

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

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NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN  
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TWO PLATES

The crane flies described herewith are almost all based on extensive collections made in southern Japan and Formosa by my friend Prof. Syuti Issiki, and on Mount Omei, Szechwan, China, by a Canadian collector and secured through Mr. Herbert S. Parish. A few additional Japanese species were collected by Messers. Esaki, Sakaguchi, Ueno, and Uye. The types of the new species are preserved in my collection through the kind generosity of the entomologists above named, to whom my deepest thanks are extended.

As a slight contribution to our knowledge of the Tipulidæ of Japan and Formosa, I am recording in full the species taken by Professor Issiki on Mount Kirishima, in Kiushiu; on Yakushima Island, south of Kiushiu; and on Arisan, a mountain station in Formosa.

TIPULIDÆ FROM MOUNT KIRISHIMA, KIUSHIU

Mount Kirishima, Kiushiu, altitude, 2,500 to 3,500 feet, May 3 to 7, 1929; mostly at 2,500 feet, May 3, 1929 (*Syuti Issiki*).

- Limonia (Limonia) machidai* (Alex.).
- Limonia (Dicranomyia) basifusca* (Alex.).
- Limonia (Dicranomyia) immodestoides* (Alex.).
- Limonia (Dicranomyia) punctulata* (de Meij.).
- Antocha (Antocha) bifida* Alex.
- Tricyphona insulana* Alex.
- Rhaphidolabis consors* Alex.
- Dactylolabis longicauda* Alex.
- Pseudolimnophila horii* Alex.
- Limnophila (Tricholimnophila) caesiella* Alex.
- Limnophila (Tricholimnophila) saitamae* Alex.
- Limnophila (Ephelia) dietziana* Alex.
- Limnophila (Prionolabis) liponeura* sp. nov.
- Limnophila (Prionolabis) submunda* Alex.

<sup>1</sup>Contribution from the Department of Entomology, Massachusetts Agricultural College.

- Nippolimnophila kiusiuensis* Alex.  
*Elephantomyia dietziana* sp. nov.  
*Erioptera (Empeda) microtrichiata* Alex.  
*Erioptera (Ilisia) asymmetrica* Alex.  
*Ormosia diversipes* Alex.  
*Ormosia tekeuchii* Alex.  
*Molophilus albohalterata* Alex.  
*Molophilus pegasus* Alex.

## TIPULIDÆ FROM KOSUGIDANI, YĀKUSHIMA

Yakushima, an island south of Kiushiu; collections made at Kosugidani, altitude 2,500 feet, in rich native forest, April 29, 1929 (*Syuti Issiki*). Esaki<sup>2</sup> outlines the differences existing between the mountainous, richly wooded island of Yakushima and the indicated presence thereon of Palæarctic forms, and the low-lying nearby Tanegashima Island. The species of the accompanying list are predominantly Palæarctic in affinities and so confirm Esaki's statement.

- Limonia (Discobola) margarita* (Alex.).  
*Limonia (Limonia) anthracina* Alex.  
*Limonia (Limonia) machidai* (Alex.).  
*Limonia (Limonia) monacantha* (Alex.).  
*Limonia (Limonia) tristina* sp. nov.  
*Limonia (Limonia) yakushimensis* sp. nov.  
*Limonia (Dicranomyia) paramorio* (Alex.).  
*Limonia (Geranomyia) radialis* Alex.  
*Antocha (Antocha) subconfluenta* sp. nov.  
*Helius (Helius) obliteratus* Alex.  
*Orimarga yakushimana* sp. nov.  
*Tricyphona yakushimana* Alex.  
*Dicranota (Amalopina) gibbera* (Alex.).  
*Dactylolabis longicauda megastylata* subsp. nov.  
*Pseudolimnophila horii* Alex.  
*Limnophila (Prionolabis) lipophleps* sp. nov.  
*Limnophila (Prionolabis) submunda* Alex.  
*Limnophila subnemoralis* Alex., var.  
*Ulomorpha polytricha* Alex.  
*Nippolimnophila yakushimensis* Alex.  
*Atarba (Atarbodes) minuticornis* sp. nov.  
*Lipsothrix yakushimae* Alex.  
*Erioptera (Empeda) microtrichiata* Alex.

## TIPULIDÆ FROM ARISAN, FORMOSA

Arisan, Formosa, altitude 6,000 to 8,000 feet, July 7 and 8, 1929; mostly at 7,300 feet, July 7, 1929 (*Syuti Issiki*).

- Nesopeza trichopyga* Alex.  
*Cyttaromyia taiwania* Alex.

<sup>2</sup> Állattani Közlemények 23 (1926) 121.



- Limonia (Discobola) argus* (Say).  
*Limonia (Dicranomyia) shirakii* (Alex.).  
*Heliu (Heliu) liliputanus* Alex.  
*Heliu (Heliu) rufithorax* Alex.  
*Tricyphona arisana* Alex.  
*Tricyphona formosana* Alex.  
*Adelphomyia ariana* Alex.  
*Ula flavidibasis* Alex.  
*Pseudolimnophila illustris* Alex.  
*Pseudolimnophila marcida* Alex.  
*Limnophila (Tricholimnophila) platystyla parallela* subsp. nov.  
*Limnophila (Dicranophragma) dorsolineata* sp. nov.  
*Limnophila (Dicranophragma) formosa* Alex.  
*Elephantomyia (Elephantomyodes) uniformis* Alex.  
*Elephantomyia (Elephantomyia) luculenta* Alex.  
*Atarba (Atarbodes) fuscicornis* Edw.  
*Atarba (Atarbodes) issikiana* sp. nov.  
*Atarba (Atarbodes) leptoxantha* Alex.  
*Ceratocheilus tinctipennis* Alex.  
*Dasymallomyia signata* Brun.  
*Erioptera (Erioptera) alboguttata* Edw.  
*Erioptera (Ilisia) tenuisentis* Alex.  
*Erioptera (Empeda) angustistigma* Alex.  
*Dasymolophilus nokoensis* Alex.  
*Molophilus aricola* sp. nov.  
*Molophilus nigratarsis* Alex.  
*Molophilus nigrinus* Alex.

## TIPULINÆ

## TIPULINI

## TIPULA LATILIGULA sp. nov.

General coloration yellowish gray, the præscutum with four scarcely indicated brown stripes; antennæ yellow; wings grayish, the stigma brown; oblitterative areas conspicuous; m-cu near the base of cell 1st  $M_2$ ; male hypopygium with the median region of tergite produced into a compressed blade that is subtended by a small acute spine on either side; eighth sternite bearing a very broad, triangular tongue-like lobe.

*Male*.—Length, about 11 millimeters; wing, 12.5.

Frontal prolongation of head relatively short and stout, brownish gray; nasus short and stout. Antennæ of moderate length, if bent backward extending about to the halteres or slightly beyond; the segments yellow, their bases not or scarcely darkened, the outer segments slightly infuscated. Head yellowish gray, the vertical tubercle very low.

Mesonotum yellowish gray, the præscutum with four scarcely indicated brown stripes. Pleura yellowish gray. Halteres pale, the knobs dark brown. Legs with the coxæ yellowish gray,



the trochanters yellow; femora brownish yellow, the tips infuscated; tibiæ and tarsi passing into dark brown. Wings somewhat teneral, grayish, the brown stigma darker; large and conspicuous oblitative areas before the stigma and especially across the base of cell 1st  $M_2$ , involving large portions of cells R and  $M_3$ ; veins dark. Venation: m-cu close to the inner end of cell 1st  $M_2$ ,  $M_{3+4}$  being less than one-half r-m; m-cu very long and oblique.

Abdomen chiefly brownish gray, shrunken and distorted in the type. Male hypopygium (Plate 2, fig. 19) with the tergite extensively fused with the sternite. Ninth tergite (Plate 2, fig. 20) tridentate, the median region produced into a long compressed blade that is slightly upcurved at apex, subtended on either side by an acute spine of less than one-half the length. Outer dististyle, *od*, a large, pale, boomerang-shaped lobe, bearing a tuft of dusky setæ at tip. Ninth sternite, *9s*, gently emarginate, with a small pencil of about three spinous setæ on either side near the mid-line. Eighth sternite (Plate 2, fig. 21) bearing on caudal margin a very large, broadly triangular, troughlike lobe, the greatest width exceeding the length.

*Habitat*.—Japan (Honshiu).

Holotype, male, Norikura-ga-take, Shinano, July 22, 1929 (*M. Ueno*).

*Tipula latiligula* will probably be found to be strictly an alpine species. The structure of the male hypopygium readily separates it from all other regional forms.

#### LIMONIINÆ

##### LIMONIINI

#### LIMONIA (DICRANOMYIA) KANSUENSIS sp. nov.

General coloration opaque brown; rostrum, palpi, and antennæ black; wings strongly tinged with brown; cell 1st  $M^2$  closed; male hypopygium with the rostral prolongation of the ventral dististyle short and stout, bearing two very unequal spines, the inner one very tiny.

*Male*.—Length, about 6.5 millimeters; wing, 7.3.

Rostrum and palpi black. Antennæ black throughout; flagellar segments oval, gradually decreasing in size outwardly. Head yellowish gray.

Mesonotum brown, opaque, without clearly defined stripes; scutellum and postnotum more pruinose. Pleura brown, sparsely pruinose. Halteres pale, the knobs infuscated. Legs with the coxæ pale yellow, the fore coxæ slightly infuscated on

outer face at base; trochanters yellow; remainder of legs yellow, the outer tarsal segments more infuscated. Wings (Plate 1, fig. 1) strongly tinged with brown, the oval stigma still darker brown; scarcely evident darkenings along cord and outer end of cell 1st  $M_2$ ; veins brown, more yellowish brown basad of the cord. Venation  $Sc_1$  ending just beyond the origin of  $Rs$ ,  $Sc_2$  a short distance before this origin; cell 1st  $M_2$  closed; m-cu at fork of  $M$ ; vein 2d  $A$  rather strongly sinuous.

Abdomen brown, the ventral dististyle of the hypopygium paler. Male hypopygium (Plate 2, fig. 22) with the lateral lobes of the tergite,  $9t$ , conspicuous, each with a group of setæ; median region of tergite further produced into a transverse flaplike structure. Ventral dististyle,  $vd$ , smaller than the basistyle, the rostral prolongation unusually short and stout, bearing at near midlength two very unequal spines, the outermost longest, approximately one-half the length of the prolongation, the inner spine very small. Dorsal dististyle a gently curved blackened rod, the tip acute. Gonapophyses,  $g$ , with the mesal-apical lobe very long and slender.

*Habitat*.—China (Kansu).

Holotype, male, Hweih sien (ex Staudinger-Bang Haas).

The structure of the male hypopygium separates this species from all similar forms in this general region.

**LIMONIA (LIMONIA) YAKUSHIMENSIS** sp. nov.

Mesonotal præscutum and scutal lobes black; remainder of thorax brown; antennæ brownish black throughout, basal segments subglobular; wings strongly suffused with brown; male hypopygium with the dorsal dististyle reduced to a microscopic structure; rostral prolongation of ventral dististyle with two distinctly separated spines of approximately equal size.

*Male*.—Length, about 5.6 millimeters; wing, 6.8.

Rostrum and palpi very much reduced, the former reddish yellow. Antennæ brownish black throughout; basal flagellar segments subglobular, with very short apical necks; outer segments passing into oval, each with a pair of long, unilaterally arranged verticils that are much longer than the segments; outermost segments fusiform, the terminal segment longest, about one-third longer than the penultimate. Head black, subnitidous.

Pronotum blackish. Mesonotal præscutum and scutal lobes black, subnitidous; median region of scutum and the scutellum pale, the surface sparsely pruinose; postnotum pale brown.

Pleura brown, sparsely variegated with darker, the surface more or less pruinose. Halteres of moderate length, pale, the knobs infuscated. Legs with the fore coxæ blackened, pruinose; middle and hind coxæ pale; trochanters obscure yellow; remainder of legs brown, the outer tarsal segments even darker. Wings (Plate 1, fig. 2) with a strong brown suffusion, the oval stigma only slightly darker; linear pale streaks in cell R, crossing cell 1st  $M_2$ , and in cell M, crossing m-cu into cell  $M_4$ ; veins brown. Venation:  $Sc_1$  ending about opposite two-thirds the length of Rs,  $Sc_2$  at its tip; Rs sinuous, nearly straight on basal fourth, the remainder more arcuated; cell 1st  $M_2$  closed; m-cu strongly arcuated, longer than the distal section of  $Cu_1$ , placed shortly beyond the fork of M.

Abdominal tergites dark reddish brown, the extreme caudal margins of the segments narrowly blackened; basal sternites more yellowish; male hypopygium pale. Male hypopygium (Plate 2, fig. 23) with the tergite, 9t, transverse, the caudal margin gently emarginate medially, with a group of long coarse setæ on either side. Basistyle, b, with the ventromesal lobe nearly apical in position. Dorsal dististyle reduced to a microscopic structure, as in the group. Ventral dististyle, vd, oval, the rostral prolongation elongate, bearing two slender rostral spines that arise from a common tubercle shortly beyond the base of the prolongation.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*).

*Limonia yakushimensis* is related to *L. fraudulentus* Alexander (Formosa) and *L. ubensis* Alexander (Luzon), differing in the coloration of the body and the structure of the male hypopygium, especially the position and shape of the rostral spines of the ventral dististyle.

LIMONIA (LIMONIA) TRISTINA sp. nov.

*Female*.—Length, about 9 millimeters; wing, 9.

Closely allied to *L. (L.) anthracina* Alexander (Japan), differing especially in the uniformly darkened wings and structure of the ovipositor.

Rostrum, palpi, and antennæ black. Head black.

Mesonotum black, the posterior portions of the scutal lobes and the postnotum with piceous reflections. Pleura with the dorsopleural region and the propleura black, the remainder chiefly dark castaneous, the dorsal portion of the sternopleurite



blackened. Halteres pale, the knobs blackened. Legs with the fore coxæ blackened, the middle and posterior coxæ paler; trochanters reddish brown; remainder of legs black, only the femoral bases restrictedly pale. Wings with a strong blackish suffusion, the costal and stigmal regions more suffused; vague, scarcely apparent seams along cord and outer end of cell 1st  $M_2$ ; a conspicuous clouding along vein  $Cu_1$  in cell M; veins dark brown. Venation:  $Sc_1$  ending before midlength of  $Rs$ ,  $Sc_2$  at its tip;  $R_2$  about one-half  $R_{1+2}$ ; m-cu just before the fork of M.

Abdominal tergites black, the sternites yellow, the basal and intermediate sternites with the caudal margins broadly brownish black. Ovipositor with the tergal valves much smaller, slenderer, and more curved than in *anthracina*.

*Habitat*.—Japan (Kiushiu).

Holotype, female, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*).

**LIMONIA (LIMONIA) UNICINCTIFERA** sp. nov.

General coloration brown; pleura yellow, striped longitudinally with brown; femora yellow, the tips blackened; remainder of legs snowy white, the tibiæ with a narrow black ring before midlength; wings tinged with yellowish gray, the costal region brighter; cell 1st  $M_2$  closed; abdominal segments annulated yellow and brownish black; male hypopygium with a single rostral spine that arises from a stout tubercle.

*Male*.—Length, about 7 millimeters; wing, 6.7.

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

Rostrum gray, the mouth parts and palpi brownish yellow, much reduced in size. Antennæ with the scape dark brown, the flagellum brownish black; flagellar segments oval, passing through elongate-oval; verticils longer than the segments; terminal segment about one-third longer than the penultimate. Head dark brown.

Pronotum yellow. Mesonotal præscutum brown, the lateral margins narrowly obscure yellow; scutal lobes darkened; median region of scutum and the scutellum more pruinose; postnotum slightly pruinose. Pleura yellow with a narrow brown dorso-median longitudinal stripe; ventral sternopleurite more or less darkened. Halteres dusky, the knobs dark brown. Legs with the coxæ obscure yellow; trochanters brown; femora yellow, the tips conspicuously black; tibiæ pure white with a black ring before midlength, this about one-half as wide as the white basal

portion; tarsi snowy white, including the last segment. Wings (Plate 1, fig. 3) tinged with yellowish gray or brown, the costal region and outer portions of the radial cells clearer yellow; stigma oval, dark brown; narrow and barely evident dark seams along the cord; caudal and posterior regions of wing more infumated, especially in the female; veins brown, Sc more yellow. Venation: Sc<sub>1</sub> ending beyond midlength of the short Rs, Sc<sub>2</sub> at its tip; Rs angulated and weakly spurred close to origin; cell 1st M<sub>2</sub> closed; m-cu close to fork of M; vein 2d A at origin running close to margin, thence approaching vein 1st A.

Abdominal tergites brownish black, narrowly ringed caudally with yellow; sternites yellow, narrowly ringed basally with brown; hypopygium chiefly darkened. Male hypopygium (Plate 2, fig. 24) with the caudal margin of tergite, 9t, deeply emarginate. Dorsal dististyle a strongly chitinized rod, the apex abruptly narrowed into a gently decurved point. Ventral dististyle, vd, fleshy, the rostral prolongation short and stout, at base bearing a large tumid lobe that is larger than the prolongation itself, extended into a single long straight spine. Gonapophyses, g, with the mesal apical lobe flattened, pale, terminating in an acute point. Ædeagus, a, broad, the apex dilated into two divergent lobes, each lobe with four punctures.

*Habitat*.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,500 feet, July 25, 1929 (ex Parish). Allotopotype, female.

*Limonia uncinctifera* is very distinct from all regional species. In some respects it suggests members of the subgenus *Pseudoglochina*, but it is certainly a true *Limonia*.

**HELIUS (HELIUS) COSTOFIMBRIATUS** sp. nov.

General coloration brown; legs dark brown, the tips of the tarsi paler; wings with a stronger brown tinge; costal fringe of male long and conspicuous; cell 1st M<sub>2</sub> irregularly pentagonal, m being oblique in position.

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

*Female*.—Length, about 9.5 to 10 millimeters; wing, 8.

Rostrum a little longer than the head, dark brown; palpi black. Antennæ black throughout, relatively small, a little longer than the rostrum. Head brownish black.

Mesonotum chiefly brown, the præscutum rich cinnamon brown with darker markings; postnotum extensively pale. Pleura brownish yellow, indistinctly variegated with darker. Halteres dirty white, the knobs infuscated. Legs with the coxæ and

trochanters testaceous; femora brown, their bases slightly paler; tibiæ and tarsi dark brown, the tips of the latter paling to brownish yellow. Wings (Plate 1, fig. 4) strongly tinged with brown, the stigmal region darker brown; veins brown. Costal fringe of male long and conspicuous. Venation: Cell 1st  $M_2$  irregularly pentagonal, m being oblique in position and usually longer than the second section of  $M_{1+2}$ ; m-cu at or close to fork of M.

Abdominal tergites dark brown, the sternites brownish yellow; hypopygium brownish yellow. Male hypopygium much as in *tenuistylus*, the basistyles with a conspicuous spinulose lobe on mesal face at base.

*Habitat*.—Japan (Loochoo Islands).

Holotype, male, Kunjan, Okinawa, altitude 500 to 1,000 feet, May, 1923 (*S. Sakaguchi*). Allotopotype, female. Paratopotypes, 3 broken males.

*Helius costofimbriatus* is closely allied to the Formosan *H. tenuistylus* Alexander, differing most evidently in the conspicuous costal fringe of the male.

**HELIUS (HELIUS) PALLIDISSIMUS** sp. nov.

General coloration pale yellow, including the halteres and most of the legs; head light gray; wings yellow, the veins deeper yellow; cell 1st  $M_2$  rectangular; m-cu close to fork of M.

*Female*.—Length, about 7.8 to 8 millimeters; wing, 6.6 to 7.

Rostrum of moderate length, a little longer than the combined head and neck, brownish yellow; basal segments of palpi pale, the outer segments brownish black. Antennæ with the scapal segments obscure yellow, the flagellum brownish black; basal flagellar segments short and crowded, the outer segments long and slender; verticils elongate, especially on the outer segments. Head light gray.

Thorax uniformly pale yellow. Halteres pale yellow. Legs with the coxæ and trochanters pale yellow; femora yellow, the remaining segments passing into yellowish brown. Wings (Plate 1, fig. 5) tinged with yellow; veins pale yellow to bright yellow. Venation:  $Sc_1$  ending shortly before fork of Rs,  $Sc_2$  at its tip; anterior branch of Rs relatively short and nearly straight beyond origin, the cell at margin correspondingly widened; cell 1st  $M_2$  large, rectangular; m-cu close to fork of M.

Abdomen reddish yellow, the caudal margins of the segments narrowly paler. Ovipositor with the valves very long and slender, dark horn-yellow.



*Habitat*.—China (Szechwan).

Holotype, female, Mount Omei, altitude 4,500 feet, July 28, 1929 (ex Parish). Paratopotype, female, altitude 8,000 feet, July 25, 1929.

In its unusually pale coloration, *Helius pallidissimus* resembles *H. unicolor* (Brunetti), of the Himalayas, differing in the large size and very different venation of the medial field.

ANTOCHA (ANTOCHA) SUBCONFLUENTA sp. nov.

General coloration of mesonotum dark gray, the humeral and lateral portions of the præscutum buffy; wings suffused with gray; cell 1st  $M_2$  tending to be open by the atrophy of  $m$ ; male hypopygium with the outer dististyle flattened, the outer margin near tip with two or three appressed serrations; ædeagus small.

*Male*.—Length, about 4.8 millimeters; wing, 5.5.

Rostrum brownish yellow; palpi black. Antennæ black throughout. Head dark gray, the orbits clearer gray.

Mesonotal præscutum almost covered by three confluent dark gray stripes, restricting the ground color to buffy humeral and lateral portions; posterior sclerites of mesonotum dark gray, the scutellum slightly paler. Pleura dark brownish gray, the pteropleurite more reddish brown. Halteres pale, the knobs dusky. Legs with the coxæ reddish brown, the fore coxæ darker; trochanters obscure brownish yellow; remainder of legs brown, the middle legs and all tarsi somewhat darker. Wings (Plate 1, fig. 6) with a strong gray suffusion, the stigma scarcely indicated; veins pale brown. Anal angle of wing moderately developed. Venation: Cell 1st  $M_2$  open by the partial atrophy of  $m$ .

Abdominal tergites brownish black, the basal sternites somewhat brighter; hypopygium obscure yellow. Male hypopygium (Plate 2, fig. 25) with the caudal margin of the tergite,  $9t$ , transverse to gently concave, with a series of coarse, chiefly marginal setæ. Outer dististyle,  $od$ , simple, the margin flattened into a blade, with two or three appressed serrations before apex. Gonapophyses,  $g$ , appearing as slender sinuous yellow rods, the tips acute. Ædeagus,  $a$ , small.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*).

*Antocha subconfluenta* is apparently most closely related to *A. confluenta* Alexander (eastern China), differing in the vena-

tion and outline of the wing and in the structure of the male hypopygium.

**ORIMARGA CRUCIFORMIS** sp. nov.

General coloration plumbeous gray; halteres pale, the knobs infuscated; wings long and narrow, tinted with brown, the apex infuscated, cell  $R_5$  remaining pale;  $R_2$  in approximate alignment with the basal section of  $R_{4+5}$  to produce a +-shaped figure; medial forks short; cell 2d A long and narrow.

*Female*.—Length, about 6.5 millimeters; wing, 5.5 by 1.

Rostrum and palpi black. Antennæ with the basal segment black, the remaining segments dark brown; flagellar segments globular, the outer segments passing into short-oval. Head pruinose.

Thorax blue-gray pruinose, the pleura somewhat clearer gray. Halteres pale, the knobs infuscated. Legs with the coxæ and trochanters dark reddish brown; remainder of legs broken. Wings (Plate 1, fig. 7) unusually long and narrow, as shown by the measurements; anal region greatly reduced; membrane pale basally, gradually darkening outwardly, the apex narrowly infuscated, interrupted by the entirely pale cell  $R_5$ ; veins black. Costal fringe relatively long and conspicuous. Venation:  $Sc_1$  ending just beyond midlength of the long Rs,  $Sc_2$  at its extreme tip; a supernumerary crossvein in cell Sc, opposite origin of Rs;  $R_2$  in approximate alignment with the origin of  $R_{4+5}$ , Rs being in alignment with  $R_3$  and  $R_{2+3}$  lacking;  $R_1$  and  $R_{1+2}$  nearly equal; basal section of  $R_{4+5}$  angulated and weakly spurred before midlength; r-m far beyond level of  $R_2$ ; cell  $M_3$  shallow; m-cu opposite the basal fourth of Rs; cell 2d A long and narrow.

Abdominal tergites brownish black, the sternites somewhat lighter brown. Ovipositor with the tergal valves slender but relatively short.

*Habitat*.—China (Szechwan).

Holotype, female, Mount Omei, altitude 6,000 feet, July 25, 1929 (ex Parish).

*Orimarga cruciformis* is very distinct from all described regional species.

**ORIMARGA YAKUSHIMANA** sp. nov.

General coloration gray; wings with a faint dusky tinge; veins pale brown; medial field with the outer forks relatively deep.

*Male*.—Length, about 6 to 6.5 millimeters; wing, 5.6 to 6.2.

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

Rostrum gray; palpi black. Antennæ black throughout; flagellar segments short-oval, the outer segments more elongate. Head gray.

Mesonotum light gray, the median region of the præscutum and the scutal lobes somewhat darker gray. Pleura gray. Halteres pale. Legs with the coxæ dark; trochanters reddish brown; remainder of legs brown. Wings (Plate 1, fig. 8) with a faint dusky tinge; veins pale brown, the outer costal region more yellowish. Macrotrichia almost as in *pruinosa*. Venation: Sc long, Sc<sub>1</sub> ending just before the fork of Rs; free tip of Sc<sub>2</sub> somewhat variable in relation to the position of R<sub>2</sub>, the distance from one to two times the total length of the latter; R<sub>1+2</sub> considerably longer than R<sub>2</sub> alone; forks of medial field much deeper than in *pruinosa*.

Abdomen, including the hypopygium, dark brown.

*Habitat*.—Japan (Kiusiu).

Holotype, male, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*). Allotopotype, female. Paratopotypes, 6 males and females.

*Orimarga yakushimana* is most nearly allied to *O. pruinosa* Alexander (Japan: Honshiu), differing in the larger size, darker wings and veins, and the deep forks of the medial field.

**ORIMARGA OMEINA** sp. nov.

General coloration dark gray; wings milky white, the veins pale yellowish brown to reddish brown; costal fringe of moderate length only; R<sub>2</sub> lying beyond level of r-m; R<sub>1+2</sub> variable in length, from two to three times R<sub>2</sub>; anal cells large.

*Male*.—Length, about 6 to 7 millimeters; wing, 5.5 to 6.8.

*Female*.—Length, about 7 to 7.5 millimeters; wing, 6.5 to 7.5.

Rostrum gray; palpi black. Antennæ with the basal segment of the scape varying from yellow to black, the remaining segments black. Head gray.

Thorax dark gray, without distinct markings. Halteres pale throughout. Legs with the coxæ reddish brown; trochanters brownish yellow; femora yellowish brown; tibiæ and tarsi brownish black to black. Wings (Plate 1, fig. 9) milky white, the veins pale yellowish brown to reddish brown. Costal fringe of moderate length only; no macrotrichia on Rs. Venation: Sc long, Sc<sub>1</sub> ending just before the fork Rs; R<sub>2</sub> far beyond r-m;



$R_{1+2}$  in most cases elongate, approximately three times  $R_2$  alone, in cases shorter, approximately twice  $R_2$ ; anal cells large.

Abdomen dark brown, more or less pruinose.

*Habitat*.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,500 feet, August 2, 1929 (ex Parish). Allotopotype, female, August 14, 1929. Paratopotypes, several males and females, July and August, 1929.

*Orimarga omeina* is very close to *O. yakushimana* sp. nov. and may more properly be considered as being only a variety of the latter species, differing especially in the milky-white wings with pale veins, and in slight details of venation. The present species appears to vary to an unusual degree. The two types have the largest measurements given above, in conjunction with an unusually long  $R_{1+2}$ .

**ORIMARGA SETICOSTA** sp. nov.

General coloration brownish gray; thoracic pleura with a narrow black longitudinal stripe; halteres pale throughout; wings yellow, the veins darker yellow; costal fringe long and conspicuous in both sexes;  $R_2$  and r-m in nearly transverse alignment.

*Male*.—Length, about 5 to 5.5 millimeters; wing, 4.5 to 4.8.

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

Rostrum and palpi black. Antennæ with the scapal segments black, the flagellum brown; flagellar segments short-oval, the outer segments becoming slightly more elongate. Anterior part of head buffy, the remainder gray.

Thoracic notum brownish gray to gray, the præscutum with a slightly darker median stripe, the latter in cases weakly bifid; humeral region brighter; posterior sclerites of notum darker, the median area of scutum pale. Pleura brownish gray with a narrow but conspicuous black longitudinal stripe extending from above the fore coxæ to beneath the wing root; ventral sternopleurite narrowly darkened. Halteres pale throughout. Legs with the coxæ and trochanters brownish yellow; femora brownish yellow; remainder of legs gradually passing into brown, the terminal tarsal segments blackened. Wings (Plate 1, fig. 10) relatively broad, especially the anal region, the widest point of wing being at near midlength; ground color pale yellow, the veins darker yellow. Costal fringe of both sexes long and conspicuous. Venation:  $Sc_1$  ending about opposite two-thirds

the length of Rs, Sc<sub>2</sub> at its tip; free tip of Sc<sub>2</sub> faint, a little more than its own length before R<sub>2</sub>; Rs relatively long, arcuated; R<sub>2+3</sub> longer than R<sub>1+2</sub>; basal section of R<sub>4+5</sub> angulated before midlength; M<sub>3+4</sub> subequal to M<sub>4</sub>; m-cu about opposite midlength of Rs; anal cells unusually wide, especially cell 2d A.

Abdomen brown, the margins of the segments more blackened; hypopygium brown.

*Habitat*.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,500 feet, August 2, 1929 (ex Parish). Allotopotype, female. Paratopotypes, 5 males and females, July 24 to August 8, 1929.

*Orimarga seticosta* is readily distinguished by the diagnostic features listed above, especially the long costal fringe in both sexes.

#### PEDICIINI

##### DICRANOTA (AMALOPINA) GIBBERA KARAFUTONIS subsp. nov.

Close to the typical form, differing especially in the narrow wings of the male (and undoubtedly both sexes). The wing (Plate 1, fig. 11) is of approximately equal width along the middle third of the width, whereas in the male of typical *gibbera* (Plate 1, fig. 12) the wing is widest opposite the termination of the 2d anal vein, cell 2d A is wider and the auxillary margin is gently incised.

*Habitat*.—Japan (Karafuto).

Holotype, male, Maoka, July 28, 1922 (*T. Esaki*). Paratopotypes, 6 males; paratype, 1 male, Manui, August 3, 1922 (*T. Esaki*).

*Dicranota (Amalopina) gibbera* is closely allied to *D. (A.) elegantula* (Brunetti), of southeastern Asia. *Amalopina*, together with *Rhaphidolabis* and *Plectromyia*, would seem to be more correctly referable to *Dicranota* as subgeneric groups, although the distinctions existing between several of the so-called genera of pediciine crane flies are very slight. The relation of the narrow-winged males in this and other groups of Tipulidæ to closely allied forms with broad wings in the male is still poorly understood and in the present case, at least, is best expressed by a trinomial until more data become available. Edwards\* has discussed additional material of *D. (A.) elegantula* from Assam and Pahang.

\* Journ. Fed. Malay States Mus. 14 (1928) 127.

## HEXATOMINI

## DACTYLOLABIS LONGICAUDA MEGASTYLATA subsp. nov.

*Male*.—Length, about 5 to 6 millimeters; wing, 6 to 7.

General coloration of the head and thorax light blue-gray. Mesonotal præscutum with four narrow dark brown stripes, the intermediate pair not reaching the suture. Legs brownish black. Wings strongly tinged with brown, the transverse elements and certain of the longitudinal veins evidently seamed with brown, to produce a streaked appearance. Venation:  $Sc_1$  ending a short distance before the end of  $Rs$ . Abdomen dark gray, the hypopygium dark, including the styli. Male hypopygium with the outer dististyle unusually large, even exceeding in size that of typical *longicauda*, in length about two-thirds that of the basistyle.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*).

## LIMNOPHILA (DICRANOPHRAGMA) DORSOLINEATA sp. nov.

General coloration of mesonotum obscure yellow, the region of the lateral præscutal stripes bordered anteriorly by narrow dark brown lines; basal segments of antennæ pale; pleura grayish brown, lined longitudinally with dark brown; femora yellow, more darkened outwardly, the tips abruptly paler; wings strongly suffused with dusky, with a brown pattern that is confined to the vicinity of the veins; wings (male) of approximately equal width throughout their length.

*Male*.—Length, about 4.6 millimeters; wing, 5.2 to 5.5.

Rostrum and palpi dark brown. Antennæ with the scape and basal two or three flagellar segments yellow, the remainder passing into black. Head gray, the anterior vertex more ocherous.

Mesonotal præscutum with the restricted ground color dark brown, represented by hook-shaped areas surrounding the usual lateral stripes, together with an isolated oval brown spot on lateral portion, sometimes attached to the remaining dark area; scutum and scutellum ocherous brown; postnotum dark brown, pruinose. Pleura grayish brown, with three dark brown longitudinal stripes, the most dorsal lying just below the pale dorso-pleural region, extending from the cervical sclerites to the postnotum; second stripe very short, lying between the anepisternum and sternopleurite; third dark area occupying the



ventral sternopleurite. Halteres yellow, the knobs weakly infuscated. Legs with the coxæ brown; trochanters brownish yellow; femora yellow, slightly darkened outwardly, the tips abruptly paler; tibiæ and tarsi obscure yellow, the terminal tarsal segments darkened; legs long, conspicuously setiferous. Wings (Plate 1, fig. 13) strongly suffused with dusky, the dark wash including all of the cells excepting the prearcular and costal regions; dark brown pattern almost as in *formosa*. Wing of approximately equal width throughout the central third of the length. Venation: Vein 2d A ending just before to opposite the level of the origin of Rs.

Abdomen dark brown, the basistyles of the male hypopygium more reddish brown. Male hypopygium (Plate 2, fig. 26) with the inner dististyle, *id*, very stout and broad-based, the apex blunt and fleshy; no conspicuous group of setæ in the axilla of dististyles.

*Habitat*.—Formosa.

Holotype, male, Arisan, altitude 6,500 to 8,000 feet, July 7, 1929 (*S. Issiki*). Paratopotype, male.

*Limnophila dorsolineata* is readily distinguished from *L. (D.) formosa* Alexander (Formosa) by the diagnostic features listed above.

**LIMNOPHILA (PRIONOLABIS) LIPOPHLEPS sp. nov.**

General coloration gray; antennæ black throughout; halteres yellow; wings tinged with gray, the prearcular region light yellow; cell  $M_1$  lacking; male hypopygium with the inner dististyle bifid at apex; gonapophyses appearing as slender sinuous blackened rods that bear two groups of spines along the outer margin.

*Male*.—Length, about 5.5 millimeters; wing, 6.5.

*Female*.—Length, about 5 millimeters; wing, 6.

Rostrum pruinose; palpi black. Antennæ black, the basal segment pruinose; flagellar segments oval, gradually decreasing in size outwardly. Head dark gray, the broad anterior vertex lighter gray.

Mesonotal præscutum black, pruinose with gray; no tuberculate pits; pseudosutural foveæ black. Pleura black, gray pruinose, more heavily so on the sternopleurite. Halteres of moderate length, yellow, the knobs brighter. Legs with the coxæ and trochanters dark, the former pruinose; femora brownish black, their bases obscure yellow; remainder of legs black. Wings (Plate 1, fig. 14) tinged with gray; prearcular

region light yellow; stigma and vague seams along cord and outer end of cell 1st  $M_2$  slightly darker than the ground color; veins pale brown. Marcrotrichia of veins sparse, caudad of the main branch of R being nearly confined to those veins distad of the cord. Venation:  $Sc_1$  extending to opposite the fork of  $R_{2+3+4}$ ,  $Sc_2$  not far from its tip;  $R_2$  faint, less than  $R_{1+2}$ ; cell  $M_1$  lacking; m-cu at near midlength of cell 1st  $M_2$ .

Abdomen, including the hypopygium, black, pruinose. Male hypopygium (Plate 2, fig. 27) with the caudal margin of the tergite, 9t, gently notched. Outer dististyle, *od*, gradually narrowed to a slender blackened point, just beyond midlength bearing a small lateral spine. Inner dististyle, *id*, with the apex bifid. Gonapophyses, *g*, entirely blackened, each appearing as a slender sinuous rod that terminates in a long apical spine; on outer margin with two groups of smaller spines, one group being subapical, the other nearer midlength of the apophysis; the number of spines in both these groups variable. Ædeagus, *a*, highly compressed, as in the subgenus.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*). Allotopotype, female. Paratopotypes, 5 males and females.

The present species and the closely allied *L. (P.) liponeura* sp. nov. are placed in the subgenus *Prionolabis* with some slight question. The general structure and basic plan of the male hypopygium are the same, but the gonapophyses are rather remarkable in form and depart notably from the otherwise conservative type of the subgenus.

**LIMNOPHILA (PRIONOLABIS) LIPONEURA** sp. nov.

*Male*.—Length, about 5.3 millimeters; wing, 6.7.

*Female*.—Length, about 5.8 millimeters; wing, 6.4.

Closely allied to *L. (P.) lipophleps* sp. nov., differing especially in the structure of the male hypopygium, notably of the gonapophyses.

Coloration of the body more intensely black. Legs darker-colored, brownish black to black, only the femoral bases restrictedly obscure yellow. Wings darker, slightly broader than in *lipophleps*, the cells being correspondingly widened. Male hypopygium (Plate 2, fig. 28) with the outer dististyle, *od*, broader than in *lipophleps*. Inner dististyle, *id*, with the base more expanded, the terminal tail-like extension simple at apex. Gonapophyses, *g*, of somewhat remarkable form, as figured.

*Habitat.*—Japan (Kiushiu).

Holotype, male, Mount Kirishima, altitude 3,000 to 3,500 feet, May 4, 1929 (*S. Issiki*). Allotopotype, female, altitude 2,500 feet, May 3, 1929 (*S. Issiki*).

LIMNOPHILA (TRICHOLIMNOPHILA) SATSUMICOLA sp. nov.

Size small (wing not over 6.5 millimeters); general coloration gray; cephalic portion of præscutum not polished; wings brownish yellow, the base brighter, the stigma darker; male hypopygium with the lobes of the tergite relatively long and narrow; not widened distally; outer dististyle and outer arm of the inner dististyle narrow.

*Male.*—Length, about 4.5 to 5 millimeters; wing, 5.7 to 5.8.

*Female.*—Length, about 7 millimeters; wing, 6.

Antennæ dark brown, the basal segments a little paler; flagellar segments long-oval. Head gray.

Mesonotum gray, the præscutum with poorly defined brown stripes, the anterior portion not polished black, as in *pilifer*. Pleura gray. Halteres yellow. Legs with the coxæ and trochanters yellow; femora and tibiæ yellow, the tips narrowly infuscated; tarsi brownish black. Wings tinged with brownish yellow, the base brighter yellow, the oval stigma darker; very indistinct seams along cord and outer end of cell 1st  $M_2$ ; veins dark brown. Macrotrichia of cells confined to those beyond cord, in the allotype greatly reduced in number. Venation: Cell  $M_1$  present, abnormally lacking in one wing of the type; inner ends of cells  $R_4$ ,  $R_5$ , and 1st  $M_2$  in nearly transverse alignment.

Abdomen brownish gray, the hypopygium somewhat brighter. Male hypopygium with the sublateral lobes of the tergite relatively long and narrow, nearly parallel-sided, the tips obtusely rounded, not expanded outwardly as in *caesiella*; emargination separating the lobes subcircular, about twice as wide as the diameter of one lobe. Outer dististyle and outer arm of the inner dististyle both narrow.

*Habitat.*—Japan (Kiushiu).

Holotype, male, Shiroyama Hill, city of Kagoshima, April 27, 1929 (*S. Issiki*). Allotopotype, female. Paratopotype, male.

*Limnophila satsumicola* is most closely allied to *L. caesiella* Alexander, differing especially in the size, and in the structure of the male hypopygium, such as the relatively long and slender lobes of the tergite.

LIMNOPHILA (TRICHOLIMNOPHILA) PLATYSTYLA PARALLELA subsp. nov.

Quite as in typical *platystyla* Alexander except for details of structure of the male hypopygium. Median lobe of the tergite



long, parallel-sided, the apex entire, not expanded as in the typical form. Outer arm of the inner dististyle slender, only weakly dilated at tip.

*Habitat.*—Formosa.

Holotype, male, Arisan, altitude 6,500 to 8,000 feet, July 7, 1929 (*S. Issiki*). Allotopotype, female. Paratopotype, male; paratypes, 2 males, Rantaizan, altitude 4,000 to 6,000 feet, May 20, 1928 (*S. Issiki*).

ATARBA (ATARBODES) ISSIKIANA sp. nov.

General coloration yellow; antennæ pale throughout; mesonotal præscutum yellow, the median stripe bordered anteriorly by a  $\cap$ -shaped black mark; each scutal lobe with two black markings; scutellum bordered posteriorly by black; femora yellow, the tips not darkened.

*Male.*—Length, about 5 to 5.3 millimeters; wing, 6 to 7.

*Female.*—Length, about 6.5 to 7 millimeters; wing, 7 to 7.5.

Rostrum pale; palpi pale basally, the outer two segments darkened. Antennæ pale throughout, those of the female longer and stouter than those of the male; flagellar segments of male elongate-cylindrical, with long conspicuous verticils; of female with shorter verticils. Head chiefly ochreous yellow.

Mesonotum yellow, the median region of the præscutum bordered anteriorly by a  $\cap$ -shaped black mark, each scutal lobe with two brownish black or black marks, the more lateral one largest; scutellum yellow, bordered posteriorly by black, in some cases so extensively as to include almost the whole sclerite; postnotum pale, more infuscated and weakly pruinose behind. Pleura pale yellow. Halteres yellow. Legs yellow, the femoral tips not darkened; terminal tarsal segments infuscated. Wings (Plate 1, fig. 15) yellow, the veins darker yellow. Macrotrichia of veins relatively numerous. Venation: Sc of moderate length, extending about to midlength of Rs, Sc<sub>2</sub> some distance from its tip and shortly beyond origin of Rs; veins issuing from cell 1st M<sub>2</sub> divergent; m-cu beyond the form of M.

Abdomen, including the hypopygium, yellow, the extreme caudal margins of the tergites infuscated; in the female the abdomen is more uniformly darkened.

*Habitat.*—Formosa.

Holotype, male, Arisan, altitude 7,300 feet, July 7, 1929 (*S. Issiki*). Allotopotype, female. Paratopotypes, 4 males and females, altitude 6,500 to 8,000 feet, July 7, 1929 (*S. Issiki*); paratypes, 1 female, Rantaizan, altitude 6,000 to 7,000 feet,

May 21, 1928; 1 female, 7,000 feet, June 2, 1927; 1 female, Sankakuho, altitude 7,000 to 8,000 feet, May 25, 1928 (*S. Issiki*).

A paratype from Rantaizan has the extreme tips of the femora darkened but from the peculiar thoracic pattern would appear to belong here.

The known species of *Atarba* in Japan and Formosa form a group of closely allied forms that are separable chiefly on coloration. It is worthy of note that the antennæ of the female of these species are distinctly longer and stouter than those of the male sex. The described species from this region may be separated as follows:

- |   |                                  |
|---|----------------------------------|
| 1. Thoracic dorsum yellow, variegated with black.....                   | 2.                               |
| Thoracic dorsum uniformly yellow.....                                   | 4.                               |
| 2. Femoral tips narrowly blackened.....                                 | <i>A. pallidicornis</i> Edwards. |
| Femoral tips not darkened.....  | 3.                               |
| 3. Antennæ dark brown or black throughout.....                          | <i>A. fuscicornis</i> Edwards.   |
| Antennæ pale throughout .....   | <i>A. issikiana</i> sp. nov.     |
| 4. General color of the mesonotum polished yellow; wings deep yellow.   |                                  |
|   | <i>A. leptoxantha</i> Alexander. |
| General color of mesonotum opaque testaceous yellow; wings pale yellow. |                                  |
|   | <i>A. minuticornis</i> sp. nov.  |

**ATARBA (ATARBODES) MINUTICORNIS** sp. nov.

*Male*.—Length, about 5 millimeters; wing, 5.8.

Closely allied to *A. (A.) leptoxantha* Alexander (Formosa), differing especially in the shorter antennæ and very pale yellow coloration of the body and wings.

Antennæ (male) small, if bent backward ending some distance before the wing root; flagellar segments elongate-cylindrical, the verticils slightly exceeding the segments. Head and thorax dull testaceous yellow, not nitidous yellow as in *leptoxantha*; vague indications of a darker coloration surrounding the region of the lateral præscutal stripes. Legs broken beyond the trochanters. Wings paler yellow than in *leptoxantha*.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Kosugidani, Yakushima, altitude 2,500 feet, April 29, 1929 (*S. Issiki*).

**ELEPHANTOMYIA (ELEPHANTOMYIA) DIETZIANA** sp. nov.

General coloration obscure yellow, the præscutum with a median darkening in front; head gray; halteres pale yellow; pleura more or less darkened; wings tinged with yellow, the oval stigma pale brown; abdominal segments bicolorous, their bases obscure yellow, the apices more broadly blackened; male hypopygium with the gonapophyses beyond midlength spinose.

*Male*.—Length, excluding rostrum, about 9 to 10 millimeters; wing, 8.2 to 8.5; rostrum, about 7 to 7.5.

*Female*.—Length, excluding rostrum, about 7.5 to 8 millimeters; wing, 7.5 to 8; rostrum, about 7.

Rostrum black, elongate. Antennæ brown, the scapal segments more pruinose; flagellar segments gradually increasing in length and decreasing in diameter outwardly, with long conspicuous verticils that exceed the segments; terminal segment very small. Head gray, that postgenæ paler.

Pronotum dark brown, obscure yellow laterally. Mesonotum obscure brownish yellow, the præscutum conspicuously darkened medially, this area usually becoming obsolete before the suture; one specimen, a paratype male, has the entire thorax blackened, sparsely pruinose. Pleura more or less dark brownish gray, especially on the sternopleurite, in some specimens more extensive to include almost the entire pleura. Halteres pale yellow. Legs with the coxæ and trochanters yellow; femora yellow basally, passing into brown at tips; tibiæ and tarsi yellowish brown, the latter paler yellow on outer segments. Wings tinged with yellow, the long oval stigma pale brown; veins pale brown, the basal veins more luteous. Venation:  $Sc_1$  ending opposite or just before the fork of  $Rs$ ,  $Sc_2$  close to its tip; branches of  $Rs$  running approximately parallel to one another, cell  $R_2$  at margin being much wider than cell  $R_3$ ; anterior branch of  $Rs$  more or less sinuous beneath the stigma; m-cu at or before midlength of cell 1st  $M_2$ .

Abdomen bicolorous, the segments obscure yellow basally, brownish black apically, in the males the dark color becoming more extensive on the outer segments, which are entirely blackened; hypopygium with the basistyles pale. Male hypopygium with the gonapophyses provided with a group of from ten to twelve spines beyond midlength, beyond which point each apophysis is produced into a long pale point.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Kirishima, altitude 2,500 feet, May 3, 1929 (*S. Issiki*). Allotopotype, female. Paratopotypes, 5 males and females.

Some years ago, Dr. William G. Dietz sent me a brief diagnosis of an *Elephantomyia* preserved in his collection, received from Honshiu, Japan. I believe this represents the present species, and it is fitting to dedicate this distinct species of fly to this distinguished student of the Tipulidæ. The spinous



gonapopyses and marked præscutum separate the fly from the larger and more-northern *E. (E.) hokkaidensis* Alexander. The somewhat similar *E. (E.) serotina* Alexander (Formosa) is distinguished by the coloration of the wings and body.

## ERIOPTERINI

## GONOMYIA (PROGONOMYIA) PERTURBATA sp. nov.

General coloration black, more or less pruinose; pleura black, variegated with obscure yellow; knobs of halteres darkened; legs black; wings tinged with dusky; male hypopygium with three dististyles.

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

Rostrum dark brown; palpi black. Antennæ black throughout; flagellar segments decreasing in length and diameter outwardly, the verticils exceeding the segments in length. Head black, sparsely dusted with gray.

Mesonotal præscutum black, very sparsely dusted with gray, the anterior lateral pretergites and humeral region restrictedly obscure yellow; scutellum dusky at base, the posterior half light yellow; postnotum dark gray. Pleura black, variegated with obscure yellow, including the suture between the anepisternum and sternopleurite, the meron and adjoining sclerites, and the dorsal portion of the pleurotergite. Halteres dirty white, the knobs infuscated. Legs with the coxæ darkened on outer faces; trochanters brownish yellow; remainder of legs black, the femoral bases scarcely brightened. Wings (Plate 1, fig. 16) with a weak dusky tinge, the stigmal region only restrictedly and vaguely darkened; veins brownish black. Venation: Sc<sub>1</sub> ending just before or opposite the fork of Rs, Sc<sub>2</sub> some distance from its tip, the distance between origin of Rs and Sc<sub>2</sub> about equal to m-cu; cell R<sub>3</sub> deep; m-cu at fork of M.

Abdomen brownish black, including the hypopygium. Male hypopygium (Plate 2, fig. 29) with the outer lateral angle of the basistyle, *b*, produced into a stout setiferous lobe. Three dististyles, *d*; the outermost a glabrous rod that is nearly straight, a little expanded at apex, at base with a conspicuous rounded lobe; second dististyle a broad triangular blade that narrows to an acute apical beak; margin of style with a comb of nine or ten straight yellow pegs; surface of this style with numerous setæ; inner, or third, dististyle bifid at apex into a long spine and a more-flattened blade, the stem with abundant long setæ. Ædeagus, *p*, flattened, terminating in a short curved spine, surface of disk of ædeagus with several long slender setæ.

*Habitat*.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,500 feet, July 15, 1929 (ex Parish).

I cannot identify this fly with the Indian *G. (P.) nigripes* (Brunetti), which has as synonyms *G. nigra* Brunetti, *G. incompleta* Brunetti, and possibly *G. gracilis* Brunetti. It superficially resembles *G. (P.) alboscuteolata* Alexander (Formosa), but the male hypopygium is so different that some of the parts are not readily homologized. It is probable that this species will be found not to be a *Progonomyia* in the strict interpretation of the subgenus.

GONOMYIA (GONOMYIA) OMEIENSIS sp. nov.

General coloration gray; antennæ black throughout; scutellum obscure yellow; pleura yellow, striped longitudinally with bluish gray, most evident on the anterior mesopleura; wings gray, the stigma more brownish; male hypopygium with the inner dististyle a bispinous flattened blade; phallosome asymmetrical, bearing a blackened, spearlike, lateral arm.

*Male*.—Length, about 4.4 millimeters; wing, 5.

*Female*.—Length, about 5 millimeters; wing, 5.4.

Rostrum orange; palpi black; in female, rostrum entirely black. Antennæ black throughout, the basal segments of flagellum large, the remainder becoming linear. Head dark gray.

Pronotum fulvous, darker laterally. Anterior lateral pretergites obscure yellow. Mesonotal præscutum brownish gray, the humeral and lateral regions obscure yellow; scutum brownish gray; scutellum obscure yellow; postnotum gray. Pleura pale yellow with two narrow blue-gray longitudinal stripes that are most evident on the anepisternum and ventral sternopleurite, the pteropleurite entirely pale. Halteres relatively elongate, pale, the knobs infuscated. Legs with the coxæ pale, the outer faces of the fore and hind coxæ slightly infuscated; trochanters pale brown; remainder of legs brownish black, passing into black. Wings (Plate 1, fig. 17) gray, the stigma more brownish; veins brownish black. Venation:  $Sc_1$  extending to shortly beyond the origin of  $R_s$ ,  $Sc_2$  a little removed from its tip;  $R_s$  sinuous on basal half; cell 1st  $M_2$  closed; m-cu close to fork of  $M$ .

Abdominal tergites dark brown, the sternites paler, the extreme caudal margins of the outer segments narrowly pale. Male hypopygium (Plate 2, fig. 30) with the apex of basistyle, *b*, produced into a small oval setiferous lobe. Outer dististyle,

*od*, a pale flattened blade that is setiferous on outer margin, the inner margin glabrous. Inner dististyle, *id*, a bispinous flattened blade, the outer spine longest, bearing a single powerful seta near base; smaller spine more curved; apex of style bearing two powerful fasciculate bristles, in addition to about four or five smaller setæ. Phallosome, *p*, asymmetrical, a pale flattened blade, at near midlength bearing a black spear-shaped arm on one side only.

*Habitat*.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,500 feet, August 14, 1929 (ex Parish). Allotopotype, female, August 7, 1929.

*Gonomyia omeiensis* is allied to *G. affinis* Brunetti (Himalayas), differing in the striped pleura and details of venation. I do not have a male of *affinis* for comparison.

GONOMYIA (LIPOPHLEPS) QUADRIFILA *sp. nov.*

General coloration brownish gray; head yellow, the center of the vertex with a small dark spot; pleura dark, striped with yellow; femora pale, with a subterminal dark ring; wings dusky, the costal region yellowish white, the disk variegated with pale spots and flecks; Sc short; anterior branch of Rs short and oblique; male hypopygium with three dististyles, two being very long and filiform.

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

Rostrum and palpi black. Antennæ with the basal segments obscure yellow, the slender outer segments of the flagellum passing into black. Head light yellow with a small dark spot on the disk of vertex.

Pronotum and anterior lateral pretergites light yellow. Mesonotum brownish gray, the caudal margin of the scutellum a trifle paler; postnotal mediotergite extensively pale, darker posteriorly. Pleura black, pruinose, the pleurotergite pale brownish yellow; a narrow but conspicuous light yellow longitudinal stripe extending from the fore coxæ, passing above the remaining coxæ to the base of the abdomen. Halteres broken. Legs with the coxæ chiefly pale, especially the fore coxæ, the others narrowly darkened at base; trochanters yellowish testaceous; femora brownish yellow, with a narrow dark brown subterminal ring, the extreme tip again narrowly pale; tibiæ and basitarsi yellow, the tips darkened; terminal tarsal segments infuscated. Wings (Plate 1, fig. 18) with a strong brown suffusion, the costal region yellowish white, more extensive before and beyond the stigma; stigma oval, brown; conspicuous grayish



white spots and flecks on the membrane, the most evident appearing as an incomplete crossband before the cord; remaining cells of wing sprinkled with pale; veins dark, the costal veins pale. Venation: Sc short, Sc<sub>1</sub> ending a distance before the origin of Rs about equal to the total length of the latter; anterior branch of Rs unusually short and oblique, the cell at margin being very wide; m-cu at or just before the fork of M.

Abdominal segments brownish black, narrowly ringed caudally with yellow; hypopygium dark. Male hypopygium (Plate 2, fig. 31) with three dististyles, *d*, two very long and filiform; longest style appearing as a very long curved rod that ends in an acute blackened point; second style more than one-half the length of the first, dusky, gently arcuated, the tip obliquely obtuse; third dististyle, or branch, small and fleshy. Phallosome, *p*, large, pale, terminating in two expanded subtriangular dusky blades that lie parallel to one another.

*Habitat*.—Japan (Kiushiu).

Holotype, male, Yasakagawa, Oita-ken, May 10, 1929 (T. Uyē).

*Gonomyia quadrifila* is most closely related to *G. flavocostalis* Alexander (Japan), differing very conspicuously in the structure of the male hypopygium.

ERIOPTERA (ERIOPTERA) LUTEICORNIS sp. nov.

General coloration pale yellow; palpi black; basal segments of antennæ pale yellow; head pale; pleura yellow with a relatively narrow dusky longitudinal stripe; knobs of halteres blackened; wings pale yellow, the veins yellow, those of the anterior cord slightly infuscated; male hypopygium with the dististyle single but profoundly divided, the two principle arms bearing two unequal black spines in the axil.

*Male*.—Length, about 3.8 to 4 millimeters; wing, 4.2 to 4.5.

*Female*.—Length, about 4.5 to 5 millimeters; wing, 5.5 to 6.

Rostrum pale yellow; palpi black. Antennæ with the scape and basal six or seven flagellar segments pale yellow, the outer segments infuscated. Head whitish, the center of the vertex more suffused with yellow.

Pronotum yellowish white, infuscated medially. Mesonotal præscutum light reddish brown, more infuscated medially, the lateral margins paling to yellowish white; pseudosutural foveæ and tuberculate pits reddish brown; scutal lobes light reddish brown; scutellum chiefly pale; postnotal mediotergite reddish brown, more whitish laterally, more darkened behind. Pleura

yellow, with a relatively narrow dusky longitudinal stripe, extending from the fore coxæ to the posterior portion of the postnotum, the pleura dorsad of this stripe very pale, yellowish white, the ventral sclerites somewhat deeper yellow. Halteres pale, the knobs blackened. Legs with the fore coxæ darkened; remaining coxæ and all trochanters yellow; remainder of legs yellow, the outer tarsal segments infuscated. Wings pale yellow, the veins dark yellow; a scarcely evident darkening involving the veins of the anterior cord. Venation: Vein 2d A unusually long and sinuous, at near midlength a little closer to the anal margin.

Abdomen pale brownish yellow, the lateral margins darker, the caudal margins pale. Male hypopygium (Plate 2, fig. 32) with the dististyle, *d*, apparently simple but profoundly branched; outer arm a simple straight rod, the tip acute; inner arm an arcuated flattened blade, provided with marginal setæ; two blackened spines in the axil, one being very small. Gonapophyses, *g*, appearing as flattened pale blades, the acute tips narrowly blackened, the outer margin microscopically roughened.

*Habitat*.—China (Szechwan).

Holotype, male, Mount Omei, altitude 4,500 feet, August 14, 1929 (ex Parish). Allotopotype, female. Paratopotypes, 5 males and females, July 31 to August 22, 1929.

*Erioptera luteicornis* is evidently allied to the Nearctic *E. septemtrionis* Osten Sacken.

**ERIOPTERA (ERIOPTERA) HIMALAYÆ sp. nov.**

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

Characters generally as in *E. subtinctoria* Brunetti, differing especially in the structure of the male hypopygium.

Wings pale yellow, the veins and macrotrichia darker yellow; a faint but distinct clouding on the anterior cord. Venation: Vein 2d A very strongly sinuous, on its distal third extending parallel to the margin or nearly so. Male hypopygium (Plate 2, fig. 33) with the outer dististyle, *od*, a simple flattened rod, gently narrowed and curved to the acute tip, the outer face microscopically roughened. Inner dististyle, *id*, a larger, broadly triangular structure, the outer apical angle produced into a long slender spine, the inner margin microscopically serrulate; inner mesal region of the triangle extended into a dusky flange, weakly and irregularly tridentate on margin. Gonapo-

physes, *g*, appearing as straight slender rods, pale yellow, the dusky tips obtuse.

*Habitat*.—India.

Holotype, male, Ghumti, Darjiling District, Eastern Himalayas, altitude 4,000 feet, July 1911 (*F. H. Gravely*).

I received this species in exchange with Mr. Brunetti as being *E. (E.) subtineta* Brunetti and considered the determination as being correct until Edwards<sup>4</sup> published further notes on the type of *subtineta*. From this it is very evident that the present species has nothing in common with *subtineta* nor can I identify it with any of the described regional species. The structure of the male hypopygium is distinctive.

**MOLOPHILUS ARICOLA** sp. nov.

General coloration brown to reddish brown; antennæ relatively short in both sexes; legs dark brown; halteres yellow; wings yellowish gray, the costal region clearer yellow; abdomen black, the hypopygium reddish brown; lobes of the basistyle not produced into spinous points; surface of inner dististyle glabrous.

*Male*.—Length, about 3 to 3.2 millimeters; wing, 3.8 to 4.

*Female*.—Length, about 3.5 to 3.7 millimeters; wing, 4.8 to 5.

Rostrum and palpi black. Antennæ with the scape and basal segments of flagellum yellow, the remaining flagellar segments passing into black; antennæ relatively short, when compared with *pegasus*, with long conspicuous verticils, the outer series longer. Head gray.

Mesonotal præscutum reddish brown to brown, with a faint gray pruinosity; lateral pretergites and narrow lateral margins of the præscutum pale yellow; posterior sclerites of mesonotum more grayish. Pleura dark brown. Halteres pale yellow. Legs with the coxæ and trochanters dark yellow; remainder of legs dark brown, the femoral bases slightly paler. Wings yellowish gray, the prearcular and costal regions clearer yellow; veins darker than the ground color; macrotrichia brown, the costal trichia light golden yellow. Venation: Vein 2d A ending about opposite one-third the length of the petiole of cell  $M_3$ .

Abdomen black, the hypopygium conspicuously reddish brown. Male hypopygium with the apical lobes of the basistyle not at all chitinized. Outer dististyle a slender rod, the apex slightly expanded into an oval head that is provided with a few darkened

<sup>4</sup> Rec. Indian Mus. 26 (1924) 300.



tubercles. Inner dististyle glabrous, except for microscopic appressed spinulæ at apex and along outer margin.

*Habitat.*—Formosa.

Holotype, male, Arisan, altitude 6,500 to 8,000 feet, July 7, 1929 (*S. Issiki*). Allotopotype, female. Paratopotypes, 2 males and females.

*Molophilus aricola* differs from *M. nigripes* Edwards, which has a somewhat similar hypopygium, by the short antennæ of both sexes. It is even more similar to the Japanese *M. pegasus* Alexander, differing in details of coloration, the shorter antennæ of the male, and slight details of the male hypopygium.

## ILLUSTRATIONS

[Legend: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *s*, sternite; *t*, tergite *vd*, ventral dististyle.]

### PLATE 1

- FIG. 1. *Limonia (Dicranomyia) kansuensis* sp. nov., venation.  
2. *Limonia (Limonia) yakushimensis* sp. nov., venation.  
3. *Limonia (Limonia) uncinatifera* sp. nov., venation.  
4. *Helius (Helius) costofimbriatus* sp. nov., venation.  
5. *Helius (Helius) pallidissimus* sp. nov., venation.  
6. *Antocha (Antocha) subconfluente* sp. nov., venation.  
7. *Orimarga cruciformis* sp. nov., venation.  
8. *Orimarga yakushimana* sp. nov., venation.  
9. *Orimarga omeina* sp. nov., venation.  
10. *Orimarga seticosta* sp. nov., venation.  
11. *Dicranota (Amalopina) gibbera karafutonis* subsp. nov., venation.  
12. *Dicranota (Amalopina) gibbera gibbera* Alexander, venation.  
13. *Limnophila (Dicranophragma) dorsolineata* sp. nov., venation.  
14. *Limnophila (Prionolabis) lipophleps* sp. nov., venation.  
15. *Atarba (Atarbodes) issikiana* sp. nov., venation.  
16. *Gonomyia (Progonomyia) perturbata* sp. nov., venation.  
17. *Gonomyia (Gonomyia) omeiensis* sp. nov., venation.  
18. *Gonomyia (Lipophleps) quadrifila* sp. nov., venation.

### PLATE 2

- FIG. 19. *Tipula latiligula* sp. nov., male hypopygium, lateral view.  
20. *Tipula latiligula* sp. nov., male hypopygium, ninth tergite.  
21. *Tipula latiligula* sp. nov., male hypopygium, eighth sternite.  
22. *Limonia (Dicranomyia) kansuensis* sp. nov., male hypopygium.  
23. *Limonia (Limonia) yakushimensis* sp. nov., male hypopygium.  
24. *Limonia (Limonia) uncinatifera* sp. nov., male hypopygium.  
25. *Antocha (Antocha) subconfluente* sp. nov., male hypopygium.  
26. *Limnophila (Dicranophragma) dorsolineata* sp. nov., male hypopygium.  
27. *Limnophila (Prionolabis) lipophleps* sp. nov., male hypopygium.  
28. *Limnophila (Prionolabis) liponeura* sp. nov., male hypopygium.  
29. *Gonomyia (Progonomyia) perturbata* sp. nov., male hypopygium.  
30. *Gonomyia (Gonomyia) omeiensis* sp. nov., male hypopygium.  
31. *Gonomyia (Lipophleps) quadrifila* sp. nov., male hypopygium.  
32. *Erioptera (Erioptera) luteicornis* sp. nov., male hypopygium.  
33. *Erioptera (Erioptera) himalayæ* sp. nov., male hypopygium.

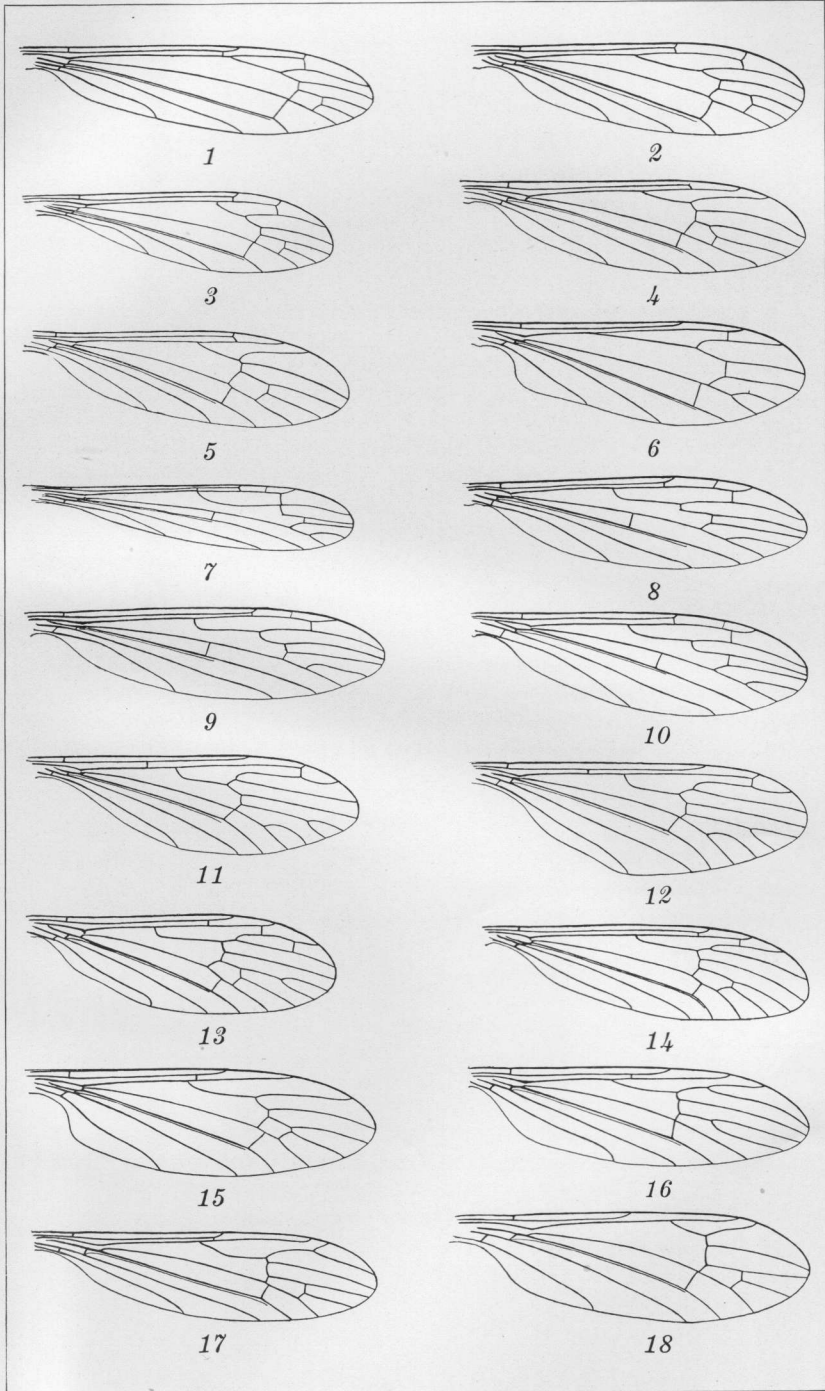


PLATE 1.



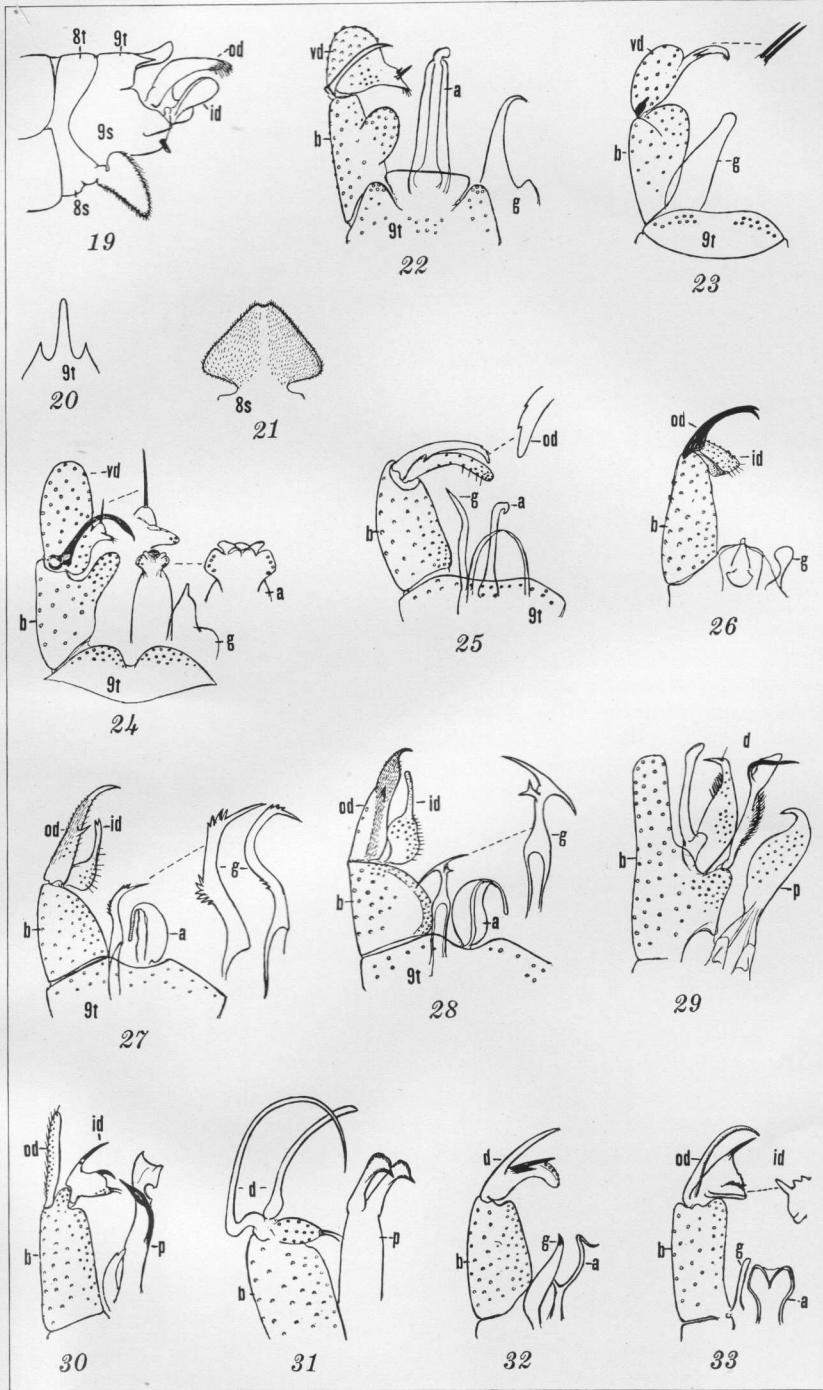


PLATE 2.