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NEW NEARCTIC CRANE-FLIES (TIPULIDAE, DIPTERA). PART XVIII.

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In the present article I am describing a few unusually interesting species of Tipulidae from Washington, Oregon and northern California. The Oregon material was included in extensive series sent to me by Professor Herman A. Scullen, contained in the Oregon Agricultural Experiment Station Collection, Corvallis. The Washington and California specimens, together with one species from extreme northwestern Oregon, were included in a small but very interesting series of specimens taken by Dr. and Mrs. Henry K. Townes and kindly presented to me by the collectors. I express my indebtedness to these entomologists for this continued interest in making known the crane-fly fauna of the Vancouverian faunal area.

***Prionocera oregonica* n. sp.**

General coloration dark brownish gray, the praescutum with four darker brown stripes; antennae black throughout, the flagellar segments weakly produced, feebly serrate; wings with a weak brown tinge, the prearcular and costal fields more brightened; *Rs* relatively long and straight; cell *2nd A* narrow; abdomen dark grayish brown, with a conspicuous brown tergal stripe, the lateral borders of the tergites narrowly yellow; male hypopygium with the caudal margin produced into four slender finger-like lobes arranged in pairs, each pair separated

by a relatively narrow notch; median region further produced into two deflexed spinous points.

Male. Length about 10.5 mm.; wing 12 mm.; antenna about 3.3 mm.

Frontal prolongation of head black above, very sparsely pruinose, more reddish brown on ventral surface; nasus stout, tufted with conspicuous yellow setae; mouthparts and palpi intense black. Antennae black throughout, the segments weakly pruinose; flagellar segments at apex on inner face rather weakly produced to give the organ a feebly serrate appearance; terminal segment abruptly narrowed, as common in the genus, slightly more dilated on proximal half. Head dark grayish brown, clearer gray on orbits, with indications of a still darker median vitta on vertex; anterior vertex broad, nearly twice as wide as the exposed diameter of one eye.

Pronotal scutum dark gray, narrowly darker medially; scutellum yellow. Mesonotal praescutum dark brownish gray, with four darker brown entire stripes, the intermediate pair contiguous at their extreme cephalic ends; scutum gray, each lobe with two poorly defined dark brown areas; scutellum gray, parascutella yellow; mediotergite light gray, pleurotergite gray, with a conspicuous, pale yellow area on dorsal katapleurotergite. Pleura light gray, restrictedly patterned with pale yellow on the sclerites of the mesepimeron and metapleura; dorsopleural membrane buffy yellow. Halteres brownish yellow, knob dark brown. Legs with the coxae light gray, with conspicuous black setigerous punctures; trochanters obscure yellow; femora and tibiae obscure yellow, the tips conspicuously blackened, the amount subequal on all legs; tarsi black. Wings with a weak brown tinge, the cells just beyond the anterior cord a trifle darker; prearcular and costal fields more brownish yellow; stigma pale brown, poorly defined; veins brown, those in the brightened portions more yellow. Venation: R_s relatively long and straight, about one-third longer than vein R_3 ; petiole of cell M_1 more than twice m ; cell 2nd A relatively narrow.

Abdomen dark brown, gray pruinose, especially the sternites; a broad brown median stripe on tergites, interrupted by pale caudal rings to the segments, the lateral tergal borders more broadly yellow. Male hypopygium with the tergite, when viewed from above, with the caudal margin bearing four slender finger-like lobes, the sublateral pair as long as the laterals and a little stouter at base, separated from the laterals by a relatively narrow notch; lateral lobes with their mesal face microscopically setulose; sublateral lobes with scattered coarse setae that are more numerous on the mesal face; median area of tergite produced into a low lobe that is deflexed and produced into two closely approximated or fused glabrous spinous points; dorsal surface of tergite on either side of midline with a diffuse group of about twenty setae, lying immediately cephalad of the sublateral marginal lobes. Outer dististyle oval, gradually narrowed to the obtuse tip. Inner dististyle with the rostral region relatively slender, on mesal face style near base with a broader and shorter flattened lobe.

Habitat. Oregon (Northeast).

Holotype. ♂, Aneroid Lake, Blue Mountains, altitude 7,500 feet, June 25, 1929 (H. A. Scullen).

Prionocera oregonica is very distinct from the previously described Nearctic species. It is apparently closest to *P. primoveris* Alexander and *P. sordida* (Loew), differing conspicuously in the structure of the male hypopygium.

***Limonia (Limonia) tributaria* n. sp.**

General coloration of mesonotal praescutum black, with three more reddish stripes, the humeral portions restrictedly yellow; antennae with scape and pedicel black, flagellum brown, the first segment paler basally; fore coxae dark brown; femora obscure yellow, with two relatively narrow dark brown rings,

the outer one apical in position; wings with a weak brown tinge, restrictedly patterned with darker brown and cream-colored areas, the latter including conspicuous marks at ends of veins *Cu*, *1st A* and *2nd A*, the pale color including the veins; male hypopygium with the mesal-apical lobe of gonapophysis very low and obtuse, entirely pale.

Male. Length about 9.5-10 mm.; wing 9.5-10.5 mm.

Female. Length about 12 mm.; wing 11 mm.

Rostrum and palpi black. Antennae of moderate length, if bent backward ending a short distance before wing-root; scape and pedicel black, flagellum brown, the basal segment brighter at proximal end; flagellar segments long-oval to subcylindrical, with long verticils. Head above heavily gray pruinose; anterior vertex of moderate width, approximately one and one-half times the diameter of scape in male, twice this in female.

Pronotum broadly dark brown above, paler on sides. Mesonotal praescutum heavily patterned with black, the broad central area reddish brown, more brownish black in front, bordered laterally by conspicuous black interspaces; lateral stripes reddish brown to obscure yellow, bordered laterally by brownish black; humeral and very narrow lateral borders yellow, anterior interspaces with conspicuous erect black setae; posterior sclerites of notum dark brown, the central portion of scutum paler; pleurotergite pale, restrictedly darkened along ventral edge near root of haltere. Pleura yellow, the propleura and extensive areas on anepisternum and sternopleurite dark brown; posterior sclerites paler. Halteres with stem pale, knob dark brown. Legs with fore coxae dark brown, middle and hind pair yellow; trochanters yellow; femora obscure yellow, with two relatively narrow dark brown rings, the apical one a little narrower and more deeply colored; the yellow ring enclosed a trifle wider than the darkened tip; tibiae and basitarsi pale brown, the tips narrowly darkened; terminal tarsal segments black. Wings with a weak brownish tinge, restrictedly patterned with darker brown and cream-yellow areas, the darker spots include the circular stigma and smaller seams at origin of *Rs*, fork of *Sc*, cord and outer end of cell *1st M*₂, and as a conspicuous seam along vein *Cu*, interrupted a short distance before *m-cu*; pale brown washes in cell *R* before origin of *Rs* and in outer ends of cells *Cu* to *2nd A*, inclusive; the cream-colored areas include the prearcular and costal fields, an area beyond the stigma, extensive areas at ends of veins *Cu*, *1st A* and *2nd A*, the second largest and crossing cell *Cu* into *M*, thence to basal portions of cells *M* and *Cu*, brightening vein *Cu*₂ but not *Cu*₁; bases of cells *R* to *2nd A* more or less distinctly brightened; veins brown, brighter in the yellow costal portions and at the tips of veins *Cu* to *2nd A*. Venation: *R*₂+₃ longer than *R*₁+₂; vein *R*₃ deflected strongly caudad on more than its distal half; cell *1st M*₂ relatively small; *m-cu* shortly before fork of *M*, the distance more or less variable.

Abdominal tergites dark brown, the extreme posterior borders paler; hypopygium yellow; basal sternites obscure yellow, the outer segments more darkened. Ovipositor with the cerci very slender, nearly straight; hypovalvae blackened at bases. Male hypopygium with the tergite strongly narrowed outwardly. Dististyle long-oval, narrowed on distal third, the short apex subobtuse, without spines or denticles. Gonapophyses with mesal-apical lobes very low and obtuse, entirely pale.

Habitat. California.

Holotype. ♂, Crescent City, Del Norte Co., August 3, 1940 (H. & M. Townes). *Allotopotype*, ♀. *Paratopotypes*, 2 ♂♂. *Paratype*, Sex?, Berkeley, Alameda Co., May 15, 1915 (M. C. Van Duzee).

The present species is quite distinct from all Nearctic forms so far discovered. It is closest to species such as the western Palaearctic *Limonia* (*Limonia*) *dilutior* (Edwards) and *L.* (*L.*) *hercegovinae* (Strobl), especially

the latter, yet is quite distinct in details of coloration and structure of the male hypopygium. Compared with the more than 100 species of the subgenus known to me from eastern Asia, including approximately 60 from Japan and China, there are no relatives closer than *hercegovinae*. The broken specimen from Berkeley has been in my hands for many years, through the generosity of the late Mr. Millard C. Van Duzee, but was undeterminable until the male sex was available.

***Limonia (Diceranomyia) acerba* n. sp.**

Size large (wing, ♂, over 8 mm.); general coloration dark brown, sparsely pruinose; antennae short, flagellar segments short-oval; anterior vertex relatively broad; halteres short, knobs dark brown; wings with a weak brown tinge, stigma darker brown; inner end of cell 1st M_2 arcuated; *m-cu* shortly before fork of M ; abdominal tergites dark brown or brownish black; male hypopygium with the ventral dististyle conspicuously whitened; ninth tergite large, semicircular in outline, the caudal margin convexly rounded, with a very small median notch surrounded by a few long setae; ventral dististyle with the rostral prolongation blackened, deep-based, narrowed into an unusually slender beak; rostral spines long, from a low common tubercle at base of prolongation.

Male. Length about 8 mm.; wing 8.5 mm.; antenna about 1.2 mm.

Rostrum short, obscure yellow; palpi brownish black. Antennae short, brownish black throughout; flagellar segments short-oval, without pedicels; terminal segment about one-half longer than the penultimate. Head with front obscure yellow; central portion of vertex extensively brownish gray, the genae and occiput paling to yellow; anterior vertex relatively broad, approximately three times the diameter of scape.

Pronotum dark brown, sparsely pruinose. Mesonotal praescutum with the very restricted ground dark reddish brown, the disk almost covered by three black pruinose stripes that are subconfluent, restricting the interspaces to narrow obscure lines; posterior sclerites of notum black, sparsely pruinose, the parascutella obscure yellow; suture between mediotergite and pleurotergite restrictedly yellow. Pleura yellow, very weakly patterned with brown, most distinct on the anepisternum, the color weaker on sternopleurite, the whole surface with a very slight pruinosity. Halteres short, stem yellow, knob dark brown. Legs with coxae and trochanters obscure yellow, remainder of legs broken. Wings with a weak brown tinge, the prearcular field more yellow; stigma darker brown, its margins ill-defined; veins dark brown. Venation: Sc_1 ending a short distance beyond origin of R_s , Sc_2 a short distance from its tip, immediately before R_s ; inner end of cell 1st M_2 strongly arcuated, lying considerably before inner end of cell R_5 ; *m-cu* a short distance before fork of M . In the left wing of holotype, an adventitious crossvein in axil of R_s , close to the base.

Abdomen relatively long; tergites dark brown to brownish black, the extreme caudal borders of the intermediate segments narrowly pale; basal sternites obscure yellow, the outer segments, including hypopygium, more brownish black; ventral dististyle conspicuously whitened. Male hypopygium with the ninth tergite large, semicircular in outline, the caudal margin evenly, convexly rounded, with a tiny to scarcely evident median notch; surrounding this small incision about nine long pale setae, with additional scattered bristles along posterior margin and nearer the lateral angles; disk of tergite free from major setae. Basistyle with the ventro-mesal lobe large, simple, at its base with two rounded lobes set with long setae. Dorsal dististyle a strongly curved chitinized rod, the tip suddenly narrowed into a spine. Ventral dististyle large and fleshy, its area about one-half greater than that of basistyle; rostral prolongation and the lower margin of style almost to base blackened; rostral prolongation broad-based, suddenly narrowed into a very slender outer beak; rostral spines long and slend-

er, exceeding the rostrum in length, placed close together on a blunt common tubercle on the outer portion of dilated margin of prolongation. Gonapophyses with mesal-apical angle a strong blackened lobe, curved laterad to an acute point. A conspicuous, transversely corrugated membrane projects from the genital chamber, apparently connected with the phallosome rather than with the anal region.

Habitat. Washington.

Holotype. ♂, Mount Rainier, altitude 5,700 feet, July 8, 1940 (H. & M. Townes).

The present fly is apparently closest to species such as *Limonia* (*Dicranomyia*) *fulva* (Doane), differing conspicuously in the coloration of body, venational details, and, especially, the structure of the male hypopygium. A resemblance to species such as *L. (D.) libertoides* (Alexander) is purely superficial.

***Pedicia* (*Tricryphona*) *bicomata* n. sp.**

Allied to *simplicistyla*; general coloration pale yellow, the postnotal mediotergite with darkened lateral borders; antennae and halteres yellow throughout; legs yellow, only the outer tarsal segments weakly darkened; wings pale yellow, restrictedly patterned with brown; a supernumerary crossvein in cell R_3 at near one-third the length of cell; male hypopygium with the caudal margin of tergite with a broad U-shaped median notch; basistyle with the interbase a long slender spine, opposite its base with a dense brush of long yellow setae; outer dististyle narrowed outwardly, the distal portion set with slender spines; inner dististyle a slender straight rod, at base on caudal face with a long, gently curved spine.

Male. Length about 15 mm.; wing 14 mm.; antenna about 1.5 mm.

Rostrum reddish brown; palpi black. Antennae pale yellow throughout; pedicel long, about two-thirds the length of scape; flagellar segments cylindrical, the basal segments with their ends truncated and closely applied to one another; verticils of outer segments long and conspicuous; alternate flagellar segments with stronger and more conspicuous verticils than the intervening ones. Head pale whitish gray; vertical tubercle rounded above.

Pronotum pale yellow, weakly darkened above, more heavily so on cephalic portion. Mesonotal praescutum pale yellow with four barely indicated stripes, the intermediate pair more reddened and distinct at their anterior ends; scutal lobes weakly darkened on outer portions, the median area and the scutellum ashy white; parascutella weakly darkened; mediotergite long and narrow, pale yellow, the lateral borders conspicuously brown, the lines converging posteriorly; pleurotergite pale yellow. Pleura, including dorsopleural region, pale yellow. Halteres pale yellow throughout. Legs pale yellow, the terminal tarsal segments a trifle darker. Wings with a pale yellow tinge, the costal border, including cells C , Sc and Sc_1 , uniformly darker, becoming more intense before h ; stigma faintly darker in this general clouded area; small dark brown seams at Sc_2 , origin of Rs , on anterior cord, R_2 , the supernumerary crossvein in cell R_3 , and faintly over m and fork of M_3+4 ; veins yellow, darker in the clouded areas. Venation: Rs square at origin; $r-m$ connecting with Rs about one-fourth its own length before fork; R_2+3+4 subequal to $r-m$, R_2+3 erect at origin; a supernumerary crossvein in cell R_3 at near one-third the length of cell and more than its own length before the level of R_2 ; cell 1st M_2 closed; m on M_2 shortly beyond origin of latter; $m-cu$ close to fork of M .

Abdomen elongate; tergites dark brown laterally, paler on central portion to produce a double tergal stripe, these lines wider and becoming subconfluent on outer segments; sternites yellow, the incisures broadly yellow, involving chiefly the apex of each segment but including the narrow bases of the more

proximal segments; segments eight and nine uniformly blackened. Male hypopygium with the caudal margin of tergite with a broad U-shaped median notch, the broad lateral lobes obtusely rounded. Basistyle with the interbase a long spine, the proximal third stouter and provided with delicate setulae, the remainder of the spine almost straight, bent at a slightly different angle from the base, at point of bending with a small acute spine on one face and a low flange on the opposite side; face of basistyle opposite origin of interbase with a dense brush of long yellow setae. Outer dististyle ear-shaped, darkened, narrowed outwardly, with almost the apical half set with slender spines and with numerous long setae. Inner dististyle a slender straight rod, narrowed to the obtuse tip, at base on caudal face with a long, gently curved spine that is approximately two-thirds as long as the main body of the style.

Habitat. Oregon (Clatsop Co.)

Holotype. ♂, Seaside, August 7, 1940 (H. & M. Townes).

Very similar in its general appearance to *Pedicia* (*Tricyphona*) *simplicistyla* (Alexander), differing conspicuously in the structure of the male hypopygium, notably the tergite, basistyle and the inner dististyle.

Hexatoma (Eriocera) sculleni n. sp.

Belongs to the *spinosa* group; size large (wing, ♂, 21 mm.); antennae (♂) of unusual length, nearly three times the length of the wing; flagellar segments with series of erect spinous setae on lower face; head, thorax and sides of abdomen with very long and dense white setae; mesonotal praescutum with four narrow black stripes; femora reddish brown, the tips narrowly blackened; wings whitish subhyaline, patterned with brown, including conspicuous seams along veins R_5 and Cu , the letter in cell M ; cell M_1 present, about as long as its petiole.

Male. Length about 17 mm.; wing 21 mm.; antenna about 61 mm. Antenna: Flagellar segment 1—9 mm.; 2—12.2 mm.; 3—17.5 mm.; 4—21 mm.; 5, microscopic.

Rostrum brown; palpi black. Antennae (♂) very long, as shown by the measurements given above; total length nearly three times the length of wing; scape tumid, reddish brown, darker above; pedicel very short, dark brown; flagellum brownish black, the outer segments uniformly blackened; basal four flagellar segments with rows of strong spinous setae on lower face, longer and more like normal setae on the fourth flagellar segment; first flagellar segment with about 30 spines in each row; second segment with about 45; third with about 60; fourth with about 80. Head brown, more yellowish brown on front, orbits gray; dorsum of head chiefly concealed by the mesothoracic setae; head with long pale setae, especially on ventral surface.

Pronotum scarcely evident from above, due to the abundant vestiture of mesothorax. Mesonotal praescutum light gray, with four narrow black stripes, the median interspace on cephalic half of sclerite about as wide as the darkened intermediate stripes, more narrowed behind, the dark stripes not reaching the suture behind; scutum gray pruinose, each lobe with blackened areas; posterior sclerites of notum brownish black, pruinose. Mesonotum, especially the praescutum and scutellum, with unusually long, conspicuous, and very dense white setae; on the praescutum the setae occur on both the stripes and interspaces, though more dense on the latter, especially the lateral portions. Pleura black, with conspicuous gray pruinose areas; pleural sclerites with long, conspicuous pale setae. Halteres with stem brownish yellow, knob dark brown. Legs with coxae reddish brown, pruinose, with long white setae; trochanters reddish; remainder of legs, with exception of posterior pair, broken; femora reddish brown, the tips narrowly blackened; tibiae reddish yellow, the tips still more narrowly darkened; tarsi broken beyond base of the obscure yellow

basitarsus. Wings with the ground color whitish subhyaline; prearcular field and cells *C* and *Sc* yellowish brown; stigma oval, darker brown; broad, conspicuous, brown seams along veins *Cu* and R_5 ; much narrower similar brown seams on the other longitudinal veins, least conspicuous on 1st *A* and basal portion of *M*; proximal third or more of cell *Cu* washed with brown; veins dark brown. Restricted series of macrotrichia on veins R_3 and R_5 and very scattered to virtually lacking on M_1 and M_2 . Venation: R_{1+2} about one-half longer than R_2 ; cell M_1 present, about as long as its petiole; cell 1st M_2 about twice as long as vein M_4 beyond it; *m-cu* one-half its length or more beyond fork of *M*; distal section of Cu_1 less than one-half *m-cu*.

Abdominal tergites brownish black, the surface sparsely pruinose, the incisures, especially the bases, restrictedly reddish; hypopygium black; lateral portions of abdomen with long pale setae; sternites more reddish brown, sparsely pruinose.

Habitat. Oregon (Linn Co.).

Holotype. ♂, Cascadia, August 15, 1924 (H. A. Scullen).

I take great pleasure in naming this species in honor of Professor Scullen who has added most materially to our knowledge of the Tipulidae of Oregon. The species is very different from the only other western Nearctic species of the genus having elongate antennae, *Hexatoma (Eriocera) californica* (Osten Sacken). It is more similar to the eastern Nearctic *H. (E.) spinosa* (Osten Sacken), which has the antennae still shorter than in the present fly (♂, 50 mm. or less) and with the details of coloration, especially of the wings and thorax, distinct.

***Hexatoma (Eriocera) solor* n. sp.**

Belongs to the *spinosa* group; antennae (♂) relatively long, being approximately as long as the body or exceeding three-fourths the length of wing; mesonotal praescutum gray, with four relatively narrow black stripes; femora chiefly black, only the basal fourth or less obscure yellow, distributed chiefly along the lower face of segment; remainder of legs black; wings relatively narrow, strongly suffused with brown, the centers of the cells pale; stigma conspicuous, dark brown.

Male. Length about 14–15 mm.; wing 17–17.5 mm.; antenna about 13.5–14.5 mm.

Rostrum and palpi black. Antennae black throughout, the scape a trifle pruinose; antennae (♂) approximately as long as the entire body or exceeding three-fourths the length of wing; first flagellar segment shorter than either the 2nd, 3rd or 4th, which are subequal; first flagellar segments with from 8–13 spinous setae; second segment with about 15–18 spines in a single row. Head brownish gray, brighter on front; setae elongate, tawny.

Pronotum brownish gray. Mesonotal praescutum with the ground color gray, more brownish gray on the posterior interspaces; four relatively narrow black stripes; median interspace only about one-half as wide as either intermediate stripe; vestiture relatively long but sparse, pale; scutum brownish gray, each lobe with a conspicuously blackened center; posterior sclerites of notum black, sparsely pruinose; vestiture long but sparse. Pleura black, heavily pruinose, with conspicuous pale setae. Halteres black, the extreme base of stem yellowish brown. Legs with the coxae gray pruinose; trochanters dark brown; femora chiefly black, with approximately the basal fourth or less obscure yellow, especially distinct on lower face; remainder of legs black. Wings relatively narrow, as compared with *eriphora*, strongly suffused with brown, especially along the veins, the centers of the cells streaked with paler; prearcular and costal fields a trifle darker; stigma oval, dark brown, conspicuous; veins dark brown. A restricted series of macrotrichia on vein R_5 ; elsewhere beyond cord these lacking

or very sparse. Venation: Cell M_1 present, *m-cu* approximately two-thirds its length beyond the fork of *M*.

Abdomen relatively short, black, gray pruinose; vestiture long and pale on the more basal segments, much shorter on the succeeding ones; hypopygium black.

Habitat. Oregon (Benton Co.).

Holotype. ♂, (Alsea Maltby), August 8, 1932 (James Roaf). *Paratypes*, 3 ♂ ♂.

Hexatoma (*Eriocera*) *solor* is closest to *H. (E.) eriophora* (Williston), differing most evidently in the more elongate antennae of the male, which here exceeds three-fourths the length of wing. In *eriophora* the antennae are always less than two-thirds of the wing-length, usually even shorter, about one-half the wing length (in holotype ♂ of *eriophora*, University of Kansas, wing, 15.3 mm.; antenna, 7.2 mm.).