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V

UNDESCRIBED TIPULIDÆ (DIPTERA) FROM
WESTERN NORTH AMERICA

BY

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In a small collection of crane-flies belonging to the California Academy of Sciences and sent to the writer for naming by Mr. E. P. Van Duzee were included a few new species that are discussed in this paper. The types of all the new species are contained in the collection of the California Academy, unless stated otherwise. I am greatly indebted to Mr. Van Duzee for the privilege of examining these highly important collections.

Subfamily Limnobiinæ

Tribe Eriopterini

Genus *Ormosia* Rondani

1. *Ormosia paradisea*, new species

Antennæ black throughout; general coloration brown, the pseudo-sutural foveæ black; præscutum with three broad, dark brown stripes; halteres orange-yellow; legs dark brown throughout; wings brownish gray, the costal and subcostal cells more yellowish; stigma dark brown; cell 1st M_2 closed; anal veins convergent.

August 6, 1920

Female.—Length, 5 mm.; wing, 7 mm.

Rostrum and palpi dark brown. Antennæ black throughout. Head dull brownish gray.

Mesonotal præscutum brown with three broad dark brown stripes; tuberculate pits and pseudo-sutural foveæ black, the former located at the level of the anterior ends of the latter; remainder of the mesonotum brownish gray. Pleura dull gray; two conspicuous tufts of long, light yellow hairs on the meso-pleura, the more dorsal of these lying between the bases of the wings and halteres. Halteres conspicuously light orange-yellow. Legs with the coxæ dull gray; remainder of the legs dark brown, the femora clothed with sparse, pale, appressed hairs. Wings brownish gray, the disk variegated with paler; base of the wing, costal and subcostal cells more yellowish; cell 2nd R_1 beyond the stigma pale; veins dark brownish black. Venation: Sc_1 ending opposite r ; Sc_2 far from the tip of Sc_1 , the distance on R between the origin of R_s and Sc_2 being a little less than R_1 beyond r ; r about equal to the section of R_2 before it; cell 1st M_2 closed, long and narrow; basal deflection of Cu_1 at about one-third the length of cell 1st M_2 . Anal veins convergent, the 2nd anal vein being sinuous on its outer end.

Abdomen dark brown, the lateral margins with conspicuous light yellow hairs. Ovipositor with the tergal valves strongly upcurved.

Habitat.—Washington.

Holotype, ♀ (No. 719), Paradise Valley, Mt. Rainier, altitude 5000-6000 feet, July 29, 1919 (C. L. Fox).

Ormosia paradisea is allied to *O. arcuata* (Doane) of the Eastern United States, but the coloration is darker throughout, Sc_2 closer to the origin of R_s than to the tip of Sc_1 , and other characters.

Genus *Rhabdomastix* Skuse

Subgenus *Sacandaga* Alexander

The species discussed below is the fourth Nearctic form to be described. It should be noted in passing that the two European species of *Gonomyia*, *G. schistacea* (Schummel) and *G. læta* Loew, are in reality members of this genus and subgenus.

2. *Rhabdomastix (Sacandaga) fasciger*, new species

General coloration brown, the pleura gray; wings grayish, the stigma brown; an indistinct brown fascia along the cord; abdomen dark brown.

Female.—Length, 7-8 mm.; wing, 7.5-9 mm.

Rostrum and palpi dark brown. Antennæ dark brown. Head gray, more brownish medially.

Mesonotal præscutum brown without apparent stripes; pseudosutural foveæ and tuberculate pits shiny black; scutellum and postnotum sparsely gray pruinose. Pleura gray. Halteres pale, the bases of the knobs a little darker. Legs with the coxæ dull brownish yellow; trochanters dull yellow; femora yellow, the tips broadly infuscated; remainder of the legs pale brown, the apical tarsal segments darker. Wings with a conspicuous gray tinge; stigma oval, dark brown; an indistinct brown fascia along the cord, extending to the fork of *M*; extreme base of wing a little yellowish. Venation: *Sc* rather long, *Sc*₁ ending at about three-fourths the length of the long sector, *Sc*₂ removed some distance from the tip of *Sc*₃, *Sc*₁ alone being about equal to *r-m*; *R*₂ short, sub-perpendicular to oblique in position, subequal to or shorter than *r-m*; cell *1st M*₂ slightly narrowed at its inner end; basal deflection of *Cu*₁ very oblique, inserted before mid-length of cell *1st M*₂, the angle between *Cu*₁ and *M*₃ strongly acute.

Abdomen dark brown, suddenly narrowed or constricted on the ventral face at the base of the terebra. Ovipositor with the tergal valves very long and slender, the tips slightly expanded and upcurved; sternal valves much shorter.

Habitat.—California.

Holotype, ♀ (No. 720), Santa Cruz, June 2, 1919 (E. P. Van Duzee).

Paratopotypes, 3 ♀'s.

It is possible, though scarcely probable, that this species is a member of the subgenus *Rhabdomastix*, the most northerly known species of which is found in Panama. Specimens of the male sex will be necessary to tell this.

Tribe Limnophilini

Genus *Limnophila* Macquart

Subgenus *Neolimnophila*, new subgenus

Similar to *Limnophila*, s. s., differing as follows:

Antennæ with the four basal flagellar segments united into a compact, elongate-conical fusion-segment, there being but ten free flagellar segments beyond it. In the female sex the third and fourth of these fused segments are less distinctly united and a faint suture is sometimes evident between them. Pronotum small, narrowed anteriorly; prosternum distinct, narrowed posteriorly, separating the pro-coxæ. Wings with *R*₂₊₃ longer than *R*₂ alone, *r* being generally inserted on *R*₂₊₃ a short distance before the fork. Male hypopygium with the pleurites very long and slender, the two pleural appendages

small; outer appendage chitinized, the apex slender and strongly curved, the outer margin with several appressed teeth; inner appendage short, blunt, fleshy, the surface covered with setigerous tubercles, two or three of the setæ at the end of the appendage being much longer and stouter; at the base of the pleurites two elongate cylindrical arms, the larger of which is provided with rows of long, curved hairs. Gonapophyses appearing as flattened plates with their caudal lateral angle produced into a long, straight point.

Type of the sub-genus.—*Limnophila ultima* Osten Sacken (Northern North America).

The curious Tipulid that is here made the type of the new subgenus, *Neolimnophila*, flies in the autumn and less commonly in the spring and so may be expected to be double-brooded. The species ranges across the entire northern United States and Canada, to British Columbia and Alaska.

3. *Limnophila subaptera* Alexander

1917 *Limnophila subaptera* Alexander, Canadian Entomologist, vol. 49, pp. 207, 208.

One female specimen in the collection undoubtedly belongs to this species although it differs considerably from the unique male type. This specimen may be made the allotype.

Female.—Length, 16 mm.; wing, 2.4 mm.

General coloration light yellowish brown, the pleura with a faint grayish bloom. Legs comparatively stout, the coxæ but little pruinose; legs brownish yellow, the femora and tibiæ scarcely darkened apically; the terminal tarsal segments dark brown. Ovipositor with the tergal valves greatly exceeding the sternal valves in length, slightly upcurved, the tips subacute.

Allotype, ♀ (No. 721), Bubbs Creek Cañon, Kings River, Fresno County, California, altitude 9700 feet, July 9, 1910 (E. C. Van Dyke).

Allotype in the collection of the California Academy of Sciences.

Genus *Ulomorpha* Osten Sacken

The genus *Ulomorpha* was erected in 1869 (Monographs Diptera North America, pt. 4, pp. 232, 233) to receive the then

unique species, *pilosella* (Osten Sacken). No other species had been definitely referred to this group until the description of *Ulomorpha sierricola* Alexander (1918). It is therefore of very great interest to record three additional species of this curious genus from the mountains of California. The relationships of this genus with *Eulimmophila* Alexander, indicated by Osten Sacken in the generic characterization, have been amply and strikingly shown by the discovery of the immature stages of *Ulomorpha pilosella* and several species of *Eulimmophila* (*tenuipes*, *recondita*, *quadrata*).

All three of the new species show marked peculiarities of structure or color. *U. quinque-cellula* is the only species with cell M_1 present, i. e., with five posterior cells; *U. nigronitida* is notable by its intense shiny black coloration; *U. vanduzeei* has the macrotrichia of the wing-membrane almost confined to the areas beyond the base of the sector and thus approaches, in this respect alone, the genus *Adelphomyia* Bergroth.

A KEY TO THE SPECIES OF THE GENUS ULOMORPHA OSTEN SACKEN

1. Cell M_1 present (California). *U. quinque-cellula*, new species
Cell M_1 lacking. 2
2. General coloration of the body deep shiny black throughout (California). *U. nigronitida*, new species
General coloration of the body shiny reddish yellow. 3
3. Macrotrichia of the wing-disk practically confined to the cells beyond the level of the origin of the sector; cells R and 2nd A with few or no macrotrichia (California). *U. vanduzeei*, new species
Macrotrichia of the wing-disk more extensive, extending almost to the base of the wing in cells R and 2nd A . 4
4. Size large (wing of the ♂ about 9 mm.); stigma pale brown but distinct; Sc shorter, ending about opposite four-fifths the length of Rs ; veins R_2 and R_3 gradually divergent, cell R_2 being conspicuously widened at the wing-margin; cell 1st M_2 broad at the base, the basal deflection of M_1+2 being about equal to $r-m$. (Washington). *U. sierricola* Alexander (1)
Size smaller (wing of the ♂ about 7.5 mm.); stigma indistinct; Sc longer, ending just before the fork of Rs ; veins R_2 and R_3 almost parallel, slightly diverging near their ends, cell R_2 not being conspicuously widened at the wing-margin; cell 1st M_2 narrowed at the base, the basal deflection of M_1+2 being much shorter than $r-m$ (Northeastern North America). *U. pilosella* (Osten Sacken) (2)

(1) *Ulomorpha sierricola* Alexander, Can. Ent., vol. 50, pp. 163, 164; 1918.
(2) *Limnophila pilosella* Osten Sacken, Proc. Acad. Nat. Sci. Philadelphia, 1859, p. 241; 1859.

4. *Ulomorpha quinque-cellula*, new species

Size large (wing of the ♂ 9 mm.); general coloration shiny reddish yellow; cell M_1 of the wings present.

Male.—Length, 8-9.2 mm.; wing, 9-9.2 mm.

Rostrum and palpi yellowish brown. Antennae rather elongate for this genus of flies, the first segment brown, sparsely gray pruinose; second scapal and the basal flagellar segments dull brownish yellow, the distal segments dark brown; flagellar verticils long. Head dark brown, gray pruinose.

Mesonotal præscutum shiny reddish yellow without apparent stripes; remainder of the mesonotum dull yellow. Pleura reddish yellow. Halteres pale brownish white, the knobs brown. Legs with the coxæ and trochanters yellow; femora pale testaceous brown, the tips narrowly dark brown, especially on the outer face; tibiae pale testaceous brown, the tips narrowly dark brown; tarsi dark brown. Wings with a strong yellowish tinge; stigma indistinct; veins brown; macrotrichia in all of the cells beyond the cord and more sparsely in the centers of the outer cells to basad of the origin of Rs . Venation: Sc ending at about three-fourths the length of Rs , Sc_2 at the tip of the subequal Sc_1 ; Rs long, spurred at origin; cell R_2 sessile; veins R_2 and R_3 divergent; veins R_2 , R_3 and R_4+5 arising almost from a common point; r indistinct; $r-m$ very long; cell M_1 present, much longer than its petiole; basal deflection of Cu_1 just before mid-length of cell 1st M_2 .

Abdominal tergites yellowish brown, the sternites a little paler.

Habitat.—California.

Holotype, ♂ (No. 722), Huntington Lake, Fresno Co., altitude 7000 feet, July 28, 1919 (E. P. Van Duzee).

Paratopotype, ♂.

5. *Ulomorpha nigronitida*, new species

Size rather large (wing of the ♂ 8 mm.); general coloration deep shiny black throughout; cell M_1 of the wings lacking.

Male.—Length, 7-7.8 mm.; wing, 8 mm.

Rostrum and palpi black. Antennae black throughout; verticils long and delicate. Head black, very sparsely gray pruinose.

Thorax shiny deep black, including the pleura. Halteres with the stem pale brown, the knobs dark brownish black. Legs with the coxæ dark brownish black, the hind coxæ paler; trochanters dull yellowish; remainder of the legs black, the bases of the femora dull yellow, this coloration narrowest on the fore legs, broadest on the hind legs. Wings with a pale gray tinge, the bases more yellowish; the abortive anal vein behind vein Cu_1 , yellowish; the macrotrichia in the cells of the wing basad of the level of the origin of Rs more sparse than in *U. pilosella* or *U. sierricola*, but very much heavier than in *U. vanduzeei*. Venation: Sc ending at about four-fifths the length of the long sector, Sc_2 at the tip of Sc_1 , Sc_2 being about two-thirds as long as Sc_1 ; Rs long, gently arcuated at origin; cell R_2 sessile or very short-petiolate; vein R_2 diverging from vein R_3 and almost parallel with R_1 so that cell R_2 is nearly twice as wide as cell R_3 at the

wing-margin; basal deflection of R_4+5 short, about one-third as long as $r-m$; cell M_1 lacking; cell $1st M_2$ large, nearly as long as vein M_3 beyond it; basal deflection of Cu_1 inserted beyond midlength of cell $1st M_2$.

Abdomen shiny, deep black throughout, including the hypopygium.

Habitat.—California.

Holotype, ♂ (No. 723), Huntington Lake, Fresno Co., altitude 7000 feet, July 16, 1919 (E. P. Van Duzee).

Paratopotypes, 2 ♂'s, July 5-9, 1919.

6. *Ulomorpha vanduzeei*, new species

Size small (wing of the ♂ 6.5 mm.); general coloration shiny reddish yellow; cell M_1 lacking; macrotrichia practically confined to the cells of the wing distad of the origin of the sector.

Male.—Length, about 6 mm.; wing, 6.5 mm.

Rostrum yellowish brown; palpi dark brown. Antennae dark brown, the first scapal segment sparsely gray pruinose; antennae moderately elongated, the verticils very long. Head dark brown, the vertex surrounding the antennal fossae more reddish; head sparsely gray pruinose.

Mesonotal præscutum shiny reddish yellow, without apparent stripes; remainder of the mesonotum light yellow. Pleura yellow. Halteres dark brown, the base of the stem paler. Legs with the coxæ and trochanters dull yellow; femora pale testaceous brown, the tips a little darker; tibiae darker brown; tarsi dark brown. Wings with a faint yellowish gray tinge, much less intense than in *U. pilosella*; veins brown macrotrichia practically confined to the cells beyond the level of the origin of R_s , only a few scattered trichia occurring basad of this, the *2nd anal* cell with but one or two trichia near its distal end. Venation: Sc_1 extending to about two-thirds the length of R_s , Sc_2 at the very end of Sc_1 and nearly twice its length; R_s long, spurred at origin; cell R_2 short-petiolate; vein R_2 almost straight, diverging strongly from R_3 so that cell R_2 is conspicuously wider at the wing-margin than cell R_3 ; basal deflection of R_4+5 about one-half the length of $r-m$; cell M_1 lacking; vein M_3 beyond m longer than cell $1st M_2$; basal deflection of Cu_1 inserted just beyond midlength of cell $1st M_2$.

Abdominal tergites dark brown, the sternites more yellowish.

Habitat.—California.

Holotype, ♂ (No. 724), Cascada, Fresno Co., altitude 5000 feet, July 29, 1919 (E. P. Van Duzee).

7. *Tipula trichophora*, new species

General coloration pale brownish yellow, shiny; antennae moderately elongate, the basal flagellar segments bicolorous;

mesonotal præscutum with four narrow brown stripes; wings brownish gray, the distal cells with conspicuous macrotrichia; abdomen brownish yellow, the lateral margins of the tergites with five dark brown spots; male hypopygium with the ninth tergite large, deeply notched medially; caudal margin of the ninth sternite produced caudad into two long, straight appendages that are tipped with stiff, yellow, spinous bristles.

Male.—Length, 12 mm.; wing, 12.5 mm.

Frontal prolongation of the head shiny brownish yellow, darker brown medially; palpi brown. Antennae moderately elongate, if bent backward extending about to the base of the abdomen; scapal segments yellow, basal flagellar segments indistinctly bicolorous, the basal swelling dark brown, the remainder of each segment paler brown; distal flagellar segments uniformly dark brown. Head dark brown, paler behind, the front and anterior part of the vertex golden-yellow pollinose; along the inner margin of the eyes more grayish.

Mesonotum light brownish yellow, shiny, the præscutum with four narrow brown stripes; lobes of the scutum dark. Pleura shiny testaceous yellow. Halteres dark brown, the base of the stem pale yellow. Legs with the coxæ shiny yellow, the base a little infuscated, trochanters yellow; femora yellowish basally, broken before midlength. Wings with a strong brownish gray tinge; cells C , Sc and the space behind vein Cu yellowish; stigma dark brown; an obliterative area before the stigma, extending across the inner end of cell $1st M_2$; veins dark brown; conspicuous macrotrichia in cells R_2 , R_3 , and R_5 ; M_1 and $2nd M_2$ except the base, and the tips of cells M_4 and Cu_1 . Venation: R_s long, arcuated; vein R_2 persistent; petiole of cell M_1 shorter than m ; $m-cu$ at about one-fourth the length of cell $1st M_2$, the first section of M_3+4 being shorter than that section of M_1+2 .

Abdomen shiny brownish yellow, the hypopygium darker, especially the base of the ninth sterno-pleurite; conspicuous dark brown spots near the basal lateral margin of tergites three to six and near midlength of tergite two. Male hypopygium moderately large. Ninth tergite large, the caudal margin with a large, subquadrate median notch, the conspicuous lateral lobes flattened, the ventral surface concave, hollowed out like a spoon, directed caudad; base of the notch weakly rounded outward, the dorsal surface being impressed at this point. Pleural suture very short, straight; outer pleural appendage elongate, cylindrical, narrow basally, the distal two-thirds clothed with conspicuous, long, erect, black bristles. Ninth sternite with the caudal margin produced posteriorly into two very conspicuous straight appendages that lie parallel and close together, the surface at the tip and along the proximal face densely set with conspicuous yellow spinous bristles; the lateral margins with more erect black bristles. Dorsad of the base of these appendages and at the origin of the inner pleural appendages are two conspicuous, pale, fleshy lobes that project strongly laterad. Eighth sternite with the margin weakly trilobed medially, each lateral lobe provided with about two small setae.

Habitat.—California.

Holotype, ♂ (No. 725), Santa Cruz, June 1, 1919 (E. P. Van Duzee).

8. *Tipula cahuilla*, new species

General coloration of the head and thorax light gray, the former with a narrow brown median line; mesonotal præscutum with five narrow brown lines; scutellum with a capillary brown line; wings grayish subhyaline; stigma dark brown; the distal cells of the wings with conspicuous macrotrichia; abdomen dark gray, the tergites with two yellow sublateral stripes; male hypopygium simple; abdomen of female very long and slender.

Male.—Length, 9–12 mm.; wing, 9–11.3 mm.

Female.—Length, 17.5–18.5 mm.; wing, 11–12 mm.; abdomen alone, 13.5–14.8 mm.

Frontal prolongation of head dull yellow, light gray above; palpi dark brown. Antennæ with the first segment light gray; remaining segments dark brown; flagellar segments subcylindrical, weakly incised beneath. Head light gray with a delicate brown dorso-median stripe and a broad, whitish ring around the eyes.

Pronotum gray. Mesonotal præscutum gray, the interspaces between the usual stripes dark brown; there thus appear five narrow brown lines of which the lateral pair represent the margins of the gray lateral stripes; the median vitta narrower, dark brown, not attaining the suture; scutum gray, each lobe with a brown circular mark; scutellum brownish testaceous medially, gray laterally, with a capillary brown median line; postnotum light gray. Pleura light gray, indistinctly variegated with pale spots on the mesepimeron and across the dorsal margin of the sterna. Halteres brown, the knobs darker, the base of the stem pale. Legs with coxæ light gray; trochanters dark brown; femora brownish yellow, the tips dark brown; tibiae brownish yellow, soon passing into brown; tarsi dark brown. Wings grayish subhyaline, cell *Sc* a little yellowish; stigma conspicuous, dark brown; veins dark brown; numerous macrotrichia in the apices of cells *R*₃, *R*₅, *M*₁, 2nd *M*₂ and *M*₄. Venation: *R*₅ gently arcuated; cell 1st *M*₂ small, pentagonal; petiole of cell *M*₁ a little longer than *m*; *m-cu* punctiform, located at about one-fourth the length of cell 1st *M*₂.

Abdominal tergites dark gray with two conspicuous sublateral yellowish stripes, the caudal and lateral margins of the segments broadly pale; sternites dark gray, the caudal margins of the segments conspicuously pale. Male hypopygium of very simple structure. Ninth tergite broader than long, the caudal margin with a broad V-shaped notch, the lateral angles obtusely rounded; tergite not fused with the other sclerites of the hypopygium. Ninth sterno-pleurite extensive, the two pleural appendages very simple in structure, the outer one an oval, fleshy lobe that is covered with very short pile; inner appendage still smaller, bifid at the base, the outer branch small, black, the inner branch produced into a cylindrical beak. Ninth sternite with a profound, narrow, median notch. Eighth sternite unarmed. In the female, the abdomen is unusually long and slender, as will be seen by the accompanying measurements; the yellow abdominal stripes are very conspicuous. Ovipositor with a conspicuous dorsal shield; tergal valves broad basally, lying transversely, the outer margins entire; sternal valves much shorter, the tips truncated.

Habitat.—California.

Holotype, ♂ (No. 726), Atascadero, San Luis Obispo Co., April 26, 1919 (E. P. Van Duzee). Allotopotype, ♀ (No. 727), same data.

Paratopotypes, 1 ♂, 1 ♀; paratypes, 2 ♂'s, 2 ♀'s, Bradley, April 27, 1919 (E. P. Van Duzee).

This interesting little species would seem to be allied to *Tipula beatula* Osten Sacken. Its closest relative is *T. bituberculata* Doane, in which species the abdomen of the female is of normal length.

9. *Tipula evidens*, new species

General coloration shiny obscure yellow, the præscutal stripes scarcely apparent; antennal flagellum dark brownish black; wings grayish subhyaline, the costal region more yellowish; abdomen yellow, tergites two to five with conspicuous rounded black spots along the lateral margins, basal sternite with a conspicuous rounded black median spot; male hypopygium large, the ninth tergite very extensive with two obtuse submedian and two longer sublateral lobes; eighth sternite with two brushes of rather short yellow hairs.

Male.—Length about 14 mm.; wing, 15.5 mm.

Frontal prolongation of the head rather long, light brown, slightly darker at the base; palpi dark brown. Antennæ moderately elongated, if bent backward, extending about to the wing-root; scape and basal half of the first flagellar segment obscure yellow the remainder of the flagellum dark brownish black. Head dull brownish yellow, the center of the vertex more brownish gray pruinose.

Mesonotal præscutum shiny yellow with three indistinct reddish stripes, the surface covered with a sparse pollen; remainder of the mesonotum obscure yellow. Pleura yellow. Halteres yellow, the knobs dark brown. Legs with the coxæ obscure yellow; trochanters yellow; femora brownish yellow, the tips narrowly dark brown; tibiae light brown; tarsi darker brown. Wings grayish subhyaline; cells *C* and *Sc* more yellowish; stigma light brown; an obliterative area extending from before the stigma across the inner end of cell 1st *M*₂; veins brown. Venation: petiole of cell *M*₁ a little longer than *m*.

Abdomen yellow; tergites two to five with a conspicuous black rounded spot on the lateral margins, on the second segment near mid-length, on the other segments close to the base of the segment; sternites yellow, a conspicuous, rounded black spot on the first segment and less distinct marks near the posterior margins of segments two and three. Male hypopygium large. Ninth tergite very long and extensive, the caudal margin with a deep median notch, the adjacent submedian lobes broadly rounded and with the inner margin set with small setigerous tubercles; the sublateral margins of the tergites are produced caudad into much longer lobes, with the apices subtruncate, the notch between these and the

submedian lobes rounded; the dorsal surface of the tergite has a median, impressed line that continues cephalad, before the base cutting off a sub-triangular area. Ninth pleurite small but complete; outer pleural appendage small, cylindrical or slightly clavate, pale, provided with long hairs; from the ventral proximal angle of the pleurite projects ventrad a short, blunt lobe that is provided with abundant crinite hairs that hang ventrad across the genital chamber. Eighth sternite with two brushes of rather short golden-yellow hairs on the posterior margin, contiguous, or even slightly decussate across the median line. Gonapophyses appearing as two long chitinized rods that lie parallel and close together, directed dorsad.

Habitat.—California.

Holotype, ♂ (No. 728), Huntington Lake, Fresno Co., altitude 7000 feet, July 23, 1919 (E. P. Van Duzee).

Tipula evidens is allied to *T. megalabiata* Alexander but differs in the coloration of the antennæ and in the structure of the male hypopygium. This species, together with most of the other species of the genus discussed in this paper, were submitted to Mr. Cole for comparison with the Doane types and he reports this as very distinct from any of Doane's species in the Stanford University Collection. I am greatly indebted to Mr. Cole for his care and help in determining these relationships.

10. *Tipula megatergata*, new species

General coloration yellow; antennal flagellum black; mesonotal præscutum pale buffy yellow with three indistinct reddish brown stripes; wings light gray, the costal region more yellowish; abdomen obscure yellow; male hypopygium very large and powerful, the ninth tergite tumid, with the lateral angles produced caudad into elongate, pointed lobes that are bent slightly dorsad at their tips; ninth sternopleurite very restricted.

Male.—Length about 18 mm.; wing, 16.5 mm.

Frontal prolongation of the head yellow, the nasus small; palpi obscure brownish yellow, the last segment dark brown. Antennæ with the scape yellow, the first flagellar segment light brown; remainder of the flagellum black. Head reddish yellow, sparsely gray pruinose, with an indistinct, median, capillary brown line.

Mesonotal præscutum pale buffy yellow with three indistinct reddish brown stripes, the broad median stripe split by a broad grayish line; remainder of the mesonotum yellowish. Pleura yellow, sparsely yellow pollinose. Halteres pale yellow, the knobs brown. Legs with the coxæ and trochanters yellow; remainder of the legs broken. Wings light gray, cells *C* and *Sc* yellowish; stigma pale brown; a conspicuous obliterative streak extending from before the stigma across the wing into the base of cell *M*₄. Venation: Cell 1st *M*₂ pentagonal, high; basal deflection of *M*₁₊₂ longer than *M*₃₊₄.

Abdomen obscure yellow, the basal segments brighter; caudal margin of the tergites narrowly ringed with paler; hypopygium reddish. Male hypopygium very large and powerful. Ninth tergite very powerful, tumid, the lateral angles produced caudad into elongate-triangular horns that are slightly twisted, the extreme tips acute, bent slightly laterad and dorsad; the median notch is broadly U-shaped, on either side of the median line with a small, chitinized, flattened projection, the apices obliquely truncated. Ninth sterno-pleurite very restricted between the large ninth tergite and eighth sternite, the pleurite almost complete. Outer pleural appendage slender, clavate, pale, provided with long bristles. Gonapophyses projecting from the genital chamber as straight chitinized rods. Eighth sternite with two brushes of short yellow hairs, one on either side of the median line; lateral angles produced proximad into pale, complex arms that are branched at their tips, the cephalic arm jutting backward underneath the ninth sterno-pleurite, the tip provided with a brush of hairs, almost like those on the caudal margin of the sternite.

Habitat.—California.

Holotype, ♂, Claremont (C. F. Baker), in the collection of the author.

Tipula megatergata is closely allied to *T. tergata* Doane and *T. sternata* Doane, especially the latter, but differs in the details of structure of the male hypopygium.