow brown clouds on anterior cord,  $m-cu$  and distal section of  $Cu_1$ ; veins brown. Venation: Cell  $1^{st} M_2$  of moderate size; cell  $M_1$  very narrowly sessile;  $m-cu$  unusually long and oblique, its caudal end lying some distance basad of level of origin of  $Rs$ .

Abdominal tergites yellow, with a conspicuous black median stripe that is narrowly interrupted at the incisures; lateral stripes lacking; sternites yellow, narrowly and interruptedly trivittate with black, the lateral stripes paler brown and more broken; segments beyond the sixth, including the hypopygium, black or brownish black, only the dististyles yellowish. Male hypopygium (Fig. 27) with the tergite (Fig. 26, 9t) black, the caudal margin with a rounded U-shaped notch, each inner angle produced into a small blackened spine; viewed laterally, below the apical spine is a more slender one that is directed more ventrad. Ninth sternite, 9s, with a median pendulous lobe, slender, darker at base than at the white obtuse tip, the lobe directed ventrad and slightly cephalad; in a position of rest, this lobe lies in the small median emargination of the eighth sternite, the latter with only inconspicuous and relatively sparse setae.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

The present fly, while similar in certain regards to species such as *Nephrotoma bispinosa* ALEXANDER, is quite distinct from all regional species so far made known.

### Limoniinae.

#### *Limonia* (*Limonia*) *quadrinotata* (MEIGEN).

1818. *Limnobia quadrinotata* MEIGEN; Syst. Besch., 1: 144,

Two males, Kung-tze-tagga, Tsaluk Valley, Min-shan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL). I can find no differences between these specimens and abundant European material. Moreover, the Nearctic *L. (L.) solitaria* (Osten Sacken) is very closely allied but may perhaps be maintained as a valid subspecies or very nearly allied vicarious species.

#### *Limonia* (*Dicranomyia*) *kinensis* sp. n.

Male. — Length, 6.5—7 mm.; wing, 7.5—8 mm.

Female. — Length, 8.5—9 mm.; wing, 8.5—10 mm.

Described from alcoholic specimens.

Belongs to the *tristis* group; most nearly allied to *L. (D.) tristoides* ALEXANDER (Manchuria), differing especially in the larger size and structure of the male hypopygium.

General coloration of entire body dark brown, undoubtedly gray pruinose in fresh specimens, the ventral dististyles of the male hypopygium light yellow. Antennae and legs black. Halteres pale, the knobs dusky. Wings (Fig. 8) whitish subhyaline, the small stigma darker; in some specimens, especially females, the cord and outer end of cell  $1^{st} M_2$  are narrowly seamed with darker; veins much darker and more distinct than in *tristoides*. Venation:  $Sc_1$  ending a short distance beyond the origin of  $Rs$ ,  $Sc_2$  shortly removed from its tip; cell  $1^{st} M_2$  subequal to or longer than vein  $M_{1+2}$  beyond it;  $m-cu$  at or close to fork of  $M$ .

Male hypopygium (Fig. 28) chiefly black. Ninth tergite transverse, as in *tristoides*, the caudal margin very gently emarginate. Basistyle with two small accessory lobules and hair-pencils, additional to the usual ventro-mesal lobe, which is provided with setae at apex but otherwise unmodified. Dorsal dististyle entirely blackened, the apex acute. Ventral dististyle, *vd*, higher at base than in *tristoides*, narrowed gradually to the intensely blackened rostral prolongation, the latter not suddenly narrowed at point of insertion of the rostral spines, as in *tristoides*; spines with bases less elongate than in *tristoides*. Gonapophyses, *g*, with the mesal-apical lobe longer and more strongly curved.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Minshan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL). *Allotopotype*, ♀. *Paratopotypes*, several ♂♀.

The distinctions between the present species and *tristoides* have been given above. It may be noted further that the male hypopygium in *tristoides* is yellow, whereas in the present fly only the ventral dististyle is brightened.

### ***Limonia (Dicranomyia) sjöstedti* sp. n.**

General coloration (in alcohol) dark, probably pruinose in fresh specimens; antennae dark throughout; femora brownish yellow, the tips narrowly dark brown; wings whitish, with a sparse brown pattern;  $Sc_1$  very long, exceeding  $Rs$ ; male hypopygium with the ninth tergite conspicuously notched medially; rostral prolongation of ventral dististyle suddenly narrowed, the two rostral spines placed near its tip.

Male. — Length, 6—6,5 mm.; wing, 7—7,5 mm.

Female. — Length, 7,5—8,5 mm.; wing, 8—8,5 mm.

Described from alcoholic specimens.

Rostrum brownish black; palpi black. Antennae with scape and pedicel brownish black; flagellum black; flagellar segments oval, the outer segments becoming more elongate-

oval, the terminal segment elongate, exceeding the penultimate; verticils shorter than the segments. Head dark, probably pruinose in fresh specimens.

Mesothorax uniformly blackened, presumably pruinose in fresh specimens. Halteres pale, the knobs weakly infuscated. Legs with the coxae pale, the outer faces darker basally; trochanters yellow; femora brownish yellow, the tips narrowly dark brown; tibiae brownish yellow, the tips narrowly dark brown; tarsi passing into black. Wings (Fig. 9) whitish, with a sparse brown pattern that is much heavier in the female sex; the dark areas are distributed as follows: Stigma and a confluent seam at fork of *Rs*; *Sc*<sub>2</sub>; origin of *Rs*; cord and outer end of cell 1<sup>st</sup> *M*<sub>2</sub>; seam along vein *Cu*; in the more heavily-patterned individuals, the tips of the Anal veins and the axillary region are likewise darkened; veins brown, the basal half of *M* yellow. Venation: *Sc*<sub>1</sub> ending opposite origin of *Rs*, *Sc*<sub>2</sub> far from the tip of *Sc*<sub>1</sub>, the latter alone about one-third longer than *Rs*; *m—cu* at or before fork of *M*.

Abdomen dark brown, the ventral dististyle of male hypopygium pale. Male hypopygium (Fig. 29) with the tergite very deeply notched medially, the emargination narrowly U-shaped, or, on slides, even appearing V-shaped. Ventromesal lobe of basistyle, *b*, relatively large but unmodified. Dorsal dististyle pale, strongly curved, narrowed to the acute tip. Ventral dististyle, *vd*, with the rostral prolongation abruptly narrowed, with two slightly unequal spines close to tip, these not arising from basal tubercles. Mesal-apical lobe of gonapophyses long and narrow, pale.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Minshan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL). *Allotopotype*, ♀. *Paratopotypes*, several ♂♀.

I take very great pleasure in naming this distinct *Limonia* in honor of Dr. YNGVE SJÖSTEDT, to whom I am highly indebted for much kindly co-operation in studying the Tipulidae of various regions. The species is readily told from all regional similar forms by the characters diagnosed above, especially the structure of the male hypopygium, as the very deeply emarginate ninth tergite, the distal position of the rostral spines and the long slender apical lobe of the gonapophysis.

### ***Antocha (Antocha) nebulipennis* ALEXANDER.**

1931. *Antocha (Antocha) nebulipennis* ALEXANDER; Philippine Journ. Sei., 44: 352—353, pl. 1, fig. 9 (venation); pl. 2, fig. 41 (♂ hypopygium).

Described from Mupin, Western Szechwan, altitude 3500 feet, June 30, 1929, collected by Reverend DAVID C. GRAHAM.

In the present series are a few specimens of both sexes, Kung-tze-tagga, Tsaluk Valley, Min-shan, Kansu, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

*Neolimnophila fuscocubitalis* sp. n.

General coloration gray; praescutum more yellowish gray, with three brown stripes, the median one often divided by a capillary pale vitta; wings whitish, the stigma and a broad conspicuous seam along vein *Cu* brown; costal border not or scarcely darkened;  $R_2$  close to fork of *M*.

Male. — Length, 7—8 mm.; wing, 8—9 mm.

Female. — Length, 7,5—8 mm.; wing, 7,5—8,5 mm.

Rostrum and palpi gray. Antennae with scape and pedicel black; flagellum brownish black. Head gray.

Mesonotal praescutum yellowish gray with three or four brown stripes, the intermediate pair in cases united into a single vitta or nearly so; posterior sclerites of notum clearer gray. Pleura gray. Halteres pale, the knobs weakly darkened. Legs with the coxae pruinose; trochanters brownish yellow; remainder of legs black, the extreme bases of femora a trifle paler. Wings (Fig. 10) whitish, the stigma and a broad conspicuous seam along vein *Cu* brown; costal border not or scarcely darker than the remainder of disk, in cases with a slight darkening in base of cell *Sc* and at *h*; in heavily-patterned specimens, the anterior cord is narrowly darkened but the posterior cord is unclouded; veins dark brown, *M* chiefly pale yellow, especially at base. Venation:  $R_2$  close to fork of  $R_{2+3+4}$ , usually just beyond; *r—m* some distance beyond fork of *Rs*; *m—cu* approximately its own length beyond fork of *M*.

Abdomen gray, more brownish in female. Male hypopygium with two interbasal spines on basistyle, these much shorter than in *alticola* and almost equal to one another in length and diameter.

*Holotype*, ♂, Yu-Long-Si, Szechwan-Tibet Border, altitude 15,600 feet, July 28, 1930 (D. C. GRAHAM); in U. S. National Museum. *Allotopotype*, ♀. *Paratopotypes*, 12 ♂♀, July 28—August 7, 1930 (D. C. GRAHAM). *Paratypes*, ♀♀, Yin-Kuan-Tsai, altitude 13,000—15,000 feet, July 25, 1930 (D. C. GRAHAM); 15 alcoholic ♀♀, Kung-tze-tagga, Tsaluk Valley, Min-shan, Kansu, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

I have had this species before me from the United States National Museum and take the opportunity of describing the fly at this time. *Neolimnophila fuscocubitalis* is most nearly

allied to *N. fuscinervis* EDWARDS (Yunnan, Szechwan-Tibet Border) which is distinguished by the much heavier wing-pattern, the costal region being darkened, the entire cord and outer end of cell  $1^{st} M_2$  conspicuously seamed with brown, and the posterior border of wing narrowly but entirely bordered by dusky. The present fly has the posterior cord, outer end of cell  $1^{st} M_2$  and the costal and posterior wing-borders clear or virtually so. The general effect is thus one of a wing unmarked except for the stigma and a conspicuous dark seam along vein *Cu*. One specimen of the type-series has both *m* and the basal section of  $M_3$  lacking in one wing only.

**Erioptera (Psiloconopa) tridenticulata** sp. n.

General coloration yellow, variegated by dark brown; antennae with scape yellow, pedicel and flagellum brownish black; mesonotal praescutum with three confluent stripes; thoracic pleura striped, more heavily so on ventral portion; legs black; wings yellowish white, with very restricted pale brown seams on certain of the veins;  $Sc_2$  just beyond origin of *Rs*; veins beyond cord long and parallel; cell  $1^{st} M_2$  closed; Anal veins divergent; male hypopygium with outer dististyle bearing three spines at and near tip.

Male. — Length, about 3,5—3,7 mm.; wing, 4—4,2 mm.

Described from alcoholic specimens.

Rostrum and palpi brown. Antennae short; scape light yellow, the remaining segments brownish black; flagellar segments oval, with verticils that are subequal to the segments or nearly so. Head dark brown, possibly pruinose in fresh specimens.

Pronotum yellow, narrowly brown medially. Mesonotum yellow, conspicuously variegated by dark brown; praescutum with three confluent stripes, the median one more or less divided by a capillary darker vitta that is best indicated in front; posterior sclerites of notum chiefly darkened, the median region of scutum, most of scutellum and antero-lateral angles of mediotergite more yellowish. Pleura yellow, variegated by dark brown, that is distributed more or less as stripes; the more dorsal stripe very narrow and interrupted, on the suture between anepisternum and sternopleurite with posterior end arcuated dorsad, continued caudad even less evidently onto the pteropleurite; ventral darkening much wider and more conspicuous, including the sternopleurite and meron. Halteres generally pale, the knobs weakly darkened. Legs with the coxae obscure yellow, the outer faces more or less infumed; trochanters yellow; remainder of legs black throughout. Wings (Fig. 11) yellowish white, with very restricted pale brown

seams on cord and as marginal spots on  $R_{1+2}$  and  $R_3$ ; veins brown, the bases of  $M$  and  $1^{st} A$  fading to white and becoming almost invisible, Macrotrichia abundant and well-distributed on veins beyond cord, basad of cord more restricted; basal section of  $M$  and  $1^{st} A$  glabrous. Venation:  $Sc_2$  just beyond origin of  $Rs$ ,  $Sc_1$  thus very long, exceeding  $Rs$ ;  $R_2$  and  $R_{2+3}$  subequal; veins beyond cord unusually straight and parallel, the cells deep; cell  $1^{st} M_2$  shorter than any of the veins issuing from it;  $m$  straight to strongly arcuated;  $m-cu$  nearly its own length before fork of  $M$ ; Anal veins diverging,  $2^{nd} A$  gently convex toward  $1^{st} A$ .

Abdominal tergites chiefly brown, the pleural region and sternites more yellowish; hypopygium obscure yellow. Male hypopygium (Fig. 30) with the two dististyles terminal; outer style, *od*, blackened, terminating in two equal spines, with a third similar spine on outer face just back from apex; surface of style without punctures; inner dististyle, *id*, subequal in length to outer, a trifle dilated at outer end, the surface with several microscopic punctures. Gonapophyses, *g*, appearing as pale flattened blades, the mesal-apical lobe a gently curved blackened spine.

*Holotype*, alcoholic ♂, Kung-tze-tagga, Tsaluk Valley, Minshan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL). *Paratopotype*, ♂.

There is no near regional ally of the present fly, which is readily told by the venation and structure of the male hypopygium. The venation reminds one strongly of *Helobia* and allies, and perhaps, the present species would be better placed in this complex. However, it is becoming increasingly apparent that all of the genera of Eriopterini with pot-bellied meron are closely inter-related and it is very possible that *Helobia* may later on be placed as a subgenus of *Erioptera*.

### **Erioptera (Empeda) praelata** sp. n.

Size very large (wing, female, 6,8 mm.); general coloration dark; halteres pale yellow; legs black throughout; wings pale yellowish gray; stigma faintly indicated;  $Sc$  long,  $R_3$  not conspicuously oblique, cell  $M_2$  open by atrophy of  $m$ .

Female. Length, about 6,5 mm.; wing,  $6,8 \times 2,15$  mm.

Described from an alcoholic specimen.

Rostrum and palpi black. Antennae black throughout, Head brownish black.

Thorax dark brown, the dorso-pleural region paler; in fresh specimens, the coloration is very probably pruinose, Halteres pale yellow. Legs black throughout, in fresh spe-

cimens with the coxae probably pruinose. Wings (Fig. 12) pale yellowish gray, the prearcular and costal regions clear light yellow; stigma very pale brown; veins pale brown. Venation:  $Sc$  relatively long,  $Sc_1$  ending about opposite three-fourths  $Rs$ ,  $Sc_2$  a short distance from its tip;  $R_2$  oblique, subequal to  $R_{2+3+4}$ ;  $R_{1+2}$  and  $R_{3+4}$  subequal; veins  $R_3$  and  $R_4$  only slightly divergent, cell  $R_2$  at margin being nearly two-thirds  $R_3$ ; cell  $M_2$  open by atrophy of  $m$ ;  $m-cu$  shortly before fork of  $M$ ; vein  $2^{nd}$   $A$  diverging from  $1^{st}$   $A$  throughout its entire length.

Abdomen dark brown, the pleural membrane paler. Ovipositor with cerci elongate, gently upcurved.

*Holotype*, alcoholic ♀, Kung-tze-tagga, Tsaluk Valley, Minshan, altitude about 3028 meters, July 20, 1930, at light (D. HUMMEL).

The present fly is well-distinguished from all allies in the relatively great size, the wing-area of the female being about twice that of the nearest ally, *Erioptera (Empeda) japonica* ALEXANDER. This latter species has the trichiae of the wing-veins longer and more conspicuous, and with certain details of venation quite distinct, as the shorter  $Rs$ , much longer and more strongly arcuated  $R_3$ , and strongly curved  $M_4$ , which at near midlength bends markedly toward the wing-tip. In the present fly,  $M_4$  is nearly straight throughout its length. The regional *E. (E.) vaillanti* ALEXANDER (Mongolia) is well-distinguished by the short  $Sc$  and closed cell  $1^{st}$   $M$ .

## Explanation of Plates.

### Plate I.

- Fig. 1. *Tipula (Vestiplex) subcarinata* ALEXANDER; wing.  
 » 2. *Tipula (Vestiplex) hummeli* sp. n.; wing.  
 » 3. *Tipula (Vestiplex) hedinii* sp. n.; wing.  
 » 4. *Tipula minensis* sp. n.; wing.  
 » 5. *Tipula dolosa* sp. n.; wing.  
 » 6. *Tipula macarta* sp. n.; wing.  
 » 7. *Nephrotoma perobliqua* sp. n.; wing.  
 » 8. *Limonia (Dicranomyia) kinensis* sp. n.; wing.  
 » 9. *Limonia (Dicranomyia) sjöstedti* sp. n.; wing.  
 » 10. *Neolimnophila fuscocubitalis* sp. n.; wing.  
 » 11. *Erioptera (Psiloconopa) tridenticulata* sp. n.; wing.  
 » 12. *Erioptera (Empeda) praelata* sp. n.; wing.

### Plate II.

- Fig. 13. *Tipula (Vestiplex) subcarinata* ALEXANDER; male hypopygium, lateral aspect.  
 » 14. *Tipula (Vestiplex) subcarinata* ALEXANDER; the same, dorsal.



- Fig. 15. *Tipula (Vestiplex) subcarinata* ALEXANDER; the same, ventral.  
 » 16. *Tipula (Vestiplex) hedini* sp. n.; male hypopygium, details.  
 » 17. *Tipula (Acutipula) pertinax* sp. n.; the same.  
 » 18. *Tipula (Acutipula) captiosa* sp. n.; the same, ninth tergite.  
 » 19. *Tipula (Acutipula) captiosa* sp. n.; the same, inner dististyle.  
 » 20. *Tipula minensis* sp. n.; the same, details.

### Plate III.

- Fig. 21. *Tipula dolosa* sp. n.; male hypopygium, details.  
 » 22. *Tipula finitima* sp. n.; the same.  
 » 23. *Tipula absconsa* sp. n.; the same.  
 » 24. *Tipula macarta* sp. n.; the same.  
 » 25. *Nephrotoma drakanæ* sp. n.; the same, ninth tergite.  
 » 26. *Nephrotoma perobliqua* sp. n.; the same.  
 » 27. *Nephrotoma perobliqua* sp. n.; the same, lateral aspect.  
 » 28. *Limonia (Dicranomyia) kinensis* sp. n.; male hypopygium.  
 » 29. *Limonia (Dicranomyia) sjöstedti* sp. n.; the same.  
 » 30. *Erioptera (Psiliconopa) tridenticulata* sp. n.; the same.

### Explanation of Symbols.

(Hypopygial Characters.)

- a* = ædeagus.  
*b* = basistyle.  
*dd* = dorsal dististyle.  
*g* = gonapophysis.  
*id* = inner dististyle.  
*od* = outer dististyle.  
*p* = phallosome.  
*s* = sternites.  
*t* = tergites.  
*vd* = ventral dististyle.

Tryckt den 22 februari 1934.

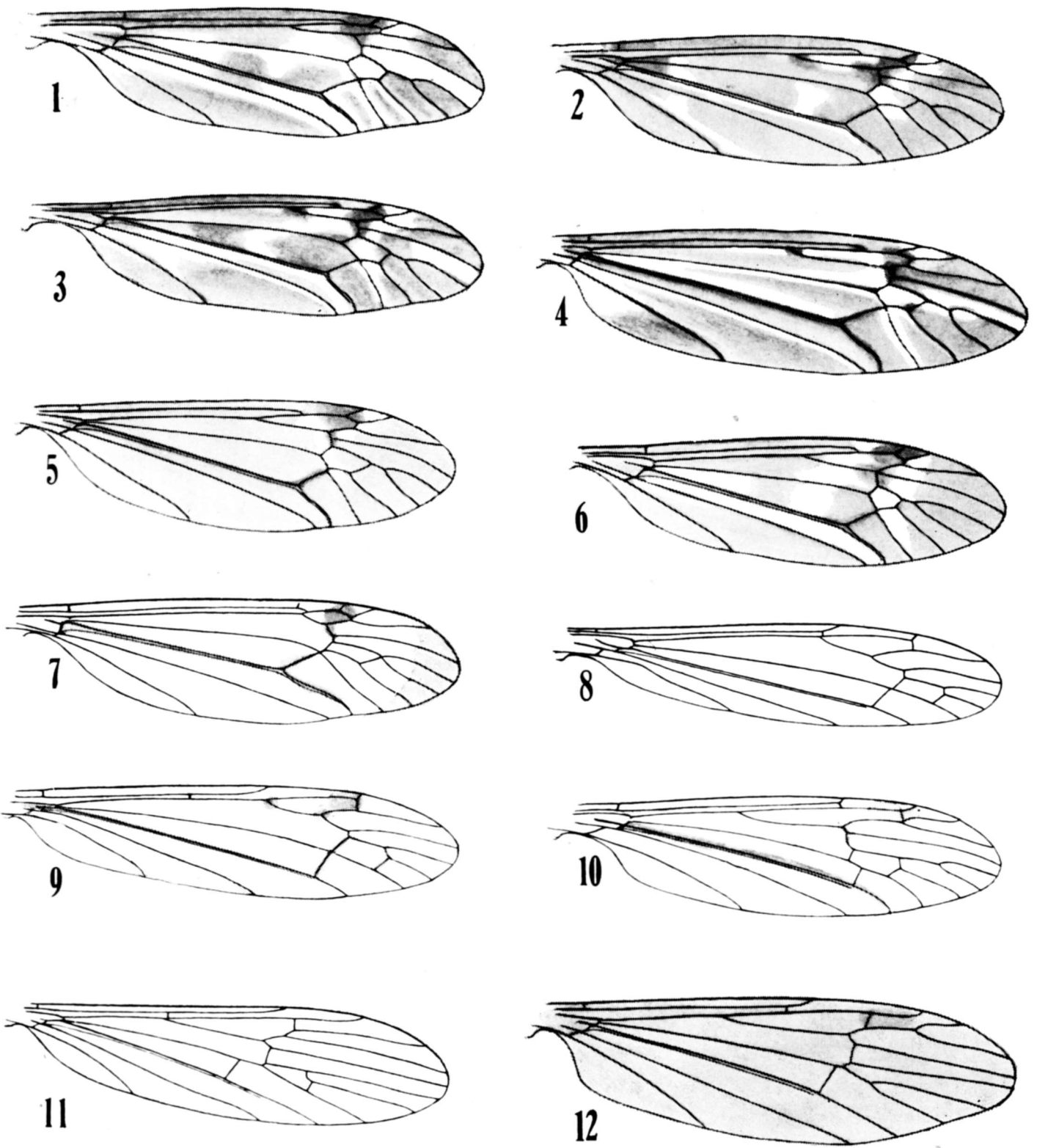


Fig. 1—12.

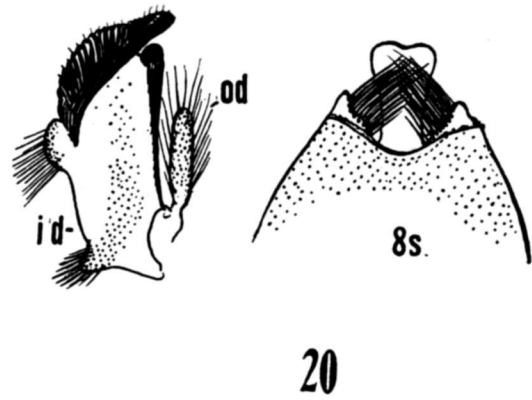
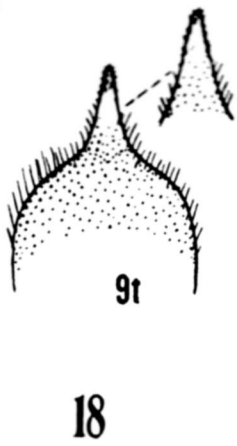
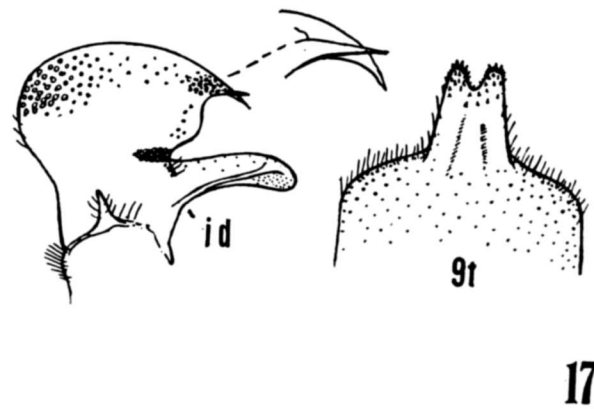
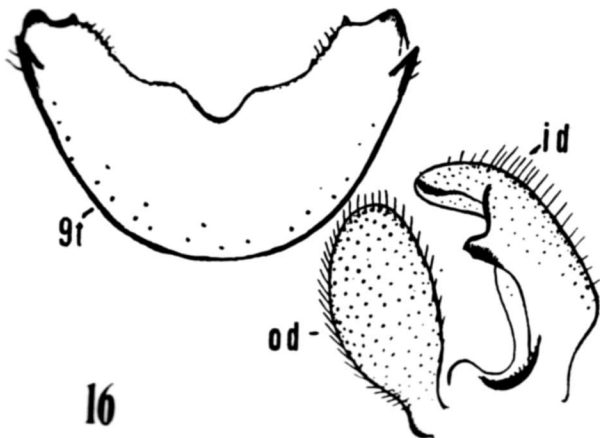
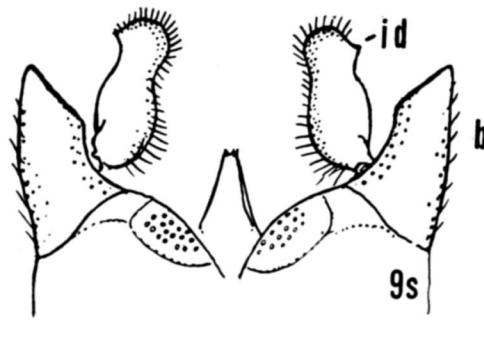
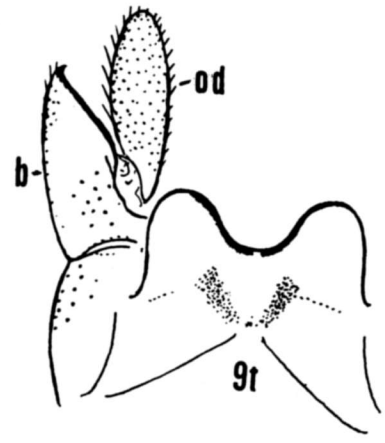
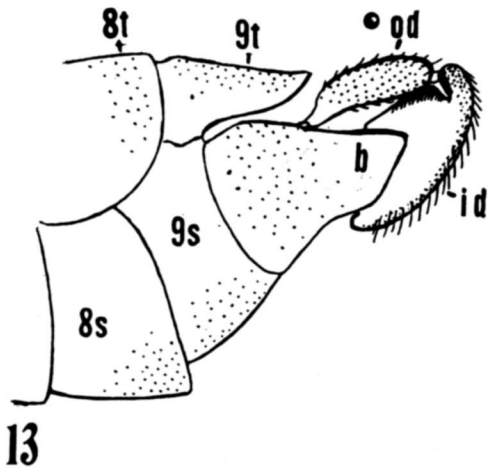


Fig. 13—20.

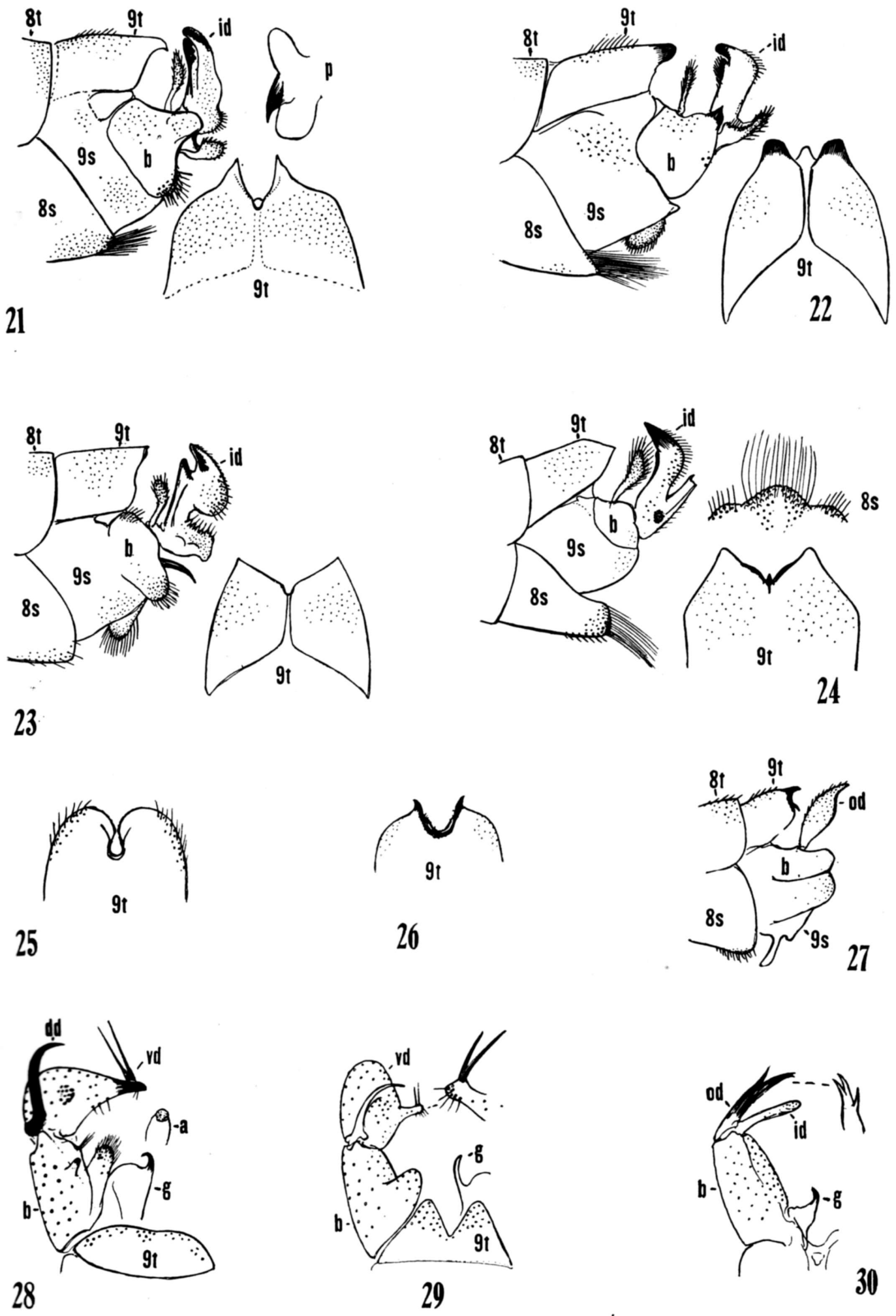


Fig. 21—30.