Excerpt from The Canadian Entomologist, November, 1945

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

BY CHARLES P. ALEXANDER,
Massachusetts State College, Amherst, Mass.

The preceding part under this title was published in 1946 (Can. Ent., 77:186-191). I am here discussing a number of species from the western United States, chiefly from Oregon and California, where they were collected by my friends, Messrs. T. H. G. Aitken, Mont A. Cazier, Kenneth M. Fender and Lawrence W. Saylor, to whom I am greatly indebted for the privilege of retaining the types in my collection. A few additional species were taken by myself in Arizona and Wyoming.

Lipsothrix fenderi n. sp.

Size large (wing, ♂, about 10 mm.); general coloration of thorax whitish; antennae short; central portion of vertex and the basal abdominal tergites weakly infuscated; halteres white; femora white, the tips narrowly blackened; wings uniformly whitish; no macrotrichia in cells of wing; $R_2+_3+_4$ in longitudinal alignment with R_2+_3; cell 1st M_2 large, subequal in length to vein M_4; *m-cu* at or just beyond the fork of *M*; male hypopygium with the outer dististyle long and slender, the apical spine unusually elongate.

Male. Length about 8 mm.; wing 10 mm.; antenna about 1.4 mm.

Female. Length about 8 mm.; wing 9 mm.

Rostrum whitish; palpi very pale brown. Antennae short, as shown by the measurements; scape whitish; pedicel very pale brown, flagellum a trifle darker brown; flagellar segments oval to long-oval, with truncated ends; longest verticils exceeding the segments in length; setae sparse and scattered. Head with front, cephalic portion of anterior vertex and the occiput whitish, the remainder of vertex pale grayish brown; anterior vertex broad, exceeding three times the diameter of the scape.

Pronotum whitish. Mesothorax almost uniformly whitened, the praescutal stripes not or scarcely indicated. Halteres relatively elongate, white. Legs with the coxae and trochanters whitened; femora white, the tips narrowly infuscated or blackened; tibiae white, the tips very narrowly infuscated, the bases more or less darkened; tarsi white, the outer segments weakly darkened; claws (♂) with the outermost spine much smaller and weaker than the penultimate one; in ♀ the spines present but weaker. Wings uniformly whitish; veins pale brown, more whitened in the stigmal and prearcular fields. No macrotrichia in cells of wing. Venation: Sc_1 ending just beyond level of *r-m*, Sc_2 close to its tip; $R_2+_3+_4$ in longitudinal alignment with R_2+_3, R_4 leaving at a right or strong angle, at its tip deflected strongly caudad, narrowing cell R_4 at the margin; cell *1st* M_2 large, subrectangular, nearly equal in length to vein M_4; *m-cu* at or just beyond the fork of *M*.

Abdominal tergites two to five weakly infuscated, with pale borders, the succeeding segments paler brownish yellow, only the eighth segment pale brown. Male hypopygium with the outer dististyle long and slender, the apex beyond the small ventral spine being unusually elongate; inner dististyle arcuate, narrowed outwardly, without a prominent basal dilation. Interbase strong, the apical spines long and straight.

Habitat. Oregon (Yamhill County).

Holotype. ♂, Peavine Ridge, near McMinnville, Station 3, altitude 605 feet, October 23, 1945 (K. M. Fender). *Allotopotype.* ♀. *Paratopotypes,* several ♂ ♀, September 18 to October 23, 1945 (K. M. Fender).

I take great pleasure in dedicating this very distinct fly to the collector, Mr. Kenneth M. Fender, to whom I am particularly indebted for many Tipulidae from Oregon. The species is entirely distinct from the other described American species. From the others so far discovered in western North America, including *Lipsothrix nigrilinea* (Doane) and *L. shasta* n. sp., it is readily dis-

tinguished by the general pale coloration, short antennae, and lack of macrotrichia in the wing cells. The genus *Lipsothrix* Loew (*Electrolabis* Alexander) is a vastly ancient one, with one species in the Baltic amber (Lower Oligocene) and about a score of recent forms, well distributed throughout the Northern Hemisphere, with one species occurring as far south as Panama.

Lipsothrix shasta n. sp.

General coloration yellow, the mesonotum patterned with dark brown, the dark color not involving the abdominal tergites, as in *nigrilinea*; antennae (♂) moderately long, flagellar segments longer than the verticils; femora yellow, the tips narrowly and abruptly blackened, tibiae yellow, the tips more narrowly infuscated; wings with a yellowish tinge, the prearcular and costal regions more saturated yellow; sparse macrotrichia in outer ends of all cells from R_2 to M_4, inclusive; $R_2+_3+_4$ in virtual longitudinal alignment with R_4; inner end of cell R_4 lying more basad than cell *1st* M_2; abdomen obscure yellow, with a blackened subterminal ring.

Male. Length about 8-10 mm.; wing 9-11 mm.; antenna about 2.5-2.8 mm.

Rostrum light yellow; palpi infuscated. Antennae (♂) moderately elongate, as shown by the measurements, but shorter than in the corresponding sex of *nigrilinea* (antenna, ♂, about 4 mm.); scape and pedicel yellow, succeeding flagellar segments weakly bicolored, infuscated on the upper face, yellowed beneath; outer segments uniformly dark brown; flagellar segments subcylindrical, exceeding the longest verticils; besides the latter, the segments provided with a dense erect pubescence. Head above more or less infuscated, pale in front and on the occipital region.

Pronotum dark brown medially, paling to yellow on the sides. Mesonotum extensively infuscated, including a central praescutal stripe, more or less expanded onto the region of the usual lateral stripes; scutal lobes and scutellum even more blackened; mediotergite similarly infuscated; parascutella and pleurotergite pale; humeral region of praescutum extensively pale yellow. Pleura, in cases, uniformly pale yellow; in other specimens, the propleura and extensive areas on the mesopleura pale brown, the latter especially conspicuous on the ventral anepisternum, sternopleurite and pteropleurite. Halteres with stem brownish yellow, knob weakly infuscated. Legs with coxae and trochanters pale yellow, in cases the posterior coxae weakly infuscated; femora yellow, the tips abruptly and conspicuously blackened, the amount subequal on all legs, involving about the distal ninth or tenth; tibiae yellow, the tips more narrowly infuscated; tarsi pale yellow, the terminal segment infuscated; claws conspicuously spined, with two or three subequal major spines, the outermost as large as or larger than the penultimate. Wings with a yellowish tinge, the prearcular field and cells *C* and *Sc* even more saturated yellow; veins brown, more yellowed in the saturated fields. Macrotrichia present in outer cells of wing, from R_2 to M_4, inclusive, but sparser and more restricted to the outer ends of the cells than in *nigrilinea*; stigmal trichia variable, from very sparse or virtually lacking to more abundant. Venation: *Sc* relatively short, Sc_1 ending just beyond the fork of *Rs*, Sc_2 near its tip; $R_2+_3+_4$ in virtual longitudinal alignment with R_4; inner end of cell R_4 lying more basad than cell *1st* M_2; *m-cu* some distance beyond the fork of *M*, varying from about one-fifth to more than one-half its own length.

Abdominal segments obscure yellow, the tergites narrowly more darkened on lateral portions; a subterminal black or brownish black ring, involving much of segments seven to nine, inclusive; remainder of hypopygium obscure yellow. Male hypopygium of the general type of the genus, differing from *nigrilinea* and others merely in details.

Habitat. California (Shasta County).

Holotype. ♂, Hatchet Mountain Pass, Burney, altitude 4370 feet, May 30, 1939 (T. H. G. Aitken & Mont A. Cazier). *Paratopotypes.* 2 ♂ ♂.

Lipsothrix shasta is closest to *L. nigrilinea* (Doane), which differs conspicuously in the elongate antennae, different coloration of the legs and abdomen, the more abundant trichia in the outer cells of wing, and in other characters.

Gonomyia (Gonomyia) abyssa n. sp.

Allied to *spinifer;* antennal scape and pedicel darkened; head above uniformly brown; male hypopygium with the apex of lower arm of the inner dististyle a broadly obtuse pale blade, the fasciculate setae subterminal in position; phallosome terminating in a blackened spine; gonapophyses short, nearly equal in size and shape, appearing as nearly straight darkened spines that subtend the aedeagus, both acute at tips.

Male. Length about 3.3 mm.; wing 3.8 mm.

Rostrum and palpi brownish black. Antennae of type black throughout, the scape and pedicel not brightened; in the paratype, presumed to be conspecific, scape and pedicel yellow. Head uniformly brown.

Pronotum and pretergites yellow. Mesonotal praescutum and scutum chiefly grayish brown, the humeral region of the praescutum more yellowed; median region of scutum obscure yellow; scutellum brownish basally, more testaceous yellow at apex; mediotergite yellow, darkened on posterior border. Pleura and pleurotergite yellow, with a narrow but conspicuous brown longitudinal stripe from the cervical region, extending backward across the dorsal pleurites and ventral pleurotergite to the mediotergite, as described. Halteres with stem yellow, knob weakly darkened. Legs with coxae and trochanters yellow; remainder of legs pale brown, the terminal tarsal segments darker. Wings subhyaline, stigma very faintly darker; prearcular and costal regions more whitened; veins pale brown. Venation: *Sc* short, Sc_1 ending a distance before the origin of *Rs* about three-fourths the length of the latter, Sc_2 some distance from its tip; cell M_2 open by the atrophy of basal section of M_3; *m-cu* a short distance beyond the fork of *M*.

Abdominal tergites chiefly brown, the posterior borders and lateral angles yellow; sternites and hypopygium yellow. Male hypopygium with the outer dististyle broad, terminating in a small triangular more sclerotized point; spine of outer margin long and acute. Inner dististyle with the outer arm a narrow pale blade, its apex narrowly obtuse; lower arm much stouter, the apex broadly obtuse; fasciculate setae subterminal in position, the arm only a little longer than the apical lobe of the basistyle. Phallosome with a black apical spine, somewhat as in *spinifer;* gonapophyses short, nearly straight or gently sinuous, subequal in size and shape, both directed caudad; one of the spines is a trifle broader but scarcely longer than the other.

Habitat. Arizona (Coconino County).

Holotype. ♂, Bright Angel Creek, near Phantom Ranch, near bottom of Grand Canyon, altitude 2500 feet, June 14, 1942 (C. P. Alexander). *Paratopotype,* 1 broken specimen, pinned with type.

Allied to *Gonomyia (Gonomyia) spinifer* Alexander, widely distributed in the southwestern United States (Trans-Pecos Texas to southern California), differing especially in slight but important characters in the male hypopygium, particularly the dististyles and phallosome, such as the short subequal gonapophyses.

Gonomyia (Gonomyia) percomplexa n. sp.

Belongs to the *noveboracensis* group; thoracic pleura conspicuously striped longitudinally with silvery white and dark brown; knobs of halteres weakly infuscated; wings with cell M_2 open by the atrophy of basal section of M_3; *m-cu* at fork of *M*; male hypopygium with the outer dististyle slender, narrowly darkened at apex and here provided with a small group of eight or nine blackened points; apex of intermediate style dilated, with a single marginal row of about ten long pale setae; phallosome very complex in structure, as in the group, in-

cluding several points and spines on either side, and two pendant plates or blades that are densely fringed with long dark-colored setae.

Male. Length about 5 mm.; wing 5.2 mm.

Rostrum obscure yellow; palpi black. Antennae with basal segments black, flagellum somewhat paler, the segments elongate. Head dark gray, the posterior portions variegated with obscure orange.

Pronotum chiefly very pale yellow. Mesonotal praescutum yellow laterally, with three brown stripes that are more or less confluent in front, the scutal lobes similarly darkened, the surface more or less pollinose to obscure the limits of the areas; median region of scutum and scutellum yellow, the latter brighter; mediotergite brownish gray, the sides obscure yellow. Pleura striped with brown and silvery white, the latter including a broad line from behind the fore coxae to the base of abdomen, more narrowed behind; dorsopleural membrane pale yellow; dorsal brown stripe darker, the ventral one reddish brown, best-developed on the sternopleurite. Halteres with stem yellow, knob weakly darkened. Legs with the coxae and trochanters yellow; femora brown, the bases paler; tibiae and tarsi obscure yellow, the terminal tarsal segments darker. Wings grayish subhyaline, the prearcular and costal cells more yellowed, especially the former; stigma very diffusely and vaguely more darkened; veins brown, yellow in the brightened portions. Venation: Sc_1 ending shortly before the origin of *Rs*, Sc_2 subequal to Sc_1; vein R_3 oblique, about one-third as long as R_4; cell M_2 open by the atrophy of the basal section of M_3; *m-cu* at fork of *M*.

Abdomen dark brown, the incisures narrowly more whitened; hypopygium yellow. Male hypopygium with the outer dististyle slender, at apex narrowly darkened and provided with a small group of eight or nine blackened points; all on the inner face, some stouter than the others; intermediate style much dilated at apex, the outer angle produced into an acute point; apex of style with a single row of about ten long pale setae; inner dististyle expanded on lower margin beyond midlength and here bearing a long stout seta, with three similar powerful setae grouped at apex around a long spine that is about one-half the length of the longest seta. Face of basistyle with a compact group of from 25 to 30 sensory areas bearing long setae. Phallosome large and exceedingly complex in structure, as in the group, including two flattened pendant plates or blades that are densely fringed with long dark-colored setae; central body of phallosome terminating in several points and spines on either side, in addition to flattened pale blades and fimbriations.

Habitat. Oregon (Yamhill County); California (Santa Cruz County).

Holotype. ♂, Peavine Ridge, near McMinnville, Oregon, June 6, 1945 (K. M. Fender). *Paratype.* ♂, Ben Lomond, Santa Cruz County, California, altitude 1500 feet, June 1, 1945 (L .W. Saylor).

The present fly is readily told from the other members of the group by the open cell M_2 and by the details of structure of the male hypopygium. As now known, a very few species constitute the group, including two in Europe (*edwardsi* Lackschewitz and *ithyphallus* Lackschewitz); one in Japan (*horribilis* Alexander); three in western North America additional to the present species (*aciculifera* Alexander, *sevierensis* Alexander, and *tetonensis* n. sp.), and one in eastern North America (*noveboracensis* Alexander), the last being the first described and considered the type of the group.

Gonomyia (Gonomyia) tetonensis n. sp.

Belongs to the *noveboracensis* group; close to *aciculifera* Alexander (Oregon to California) and *sevierensis* Alexander (southern Utah), differing in many details of structure of the male hypopygium.

Basistyle without a group of greatly elongated modified setae on face, as in *sevierensis*, these being restricted from six to seven scattered punctures that bear setae of ordinary size only. Outer dististyle with the apical spatula relatively small. Intermediate style with the apex obliquely truncated, the outer angle un-

darkened and only moderately produced; inner angle a low flange; marginal setae varying from about five to eight. Inner style slender, the tooth on lower margin small and obtuse; apical spine present but small. Phallosome with the terminal spine of the setuliferous arm relatively small and weak, only about half as large as the subapical one; basal spine glabrous, not provided with scabrous points, as in *sevierensis*.

Habitat. Wyoming (Teton County).

Holotype. ♂, Teton National Forest, at Arizona Creek, near Jackson Lake, altitude 6790 feet, July 2, 1941 (C. P. Alexander). *Allotopotype.* ♀, mounted with the type. *Paratopotypes.* Several of both sexes, July 2-8, 1941.

In my detailed report on the Tipuloidea of the Grand Teton National Park (Amer. Midl. Nat., 33:391-439, 1945) this fly had been recorded as being *aciculifera*; in this report a detailed discussion of the type locality is provided (pages 394-395).

Erioptera (Ilisia) unduligera n. sp.

General coloration light gray; antennae black, pedicel enlarged; halteres with knobs infuscated; legs blackened; wings grayish subhyaline, the prearcular field more yellowed; stigmal region vaguely and very diffusely infuscated; vein R_{2+3+4} suberect, only about one-half longer than the basal section of R_5; cell 1*st* M_2 closed, *m* less than one-half as long as basal section of M_3; M_{3+4} and basal section of M_3 subequal; vein 2*nd A* rather strongly sinuous; abdomen dark brown, the posterior borders of the segments obscure yellow.

Female. Length about 4.5 mm.; wing 5 mm.

Rostrum and palpi black. Antennae black; pedicel enlarged; flagellar segments subcylindrical. Head above black, paler in front and on orbits.

Pronotum darkened medially, paling to whitish on sides. Mesonotal praescutum and scutum discolored, presumably light gray, patterned with darker; humeral region of praescutum yellow; central area of scutum and outer posterior angles of scutal lobes obscure yellow; postnotum light gray pruinose, the cephalic lateral portions of mediotergite and much of the anapleurotergite yellow. Pleura light gray pruinose, the ventral portion with a grayish yellow longitudinal stripe, this narrowly margined with darker on ventral edge of the more posterior pleurites; dorsopleural region grayish yellow. Halteres with stem yellow, knob infuscated. Legs with the coxae and trochanters obscure yellow; fore coxae darker; remainder of legs blackened, the femoral bases narrowly more brightened. Wings grayish subhyaline, the prearcular field more yellowed; stigmal region vaguely and very diffusely infuscated; veins brown, *Sc*, *R* and the prearcular veins more yellowed. Venation: Sc_1 ending nearly opposite R_2, Sc_2 just beyond one-fourth the length of *Rs*, the latter long, about equal to vein R_3; R_{2+3+4} suberect, only about one-half longer than the basal section of R_5; cell 1*st* M_2 closed, small, *m* less than one-half as long as the basal section of M_3, M_{3+4} and basal section of M_3 subequal; vein 2*nd A* rather strongly sinuous.

Abdomen dark brown, the posterior borders of the tergites obscure yellow, of the sternites more narrowly and inconspicuously so; subterminal segments obscure brownish yellow; cerci long and slender, gently upcurved.

Habitat. Oregon (Klamath County).

Holotype. ♀, Bly, altitude 4360 feet, June 13, 1945 (K. M. Fender).

Erioptera (Ilisia) unduligera is very different from the other described members of the subgenus in its venation and unpatterned wings. In this latter regard it more nearly resembles *Erioptera (Mesocyphona) melanderiana* Alexander, which differs in the venational details, especially the length and course of vein R_{2+3+4} and the shape of cell 1*st* M_2, with *m* and the basal section of vein M_3 subequal. The discovery of the male sex will settle the subgeneric position of this fly.