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NEW NEARCTIC CRANE-FLIES (TIPULIDAE, DIPTERA), PART XIX

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The crane-flies considered herewith are all from Western North America, from British Columbia to California. The names of the collectors and the location of the type material are indicated at the end of the individual specific accounts; where not stated to the contrary, such types are preserved in my own collection of these flies.

***Tipula* (*Trichotipula*) *repulsa* n. sp.**

General coloration brown, the mesonotal praescutum with a central brownish gray stripe; antennal flagellum black; halteres relatively short; wings with a brownish tinge, the large oval stigma dark brown; obliterative areas conspicuous; abundant macrotrichia in outer cells of wing; abdomen obscure yellow, the tergites conspicuously ringed caudally with dark brown; male hypopygium with the inner disti-style relatively complex, the beak terminating in a slender blackened spine, with a second marginal spine a short distance back from the tip; outer basal lobe produced backward into a long-oval flattened blade; aedeagus elongate, consisting of two paired rods.

Male. Length about 10-10.5 mm.; wing 10-11 mm.; antenna about 3.6-4 mm.

Frontal prolongation of head relatively short, brownish yellow, darker beneath; nasus elongate, tufted with black setae; palpi black. Antennae of moderate length; scape and pedicel yellow, flagellum black; flagellar segments moderately incised; longest verticils a little shorter than the segments. Head with the front pale yellow, the color continued caudad as a less distinct median vitta onto the vertex; sides of vertex more infuscated, sparsely pruinose; posterior orbits narrowly gray.

Pronotum narrowly yellow on central portion, dark brown sublaterally. Mesonotal praescutum with the central stripe brownish gray, not as distinctly pruinose as in allied Western Nearctic species of the subgenus, narrowly bordered laterally by brown, the cephalic portion indistinctly divided by a dark vitta; lateral stripes light brown, conspicuously bordered by dark brown; lateral and humeral portions of praescutum yellowish testaceous; scutum dark brown, each lobe with two confluent paler brown areas; scutellum testaceous yellow, the parascutella darker; postnotum brown, the surface sparsely pruinose. Pleura pale testaceous brown, sparsely pruinose, patterned with dark brown on the propleura, ventral anepisternum and ventral meron. Halteres relatively short, stem pale, restrictedly yellow at base, knob dark brown, the apex a trifle brightened. Legs with the coxae pale yellow, narrowly dark brown on bases; trochanters yellow; femora yellow, the tips narrowly brownish black; tibiae and basitarsi obscure yellow, the outer tarsal segments passing into black. Wings with a brownish tinge, the centers of the outer cells somewhat brightened; stigma oval, large and conspicuous, dark brown; cell *Sc* slightly darkened; obliterative areas conspicuous, including post-stigmal and pre-stigmal brightenings and an isolated mark across cell *1st M*₂, including the adjoining portions of cells *R* and *M*₃; veins brown, yellowish or bullate in the obliterative portions. Macrotrichia of cells unusually abundant, from cells *R*₃ to *2nd M*₂, inclusive; stigma with several trichia. Venation: *Rs* arcuated, subequal in length to *m-cu*; petiole of cell *M*₁ subequal to *m*.

Abdominal tergites obscure yellow basally, passing into brown to produce dark brown rings at the apices and lateral margins of the segments, becoming more extensive on the outer segments; basal sternites yellow, the intermediate ones extensively darkened, the posterior margins pale; hypopygium brownish yellow. Male hypopygium with the caudal margin of tergite having a very broad U-shaped emargination, the border and surface back therefrom with numerous blackened spinous points. Outer dististyle a long flattened blade, widest just beyond midlength. Inner dististyle relatively complex, the beak portion blackened, terminating in a strong black spine, with a second, slightly curved spine, on outer margin a short distance back from tip; ventral margin of blackened portion microscopically roughened or feebly toothed; outer basal lobe a conspicuous, long-oval, flattened blade, its apex obtusely rounded, the surface with abundant long setae. Aedeagus consisting of two long exerted paired rods, each with the apex decurved and with a rounded knob on lower margin at near midlength. Eighth sternite moderately projecting, its caudal margin gently emarginate, the notch with pale membrane; each lateral angle produced into a rounded knob set with a few long, coarse setae.

Habitat. British Columbia, California.

Holotype. ♂, Terrace, British Columbia, August, 1937 (Mrs. M. E. Clark); received through C. A. Frost. *Paratypes*, 1 ♂, Green Valley, Solano Co., California, June 13, 1939 (G. Bohart); 1 ♂, Mormon Bar, Mariposa Co., California, June 6, 1940 (T. H. G. Aitken).

This fly is very different from the other Western Nearctic species of the subgenus, differing especially in the abundant macrotrichia of the cells of the wing, in conjunction with the details of structure of the male hypopygium. Among such species, it is closest to *Tipula (Trichotipula) dorsolineata* Doane and *T. (T.) apache* Alexander.

***Tipula (Yamatotipula) glendeningi* n. sp.**

General coloration gray, the praescutum with four darker gray stripes that are bordered by dark brown; antennae black throughout, the scape and pedicel a trifle pruinose; wings almost uniformly tinged with brown, the costal region and stigma a trifle darker; very restricted pale obliterative areas before the stigma and cord; male hypopygium with the tergite terminating in a single very broad lobe, its narrowly obtuse apex set with blackened spinous points; inner dististyle complex, the inner blade or beak large and compressed.

Male. Length about 11-12 mm.; wing 11.5-13 mm.; antenna about 5-5.2 mm.

Female. Length about 13 mm.; wing 13.5 mm.; antenna about 2.3 mm.

Frontal prolongation of head gray above, yellow on sides and beneath; nasus long and conspicuous; palpi brownish black. Antennae (male) relatively long, as shown by the measurements; black, the scape and pedicel a trifle pruinose; flagellar segments moderately incised, with unusually short verticils. Head gray, more infuscated on vertex, with a further well-defined median black vitta.

Pronotum brownish gray; scutellar lobes more yellowish; pretergites gray. Mesonotal praescutum gray, with four slightly darker gray stripes that are indicated chiefly by narrow dark brown borders, those of the intermediate pair becoming subobsolete before the suture; posterior sclerites of notum gray, the scutal lobes a trifle darker but without well-delimited darker areas; scutellum and postnotum with a delicate, median, brown vitta. Pleura clear gray, the pteropleurite and metapleura somewhat lighter; dorsopleural membrane light brown, more buffy on the margins, especially near the spiracle. Halteres brownish yellow, the knobs darker brown. Legs with the coxae gray, their apices paling to buffy; trochanters obscure yellow; femora and tibiae obscure yellow, their tips infuscated; tarsi passing into black; claws (male) toothed.

Wings with a strong and almost uniform brown tinge, the costal region and stigma a trifle darker; very restricted oblitative areas before the stigma and across base of cell *1st M*₂, the latter especially inconspicuous; veins brown. Venation: *Rs* approximately twice *m-cu*, in cases a little longer; petiole of cell *M*₁ variable, from a little longer than *m* to twice the length of this vein.

Abdomen dark gray, the tergites with sublateral brown stripes that are interrupted by narrow but conspicuous yellow posterior borders to tergites three to eight, inclusive; lateral tergal borders broadly bright yellow; sternites brownish gray, the caudal borders of segments four to eight narrowly yellow; ninth tergite and the appendages chiefly dark brown; ninth sternite conspicuously yellow. Male hypopygium with the blades of the gonapophyses projecting caudad beyond the genital chamber and visible in lateral aspect beneath the bases of the dististyles. Ninth tergite terminating in a very broad, simple lobe, the tip narrowly obtuse, set with numerous blackened pegs that extend cephalad along the margins of lobe almost to base; on lower surface, near base of lobe on either side, a smaller group of more than a score of blackened spines; dorsal surface of tergal lobe provided with abundant long black setae, directed caudad. Outer dististyle oval, its tip obtuse; greatest width at a little more than midlength. Inner dististyle consisting of a large compressed outer blade or beak and a more complex basal mass; blade terminating in a short obtuse point, the outer or crest portion with numerous long, pale setae that are strongly recurved at tips; basal mass of style subequal in extent to the outer blade, in part heavily blackened and produced into a spinous point, the apex of the mass extended into two closely applied obtuse lobes or points, the outer of which bears about six conspicuous setae. Gonapophyses longer than the aedeagus, the stem slender, the blade conspicuously expanded, obtuse. Eighth sternite unarmed.

Habitat. British Columbia.

Holotype. ♂, Agassiz, July 24, 1922 (R. Glendenning); Canadian National Collection. *Allotopotype.* ♀, with the type; Canadian National Collection. *Paratopotype.* 1 ♂; Alexander Collection.

Tipula (Yamatotipula) glendenningi is named in honor of the collector. The species is most similar to the Eastern Arctic *T. (Y.) grenfelli* Alexander and the Vancouverian *T. (Y.) cervicula* Doane, differing from both in the coloration of the body and wings, the more elongate antennae with unusually short verticils, and, especially, the very different male hypopygium.

***Tipula (Tipula) spenceriana* n. sp.**

Allied to *ultima*; male hypopygium with the lateral tergal lobes microscopically toothed; plate of ventral surface of tergite Y-shaped; inner dististyle with rostral prolongation slender, with scattered setigerous punctures only.

Male. Length about 14-15 mm.; wing 16-17.5 mm.

Female. Length about 16-17 mm.; wing 15-16 mm.

Frontal prolongation of head brownish yellow; nasus distinct; palpi obscure yellow, the outer segments more infuscated. Antennae with the basal three segments yellow; succeeding segments conspicuously bicolored, yellow, with brownish black basal enlargements; flagellar segments rather strongly incised. Head brownish gray, paler in front; vague indications of a capillary darker median vitta, this line free from setigerous punctures.

Pronotum brownish yellow. Mesonotal praescutum pale yellowish gray, with three poorly differentiated reddish brown stripes, the median one broad; scutal lobes reddish gray; scutellum and postnotum more cinereous, with a more or less distinct median darker vitta. Pleura yellow, very sparsely gray pruinose. Halteres with stem yellow, knob weakly darkened. Legs with the coxae yellow, very sparsely pruinose; trochanters yellow; femora yellow, the tips narrowly infuscated; tibiae and basal tarsal segments yellow, the tips even more

narrowly darkened; terminal tarsal segments dark. Wings with a strong brownish yellow tinge, with small but conspicuous brown clouds at end of Sc_1 at outer end of the otherwise yellow stigmal area, near outer end of cell M adjoining vein Cu , and a major marginal cloud at end of vein $2nd A$; veins obscure yellow to pale yellowish brown; obliterative area before cord relatively conspicuous, extending from before the stigma into cell $1st M_2$. Venation: R_s subequal in length to vein R_3 ; petiole of cell m_1 subequal to or longer than m .

Abdomen obscure yellow, the tergites with three more or less distinct longitudinal stripes, the median one more or less interrupted on the basal ring of the segment, forming elongate darkened triangles behind; lateral dark tergal stripes more continuous; sternites yellow, the outer segments more or less darkened medially; hypopygium yellow. Male hypopygium with the lateral lobes of tergite narrowly blackened and microscopically toothed to crenulate, the outermost denticles largest; plate of ventral surface of tergite Y-shaped, the two divergent arms arising from a relatively narrow common base that is approximately as long as either arm. Inner dististyle with the rostrum relatively slender, provided with relatively few scattered setigerous punctures, entirely without microscopic spicules, as is the case in *ultima*.

Habitat. British Columbia.

Holotype. ♂, Chilcotin, August 21, 1930 (G. J. Spencer).

Allotopotype, ♀ *Paratopotypes,* 6 ♂ ♂, some badly broken.

Holotype returned to Professor Spencer.

Tipula (Tipula) spenceriana is dedicated to the collector, Professor George J. Spencer. The species is closest to *T. (T.) hardyi* Alexander, as indicated by the comparisons below; the two flies are most readily separated by the details of structure of the male hypopygium, especially the nature of the tergal furcula and the toothings of the tergal lobes. The allied Nearctic species are as follows.

Tipula (Tipula) hardyi Alexander. (Great Basin). Margin of tergite almost entire, with very low to scarcely indicated crenulations, only the most lateral spine being developed as such; furcula of tergite represented by two entirely separate spines, the distance between these at base at least as much as the length of either spine; inner dististyle with rostrum only slightly produced, provided with simple setigerous punctures only.

Tipula (Tipula) ultima Alexander. (Eastern North America). Margin of tergite conspicuously denticulate; furcula of tergite with base long and narrow, exceeding the length of either arm; inner dististyle with the rostral prolongation greatly produced and provided with abundant spicules.

***Tipula (Tipulodina) lacteipes* n. sp.**

General coloration gray, the praescutum with four clearly defined, entire, dark brown stripes; antennae black throughout, of moderate length; legs dark brown to black, the tips of basitarsi and all of tarsal segments two to four snowy white; wings with a strong brownish tinge, the stigma darker, the extreme tip of wing a little more suffused; male hypopygium small, tergite narrowly transverse; outer dististyle widely expanded; inner dististyle long and narrow, without a developed outer basal lobe.

Male. Length about 14 mm.; wing 15 mm.; antenna about 4.5 mm.

Frontal prolongation of head light gray, of moderate length, a trifle over one-half the length of remainder of head; nasus distinct; palpi with basal segment dark brown, the remainder much paler, yellowish brown. Antennae black throughout, of moderate length, as shown by the measurements; flagellar segments rather strongly incised, the longest verticils subequal in length to the segments; terminal segment a little more than one-third the length of the penultimate. Front and anterior vertex clear light gray, the posterior vertex with an extensive brown area on either side, immediately behind the eyes; the

narrow central region and the occiput darker gray; anterior vertex broad, exceeding five times the diameter of scape.

Pronotum gray, vaguely patterned with brown on median portion of scutum. Mesonotal praescutum clear light gray, with four narrow, entire, dark brown stripes; intermediate pair separated by a ground vitta that is about one-half the width of either stripe, this pale line narrowed behind; posterior interspaces weakly infuscated; scutum gray, each lobe with two disconnected brown areas, the posterior one largest; scutellum and postnotum light gray; pleurotergite weakly patterned with brown on ventral portion of its two subdivisions. Pleura light gray, variegated with slightly darker gray areas on the ventral portions of anepisternum, sternopleurite and meron; dorsopleural membrane clear yellow. Halteres with the stem yellow, brightest at base, knob dark brown. Legs with coxae light gray pruinose; trochanters yellow; femora dark brown, the bases restrictedly brighter, the tips narrowly blackened; tibiae black; basitarsi black, the outer fourth snowy white; segments two to four similarly white, the terminal segment abruptly black; claws (male) sparsely hairy, with a strong tooth before midlength; (fore legs broken; from analogy with other species of the subgenus, possibly differing in color from the middle and hind pairs). Wings with a strong brownish tinge that is a little more suffused at the extreme tip; a similarly darkened longitudinal central streak extending for almost the whole length of cell *R*; stigma with cephalic portion pale brown, the posterior half darker brown. Macrotrichia of veins unusually abundant for a member of this subgenus, including complete series on all veins beyond cord excepting the outer end of R_1+2 . Venation: Sc_2 ending about opposite five-sixths the length of R_s , the latter long, more than twice the length of R_2+3 ; cell M_1 deep, exceeding twice the length of its petiole; cell 1st M_2 elongate; *m-cu* relatively long and sinuous, placed at near midlength of M_3+4 ; Cu_1 bent strongly caudad at outer end; cell 2nd *A* relatively wide.

Abdominal tergites chiefly brown, especially on the sublateral portions, appearing as distinct, scarcely broken stripes, broader and more conspicuous on segments four to seven, inclusive; median area of tergites gray pruinose; basal tergite brown, with an oval, light gray, median area, the base and apex of the segment restrictedly yellow; fifth to seventh tergites more conspicuously overcast with gray, the caudal borders restrictedly yellow; eighth and ninth tergites blackened; basal sternites concealed by the over-lapping tergal borders, the outer exposed segments brownish gray, with narrow yellow posterior borders; ninth sternite reddish brown, bordered posteriorly by yellow, the lobes and styli similarly yellow. Male hypopygium relatively small and simple in structure. Ninth tergite small, entirely separated from the very extensive combined basistyle-ninth sternite, the suture between the two latter indicated only by a very short line on ventral portion. Ninth tergite relatively narrow, much broader than long, its caudal margin very gently emarginate; on caudo-ventral surface of this border with a narrow flange that is produced into a low triangular median tooth that is scarcely evident from above; setae of tergal surface lacking on midline and cephalic border. Region of basistyle not produced into a spine or point. Outer dististyle very broad, spatulate, its greatest width approximately three-fourths the length; apex very obtuse; setae chiefly grouped on the more thickened upper margin but with further sparse bristles on disk. Inner dististyle unusually long and narrow, sinuous, without a developed outer basal lobe, as is common in the genus; rostrum long and slender, blackened; before midlength of style with a group of from 8 to 10 bristles, immediately distad of which is a small semicircular or horseshoe-shaped chitinized structure, its opening on the outer end. Lobe of ninth sternite very small, oval; ventral surface of sternite very extensive, with a deep median furrow or split extending the entire length. Aedeagus a relatively short black rod, before apex with a small erect chitinized spine. Gonapophyses united into a phallosome at base of

aedeagus, each outer angle produced into a pale triangular ear, the whole phallosomic plate provided with very abundant short setulae. Eighth sternite with margin narrowly pale, unarmed with lobes or setae.

Habitat. California (Mariposa Co.)

Holotype, ♂, Wawona, altitude 5,000 ft., June 5, 1939 (A. Downes).

This is one of the most interesting species of the genus so far discovered in the Nearctic Region, being the first such form to be discovered having white feet. By my key to the subgeneric groups of *Tipula* in Asia (Philippine Journ. Sci., 57:83-85; 1935), the fly runs with little difficulty to the subgenus *Tipulodina* Enderlein, hitherto known only from Asia and Africa and including about 35 known species. The present fly disagrees from the characters of these species in certain characters, especially in various details of the male hypopygium, but I can see no reason for not referring it to this subgenus.

***Tipula* (*Lunatipula*) *truculenta* n. sp.**

General coloration brownish yellow, the praescutum with four poorly differentiated reddish brown stripes, the narrow intermediate pair faintly bordered by darker brown; wings grayish, the costal border and stigma darker; oblitative area before cord very little evident; male hypopygium with the caudal border of tergite almost detached from the main body of the sclerite by pale membrane, appearing as a thickened corrugated collar; outer dististyle expanded outwardly, unequally bilobed; posterior margin of inner dististyle near base with two powerful spines; eighth sternite narrow, sheathing, terminating in two lobes that are separated by a deep V-shaped notch, each lobe with a dense brush of unusually long yellow setae.

Male. Length about 15 mm.; wing 17 mm.; antenna about 5.6 mm.

Frontal prolongation of head relatively long, exceeding in length the remainder of head, obscure yellow; nasus conspicuous; palpi brown, the terminal segment brownish black. Antennae (male) relatively long; scape and pedicel light yellow; first flagellar segment obscure brownish yellow, succeeding flagellar segments almost uniformly brownish black but with the basal swelling a trifle deeper in color than the pedicel; segments rather strongly incised; longest verticils subequal in length to the segments. Head dark gray, the front and orbits lighter gray; anterior vertex with a conspicuous dark brown area paling behind; vertical tubercle very low.

Pronotum obscure brownish yellow. Mesonotum obscure brownish yellow with four poorly differentiated, more reddish brown stripes, the intermediate pair unusually narrow and feebly bordered by still darker brown; lateral stripes pale brown; posterior sclerites of notum pale brown, the postnotum sparsely pruinose; basal half of scutellum with a capillary brown vitta that becomes obsolete at near midlength of sclerite. Pleura and pleurotergite uniform pale brownish yellow; dorsopleural membrane in front concolorous, a little darker brown behind. Halteres with stem obscure yellow, knob brownish black with whitened apex. Legs with coxae and trochanters brownish yellow; femora and tibiae obscure yellow, the tips rather narrowly brownish black; basitarsi obscure yellow, the tips darkened; tarsi passing into brownish black; claws (male) toothed, conspicuously hairy, especially on outer faces. Wings with a strong grayish suffusion, cells *C* and *Sc* more brownish yellow; stigma brown; a very small darkened cloud at origin of *Rs*; oblitative areas before cord very restricted to scarcely evident, indicated chiefly by a paling of the veins from before the stigma into the extreme base of cell M_3 ; veins brown, brighter in the costal region. No stigmal trichia; squamal setae about six or seven. Venation: R_1+2 entire; *Rs* nearly twice the length of *m-cu*; cell 1st M_2 relatively long, narrower outwardly.

Abdomen chiefly brownish yellow, the tergites with a very indistinct

broken median darker brown stripe, the usual sublateral darkenings scarcely evident; caudal and lateral borders of tergites narrowly and inconspicuously pale; basal sternites obscure yellow, the outer segments more darkened; outer abdominal segments, including hypopygium, chiefly darkened. Male hypopygium relatively large and conspicuous; ninth tergite entirely separated from sternite; basistyle complete, conspicuously narrowed dorsally, near upper end on outer margin with a small rounded knob; accessory sclerite complete and unusually large, its area about one-half that of the basistyle. Ninth tergite extensive, of very peculiar formation; dorsal surface with a deep median furrow; entire posterior border almost detached from the main body of sclerite, separated by pale membrane only, greatly thickened, blackened and roughly corrugated; posterior lateral angles further produced into a stronger point; dorsal surface of apical collar with numerous very small setae; main body of sclerite with outer lateral angle produced into a blackened point, when viewed laterally appearing almost linear in outline. Outer dististyle irregular in outline, expanded outwardly, the outer apical angle more produced than the inner one. Inner dististyle powerful, the head and beak relatively small; outer margin near base with two strong spines, the more basal one with a rounded flange on its lower edge; outer basal lobe very loosely connected with the body of style, appearing as a broad, flattened yellow plate, its outer margin further produced into a more darkened flange with smooth borders. Appendage of ninth sternite bilobed, the larger lower portion with relatively few long conspicuous crinkly setae, those of the smaller, more dorsal lobule more numerous but less conspicuously wavy except at tips. Aedeagus relatively simple, terminating in two lateral points and two more slender, inner-lying spines. Eighth sternite relatively narrow but long and sheathing, its apex with a deep V-shaped notch, the lobes slender, each with brushes of unusually long and dense yellow setae.

Habitat. California.

Holotype. ♂, Monterey, March 25, 1926 (ex M. C. Van Duzee).

I can find no close relative of the present fly in our fauna. The details of structure of the male hypopygium, especially the ninth tergite and inner dististyle, indicate an isolated type. Superficially it suggests species such as *Tipula* (*Lunatipula*) *sternata* Doane, but there is no close affinity.