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Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part VI

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The preceding part under this title was published in ENTOMOLOGICAL NEWS, 57: 65-71, 1946. At this time I am characterizing three further species from California and Idaho, all belonging to the major genus *Tipula*. Acknowledgement for these specimens is given under the individual species.

Tipula (*Oreomyza*) *inyoensis* new species

Belongs to the *borealis* (*unca*) group; mesonotal praescutum yellow, with four more reddish brown stripes, the intermediate pair approximated or confluent in front; posterior sclerites of notum chiefly yellow; pleura and pleurotergite entirely yellow; femora yellow, the tips narrowly and weakly darkened; wings with a strong brownish tinge, more yellowed on basal third, without clearly defined pattern; basal abdominal segments chiefly yellow, the outer ones more darkened; ninth tergite with the median portion produced, its margin gently emarginate, on either side beneath with a slender blackened rod; inner dististyle with the beak unusually slender, blackened, extended straight backward into the dorsal crest; lateral appendage very reduced, somewhat as in *madera*, without a pendulous lower process or a claw-like middle one; upper process a conspicuous blackened clavate lobe; gonapophysis appearing as a flattened blade.

♂. Length about 15 mm.; wing 13 mm.; antenna about 5.2 mm.

♀. Length about 15 mm.; wing 12.2 mm.

Frontal prolongation of head obscure yellow, paler beneath; nasus very long, tufted with long black setae; palpi obscure testaceous yellow, the terminal segment more infuscated. Antennae (male) long; scape, pedicel and extreme base of first flagellar segment obscure yellow, remainder of flagellum black,

the extreme bases of the more proximal segments paler; flagellar segments elongate, gently incised, longer than any of the verticils. Head above brownish gray, clearer gray in front, more yellowed behind; posterior vertex more infuscated, with a vague darker median vitta.

Pronotum infuscated medially above, obscure yellow on sides. Mesonotal praescutum with the ground color yellow, with four more reddish brown stripes, the intermediate pair approximated or confluent in front, obliterating the central pale vitta; outer borders of both intermediate and lateral stripes vaguely bordered by darker; scutum yellow medially, the lobes extensively grayish brown; posterior sclerites of notum chiefly yellow, the scutellum with a capillary brown median vitta, this less evident on the scutum; mediotergite more reddened on sides of posterior third. Pleura and pleurotergite yellow, unpatterned. Halteres with stem yellowish brown, the extreme base yellow, knob infuscated. Legs with the coxae and trochanters yellow; femora yellow, the tips narrowly and weakly darkened, most evidently so on the outer face; tibiae obscure brownish yellow, the tips narrowly darkened; tarsi black, basitarsi restrictedly paler on proximal portions; claws hairy, simple. Wings with a strong brownish tinge, more yellowed on basal third, without clearly defined pattern, the prearcular and costal fields most evidently so; stigma brownish yellow, vaguely bordered by darker; a scarcely evident pattern in the basal cells, particularly *M* and *Cu*; obliterative areas restricted; veins brown, paler in the more brightened fields. Venation: *Rs* long, about three-fourths longer than *m-cu*; *R*₁₊₂ entire; *m* about twice the petiole of cell *M*₁.

Abdomen chiefly yellow on basal segments, the outer ones more suffused, on the subterminal segments the sublateral portions more darkened; hypopygium chiefly yellowish brown on tergite and styli, the eighth sternite pale. Male hypopygium with the median portion of the ninth tergite slightly produced, its caudal margin gently emarginate; from the lower surface on either side arises a slender blackened rod. Outer dististyle flattened, its apex truncate. Inner dististyle with the beak un-

usually slender, blackened, extended straight backward into the dorsal crest; lower beak very deep, its upper outer angle more blackened and produced into a short point; dorsal crest with numerous setae, on the outer face more emarginate and produced into a conspicuous lobe that is tufted with a few long setae. Lateral appendage very reduced, somewhat as in *madera*, without a pendulous lower process or a claw-like middle one; upper process a conspicuously blackened clavate lobe, its tip obtuse; lower angle merely triangular, not at all produced, entirely pale. Gonapophysis appearing as a flattened blade, the tip narrowed abruptly into a small obtuse lobule. Eighth sternite very shallowly incised to form three low lobes that are only sparsely hairy, the central one especially so.

Habitat.—CALIFORNIA. *Holotype*: ♂, Camp Manzanar, Inyo County, altitude about 3700 feet, July 1–6, 1945 (Joe M. Mayeda); through Dr. John A. Comstock. *Allotopotype*: ♀; *paratopotype*, 1 ♂.

The present fly is one of the interesting species collected by Mr. Mayeda in the vicinity of Camp Manzanar and kindly presented to me by Dr. Comstock. This is a very distinct species in an unusually difficult group, in its almost unpatterned wings somewhat resembling *Tipula (Oreomyza) appendiculata* Loew (*derelecta* Dietz, *stalactoides* Doane), differing very evidently in the structure of the male hypopygium, particularly the reduced lateral appendage. In this last respect it most resembles *T. (O.) madera* Doane, which is one of the largest species in the group, with the wing pattern especially heavy and distinct.

***Tipula (Lunatipula) alcestis* new species**

Belongs to the *barbata* group; allied to *accurata*; wings with a brownish tinge, the obliterative area before cord extensive, virtually crossing the wing; remaining cells not conspicuously streaked with whitish; male hypopygium with the lobes of the ninth tergite obliquely truncated; beak of inner dististyle stout, outer basal lobe broad; gonapophysis dark-colored, terminating in an acute spine; eighth sternite with the median plate small, compressed-flattened.

♂. Length about 11–11.5 mm.; wing 13–13.5 mm.; antenna about 3.5 mm.

♀. Length about 14–15 mm.; wing 13 mm.

Described from alcoholic specimens.

Frontal prolongation of head brown, darker above; nasus elongate; palpi dark brown, terminal segment somewhat paler. Antennae with scape and pedicel yellow, the former a little darker at proximal end; basal two flagellar segments weakly bicolored, the remainder uniformly brownish black; flagellar segments only feebly incised, longer than the verticils. Head brown.

Thorax brown, variegated with darker brown, including broad praescutal stripes and a single major darkening on either scutal lobe; postnotum chiefly darkened; scutum and scutellum with a darkened capillary median vitta. Pleura with the mesepisternum dark brown, the mesepimeron and metapleura paler, variegated with brown. It is probable that in dry specimens the surface is more or less pruinose. Halteres with stem yellow, knob brown, its apex paler. Legs with the coxae brown; trochanters yellow; femora brownish yellow, the tips narrowly blackened; tibiae yellow, still more narrowly darkened at tip; tarsi obscure yellow, passing into black. Wings with a brownish tinge, the prearcular and costal fields a trifle more yellowed; stigma darker brown; cells beyond cord more strongly infuscated, especially in the outer radial field; small brown spots at origin of *Rs* and over the anterior cord; obliterative area before cord extensive and conspicuous, virtually crossing the wing along vein M_4 , slightly broken at end of *Rs*; poststigmatal pale area likewise conspicuous, including parts of cells Sc_2 , R_2 and R_3 ; pale streaks along veins virtually lacking, most evident as vague lines in cells *Cu* and *1st A*; veins brown. Venation: *Rs* relatively long, from about one and one-half to nearly two times *m-cu*, longer than in *accurata*. In this latter species, the wings are more conspicuously variegated by paler, involving virtually the entire wing and appearing chiefly as broad streaks along the veins, excepting in the outer radial field.

Abdomen with the segments chiefly yellow, the tergites trivittate with brown, the lateral pair more broken; on the fourth and succeeding segments the color more uniformly dark brown; hypopygium chiefly yellow. Male hypopygium having the ninth tergite with broad lobes, obliquely truncated and less pointed than in *accurata*; median notch a trifle wider. Appendage of ninth sternite smaller, oval, with long dark-colored setae. Outer dististyle long and slender. Inner dististyle with the beak much stouter than in *accurata*, sloping upward to the dorsal crest; outer basal lobe broader than in *accurata*. Gonapophysis dark-colored, relatively long, produced into a slender spine on side near apex. Eighth sternite with the median plate small, compressed-flattened, not rectangular, as in *accurata*.

Habitat.—IDAHO. *Holotype*: ♂, alcoholic, Humphrey, Centennial Mts., Clark Co., along Route 91, altitude 6,500 feet, August 20, 1941 (Stanley B. Mulaik). *Allotopotype*: alcoholic ♀. *Paratopotypes*: 1 ♂, 1 ♀, alcoholic.

I am greatly indebted to Mr. Stanley B. Mulaik for the present material and other interesting Tipulidae from Colorado, Idaho and Utah. The most similar described species is *Tipula* (*Lunatipula*) *accurata* Alexander, which differs conspicuously in the wing pattern and in several important details of structure of the male hypopygium, including the tergite, inner dististyle, gonapophyses and eighth sternite.

***Tipula* (*Lunatipula*) *zelotypa* new species**

Size relatively small (wing, male, 12 mm.); mesonotal praescutum gray, with four entire brown stripes; antennae with scape and pedicel yellow, basal flagellar segments weakly bicolorated; femora obscure yellow, the tips narrowly and weakly infuscated; claws (male) simple; wings with a weak brown tinge, sparsely spotted with darker brown; a virtually complete oblitative band at and before cord; no trichia on squama or in wing cells; male hypopygium with the ninth tergite having a broad shallow V-shaped notch, the low lobes heavily blackened; basistyle produced caudad into a very thin scooplike blade; dististyle compact, beak obtuse; two spinelike points on style, one

behind the beak, the other in the region of the posterior crest; outer basal lobe a strong curved arm, unequally bifid at tip; eighth sternite with its caudal border very slightly produced, provided with numerous pale setae that are directed caudad, not arranged in brushes or pencils.

♂. Length about 12 mm.; wing 12 mm.; antenna about 4 mm.

Frontal prolongation of head brownish yellow, the dorsal surface sparsely dusted; nasus elongate; palpi with basal three segments brownish yellow, terminal one blackened. Antennae with the scape and pedicel yellow; first flagellar segment obscure brownish yellow; succeeding segments weakly bicolored, the small basal swellings brown, the apices paler, the outer segments more uniformly dark brown. Head above light gray, more yellowed on the occipital region; a short brown median vitta on the posterior vertex; vertical tubercle low, entire.

Pronotum brownish gray. Mesonotal praescutum gray, with four narrow entire brown stripes, the intermediate pair separated by a ground vitta of more than one-half their width; lateral stripes slightly broader; humeral region narrowly bordered by dark brown; posterior sclerites of notum testaceous brown, the scutal lobes and median region of scutellum patterned with somewhat darker brown; pleurotergite pruinose. Pleura pruinose behind, the anterior portion somewhat more variegated with darker, especially on the anepisternum and ventral sternopleurite; dorsopleural membrane yellow. Halteres yellow, knob weakly darkened. Legs with the coxae yellow, sparsely pruinose, the fore pair a little darker; trochanters yellow; femora and tibiae obscure yellow, the tips narrowly and weakly infuscated, the latter more narrowly so; tarsi light brown, passing into black outwardly; claws (male) simple. Wings with a weak brownish tinge, heavier along the veins beyond cord; stigma small, pale brown, inconspicuous; obliterative band before cord large, extending from before stigma to the posterior border along vein M_4 , involving less than the proximal half of cell $1st M_2$; veins brown. No squamal setae; no trichia in wing cells, including the stigma; veins beyond cord with relatively abundant long trichia. Venation: R_s a little

less than twice $m-cu$; R_{1+2} entire; m oblique, longer than the petiole of cell M_1 ; M_{3+4} little more than one-half the basal section of M_{1+2} ; cell 2nd A broad.

Abdominal tergites obscure yellow, trivittate with brown, the median stripe broad and distinct, narrowly interrupted at the posterior borders of the segments; lateral areas much broken, becoming more distinct on the outer segments; basal sternites yellow, the outer segments darker but this apparently caused by discoloration; hypopygium chiefly pale. Male hypopygium with the tergite having a very broad and shallow V-shaped emargination, the low lobes heavily blackened; median region with a microscopic lobule; outer apical portion of lobe with an indistinct blackened point or carina. Appendage of ninth sternite a small lobe provided with numerous short pale setae. Basistyle produced caudad into a flattened, very thin, scooplike blade. Dististyle with the beak very stout and obtuse, the lower beak lacking; dorsal crest scarcely elevated; region of posterior crest produced into a short spinelike lobe; on face of style behind the beak with an even smaller reddish spine; what appears to be the outer basal lobe is a curved arm, unequally bilobed at tip, the axial spine larger, the subapical one evidently variable in size; apical portion of arm with numerous setae. Aedeagus stout but simple; gonapophyses reduced. Eighth sternite transverse, the central area of the posterior border very slightly produced, provided with numerous long pale setae that are not arranged in brushes or pencils.

Habitat.—CALIFORNIA. *Holotype*: ♂, Brawley, Imperial County, altitude 109 feet below sea-level, April 5, 1935 (A. L. Melander); Alexander Collection, through kindness of Dr. Melander.

The present isolated fly shows some points of resemblance to *Tipula atrisumma* Doane, which I have referred to the subgenus *Lunatipula* Edwards. In all other respects, the hypopygium and general appearance of the two flies is quite distinct. It may be found that *zelotypa* is more properly to be considered as being a *Trichotipula* but, if so, it deviates in many respects from the hitherto accepted characters of the subgenus.