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

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The preceding part under this general title was published in 1945 (Can. Ent., 76:217-222). In the present paper I am describing certain species of unusual interest that were collected and sent to me by Messrs. Aitken, Bohart, Degener, Melander and the late Millard C. Van Duzee, to all of whom I express my sincere thanks and appreciation for this aid. Except where stated to the contrary in the text, the types of the novelties are preserved in my personal collection.

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

General coloration brownish yellow, the praescutum with three darker stripes; rostrum yellow; antennae black throughout; head above dark gray; halteres elongate, knobs darkened; legs obscure yellow, terminal tarsal segments blackened; wings subhyaline, stigma not indicated; Sc_1 very long; male hypopygium with the tergite transverse-oval, its posterior border not or scarcely emarginate; basistyle with a complex ventromesal lobe; ventral dististyle about equal in total area to the basistyle, the rostral prolongation bearing a long slender rod on the outer margin, immediately basad of the two rostral spines; gonapophyses with mesal-apical lobe elongate, sinuous; aedeagus elongate, before tip with pale bulbous setoid outgrowths.

Male. Length about 5.8-6 mm.; wing 6-6.5 mm.

Female. Length about 6.5 mm.; wing 7 mm.

Rostrum yellow; palpi black. Antennae black throughout; flagellar segments oval, the outer ones more elongate; terminal segment long, a little exceeding the penultimate. Head above dark gray, paling to brownish yellow beneath; anterior vertex (male) wide, nearly four times the diameter of the scape.

Pronotum infuscated medially, paling to yellow on the sides. Mesonotal praescutum with the ground obscure yellow, with three darker stripes, the broader median stripe darker in front; scutal lobes scarcely darkened, median region narrowly pruinose; scutellum behind obscure yellow; mediotergite pale brown, sparsely pruinose. Pleura yellow, the posterior sclerites, including likewise the pleurotergite, sparsely pruinose. Halteres elongate, stem pale, knob darkened. Legs with the coxae and trochanters pale yellow; remainder of legs obscure yellow, the terminal tarsal segments blackened. Wings subhyaline, the prearcular and costal fields a trifle more yellowed; stigma not or scarcely indicated; veins brown, paler in the more brightened fields. Venation: Sc_1 ending just before origin of R_s , Sc_2 far from its tip, Sc_1 thus very long, exceeding R_s ; cell 1st M_2 about as long as vein M_4 ; $m-cu$ at or a short distance before the fork of M .

Abdominal tergites dark brown, basal sternites yellow, the outer ones darkened; hypopygium yellow. Male hypopygium large; tergite transverse-oval in outline, its caudal margin not or scarcely emarginate. Basistyle of moderate size, with a large and conspicuous ventro-mesal lobe; this latter generally parallel-sided, at its apex divided into two lobes, the broader one with long, very delicate setae and fewer long coarse bristles near the subacute apex; the smaller apical lobe is again split into an outer blackened spine and an inner fleshy lobule that is provided with very long coarse setae from prominent tubercles; face of style

near base of lobes with a group of about 14 or 15 small blackened knobs. Dorsal dististyle a slender, strongly curved hook, its tip acute. Ventral dististyle nearly equal in its total area to the basistyle; body of style relatively small, with a large rounded secondary lobe near its base; rostral prolongation very large and complex, more sclerotized than the remainder of style; base stout, the outer half or less more narrowed, the usual two spines at the base of the narrowed portion on outer margin; immediately basad of these spines a long, slender branch that is only a little shorter than the entire prolongation and approximately one-half as long as the dorsal dististyle. Gonapophyses with mesal-apical lobe long and narrow, very strongly sinuous, its tip narrowly obtuse. Aedeagus very long, near its outer end with numerous pale setoid extensions that are enlarged at their tips into small pale bulbs.

Habitat: Idaho (Boundary County).

Holotype: ♂, Lookout Mt., Priest Lake, August 20, 1920 (A. L. Melander); Melander Collection. *Allotopotype*: ♀ *Paratopotypes*: 2 ♂♂.

I take great pleasure in naming this very distinct fly in honor of Dr. Axel Leonard Melander. Among the now relatively numerous described species of the subgenus that have the male hypopygium complex, the present fly agrees with *Limonia (Dicranomyia) particeps* (Doane) in certain details of coloration and venation. The male sex of this latter fly is still not known to me. Doane mentions the hypopygium only in general terms but one of these, the enlarged ventral dististyles as compared with the basistyles, definitely disagrees with the present fly. There are now known rather numerous regional species that have unusually complicated hypopygia, all of these differing among themselves in the details of structure of this organ.

***Pedicia (Tricyphona) macrophallus* n. sp.**

Allied to *constans*; general coloration of thorax fulvous yellow, the posterior sclerites faintly pruinose; antennae yellow, the outer segments slightly darkened; head dark brownish gray; legs yellow, the tips of the femora brownish black, of the tibiae less conspicuously so; wings yellowish subhyaline, the prearcular and costal borders pale yellowish brown, this color continued to the wing tip; R_2+3+4 subequal in length to $r-m$; cell 1st M_2 long; abdominal tergites brownish yellow, trivittate with dark brown; male hypopygium unusually large; basistyle on mesal aspect of dorsal face with a compact group of four or five blackened spinous setae; dististyle deeply forked, the lateral branch longer and stronger; aedeagus long and powerful, bent strongly dorsad.

Male. Length about 15 mm.; wing 12.5 mm.

Rostrum dark brown; palpi black. Antennae 16-segmented; yellow, the outer segments slightly darkened. Head above dark brownish gray, paler brown on occiput; vertical tubercle weakly developed.

Pronotum yellow, narrowly darkened in front. Mesonotum almost uniform fulvous yellow, the surface more or less pruinose, more heavily so on the posterior sclerites. Pleura yellow. Halteres yellow, knobs weakly darkened. Legs with coxae fulvous yellow; trochanters yellow; femora yellow, the tips broadly and conspicuously brownish black, a very little more extensive on the posterior legs; tibiae yellow, the tips more narrowly blackened; tarsi yellow, the outer segments black. Wings yellowish subhyaline, prearcular region and costal border pale yellowish brown, the latter color continued to the wing tip, behind not passing caudad of vein R ; a tiny darker brown dot over R_2 but with no other darkenings on wing; veins light brown, Cu more yellowed, particularly at base. Venation: R_s very strongly angulated and spurred at origin; $r-m$ before fork of R_s ; R_2+3+4 subequal in length to $r-m$; R_1+2 about one-half longer than R_2 ; cell 1st M_2 long; m beyond fork of M_1+2 ; $m-cu$ close to the fork of M .

Abdominal tergites brownish yellow, narrowly trivittate with dark brown,

the median darkening becoming more distinct behind but interrupted by narrow yellow posterior borders to the segments; all stripes becoming broader and more conspicuous on outer segments; sternites yellow, clearer at base of abdomen; outer segments and hypopygium chiefly dark brown. Male hypopygium unusually large; tergite strongly narrowed outwardly, the caudal border of the narrowed portion broadly emarginate; no lateral tergal lobes. Basistyle on mesal aspect of ventral face near the cephalic end produced into a small hairy lobe, its setae much exceeding the length of the lobe itself; on dorsal aspect of mesal face a group of four or five blackened peg-like spinous setae; apex of basistyle produced into a flattened lobe, its tip with blackened peg-like spines; interbase a strong, gently sinuous, simple rod, the tip obtuse. Dististyle deeply forked, the stem short and stout, the axial branch slender, straight, its tip obtuse; lateral branch longer and stronger, at apex terminating in a spinous point; on stem at fork with a single further blackened spine. Aedeagus long and powerful, bent strongly dorsad, its tip weakly expanded, on dorsal face at near midlength with a projecting lobe.

Habitat: Oregon (Marion County).

Holotype: ♂, Silver Falls State Park, June 23, 1939 (T. H. G. Aitken and George Bohart).

Pedicia (Tricyphona) macrophallus is very different from all other western Nearctic species of the subgenus that center about *P. (T.) constans* (Doane), including also *P. (T.) bicornata* Alexander and *P. (T.) simplicistyla* (Alexander). The large, complicated male hypopygium is entirely distinctive of the species.

***Pedicia (Tricyphona) fulvicolor* n. sp.**

Allied to *rubiginosa*; size large (wing, female, over 12 mm.). General coloration of mesonotal praescutum reddish, weakly overcast by a gray pruinosity; antennae 17-segmented; halteres and legs yellow, the outer tarsal segments more infuscated; wings with a strong fulvous suffusion, the coastal region and wing tip more saturated; the stigma not differentiated; cell R_3 sessile; cell M_2 open by the atrophy of m .

Female. Length about 11 mm.; wing 12.3 mm.; antenna about 1.8 mm.

Rostrum gray; palpi black. Antennae 17-segmented, relatively elongate; scape dark brown, sparsely pruinose; pedicel and proximal segments of flagellum obscure brownish yellow, the outer segments passing into dark brown; flagellar segments subcylindrical; basal flagellar segment formed by an incomplete fusion of two short units, if completely divided totalling 18 segments. Head uniformly gray.

Pronotum and mesonotum chiefly reddish, weakly overcast by a gray pruinosity; praescutal stripes scarcely differentiated, the lateral borders more pruinose; posterior sclerites of notum darker brown. Pleura brownish gray; dorsopleural membrane light yellow. Halteres relatively long, yellow. Legs with fore coxae yellow, the remaining coxae more reddish brown, darker basally; trochanters yellow; remainder of legs yellow, the outer tarsal segments more infuscated. Wings with a strong fulvous suffusion, the coastal region and wing tip more saturated, the stigma not differentiated; veins yellow. Venation: R_s relatively short, about twice $m-cu$; cell R_3 sessile, cell R_4 very short petiolate, vein R_4 thus arising almost at the end of R_s ; R_{1+2} shorter than R_2 , cell M_2 open by the atrophy of m ; $m-cu$ more than one-half its length beyond the fork of M .

Abdominal tergites yellowish brown, the latter color possibly caused by discoloration; posterior borders of segments very narrowly yellow; sternites clearer yellow. Ovipositor with the cerci strongly upcurved, their tips subacute.

Habitat: Idaho (Latah County).

Holotype: ♀, Moscow Mountain, September 10, 1922 (A. L. Melander).

This conspicuous fly seems to be well distinguished from its only close Nearctic ally, *Pedicia (Tricyphona) rubiginosa* (Alexander), of British Columbia and Alberta, by the much larger size. The wing of the female is more than one-half longer than in the comparable sex of *rubiginosa* and has more than twice the area. The elongate 17-segmented antennae similarly provide a specific distinction and it is believed that the male sex, when discovered, will furnish still further characters in the hypopygium.

***Phyllolabis sequoiensis* n. sp.**

Size large (wing, female, 8 mm. or over); general coloration of head and thorax dark gray; antennae brownish black throughout; legs obscure brownish yellow, the outer tarsal segments black; wings with a brownish tinge, the stigma very pale yellowish brown, inconspicuous; ovipositor with cerci relatively broad, at apex suddenly narrowed into a cultriform blade, the lower margin with from eight to ten teeth, of which the outermost is the largest.

Female. Length about 9–9.5 mm.; wing 8–9 mm.; antenna about 2 mm.

Rostrum gray pruinose; palpi black. Antennae brownish black throughout, the scape pruinose; antennae relatively long; basal flagellar segments sub-cylindrical, the outer ones gradually decreasing in size and finally passing into long-oval; longest verticils shorter than the segments. Head gray; anterior vertex nearly three times the diameter of the scape.

Thorax dark gray, without evident pattern; dorsopleural membrane lighter gray. Halteres with stem obscure whitish, the knob weakly darkened. Legs with fore coxae blackened, pruinose, the apex yellow; remaining coxae and all trochanters yellow; remainder of legs obscure brownish yellow, the outer tarsal segments black. Wings ample, with a marked brownish tinge, the prearcular and costal fields more yellowed; stigma very pale yellowish brown, only slightly differentiated from the ground; veins brown, more yellowed in the brightened fields. Costal border not expanded near the sigma, as in *lagganensis*. Venation: Sc_1 ending about opposite one-fifth to one-third the length of R_2+3+4 , Sc_2 a short distance from its tip; R_2+3+4 elongate, subequal to or a little shorter than the nearly equal R_s and R_3 ; *m-cu* at or a short distance before the fork of M_3+4 .

Abdominal tergites brown, the sternites obscure yellow or brownish yellow, with blackish pruinose posterior borders to produce a ringed appearance, these annuli becoming more extensive on outer segments. Ovipositor with cerci relatively broad, at apex suddenly narrowed into a cultriform or obtuse blade. The lower margin with 8 to 10 teeth, the outermost largest, the others becoming smaller and more crowded. In *encausta*, the tip of each cercus is less abruptly narrowed and the marginal teeth are more numerous and distinct.

Habitat: California (Tulare County).

Holotype: ♀, Sequoia National Park, June 6-8, 1942 (Otto Degener).

Paratopotypes: 5 ♀ ♀.

Phyllolabis sequoiensis is entirely distinct from all other known species, evidently being most nearly related to *P. encausta* Osten Sacken. This latter fly differs conspicuously in the slightly patterned wings, including a dark brown stigma, and in the nature of the serrations along the ventral margins of the cerci.

In our fauna, *Phyllolabis* comprises a rather extensive group of essentially far western species, all differing among themselves in a wealth of characters in the male hypopygium, with lesser distinctions in the structure of the ovipositor. Of these species, the present fly and *P. encausta* have the cerci most conspicuously serrate, most of the others having this organ slender and with smooth margins. It is of interest to note that a closely parallel condition of the ovipositor is found

in the evidently unrelated genus *Aphrophila* Edwards, with several species in New Zealand and southern Chile, and that all of these latter species whose immature stages are known are strictly aquatic, almost as in the Blepharoceridae. Whether this parallelism of habits will be found to occur in *Phyllolabis* is unknown. The geographical distribution of *Phyllolabis* throughout its range is most noteworthy. A very few species occur in northern Europe, with a marked concentration of forms in the Himalayan region of India and southwestern China, though with none occurring in Japan or coastal eastern Asia. In North America, most of the species are restricted to the Pacific states and provinces, extending from British Columbia and Alberta, south to the Mexican border in southern California, with an evident concentration of forms in the Californian and Mohavian biotic provinces. A single species, *P. lagganensis* Alexander, has an unusually extensive range in the central and northern Rocky Mountains, thence eastward, recurring on the highest mountains of northern New England (New Hampshire; Vermont; Mt. Mansfield).

Phyllolabis meridionalis n. sp.

Size relatively small (wing, male, 6.5 mm. or less); general coloration gray; antennae dark throughout; wings with a pale brownish suffusion, the stigma elongate but very pale; no darkened seam along vein *Cu*; R_2+3+4 elongate, subequal to *Rs*; male hypopygium with the inner apical angle of basistyle produced into a small pale spinous point; dististyle bilobed, the inner lobe broadly and obtusely rounded, the outer one produced into a subacute point.

Male. Length about 5.5-6 mm.; wing 6-6.5 mm.

Rostrum gray; palpi brownish black. Antennae black throughout, the scape more or less pruinose; flagellar segments subcylindrical. Head brownish gray, somewhat clearer gray along the orbits; anterior vertex approximately four times as wide as the diameter of the scape.

Pronotum brownish gray. Mesonotum dark gray, the praescutum with an ill-defined more brownish median stripe; pseudosutural foveae short-oval in outline; dorsopleural membrane buffy brown. Halteres with stem pale, knobs broken. Legs with coxae brown, gray pruinose; trochanters obscure brownish yellow; remainder of legs light brown, the outer tarsal segments brownish black. Wings with a pale brownish suffusion, the prearcular field slightly yellowed; stigma much paler and more elongate than in *claviger*, inconspicuous; no darkened seam along vein *Cu* as in *claviger*; veins brown, yellow in the prearcular field. Venation: R_2+3+4 elongate, subequal to or nearly as long as *Rs*; veins R_3 and R_4 divergent, so cell R_3 at margin is equal to or more extensive than cell R_2 .

Abdominal tergites dark brown, the sternites much paler, obscure brownish yellow; hypopygium with the styli brownish yellow, the appendage of the ninth sternite still paler yellow. Male hypopygium most similar to that of *claviger* but differing in important details, particularly of the basistyle and dististyle. Basistyle with its apex broad, the inner apical angle produced into a small pale spinous point, the outer lateral angle extended into a conspicuous setiferous lobe; pendulous lobe of basistyle bulbous at apex, the free caudal portion oval, the distal part densely short-setiferous, appearing more or less like a cap over the more nearly glabrous body of the lobe. Dististyle bilobed, the inner or caudal lobe broadly and obtusely rounded, the outer arm still broader, at its apex with the outer angle produced into a subacute point. Spines of gonapophyses appearing as relatively short, very slender, acute rods. Appendage of ninth sternite pale, slightly wider across base, the apical third with a deep median split, the lateral lobes obliquely truncate. In *claviger*, the outer apical angle of the basistyle is produced into a strong, dark-colored lobe, the fleshy setiferous lobe likewise differently formed. Dististyle a relatively simple blade, near the outer two-thirds bent at a right angle to the narrow obtuse tip.

Habitat: California (San Diego County).

Holotype: ♂, Alpine, April 10, 1915 (M. C. Van Duzee).

Paratopotype: 1 ♂, April 11, 1915. Further specimens in Van Duzee Collection under the name "*claviger* Osten Sacken".

I had earlier determined this species as being *Phyllolabis claviger* Osten Sacken but with ample material of the latter now available, there is no question of the distinctness of the present fly. The essential characters for the differentiation of the two species have been given in the above description. In life, this species was found to be associated with *Phyllolabis flavida* Alexander, one of the most isolated members of the entire genus.

***Phyllolabis myriosticta* n. sp.**

General coloration dark plumbeous gray; wings whitish subhyaline, very heavily spotted and dotted with brown, the dots occurring in virtually all the cells and becoming more or less confluent; ovipositor with the cerci relatively slender, the ventral edge back from the apex microscopically toothed.

Female. Length about 7 mm.; wing 7.4 mm.

Rostrum and palpi black. Antennae with scape and pedicel dark brown, the former sparsely pruinose; flagellum obscure brownish yellow, the outer segments more infuscated; flagellar segments subcylindrical, broader just before the middle of their length and here with conspicuous verticils that are a little shorter than the segments; terminal segment subequal in length to the penultimate. Head dark gray, with dark-colored setae from brown setigerous punctures; anterior vertex a little less than three times the diameter of scape.

Pronotum brownish gray, the scutellum obscure brownish yellow. Mesothorax dark plumbeous gray, without pattern; pseudosutural foveae small, oval, black; dorsopleural membrane infuscated. Halteres with stem pale, particularly at base, knob infuscated. Legs with the coxae dark gray pruinose; trochanters yellowish brown to light brown; remainder of legs broken. Wings whitish subhyaline, very heavily spotted with dark brown and variegated with an abundance of paler brown dots in all the cells; the larger brown areas occur over arculus at origin of R_s ; fork of Sc , continued backward over the anterior cord; extensive brown areas at tip of vein R_3 and over outer end of cell 1st M_2 ; the paler dots are so abundant as to be confluent in most of the cells, their total area subequal to or greater than that of the interspaces; the dots along the interspaces of the cephalic quarter of wing much more sparse but darker and with more clearly defined borders; veins brownish yellow in the ground areas, darker in the patterned fields. Venation: Sc_1 ending a short distance beyond level of fork of R_s , Sc_2 shortly before this fork; R_s angulated and short-spurred near origin; R_2+3+4 a trifle shorter than R_3 ; cell 1st M_2 about one-half of vein M_3 beyond it; *m-cu* at fork of M_3+4 .

Abdomen dark brown, sparsely pruinose. Ovipositor with cerci relatively slender, produced at apex into a small cultrate point, the ventral edge back from the tip for more than one-third the length with about eight or nine small obtuse denticles, the more basal ones becoming very low and ill-defined.

Habitat: California.

Holotype: ♀, Ortega Highway, March 28, 1935 (A. L. Melander).

Phyllolabis myriosticta is entirely different from all known species of the genus by the heavily patterned wings. All others have the wings unpatterned or virtually so, except for the stigmal darkening, when this is present. I am indebted to Mr. John L. Sperry and Dr. Melander for more explicit information as to the type locality of this fly. It is believed that the type was taken along the Ortega Highway close to the Riverside County-Orange County line, probably in Riverside County between Elsinore and San Juan Capistrano and perhaps at an altitude of about 2,000 feet.