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TIPULIDAE FROM SHANSI, NORTH CHINA<sup>1</sup>  
(Diptera)

By Charles P. Alexander<sup>2</sup>

I am deeply indebted to Dr. Keizô Yasumatsu, of the Entomological Laboratory, Kyushu University, for the opportunity to study the crane-flies taken by himself in Shansi in 1942. Although a large number of species of Tipulidae have been recorded from China, virtually all of these are from south-western and from south-eastern China, with relatively few records from the north. Because of this fact the present collection, while relatively small, is highly important and has added a number of interesting records and additions to the Chinese fauna, including five species that are described as new at this time. The types and representatives of all the species are preserved in the collection of the Entomological Laboratory, Kyushu University, Fukuoka, Japan.

Family **Tipulidae**Subfamily **Tipulinae**Genus **Nephrotoma** Meigen**1. *Nephrotoma brierei* Alexander**

*Nephrotoma brierei* Alexander, Notes d'Entomologie Chinoise, 4, fasc. 1: 23-26, figs. 28-32 (venation, ♂ hypopygium); 1937.

Known hitherto from Anhwei and Kiangsu.

Shansi: Hengshuichen (橫水鎮)-Henglingkuan (橫嶺關), May 9, 1942; Henglingshan (橫嶺上)-Paihungkaokow (北洪高口), June 9, 1942; Shihtsui (石咀), June 6, 1942; Tungyehchen (東冶鎮), June 14, 1942; Wutaihsien (五台山), June 13, 1942; Yentowtsun (岩頭村), May 27, 1942.

<sup>1</sup> Insects of Shansi, N. China. No. 18.

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Most of the specimens have the darkened areas on the body blacker and more intense than in the types, as described; further, the bicolorous nature of the proximal segments of the antennal flagellum is scarcely shown in the present specimens, the segments being uniformly darkened or virtually so. However, from the structure of the male hypopygium there can be no question of the identity of the specimens. The male hypopygium on the midregion of the ninth sternite, immediately behind the posterior border of the eighth sternite, is produced into a small lobe or tubercle that is directed ventrad and slightly caudad. Ovipositor with apex of cercus narrowly obtuse.

### Genus *Tipula* Linnaeus

#### 2. *Tipula* (*Yamatotipula*) *nova* Walker

*Tipula nova* Walker, List Dipt. Brit. Mus., 1: 71; 1848.

*Tipula fumifasciata* Brunetti, Rec. Indian Mus., 6: 250; 1911.

*Yamatotipula nohirae* Matsumura, Thous. Ins. Japan, Addit. 2: 461-462; 1916.

Very widely distributed in southern and eastern Asia.

Shansi: Wangmaochen (王茅鎮), May 14, 1942.

#### 3. *Tipula* (*Yamatotipula*) *parvincisa* Alexander

*Tipula* (*Tipula*) *parvincisa* Alexander, Philippine Jour. Sci., 52: 311-312; 1933.

Described from eastern Siberia, now known as far south as northern China, Hopei and Shensi.

Shansi: Tsintzechen (晉祠鎮), May 23, 1942; Wangmaochen, May 14, 1942.

#### 4. *Tipula* (*Oreomyza*) *yasumatsuana* sp. n.

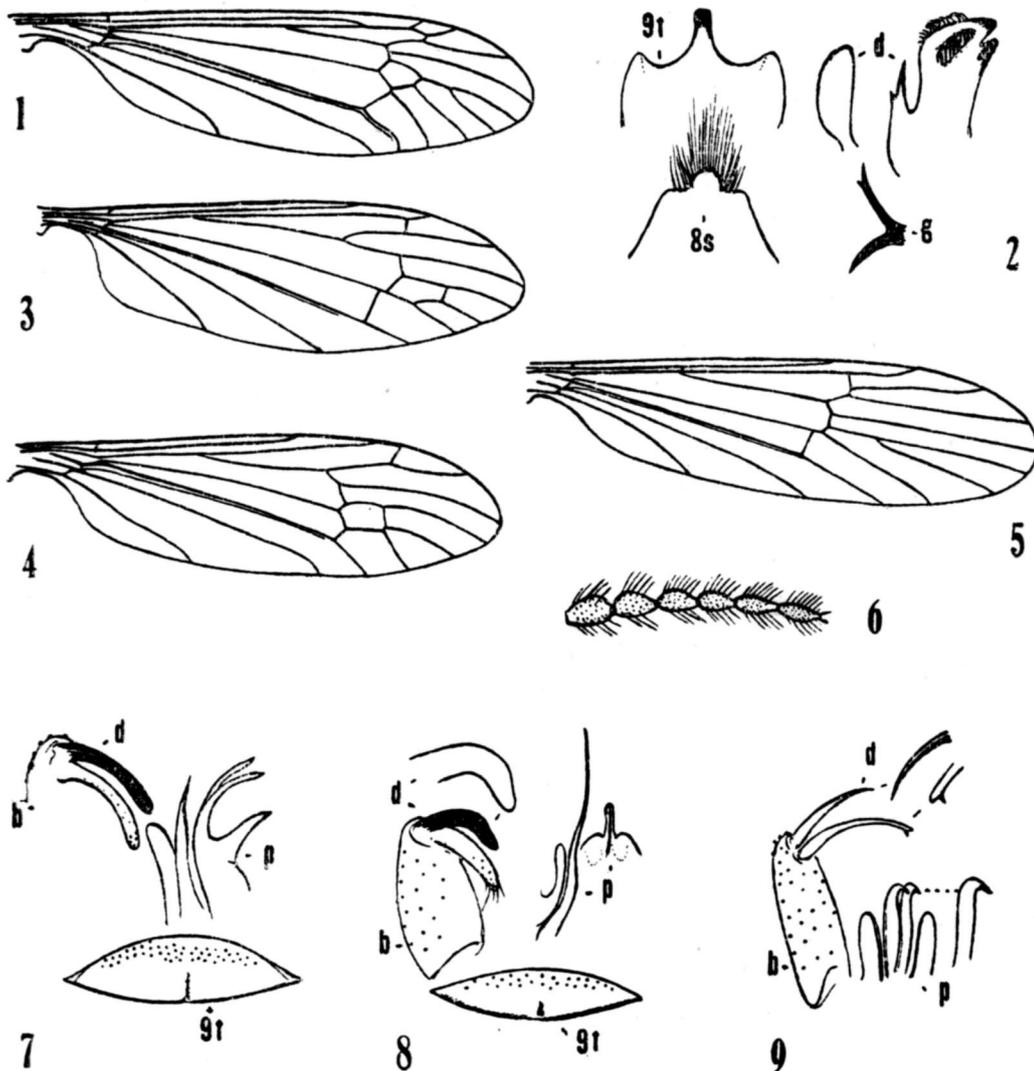
Size medium (wing, male, over 15 mm.); general coloration of thorax gray, the praescutum with a central trifold brown pattern, including a capillary median vitta and the lateral borders of the normal central stripe; claws (male) simple; wings light yellow, with a very poorly defined darker pattern;  $R_{1+2}$  entire; abdomen obscure orange, the outer segments darker; male hypopygium large, the posterior border of the tergite unequally trilobed, the median lobe longest; inner dististyle blackened and corrugated on outer face, the outer basal lobe an acute spine; eighth sternite bearing a conspicuous brush of setae.

*Male*.—Length about 14 mm.; wing 16.5 mm.; antenna about 3.5 mm.

Frontal prolongation of head brownish gray above, darker on sides; nasus elongate; palpi brown. Antennae relatively short; basal three segments yellow, the succeeding ones weakly bicolorous, the small basal enlargements darker brown than the stems; verticils conspicuous, the longest exceeding the segments. Head gray, the occiput brownish yellow; anterior vertex relatively narrow, the low tubercle impressed medially.

Pronotum gray, patterned with brown. Mesonotal praescutum gray, with the brown central stripe trifold, including broader lateral borders and a central

capillary vitta, these areas enclosing gray lines; lateral praescutal stripes scarcely darker than the ground; setae and setigerous punctures very small; posterior sclerites of notum gray, clearer behind, scarcely patterned. Pleura with the propleura and mesepisternum gray, the mesepimeron, meron and pleurotergite somewhat paler. Halteres with stem pale yellow, knob weakly darkened. Legs with the coxae pale yellow, sparsely pruinose; trochanters



#### Explanation of Figures

- Fig. 1. *Tipula (Oreomyza) yasumatsuana* sp. n.; venation.  
 Fig. 2. *Tipula (Oreomyza) yasumatsuana* sp. n.; male hypopygium.  
 Fig. 3. *Antocha (Antocha) shansiensis* sp. n.; venation.  
 Fig. 4. *Rhabdomastix (Sacandaga) shansica* sp. n.; venation.  
 Fig. 5. *Erioptera (Psiloconopa) yasumatsui* sp. n.; venation.  
 Fig. 6. *Antocha (Antocha) shansiensis* sp. n.; antenna (male); basal six segments of flagellum.  
 Fig. 7. *Antocha (Antocha) shansiensis* sp. n.; male hypopygium.  
 Fig. 8. *Antocha (Antocha) rectispina* sp. n.; male hypopygium.  
 Fig. 9. *Erioptera (Psiloconopa) yasumatsui* sp. n.; male hypopygium.  
 (Symbols: *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *p*, phallosome; *s*, sternite; *t*, tergite).

yellow; femora brownish yellow, the tips gradually and vaguely darkened; tibiae brownish yellow, the tips darker; tarsi brown; claws (male) simple. Wings (fig. 1) with the ground light yellow, with a very pale brown pattern that includes a broad seam over the cord and the wing apex; a cloud at origin of *Rs*; stigma darker brown; prearcular and costal fields more saturated brownish yellow; obliterative area across cell 1st  $M_2$  conspicuous, the included veins whitened, remaining veins brownish yellow to brown. Macrotrichia of veins beyond cord short but very abundant. Venation: *Rs* exceeding twice *m-cu*;  $R_{1+2}$  entire; cell 1st  $M_2$  pentagonal, *m* the shortest element; petiole of cell  $M_1$  about twice *m*.

Abdomen stout, obscure orange, the tergites weakly pruinose, with indications of a darker central vitta; outer segments, especially the sixth to eighth sternites, darker brown; hypopygium large. Male hypopygium (fig. 2) described from the dried type and some of the details not clearly apparent. Basistyle small, simple, entirely separated from the sternite by a suture. Ninth tergite, 9t, with the outer lateral angles produced into low triangular lobes; median region of posterior border more strongly produced into a slender central lobe, parallel-sided, the apex truncated, blackened. Outer dististyle, *d*, pale, flattened, about twice as long as broad. Inner dististyle, *d*, large and compressed, the beak and lower beak blackened, the latter more pointed; outer face of style blackened and with parallel striae or corrugations (the exact extent of this polished area somewhat uncertain); outer basal lobe a strong erect rod that is produced at tip into a blackened spine, with a small triangular tooth at its base. Gonapophysis, *g*, conspicuously biramous, heavily blackened, the upper arm longer, unequally bidentate at tip, the axial spine longer; lower arm appearing as an acutely pointed spine. Eighth sternite, 8s, sheathing, narrowed posteriorly, the apical margin with a semicircular flap that bears a dense brush of long delicate setae, the shoulders with fewer and stouter bristles.

Holotype, ♂, Taihuaichen (台懷鎮), Shansi, June 4, 1942 (Yasumatsu).

I am very pleased to name this interesting fly in honor of the collector, Dr. Keizô Yasumatsu, to whom we owe this important addition to our knowledge of the insect fauna of Shansi. There are numerous species of the subgenus in eastern Asia but the present fly is evidently distinct from all. The most similar species include *Tipula* (*Oreomyza*) *apicispina* Alexander, *T. (O.) flavocostalis* Alexander, and *T. (O.) mesacantha* Alexander, all of which differ markedly in coloration and, especially, in the structure of the male hypopygium.

#### Subfamily **Limoniinae**

#### Tribe **Limoniini**

#### Genus **Limonia** Meigen

#### 5. **Limonia** (*Dicranomyia*) **didyma** Meigen

*Limonia didyma* Meigen, Klass., 1: 55; 1804.

*Limnobia trinotata* Meigen, Syst. Besch., 1: 143; 1818.

*Dicranomyia oscillans* Haliday, Entomol. Mag., 1: 154; 1833.

*Limonia (Dicranomyia) didyma* Edwards, Trans. Soc. British Ent., 5: 34, pl. 2, fig. 18 (wing); 1938.

One of the most widely distributed members of the subgenus in Europe but not previously known from eastern Asia. Despite the lack of the male sex in the present material, I believe the identification is correct and greatly extends the known range of the species.

Shansi: Hengshuichen—Henglingkuan, May 9, 1942; 1 ♀.

#### Genus *Antocha* Osten Sacken

##### 6. *Antocha (Antocha) bifida* Alexander

*Antocha (Antocha) bifida* Alexander, Philippine Jour. Sci., 24: 564-566, pl. 2, fig. 10 (♂ hypopygium); 1924.

Described from northern Japan; now known to be very widely distributed in Japan, south to Formosa; Korea; China, westward to Szechwan.

Shansi: Taihuaichen—Chenhaissu (鎮海寺), June 4, 1942; Yentow-tsun, May 27, 1942.

##### 7. *Antocha (Antocha) rectispina* sp. n.

Size medium (wing, male, 7 mm.); mesonotum gray, the praescutum with four brown stripes, the intermediate pair more distinct; legs obscure yellow; wings grayish brown, unpatterned, the prearcular field more whitened; male hypopygium with the tergite very narrowly transverse, the posterior border very gently convex to nearly straight; outer dististyle stout, the apex obtuse; inner gonapophysis appearing as a very long and slender needlelike spine.

*Male*.—Length about 6.5 mm.; wing 7 mm.

Rostrum, palpi and antennae broken. Head gray.

Pronotum gray, patterned above with light brown. Mesonotal praescutum light gray with four poorly defined brown stripes, the broad intermediate pair more distinct, separated by a capillary ground line; lateral stripes broad but very indistinct; humeral region restrictedly more reddened; posterior sclerites of notum gray. Pleura gray; dorsopleural membrane pale. Halteres with stem whitened, knob weakly infuscated. Legs with the coxae obscure yellow; trochanters yellow; remainder of legs obscure yellow or brownish yellow, the outer tarsal segments infuscated. Wings grayish brown, unpatterned, the prearcular cells more whitened. Venation: *m-cu* close to fork of *M*.

Abdomen dark brown, the hypopygium somewhat more brightened. Male hypopygium (fig. 8) with the tergite, 9*t*, very narrowly transverse, the width approximately four times the greatest length; posterior border very gently convex to nearly straight; setae restricted to posterior third, relatively sparse, for the most part in two rows only. Dististyles, *d*, nearly terminal; outer style blackened, stout, gently arcuated, the apex a little narrowed, obtuse;

inner style a little longer, with long conspicuous setae at apex. Phallosome, *p*, with the inner gonapophysis distinctive, appearing as a very long and slender needlelike spine, the tip acute; outer apophysis hyaline, shorter, blade-like. Apex of aedeagus decurved, simple.

Holotype, ♂, Siachitui (下圪堆)—Kaolochen (泉落鎮), Shansi, May 11, 1942 (Yasumatsu).

The present fly is most like *Antocha (Antocha) spicata* Alexander and *A. (A.) shansiensis* sp. n., differing in the details of coloration and, especially, in the structure of the male hypopygium, particularly the tergite, outer dististyle and phallosome.

### 8. *Antocha (Antocha) shansiensis* sp. n.

Size large (wing, 8 mm. or more); general coloration of thorax gray, the praescutum with three confluent more brownish stripes; antennae relatively long, strongly nodulose, the segment with dense erect pale setae; legs brownish yellow; wings yellowish gray, unpatterned; veins yellow; abdominal tergites dark brown, basal sternites and hypopygium yellowed; male hypopygium with the tergite narrow, transverse, the posterior border very gently convex; both dististyles of approximately the same shape, the outer one blackened, its tip obtuse.

*Male*.—Length about 8–8.5 mm.; wing 8–8.5 mm.; antenna about 1.9–2 mm.

*Female*.—Length about 8.5–9 mm.; wing 9.3–9.5 mm.

Rostrum dark brown; palpi brownish black. Antennae (fig. 6) relatively long, black; flagellar segments strongly narrowed at outer end to produce a nodulose appearance; dilated part with dense erect pale setae; outer two segments cylindrical, almost equal in length. Head dark gray, more brownish gray on vertex.

Thorax gray, the praescutum with three confluent more brownish stripes; posterior sclerites of notum and the pleura clear gray. Halteres with stem pale, knob weakly infuscated. Legs with coxae dark gray; trochanters brown; femora and tibiae obscure yellow or brownish yellow, the tips vaguely darker; tarsi brown, the outer segments black; claws toothed. Wings (fig. 3) yellowish gray, unpatterned; veins yellow or brownish yellow. Veins beyond cord with trichia on outer ends, on distal section of  $R_{4+5}$  including the outer two-thirds of the vein. Venation:  $R_2$  lying opposite or just beyond level of  $r-m$ ; cell 1st  $M_2$  closed;  $m-cu$  shortly before fork of  $M$ .

Abdominal tergites dark brown, basal sternites obscure yellow, the sixth and succeeding segments more pruinose; hypopygium fulvous. Ovipositor with cerci slender, nearly straight. Male hypopygium (fig. 7) with the tergite, 9*t*, narrow, transverse, the width more than three times the greatest length; posterior border very gently convex; outer third of tergite with numerous setae, directed caudad. Dististyles, *d*, almost terminal, of nearly the same shape, the outer style blackened, its tip obtuse; inner style a little longer,

pale, with a few short stout setae at tip. Phallosome, *p*, including various spines and blades, the more conspicuous about as shown, including a pair of slender curved rods.

Holotype, ♂, Chenhaissu—Taihuaichen, Shansi, June 4, 1942 (Yasumatsu).  
Allotopotype, ♀. Paratopotypes, 1 ♂, 2 ♀♀.

This large gray species of *Antocha* is readily told from all other regional members of the genus by the diagnostic characters provided above, particularly the structure of the antennae and the male hypopygium. The general nature of the hypopygium is most as in *Antocha (Antocha) setigera* Alexander and *A. (A.) spicata* Alexander, but the structural details are quite distinct.

#### 9. *Antocha (Antocha)* sp., near *satsuma* Alexander

*Antocha (Antocha) satsuma* Alexander, Ann. Ent. Soc. America, 12: 332; 1919.

Shansi: Henglingkuan, May 12, 1942; Wangmaochen, May 14, 1942.

A small species represented only by females which cannot be identified with certainty. In its general appearance, particularly the conspicuous stigma of the wing, it suggests a small *satsuma* but very possibly represents an undescribed species.

### Tribe Eriopterini

#### Genus *Conosia* van der Wulp

#### 10. *Conosia irrorata* (Wiedemann)

*Limnobia irrorata* Wiedemann, Aussereur. zweifl. Ins., 1: 574; 1828.

*Limnobia substituta* Walker, List Diptera Brit. Mus., 1: 39; 1848.

*Limnophila crux* Doleschall, Naturk. Tijdschr. Nederl. Indie, 14: 388; 1857.

*Conosia irrorata* van der Wulp, Tijdschr. v. Entomol., 23: 161; 1880.

One of the most widely distributed of all known crane-flies, ranging from eastern Australia westward across southern and eastern Asia, thence into Africa at least as far south as the Tropic of Capricorn. The present record is the most northerly from China and the first report from north of the Hwang Ho.

Shansi: Wangmaochen, May 14, 1942.

#### Genus *Gonomyia* Meigen

#### 11. *Gonomyia (Gonomyia)*, near *superba* Alexander

*Gonomyia (Gonomyia) superba* Alexander, Canad. Ent., 45: 285-286; 1913.

A single female of what seems to be this species without much question but the male sex will be necessary for full confirmation. The fly is wide-spread in Japan and Korea but had not been recorded from China.

Shansi: Yentow-tsun—Tamuyen (大木彦), May 28, 1942.

Genus **Rhabdomastix** Skuse**12. Rhabdomastix (Sacandaga) shansica** sp. n.

Size relatively small (wing, female, 5 mm.); general coloration of head and thorax gray, the praescutum with two intermediate brownish gray stripes; antennae black; wings with a weak brownish tinge, stigma scarcely darker than the ground;  $Sc$  moderately long,  $Sc_2$  lacking or far retracted; cell 1st  $M_2$  unusually broad, basal section of  $M_3$  short; abdomen dark brown.

*Female*.—Length about 5 mm.; wing 5 mm.

Rostrum and palpi dark brown. Antennae with scape brown, the remainder black; flagellar segments long-oval, the outer ones still longer; terminal segment about one-third longer than the penultimate; verticils long. Head clear light gray; anterior vertex broad.

Pronotum gray, the sides of the scutellum more yellowed. Mesonotum gray, the praescutum with two intermediate darker brownish gray stripes; pseudo-sutural foveae and tuberculate pits black, the latter separated by a distance about equal to twice their own diameter; scutellum, and pleura somewhat clearer gray; dorsopleural membrane dusky. Halteres light yellow. Legs with the coxae and trochanters pale brownish gray; remainder of legs light brown, the terminal tarsal segments darker. Wings (fig. 4) with a weak brownish tinge, the prearcular and costal fields a trifle more brightened; stigma scarcely darker than the ground; veins very pale brown. Macrotrichia on outer ends of veins  $R_5$ ,  $M_{1+2}$  and  $M_3$ , on the first of these including the outer two-thirds; anal angle of wing poorly developed. Venation:  $Sc$  moderately long,  $Sc_1$  ending about opposite three-fourths  $R_5$ ,  $Sc_2$  apparently lacking (wing poorly visible at this point, if  $Sc_2$  is present, vein  $Sc_1$  would be very long); vein  $R_3$  suberect, a little shorter than the distance on costa between veins  $R_{1+2}$  and  $R_3$ ; cell 1st  $M_2$  unusually broad, basal section of  $M_3$  short; distal section of vein  $M_{1+2}$  only moderately arched; cell 2nd  $A$  relatively narrow.

Abdomen dark brown. Ovipositor with the cerci long and relatively slender, appearing as narrow blades; hypovalvae even more slender and much shorter.

Holotype, ♀, Wangmaochen, Shansi, May 14, 1942 (Yasumatsu).

Quite distinct from the other rather numerous species of the genus now known from eastern Asia. It is most similar to *Rhabdomastix (Sacandaga) japonica* Alexander, and *R. (S.) minicola* Alexander, differing in the coloration, venation, and trichiation of the veins.

Genus **Erioptera** Meigen**13. Erioptera (Hoplolabis) asiatica** Alexander

*Erioptera (Hoplolabis) asiatica* Alexander, Ann. Ent. Soc. America, 11: 447-448; 1918.

*Erioptera (Hoplolabis) asiatica* Alexander, Entomol. Mag. (Kyoto), 3: 124-125; 1919.

Widely distributed in Japan and continental eastern Asia, including eastern Siberia, south to the vicinity of Peiping, North China. Very recently it has been found in interior Alaska.

Shansi: Hengshuichen—Henglingkuan, May 9, 1942; Yentow-tsun, May 27, 1942; Yentow-tsun—Tamuyen, May 28, 1942.

#### 14. *Erioptera (Symplecta) chosenensis* Alexander

*Erioptera (Symplecta) chosenensis* Alexander, Philippine Jour. Sci., 71: 67-69; 1940.

Described from the Seren Mountains, north Korea. I had assumed that the present material pertained to *Erioptera (Symplecta) hybrida* (Meigen), abundant and wide-spread throughout the entire northern Palaearctic region and across Bering Strait into extreme western Alaska. However there is no doubt of the identity of the specimens, which greatly extend the known range.

Shansi: Hengshuichen—Henglingkuan, May 9, 1942; Siachitui—Kaolochen, May 11, 1942; Henglingkuan, May 12, 1942; Yentow-tsun, May 27, 1942; Yentow-tsun—Tamuyen, May 28, 1942; Taihuaichen—Chenhaissu, June 4, 1942; Nanpintsun (南坪村)—Henglingshan, June 7, 1942; Tungyehchen, June 14, 1942; Wutaihsien, June 12, 1942.

#### 15. *Erioptera (Psiloconopa) yasumatsui* sp. n.

Size small (wing, male, about 4.5 mm.); general coloration gray, the praescutum with two brown stripes; femora obscure yellow, the tips broadly infuscated; wings weakly tinged with brownish, unpatterned; vein  $Sc_1$  very long, about equal to  $R_3$ ; cell  $M_2$  open by atrophy of basal section of  $M_3$ ; male hypopygium with two terminal dististyles, the outer a simple rod that narrows to an acute point; inner style with the tip subacute, with a microscopic blackened spine before tip; gonapophysis pale, bladelike; aedeagus with paired lobes, the apical points short.

*Male*.—Length about 3.5 mm.; wing 4.4 mm.

Rostrum brown above, paler beneath; palpi brownish black. Antennae dark brown; flagellar segments oval, the verticils short. Head brown, paler in front and on anterior orbits.

Pronotum brown, the pretergites light yellow. Mesonotal praescutum gray, the humeral region yellowed; two brown intermediate stripes, separated by a broad central line of the ground color, this including the tuberculate pits which are separated from one another by a distance about equal to the diameter of either; interspaces with erect setae; region of the suture vaguely more yellowed; scutal lobes darkened; posterior sclerites of notum obscure yellow, vaguely more darkened on central portion. Pleura chiefly brownish gray, with an obscure yellow longitudinal stripe across the dorsal sternopleurite. Halteres with stem yellow, knob weakly infuscated. Legs with the coxae and trochanters brownish yellow to obscure yellow; femora obscure yellow, the tips rather

broadly infuscated; tibiae and tarsi light brown, the terminal tarsal segments darker. Wings (fig. 5) with a weak brownish tinge, unpatterned; veins light brown. Venation:  $Sc_1$  ending shortly before level of fork of  $R_s$ ,  $Sc_2$  far removed from tip of  $Sc_1$ , about opposite origin of  $R_s$ , the latter long, subequal to vein  $R_3$ ; cell  $M_2$  open by atrophy of basal section of  $M_3$ ;  $m-cu$  a short distance before fork of  $M$ ; Anal veins divergent, 2nd  $A$  gently convex.

Abdomen, including hypopygium brown, possibly pruinose or patterned in fresh specimens. Male hypopygium (fig. 9) with the basistyle,  $b$ , elongate, with long scattered setae; dististyles,  $d$ , terminal or virtually so. Outer dististyle a slender simple rod, narrowed very gradually to the long acute terminal spine; inner style longer, slender, narrowed to the subacute tip, before apex on lower surface with a microscopic blackened point or spine. Phallosome,  $p$ , including long pale bladelike gonapophyses and paired lobes of the aedeagus, the latter longer, their tips prolonged into short points.

Holotype, ♂, Tungyehchen, Shansi, June 14, 1942 (Yasumatsu).

This small but desirable fly is dedicated to the collector, Dr. Keizō Yasumatsu. It is quite distinct from other generally similar regional members of the subgenus, especially in the venation and structure of the male hypopygium. Such species include *Erioptera (Psiloconopa) laudatrix* Alexander and *E. (P.) tridenticulata* Alexander.