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NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN CHINA

PART. I.

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NEW OR LITTLE-KNOWN TIPULIDÆ
FROM EASTERN CHINA.

PART I.

BY

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I am greatly indebted to the Reverend Father Octave PIEL for the privilege of studying the extensive series of crane-flies (Tipulidae, Diptera) contained in the Musée Heude, Shanghai, China. In a series of papers under the present title, it is proposed to consider the species, describing the novelties and recording the data on the previously described forms. In the present series of specimens, the more interesting species were from the following localities:

Zi-ka-wei, near Shanghai, Kiangsu Province.

Zô-sè, near Shanghai, Kiangsu Province.

Chusan Islands, Chekiang Province.

Kuling, Lushan, northern Kiangsi Province.

Types of all the species herein described, as well as representatives of the other forms recorded, are preserved in the Musée Heude. I wish to express my sincere thanks to Father PIEL for his great kindness in collecting much of the materials herein discussed and in offering much encouragement in the preparation of the present and subsequent reports.

It is planned to provide a continuously numbered list throughout the various reports so that at any given time it will be possible to ascertain the total number of species of Tipulidae in the Musée Heude Collection. In the present paper, species of the subfamily Tipulinae are discussed.

TIPULINÆ

1. *Pselliophora bifasciipennis* Brunetti.

1911. *Pselliophora bifasciipennis*, Brunetti, Rec. Indian Mus., 6: 241-242.
1916. *Pselliophora sackeni*, Edwards, Ann. Mag. Nat. Hist., (8) 18: 257.
1916. *Dictenidia Horikawæ*, Matsumura, Thousand Ins. Japan, Add. 2: 449-450.
1921. *Pselliophora compta*, Enderlein, Zool. Anzeig., 52: 220-221.

The type of *bifasciipennis* was from Shanghai; of *sackeni* from China, without exact data; of *horikawæ* from Kiushiu, Japan; of *compta* from various stations in Japan and eastern China. The species is now known to be widely distributed in Japan, Corea and eastern China.

One broken female, Shanghai, Kiangsu, May 23, 1932 (O. PIEL).

One male, Zi-ka-wei, Kiangsu, May 29, 1920.

One male, 1 female, Chusan, Chekiang, June 8, 1931, September 11, 1931 (O. PIEL).

One male, 2 females, Zô-sè, Kiangsu, May 18, 1930; June 3, June 14, 1934 (O. PIEL).

The present series of specimens shows a considerable range in color, yet from the very similar and characteristic wing-pattern would appear unquestionably to belong to a single species.

Some specimens have the thorax uniformly black while others have the præscutum and scutal lobes bright orange. The femora of some are almost entirely yellow; in others, especially the posterior pair, with the tips broadly blackened. The scape and pedicel of the antennæ of the female are black, the flagellum clear orange-yellow. The amount of yellow or orange on the intermediate segments of the abdomen is likewise variable.

2. *Pselliophora fumiplena* (Walker).

1856. *Ctenophora fumiplena*, Walker, Ins. Saundersiana, 1, Dipt., p. 449.
1886. *Pselliophora fumiplena*, Osten Sacken, Berliner Ent. Zeitschr., 30: 170-171.
1916. *Pselliophora fumiplena*, Edwards, Ann. Mag. Nat. Hist., (8) 18: 256.

This somewhat unusually variable species of *Pselliophora* is widely distributed in eastern China.

One male, Chusan, Chekiang, June 9, 1931; One female, June 3, 1931 (O. PHEL).

It seems somewhat questionable whether *Pselliophora flavibasis* Edwards, of southern Japan and eastern China, can be maintained as being distinct from *fumiplena*.

3. *Longurio (Longurio) fulvus* Edwards.

1916. *Longurio fulvus* Edwards, Ann. Mag. Nat. Hist., (8) 18: 262.

The species was described from two female types taken in north China by FORTUNE about the middle of the 19th Century. Rather abundant material of what seems to pertain to this same single species is now available, including specimens from Formosa and from Kwangtung Province, southeastern China.

Three females, Kuling, Kiangsi, altitude 3250 feet, July 10-17, 1935 (O. PHEL).

The above mentioned specimens show a rather considerable range in size and further differ in some details from the description of the type. Female.—Length, about 20-24 mm.; wing, 16-20 mm.

In these specimens, R_s exceeds R_{2+3} in length, while cell M_1 varies in length, from subequal to its petiole to twice this length. In cases, the lateral praescutal stripes and the scutal lobes are distinctly infumed.

4. **Ctenacroscelis brobdignagius** (Westwood).

1876. *Tipula Brobdignagia*, Westwood, Trans. Ent. Soc. London, 1876: 504, pl. 3, fig. 3.

1921. *Ctenacroscelis brobdignagia*, Edwards, Ann. Mag. Nat. Hist., (9) 8: 114.

Widely-distributed in China where it is the largest species of crane-fly in the local fauna.

Males and females, Kuling, Kiangsi, altitude 3250 feet, September 9, 1924 (O, PIEL); July 31—August 23, 1935 (O, PIEL).

5. **Tipula (Brothura) fractistigma** (Alexander).

1925. *Brithura fractistigma*, Alexander, Ann. Mag. Nat. Hist., (9) 15: 387, 392-394, fig. 4.

1935. *Tipula (Brithura) fractistigma*, Alexander, Philippine Journ. Sci., 57: 86-91.

The types were collected at Kuling, July 31 August 6, 1916, by M. J. HERVÉ-BAZIN, and are preserved in my collection through the friendly interest of Dr. JOSEPH BEQUAERT.

The present material from the type-locality was taken by Father PIEL, July 31 to August 21, 1935, together with a single additional small female, September 4, 1934. The range in size shown by these specimens is as follows:

Male.—Length, 30-33 mm.; wing, 22-23 mm.

Female.—Length, 38-50 mm.; wing, 24-30 mm.

6. **Tipula (Yamatotipula) poliocephala** (Alexander).

1921. *Tipula poliocephala*, Alexander, Bull. Mus. Hist. Nat., Paris, 1921: 346-347.

The type was from Szechwan, collected by Father ARMAND DAVID. The species is now known to be widely-distributed in China.

One broken male, Zô-sè, Kiangsu, April 28, 1930
(O. PIEL).

One female, Chusan, Chekiang, April 24, 1931
(O. PIEL).

7. *Tipula (Yamatotipula) subnova* sp. n.

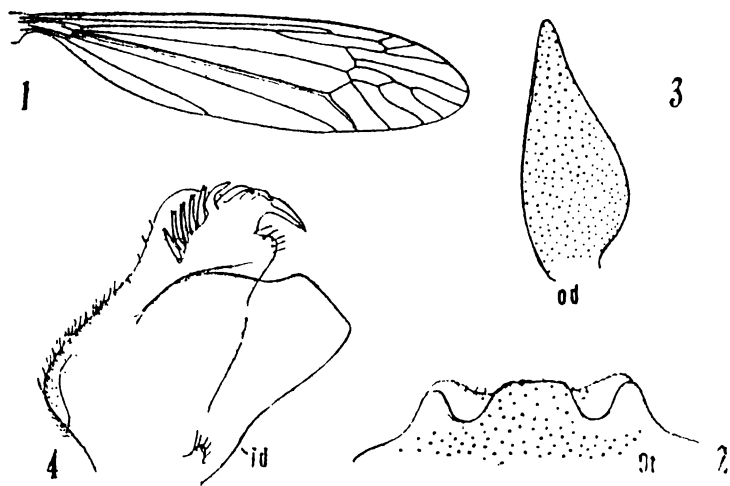
General coloration gray, the præscutum feebly patterned; antennal flagellum black; wings striped longitudinally with whitish subhyaline and dark brown, the pattern much as in *nova*; male hypopygium with the median lobe of tergite very low and broad; outer dististyle narrow, its outer end pointed.

Male. — Length, about 15 mm.; wing, 19 mm.

Frontal prolongation of head light brown, gray pruinose above; nasus long. Antennæ with the scape and pedicel brownish yellow; basal segment of flagellum yellowish brown, the remainder black; verticils a little longer than the segments. Head brownish gray.

Mesonotum almost uniformly gray, the præscutum and scutum with scarcely evident darker gray markings. Pleura light gray; dorso-pleural membrane brownish yellow. Halteres brown. Legs with the coxæ and trochanters light gray pruinose; femora and tibiae brownish yellow, the tips weakly darker; tarsi passing through dark brown to black. Wings (Fig. 1) striped longitudinally with whitish subhyaline and dark brown, the pattern much as in *nova*; the whitish areas include a continuous longitudinal stripe beginning as a point at near midlength of cells *R* and *M* along vein *M*, reaching the wing-apex in cell *R*₅, including almost all of cell *1st M*₂; bases of cells *Cu* and *1st A* conspicuously pale; stigma a little darker than the remainder of ground, with a pale spot at its proximal end in cell *R*₁; Anal cells slightly paler than the remainder of ground; outer Medial cells uniformly darkened; veins brown, more yellowish in the subhyaline areas. Venation: *R*s a little

less than twice R_{2+3} ; cell $1st\ M_2$ long, its upper and lower faces nearly parallel; petiole of cell M_1 subequal to m .



Tipula (Yamatotipula) subnova sp. n.

(Symbols: *9t*, ninth tergite of male hypopygium; *id*, inner dististyle; *od*, outer dististyle).

Fig. 1. Wing.

Fig. 2. Male hypopygium, ninth tergite.

Fig. 3. Male hypopygium, outer dististyle.

Fig. 4. Male hypopygium, inner dististyle.

Abdomen dark brown, sparsely pruinose; hypopygium dark. Male hypopygium with the median lobe of tergite (Fig. 2, *9t*) very low and broad, jutting caudad to just beyond the level of the obtuse, glabrous lateral lobes. Outer dististyle (Fig. 3, *od*) unusually narrow, the outer end pointed. Inner dististyle (Fig. 4, *id*) with the outer spines multidentate at apices.

Habitat.—China (Kiangsu).

Holotype, male, Zi-ka-wei, April 17, 1920.

Tipula (Yamatotipula) subnova has a wing-pattern that is curiously like that of *T. (Y.) nova* Walker, but paler. The male hypopygium is entirely different in structure from that of *nova*, being more like that of *T. (Y.) aino*

Alexander and *T. (Y.) patagiata* Alexander, species with no marked wing-pattern other than the darkened costal border. In the present fly outer medial cells are uniformly darkened whereas in *nova* the bases of cells M_1 and 2nd M_2 are involved in the white longitudinal stripe.

8. ***Tipula (Acutipula) quadrinotata* Brunetti.**

1912. *Tipula quadrinotata*, Brunetti, Fauna Brit. India, Diptera Nematocera, pp. 330-331.
 1916. *Tipula shirakii*, Edwards, Ann. Mag. Nat. Hist., (8) 18: 258.
 1918. *Tipula fumicosta*, Brunetti, Rec. Indian Mus., 15: 266.
 1919. *Tipula pseudofulvipes*, de Meijere, Bijd. tot de Dierkunde, Feest-nummer, 21: 18-19.

Wide-spread in southeastern Asia.

One male, Kuling, Kiangsi, altitude 3250 feet, September 18, 1934 (O. PIEL).

9. ***Tipula (Acutipula) stenacantha* sp. n.**

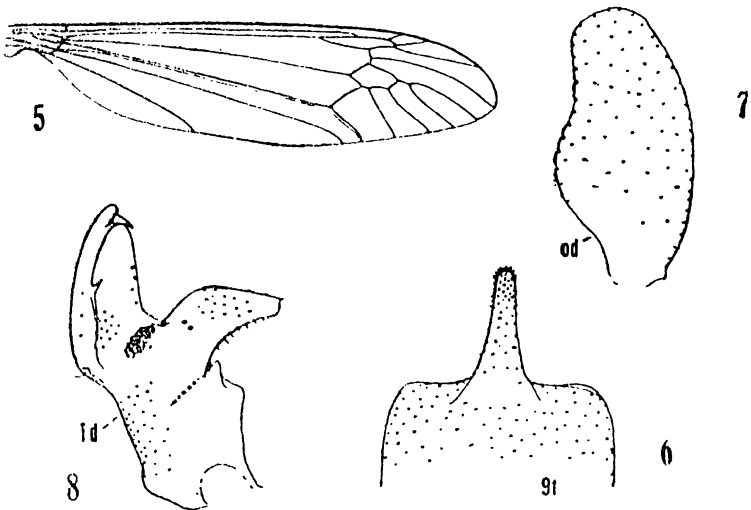
Male. — Length, about 23-25 mm.; wing, 24-27 mm.

Female. — Length, about 28-30 mm.; wing, 24-26 mm.

Characters as in *platycantha*, differing especially in the structure of the male hypopygium.

Antennæ brownish yellow, the outer segments more darkened. Anterior vertex (male) only a little wider than the diameter of scape. Mesonotal præscutum yellowish gray, with four poorly defined darker brown stripes; scutum yellowish gray, the lobes variegated by poorly marked, darker brown areas; scutellum dark brown, parascutella yellow; mediotergite darkened, paler laterally. Pleura yellow. Halteres dark. Legs with the femora obscure yellow, the tips narrowly (2-2.5 mm.) and abruptly blackened; tibiae brownish yellow, the tips narrowly blackened; tarsi brown, passing to brownish black. Wings (Fig. 5) grayish, the prearcular field, cells *C* and *Sc*, and the stigma, brown;

obliterative areas restricted. Venation: *m-cu* on M_{3+4} a short distance before fork. Abdomen brownish yellow, the tergites darkened laterally; outer segments, including hypopygium, black. Male hypopygium with the median lobe of tergite (Fig. 6, *9t*) simple, relatively slender, with blackened spines on about the distal third. Outer dististyle (Fig. 7, *od*) broad, the apex obtuse, the outer margin at near midlength weakly protuberant. Inner dististyle (Fig. 8, *id*) with the beak deeper than in *platycantha*, the apex truncated and blackened; outer lobe narrower than in *platycantha*, with both spines small, neither apical in position.



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

(Symbols: *9t*, ninth tergite of male hypopygium; *id*, inner dististyle; *od*, outer dististyle).

Fig. 5. Wing.

Fig. 6. Male hypopygium, ninth tergite.

Fig. 7. Male hypopygium, outer dististyle.

Fig. 8. Male hypopygium, inner dististyle.

Habitat. — China (Kiangsi).

Holotype, male, Kuling, altitude 3250 feet, July 14, 1935 (O. PIEL). Allotopotype, female, August 14, 1935. Paratopo-

types, 12 males and females, July 28-August 22, 1935; 1 male, 2 females, September 5-9, 1934 (O. PIEL).

The nearest ally of the present fly is *Tipula (Acutipula) platycantha* Alexander, of western China (Philippine Journ. Sci. 54: 314-315; 1934), which differs especially in the details of structure of the male hypopygium, as the narrow beak and stouter outer lobe of the inner dististyle.

10. ***Tipula (Indotipula) suenisoni* Alexander.**

1925. *Tipula suenisoni*, Alexander, Encycl. Entomol., Diptera, 2: 89-91, figs. 4-5.

1935. *Tipula (Indotipula) suenisoni*, Alexander, Philippine Journ. Sci., 57: 113.

The type was from Hang-chow, Chekiang, collected April 23, 1924, by M. E. Suenson, of Shanghai.

One female, Chusan, Chekiang, September 18, 1931 (O. PIEL).

11. ***Tipula (Vestiplex) bifida* Alexander.**

1921. *Tipula bifida*, Alexander, Bull. Mus. Hist. Nat., Paris, 1921: 539-540.

1935. *Tipula (Vestiplex) bifida*, Alexander, Philippine Journ. Sci., 57: 119.

One broken male, Kuling, Kiangsi, altitude 3250 feet, September 16, 1934 (O. PIEL).

12. ***Tipula (Oreomyza) pieli* sp. n.**

Mesonotal præscutum yellow with three brown stripes, the median one narrowly bordered and divided medially by darker brown; pleura yellow; antennal flagellum black; fore femora darkened, with a vague yellow subterminal ring; wings sbhyaline, the base and costal region light yellow; brown seams on anterior cord and along veins *Cu* and *2nd A*; tip of vein R_{1+2} pale and nearly atrophied; cell *1st M*₂ small; male hypopygium with the ninth tergite trilobed, the median lobe acute; eighth sternite sheathing with three groups of conspicuous setæ.

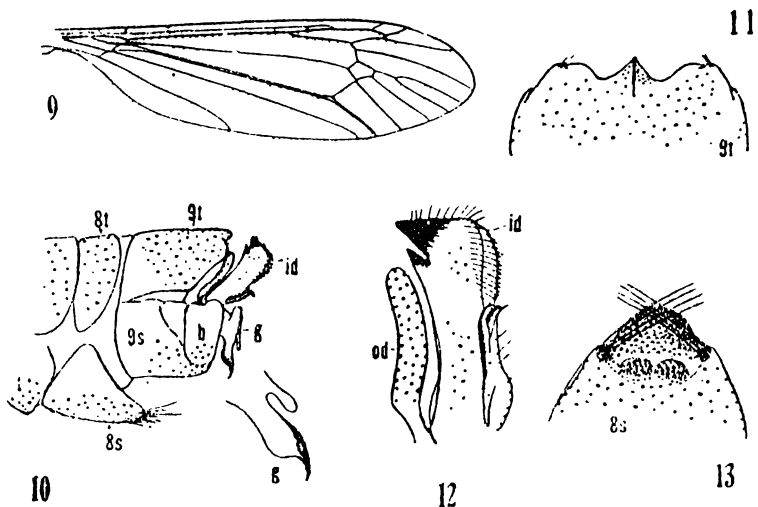
Male. — Length, about 11 mm.; wing, 10 mm.; antenna, about 4.3 mm.

Frontal prolongation of head gray above, brown on sides; nasus long and slender; palpi black. Antennæ relatively elongate, if bent backward extending about to base of abdomen; scape and pedicel yellow, flagellum black, the base of the first segment paler; flagellar segments moderately incised; longest verticils subequal in length to the segments. Head gray.

Pronotum yellow. Mesonotal præscutum yellow, with three brown stripes, the median one narrowly bordered and divided medially by darker brown; lateral stripes more deeply colored on their lateral portion than on the inner or mesal edge; scutal lobes chiefly darkened; scutellum and mediotergite pale brown, heavily golden-yellow pollinose. Pleura yellow. Halteres with the stem obscure yellow, the knob dark brown. Legs with the coxæ and trochanters yellow; fore femora chiefly darkened, pale on basal fourth and with a vague, obscure yellow, subterminal ring; extreme tip of all femora vaguely paler; middle and hind femora yellow, with a narrow, nearly terminal, dark ring; tibiæ yellow, the tips narrowly but conspicuously blackened; tarsi relatively short, black, the proximal ends of basitarsi paler; claws with small erect tooth on basal third. Wings (Fig. 9) subhyaline, the prearcular and costal regions clear yellow; stigma pale brown; rather conspicuous brown seams on anterior cord and along veins *Cu* and *2nd A*; veins pale brown, darker in the clouded portions, more luteous in the yellow areas. Venation: Outer half of *R*₁₊₂ pale to virtually evanescent, without macrotrichia; cell *1st M*₂ small-pentagonal; cell *M*₁ about three times the length of its petiole.

Abdominal tergites yellow, the subterminal segments blackened; hypopygium relatively large, chiefly fulvous; basal tergites almost unmarked, but the third to fifth segments, inclusive, with a vague darkened median vitta.

Male hypopygium (Fig. 10) relatively small; tergite, *9t*, separated from sternite by membrane; basistyle oval, entirely separated from sternite by sutures. Ninth tergite (Fig. 11, *9t*) with the caudal margin trilobed; median lobe acutely pointed, with a median ridge on ventral surface; lateral lobes obtuse. Outer dististyle (Fig. 12, *od*) relatively broad, angulated near base, with long setæ. Inner dististyle (Fig. 12, *id*) straight, a little widened outwardly, the apical beaks blackened; outer margin with a crest of parallel-ribbed hyaline membrane; at base on outer margin with a more sclerotized slender lobe. Eighth sternite (Fig. 13, *8s*) relatively large and sheathing, narrowed outwardly, conspicuously provided with groups of setæ; a suboval median lobe, densely set with setæ that are directed outward; at its base, on either side of midline, a rounded cushion, set with about



Tipula (*Oreomyza*) pieli sp. n.

(Symbols: *9t*, ninth tergite of male hypopygium; *g*, gonapophysis; *id*, inner dististyle; *od*, outer dististyle; *s*, sternites; *t*, tergites).

Fig. 9. Wing.

Fig. 10. Male hypopygium, lateral aspect.

Fig. 11. Male hypopygium, ninth tergite.

Fig. 12. Male hypopygium, styli.

Fig. 13. Male hypopygium, eighth sternite.

fifteen very long setæ, directed outward; lateral angles of sternite with a group of about six very long setæ, directed mesad and slightly outward, decussate across the midline of body. Gonapophyses, g , produced into an acute blackened point that is directed ventrad.

Habitat. — China (Kiangsi).

Holotype, male, Kuling, altitude 3250 feet, August 9, 1935 (O. PIEL).

I take very great pleasure in naming this very distinct fly in honor of Father PIEL, to whom we are greatly indebted for this opportunity to study the Tipulidæ of Eastern China. In its general appearance, the species somewhat resembles *Tipula (Oreomyza) cladomera* Alexander, *T. (O.) obnata* Alexander and *T. (O.) superciliosa* Alexander. It is very different from all species known to me, especially in the details of structure of the male hypopygium.

13. *Tipula (Oreomyza) savionis* sp. n.

Belongs to the *mutila* group; general coloration light gray; antennal flagellum bicolored; wings whitish subhyaline, with four narrow brown crossbands; prearcular field and cell *Sc* clear yellow; cell *C* chiefly darkened; R_{1+2} atrophied except for a basal spur; *Rs* unusually long, exceeding three times *m-cu*; cell *1st M*₂ narrowed outwardly; outer abdominal segments darkened; eighth sternite sheathing, the caudal margin with a dense fringe of long yellow setæ.

Male. — Length, about 11 mm.; wing, 13 mm.; antenna, about 4.5 mm.

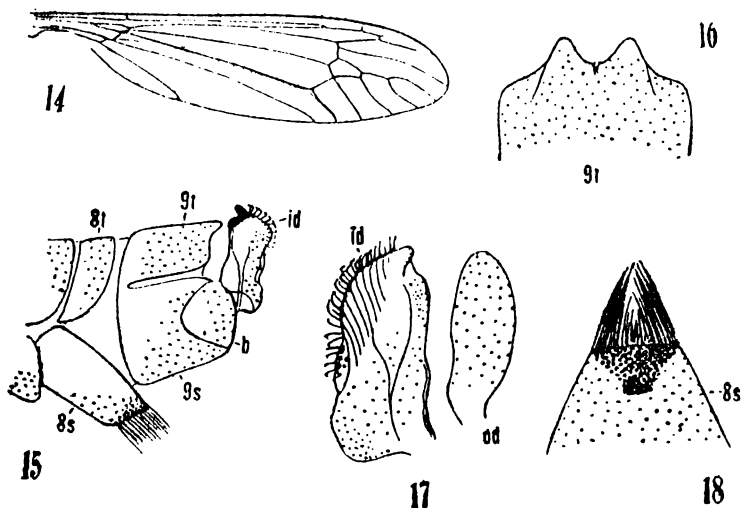
Frontal prolongation of head dark, light gray pruinose; nasus distinct; palpi black. Antennæ of moderate length; scape, pedicel and first flagellar segment yellow; succeeding flagellar segments bicolored, the basal enlargement brownish black, the remainder yellow, at near midlength of the organ the segments becoming more uniformly darkened;

flagellar segments rather strongly incised; longest verticils shorter than the segments; terminal segment about one-third the length of the penultimate. Head gray.

Mesonotum discolored except in places, apparently chiefly light gray pruinose, the præscutum with darker stripes; scutellum and mediotergite clear gray, the former with a median dark vitta. Pleura gray pruinose; dorsopleural membrane obscure yellow. Halteres obscure yellow. Legs with the coxæ gray pruinose; trochanters yellow; remainder of legs broken. Wings (Fig. 14) whitish subhyaline, conspicuously patterned with brown; prearcular field and cell *Sc* clear yellow, cell *C* darkened, its basal portion yellow; a conspicuous brown pattern, arranged as four more or less distinct fasciæ, the basal one much broken, beyond arculus, including a small area in extreme bases of cells *R* and *M*, a dark seam along vein *2nd A* and the posterior margin of this cell; second band narrow, extending from the origin of *Rs* to the posterior border of wing in cell *1st A*, interrupted by the pale cell *Cu*; third fascia at cord, more intense at the stigma, attaining the posterior margin along vein *Cu*, narrowed but not interrupted on vein M_{1+2} ; outer band apical, most intense in the radial field where it occupies the outer halves of the cells, paler and poorly indicated in the medial field; the ground-color thus includes very broad bands before and beyond origin of *Rs* and beyond the cord; veins dark, brightened in the ground areas, especially in the yellow basal portions. Venation: R_{1+2} represented by a short basal spur with three or four trichia; *Rs* long, exceeding three times *m-cu* and more than one-half longer than R_{2+3} ; cell *1st M*₂ narrowed; *m* only about one-third as long as *r-m* and very much shorter than the basal section of M_3 .

Basal abdominal segments chiefly yellow, the tergites restrictedly darkened medially; subterminal segments and hypopygium uniformly darkened. Male hypopygium (Fig. 15) with the tergite, *9t*, and basistyle separated from the

sternite by complete sutures. Ninth tergite (Fig. 16, *9t*) relatively extensive, the caudal margin produced into two obtuse flattened lobes, one on either side of the midline, separated by a U-shaped notch, at the base of which is a further median split. Outer dististyle (Fig. 17, *od*) flattened. Inner dististyle (Fig. 17, *id*) broad, the apical beak short and stout; several of the setæ along outer margin angularly bent. Eighth sternite (Fig. 18, *8s*) moderately sheathing, narrowed outwardly, the apex truncated; a dense apical fringe of yellow setæ, longer and more conspicuous on the lateral portions than on the median line; on membrane between the eighth and ninth sternites a small median group of different setæ. Aedeagus slender, elongate, jutting from the genital chamber.



Tipula (Oreomyza) savionis sp. n.

(Symbols: *9t*, ninth tergite of male hypopygium; *b*, basistyle; *id*, inner dististyle; *od*, outer dististyle; *s*, sternites; *t*, tergites).

Fig. 14. Wing.

Fig. 15. Male hypopygium, lateral aspect.

Fig. 16. Male hypopygium, ninth tergite.

Fig. 17. Male hypopygium, styli.

Fig. 18. Male hypopygium, eighth sternite.

Habitat. — China (Kiangsu).

Holotype, male Zô-sè, April 5, 1934 (A. Savio).

The species is named after the late Father A. Savio, authority on the Cerambycidae of the region of the lower Yang-tse. There are several regional species of the *mutila* group that bear a superficial resemblance to the present fly, these including *Tipula (Oreomyza) flavocostalis* Alexander, *T. (O.) hibii* Alexander, *T. (O.) hylæa* Alexander and *T. (O.) mutiloides* Alexander, but all differ in details of coloration of the body and wings, and in the structure of the male hypopygium. The bicolourous antennæ and unusually long *Rs* in the present insect furnish strong specific characters.

14. *Tipula (Oreomyza) strictura* sp. n.

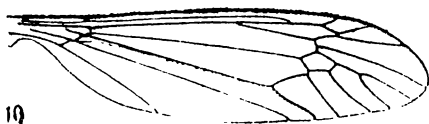
General coloration gray, the præscutum with four stripes, the intermediate pair darker gray, bordered by dark brown, the lateral stripes uniformly brown; interspaces of præscutum with conspicuous dark setigerous punctures; a narrow black median vitta on vertex; halteres obscure yellow; femora dark brown, the bases yellow, narrowest on the fore pair; tibiæ yellow, the tips darkened; tarsi black; wings yellowish white, the prearcular area conspicuously yellow; a dark clouded pattern, involving most of the membrane; a complete crossband beyond the cord, most of cell R_5 and the outer medial field chiefly pale; vein R_{1+2} entire; *m-cu* on M_4 some distance beyond origin of latter; abdominal tergites blackened, the second segment reddish sublaterally; cerci slender, straight.

Female. — Length, about 18 mm.; wing, 16 mm.; antenna, about 2.4 mm.

Frontal prolongation of head dark gray above, more brownish on sides; nasus short and stout; palpi black, the more basal segments pruinose. Antennæ short; scape dark brown, pruinose; pedicel obscure yellow; flagellum black;

terminal segment equal in length to the penultimate. Head gray; a capillary black median vitta on vertex; setæ of head conspicuous; vertical tubercle bifid.

Pronotum gray, narrowly darkened medially. Mesonotal præscutum gray, with four stripes, the intermediate pair slightly darker gray, narrowly and indistinctly bordered by dark brown, the internal borders confluent, heavier on the anterior third; lateral stripes brown, unbordered; setigerous punctures of interspaces brown, very conspicuous; scutum gray, the lobes with brown areas; scutellum and mediotergite gray, the latter with a capillary median vitta, the remaining surface with scattered brown setigerous punctures. Pleura gray; dorsopleural membrane more buffy. Halteres obscure yellow, the knobs scarcely darkened. Legs with the coxæ pale, sparsely pruinose; trochanters yellow; femora dark brown, yellow basally, the amount of dark color most extensive on the fore legs (about the distal five-sixth), narrow (about the outer sixth) on mid-femora; posterior legs broken; tibiæ yellow, the tips rather broadly (outer fifth) blackened; tarsi relatively short, black. Wings (Fig. 19) with the ground-color yellowish white, the prearcular field and cell *Sc* conspicuously yellow; cell *C* uniformly darkened; a conspicuous dark pattern, including the stigma and a complete dark seam along cord;



Tipula (Oreomyza) strictura sp. n.

Fig. 19. Wing.

outer ends of cells R_2 and R_3 uniformly darkened; a very small dark spot at origin of *Rs*; a conspicuous dark cloud in cell *M* adjoining vein *Cu*, interrupted near outer end of cell; vague washes in cell *R*, adjoining vein R_1 , in cell *Cu*, and more conspicuously in the outer end of cell *1st A*; cell *2nd A* almost uniformly clouded; the pale areas beyond cord include a complete crossband, all of cell 5 except a

weak darkened cloud before midlength, and almost all of the outer medial field, the outer margin of the latter narrowly darkened; veins dark, yellow in the ground areas. Venation: R_{1+2} entire; R_s relatively long, exceeding vein R_3 ; basal section of R_{4+5} distinct, subequal to $r-m$; cell $1st\ M_2$ relatively small, pentagonal; cell M_1 about twice the length of its petiole; $m-cu$ relatively long, arcuated, on M_4 some distance beyond base.

Second abdominal tergite reddish yellow, with three dark stripes, the remaining tergites almost uniformly blackened. Ovipositor with the cerci slender, straight, nearly twice the length of the more compressed hypovalvae.

Habitat. — China (Kiangsu).

Holotype, female, without more exact locality label, April 29, 1930 (O. PIEL).

The present fly is most similar to species such as *Tipula (Oreomyza) famula* Alexander, *T. (O.) mesacantha* Alexander and *T. (O.) pingi* Alexander, differing conspicuously in the pattern of the mesonotum, legs and wings.

15. *Tipula (Oreomyza) biaciculifera* sp. n.

Belongs to the *arisanensis* group; general coloration of praescutum yellow, with four brown stripes, the intermediate pair only narrowly divided; antennal flagellum bicolorous; knobs of halteres with pale apices; femora yellow, the tips narrowly blackened; wings cream-yellow, heavily patterned with brown, including a large post-arcular area; $m-cu$ at or beyond midlength of vein M_{3+4} ; male hypopygium with the large tergite broadly emarginate, each lateral angle produced caudad into a needle-like spine; ovipositor with the cerci compressed, with smooth margins.

Male. — Length, about 13-14 mm.; wing, 15-16 mm.; antenna, about 5-5.3 mm.

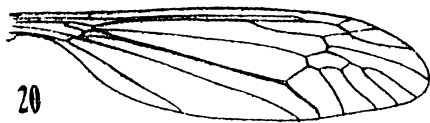
Female. — Length, about 18 mm.; wing, 15 mm.

Frontal prolongation of head buffy above, brown laterally; nasus elongate; palpi black. Antennæ (male) relatively long, as shown by the measurements; scape and pedicel light yellow; first flagellar segment brownish yellow, succeeding segments bicolored, black basally, the outer portion yellow; outer five or six segments uniformly darkened; flagellar segments only feebly incised; verticils shorter than the segments. Head yellow, with a darker median vitta.

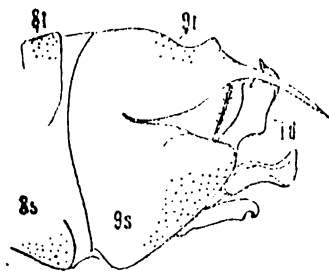
Pronotum obscure yellow, narrowly darker medially. Mesonotal præscutum yellow, with four dark brown stripes, the intermediate pair very narrowly separated; scutum obscure yellow, each lobe with two brown areas; scutellum and mediotergite grayish yellow, with a continuous median dark vitta. Pleura grayish, vaguely marked with darker on the anepisternum and ventral sternopleurite. Halteres yellow at base of stem, darker outwardly, the knob dark brown, its apex yellow. Legs with the coxæ dark, gray pruinose; trochanters yellow; femora yellow, the tips narrowly but conspicuously blackened, the amount subequal on all legs; tibiæ brown, the tips narrowly blackened; tarsi brown, passing into brownish black. Wings (Fig. 20) with the ground-color creamy yellow, heavily patterned with brown; cells *C* and *Sc* almost uniformly infumed; a large postarcular dark area in bases of both cells *R* and *M*; a zigzag brown pattern crossing the cells before cord, more extensive than the ground-areas, especially in the anal cells; outer ends of cells *R*₂ and *R*₃ uniformly brown, the bases and most of cell *R*₅ yellow; outer medial field chiefly pale; cell *2nd A* pale at both ends, the central half darkened; veins brown, paler in the ground areas. Venation: *R*₁₊₂ distinct; cell *1st M*₂ of peculiar outline, roughly diamond-shaped; *m-cu* at or shortly beyond midlength of *M*₃₊₄; petiole of cell *M*₁ subequal to or longer than the cell.

Abdominal tergites obscure yellow, narrowly blackened sublaterally, the outer lateral margins narrowly yellowish

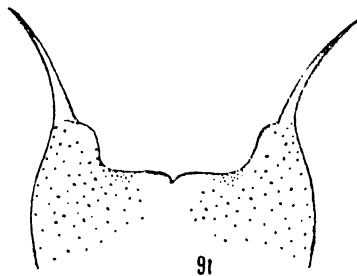
gray, more extensively so in the female; hypopygium black or brownish black. Male hypopygium (Fig. 21) relatively large and massive; ninth tergite, *9t*, fused on basal portion with sternite; basistyle almost entirely fused. Ninth tergite (Fig. 22, *9t*) very extensive; lateral angles produced caudad and slightly latero-ventrad into slender, needle-like spines; viewed dorsally, the caudal margin appears broadly emarginate, the mid-point with a microscopic secondary notch; ventral surface of tergite with a pair of strongly incurved arms. Outer dististyle a small, slender, almost filiform, pale lobe. Eighth sternite simple, unarmed. Ovipositor with the cerci narrow but compressed, with smooth margins.



20



21



22

Tipula (Oreomyza) biaciculifera sp. n.

(Symbols: *9t*, ninth tergite of male hypopygium; *id*, inner dististyle; *s*, sternites; *t*, tergites).

Fig. 20. Wing.

Fig. 21. Male hypopygium, lateral aspect.

Fig. 22. Male hypopygium, ninth tergite.

Habitat. — China (Kiangsi).

Holotype, male. Kuling, altitude 3250 feet, August 10, 1935 (O. PHEL.). Allotopotypè, female, August 20, 1935. Paratopotypes, 6 males and females, August 9-23, 1935 (O. PHEL.).

The present fly is allied to Formosan species such as *Tipula (Oreomyza) arisanensis* Edwards and *T. (O.) foliacea* Alexander, which have the male hypopygium of somewhat similar form, yet with the details quite distinct. The needle-like spines on the tergite of the hypopygium provide strong characters for the separation of the present species. As indicated in another paper (Philippine Journ. Sci., 57: 118; 1935), there are numerous species in the Indo-Chinese fauna that might be placed with almost equal propriety either in the subgenus *Vestiplex* Bezzi or in *Oreomyza* Pokorny. The present fly must be added to the list given in the above reference.

16. *Nephrotoma stylacantha* sp. n.

Belongs to the *palloris* group; antennæ long, flagellar segments strongly incised; thoracic pleura only faintly variegated; wings brownish yellow, cells *C* and *Sc* infumed; cord narrowly scamed; wing-tip darkened; abdominal tergites trivittate; male hypopygium with the inner dististyle bearing a powerful spinous arm on posterior portion near base.

Male. — Length, about 14-15 mm.; wing, 11.5-13 mm.; antenna, about 5.5-6 mm.

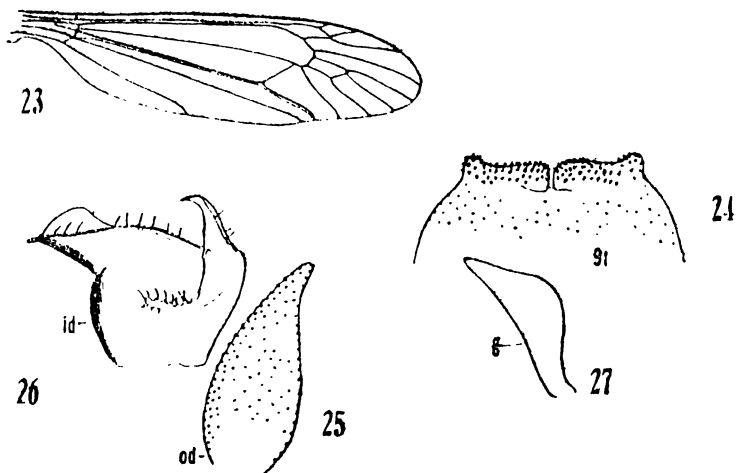
Frontal prolongation of head yellow, narrowly dark brown above; nasus long, dark brown; palpi brown. Antennæ relatively long; scape and pedicel yellow; first flagellar segment brownish yellow, the outer end a little blackened and enlarged; succeeding segments strongly incised to appear binodose, black, the apices of the more

basal segments paler. Head yellow; occipital brand narrow-triangular, sending a long point cephalad onto the vertical tubercle.

Pronotum yellow medially, darker on sides. Mesonotal præscutum yellow with three brown stripes, the median one vaguely divided by a capillary pale line; lateral stripes straight, the lateral margin of sclerite weakly infumed; scutal lobes darkened, with a velvety-black area at lateral end of suture; median area of scutum yellow; scutellum testaceous, the parascutella darker; mediotergite with central portion broadly yellow, the lateral and posterior portions darkened. Pleura and pleurotergite yellow, with scarcely evident, more reddish areas on the ventral anepisternum, sternopleurite and meron. Halteres obscure yellow, the knobs in part weakly infuscated. Legs with the coxæ and trochanters reddish yellow; femora yellow; tibiæ obscure yellow, the tips narrowly darkened; tarsi brown, passing into black. Wings (Plate 23) with a brownish yellow tinge, cells *C* and *Sc* infumed, the latter a little more deeply so; stigma and a narrow seam on anterior cord dark brown; wing-apex narrowly but conspicuously infuscated; veins *Cu* and *m-cu* narrowly seamed with brown; veins brown. About 18 stigmal trichia. Venation: Anterior cord oblique; *Rs* only a little longer than the basal section of *R*₄₊₅; cell *M*₁ narrowly sessile; *m-cu* a short distance before the fork of *M*₄.

Abdominal tergites yellow, trivittate with black, the median stripe broader and more nearly continuous, broken on the basal rings of the more proximal segments; lateral stripes nearly marginal in position; sternites yellow, more infuscated medially; subterminal segments more uniformly darkened; hypopygium chiefly pale. Male hypopygium with the tergite (Fig. 24, *9t*) nearly transverse across caudal margin, with a deep median notch; lateral ends of lobes slightly produced, the entire surface with abundant black spicules. Outer dististyle (Fig. 25, *od*) moderately attenuated.

Inner dististyle (Fig. 26, *id*) with the apical beak slender, surmounted by a dorsal pale crest; from the posterior basal portion of the style arises a broad-based spine. Gonapophyses (Fig. 27 *g*) appearing as pale flattened blades, widest at near midlength, the tips subacute. Eighth sternite narrowed outwardly, the caudal margin with a small narrow median notch, the lobes obtuse, provided with numerous long pale setæ, these more abundant than in *sinensis*.



***Nephrotoma stylacantha* sp. n.**

(Symbols: *9t*, ninth tergite of male hypopygium; *g*, Gonapophysis; *id*, inner dististyle; *od*, outer dististyle).

Fig. 23. Wing.

Fig. 24. Male hypopygium, ninth tergite.

Fig. 25. Male hypopygium, outer dististyle.

Fig. 26. Male hypopygium, inner dististyle.

Fig. 27. Male hypopygium, gonapophysis.

Habitat. — China (Kiangsu, Fukien).

Holotype, male, Zô-sè, Kiangsu, May 23, 1930 (O. PIEL).

Paratype, male, Foochow, Fukien, on campus of Fukien Christian College, altitude 100 feet, at light, November 13, 1935 (C. R. Kellogg).

Nephrotoma stylacantha is readily told from other members of the group, as *bifusca* (Alexander), *palloris*

(Coquillett), *sinensis* (Edwards) and others, by the structure of the hypopygium, especially the powerful spine on the inner dististyle.

17. ***Nephrotoma sinensis*** (Edwards)

1916. *Pachorrhina sinensis*, Edwards, Ann. Mag. Nat. Hist., (8) 18: 268-269.

One female, Zô-sè, Kiangsu, May 24, 1930 (O. PIEL.).

18. ***Nephrotoma impigra*** Alexander

1935. *Nephrotoma impigra*, Alexander, Philippine Journ. Sci., 57: 137-138.

Described from Szechwan, western China.

Several of both sexes, Kuling, Kiangsi, altitude 3250 feet, August 9-23, 1935 (O. PIEL.).

19. ***Nephrotoma cornicina*** (Linnaeus)

1758. *Tipula cornicina*, Linnaeus, Syst. Nat., Ed. 10: 586.

Widely distributed over the northern Palaearctic Region.

Shanghai, Kiangsu, June 10-20, 1934 (O. PIEL.).

Chusan, Chekiang, June 24-30, 1932; May 25, 1931 (O. PIEL.).

20. ***Nephrotoma brierei*** sp. n.

General coloration yellow, patterned with black; antennal flagellum bicolorous, the bases of the segments pale, the outer portions darkened; occipital brand conspicuous, sending a narrow line cephalad onto the vertical tubercle; lateral præscutal stripes outcurved; mediotergite with a central dark area on cephalic portion, the caudal border paler brown; a dark area on dorsopleural membrane; wings whitish subhyaline, the stigma and narrow seams on anterior cord and at wing-tip dark brown; *Rs* relatively long, subequal in length to R_{2+3} ; male hypopygium with acute glabrous lateral spines on tergite; ninth sternite with a median pale finger-like lobe.

Male. — Length, about 15 mm.; wing, 12 mm.; antenna, about 4 mm.

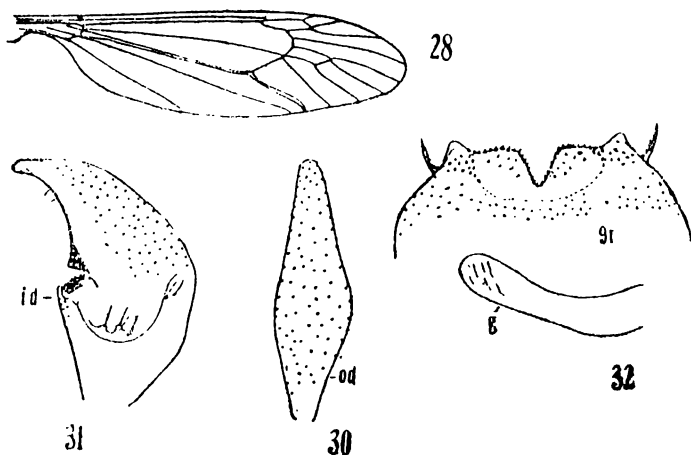
Female. — Length, about 18-20 mm.; wing, 13-14 mm.

Frontal prolongation of head obscure yellow, not darkened above; nasus pale; palpi dark brown, the terminal segment brownish yellow. Antennæ 13-segmented; scape and pedicel yellow; basal flagellar segments bicolorous, the basal enlargement reddish yellow, the remainder dark; at about midlength of the organ the segments become more uniformly blackened; flagellar segments moderately incised; terminal segment pointed, about one-third the length of the penultimate. Head orange, more yellowish on the genæ; occipital brand conspicuous, its anterior end sending a narrow line cephalad onto the vertical tubercle.

Pronotum light yellow medially, weakly darkened laterally, especially on posterior border. Mesonotal præscutum yellow, with three polished black stripes, the central portion of the median stripe on its anterior a little more reddish; mesal edges of lateral stripes and the posterior interspaces more reddish; lateral præscutal stripes outcurved; scutum yellow, the lobes variegated with black; scutellum more or less darkened, palest in the holotype; parascutella pale; mediotergite yellow, with a dark central area, best developed on cephalic portion, the transverse posterior portion much paler to scarcely darkened, especially in holotype. Pleura yellow, sparsely variegated with more reddish; dorso-pleural membrane opposite or slightly behind the anterior ends of lateral præscutal stripes blackened; lateral ends of suture before wing-root darkened. Halteres obscure yellow, the knobs darkened on basal portion, the apices pale. Legs with the coxæ and trochanters pale yellow; femora and tibiæ yellow, the tips narrowly and weakly darkened; tarsi black. Wings (Fig. 28) whitish subhyaline; prearcular region and cell *Sc* a little more yellowish; stigma dark brown; a narrow brown seam on anterior cord; extreme wing-tip in cells R_4 to M_1 , inclusive,

darkened; veins pale brown, darker in the clouded areas. Stigmal trichia scanty, only from 6 to 15 in number. Venation: Sc_1 ending a short distance beyond origin of the long Rs , Sc_1 preserved; Rs subequal to R_{2+3} and nearly twice as long as the basal section of R_{4+5} ; cell M_1 narrowly sessile; $m-cu$ at or just beyond origin of vein M_4 .

Abdomen elongate; tergites yellow with a broken mid-dorsal stripe, broadly interrupted on basal ring, more narrowly so at the apex of each segment; a narrow, nearly marginal stripe on either side, much broken; in the female, the dark median tergal areas more or less diamond-shaped; hypopygium chiefly pale. Male hypopygium with the caudal margin of the tergite (Fig. 29, 9*t*) narrowly notched, the broad lateral lobes with numerous black spicules along margin and more sparsely on disk; lateral angles of lobes



***Nephrotoma brierei* sp. n.**

(Symbols: 9*t*, ninth tergite of male hypopygium; *g*, gonapophysis; *id*, inner dististyle; *od*, outer dististyle).

Fig. 28. Wing.

Fig. 29. Male hypopygium, ninth tergite.

Fig. 30. Male hypopygium, outer dististyle.

Fig. 31. Male hypopygium, inner dististyle.

Fig. 32. Male hypopygium, gonapophysis.

glabrous; a slender glabrous spine on either side, arising from the ventro-lateral portion of each tergal lobe. Region of ninth sternite produced into a slender, finger-like, median lobe. Outer dististyle (Fig. 30, *od*) relatively narrow, widest before midlength, the apex obtusely rounded. Inner dististyle (Fig. 31, *id*) of simple construction; apical beak slender; no dorsal crest. Gonapophyses (Fig. 32, *g*) elongate, flattened, the tips obtusely rounded. Eighth sternite of moderate size, its margin unmodified and with normal setæ only.

Habitat.—China (Kiangsu).

Holotype, male, Wangko, June 17, 1935 (O. BRIÈRE). Allotopotype, female, with type. Paratopotype, female, June 18, 1935.

This interesting species of *Nephrotoma* is named in honor of the collector, Father O. BRIÈRE. The closest ally seems to be *N. angustistria* Alexander, of northern Japan, which agrees in the general appearance and venation, differing in the long antennæ and the very different male hypopygium. Both of these flies differ from virtually all of the numerous species now known from the eastern Palearctic Region by having the bases of the flagellar segments pale, the remainder being black in color.

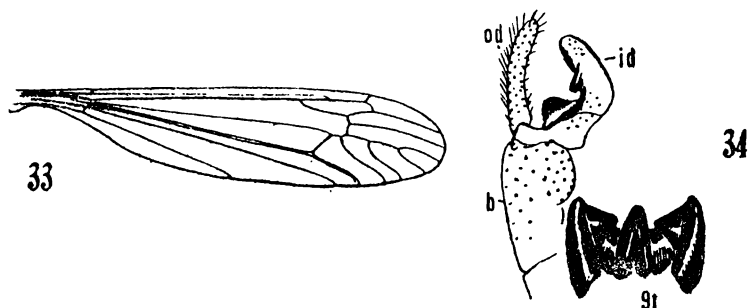
21. *Dolichopeza* (*Nesopeza*) *kulingensis* sp. n.

Allied to *albitibia*; general coloration of notum grayish brown, the præscutum with four ill-defined, darker brown stripes; femora dark brown; tibiæ dusky to dirty white, the tips narrowly brownish black, preceded by a clear white ring; tarsi white; wings tinged with brownish; stigma dark brown, preceded and followed by conspicuous white areas; male hypopygium with the ninth tergite heavily blackened, the lateral lobes produced mesad; median lobe narrowed outwardly; inner dististyle with a lateral lobule.

Male.—Length, about 10 mm.; wing, 10 mm.; antenna, about 3.2 mm.

Frontal prolongation of head dark brown; palpi black. Antennæ of moderate length, if bent backward extending to shortly beyond base of abdomen; scape and pedicel light yellow, flagellum black; flagellar segments cylindrical, with inconspicuous verticils that are much shorter than the segments. Head chiefly dark brown, the vertical tubercle and a broad median line back from it pale yellow.

Pronotum dark brown. Mesonotal præscutum grayish brown, with four ill-defined, darker brown stripes, the intermediate pair rather widely separated, especially behind; posterior sclerites of notum almost uniformly dark brown. Pleura dark brown, the dorsal sternopleurite a trifle paler. Halteres dark brown, the extreme base of stem yellow. Legs with the coxæ dark brown; trochanters obscure yellow; femora dark brown; tibiæ dusky to dirty white, the extreme bases clearer, the tips narrowly brownish black, preceded by a broad, clear white ring; tarsi snowy-white. Wings (Fig. 33) with a brownish tinge; stigma oval, darker brown; conspicuous whitish areas before and beyond stigma; veins brown. Venation; Sc_2 ending about opposite two-thirds the length of R_s ; free tip of Sc_2 some distance before



Dolichozepeza (Nesopeza) kulingensis sp. n.

(Symbols: *9t*, ninth tergite of male hypopygium; *b*, basistyle; *id*, inner dististyle; *od*, outer dististyle).

Fig. 33. Wing.

Fig. 34. Male hypopygium, dorsal aspect.

R_2 , so the two elements are not quite in alignment; medial forks relatively shallow, cell M_1 subequal to its petiole; cell *2nd A* relatively wide.

Abdominal tergites brownish black, vaguely brightened before outer ends; basal sternites bicolorous, the basal halves darkened; hypopygium brownish black. Male hypopygium (Fig. 34) with the ninth tergite, *9t*, heavily blackened; median lobe elongate-oval in outline, narrowed outwardly; lateral lobes projecting strongly mesad. Outer dististyle, *od*, a little longer than the complex blackened inner style, *id*, the latter with a small lobule.

Habitat. — China (Kiangsi).

Holotype, male, Kuling, altitude 3250 feet, July 30, 1935 (O. PIEL).

The nearest ally is *Dolichopeza* (*Nesopeza*) *albitibia* (Alexander) of Japan, which, while very similar in its general appearance, coloration of the wings and legs, and other features, has the hypopygium entirely different, such as the median portion of the ninth tergite projecting far beyond the level of the lateral lobes and being widely expanded at apex, and in having no lateral lobe of the inner dististyle.

