

UNDESCRIBED SPECIES OF NEARCTIC TIPULIDAE (DIPTERA) VIII

Charles P. Alexander¹

The species discussed herewith are from Alaska and the Canadian Northwest, having been collected by the late Owen Bryant, William C. Frohne, and by members of the Alexander-Smith collecting expedition to Alaska in 1952, including Mr. David L. Carson, Dr. Marion E. Smith, and the writer. A brief account of this trip may be found in an earlier paper (Alexander, C. P. The crane-flies of Alaska. Univ. Michigan, Mus. Zool., Misc. Publ. 90: 7; 1955). I express my sincere thanks to all of the above for the privilege of retaining the types of the species concerned.

Tipula (Arctotipula) smithae, n.sp.

Allied to *miyadii*; general coloration of thorax blackened, heavily light gray pruinose, praescutum with four darker gray stripes; antennae relatively long, black throughout; femora brownish yellow, tips abruptly black, claws of male toothed; wings light brown, stigma freckled by light brown dots; male hypopygium with tergal lobes doubled by having a secondary lobule beneath each; outer dististyle broad, inner style with beak very slender, outer margin of style near base with a small lobule.

MALE.—Length about 15.5 mm.; wing 14.5 mm.; antenna about 4.3 mm.

Frontal prolongation of head brown, heavily light gray pruinose; nasus elongate, with long brownish yellow setae; palpi dark brown. Antennae black; scape elongate, nearly equal to the following three segments combined; basal enlargements of flagellar segments moderately developed, verticils shorter than segments. Head light gray, clearer on front and orbits, posterior vertex with vague indications of a brownish central line.

Pronotal scutum dark gray, scutellum horn yellow. Mesonotal praescutum blackened, heavily light gray pruinose, disk with four darker gray stripes, the intermediate pair narrow, united at anterior ends; posterior sclerites of notum blackened, heavily pruinose, parascutella conspicuously horn yellow; vestiture of notum whitened, relatively short and inconspicuous. Pleura darkened, heavily gray pruinose, dorsopleural membrane brownish yellow. Halteres with stem brownish yellow, knob light brown, apex pale. Legs with coxae light gray, with long pale setae; trochanters dark gray; femora brownish yellow, tips abruptly black; tibiae brownish yellow, inconspicuously darkened at outer end; tarsi black, proximal end of basitarsi paler; claws of male setuliferous, with a stout erect spine at

¹Amherst, Massachusetts

near midlength. Wings tinged with light brown, costal field only slightly darker; stigma darker, the pattern comprised of microscopic brown dots; veins brown. Veins posterior to R glabrous, as common in the subgenus. Venation: R_s about two and one-half times R_{2+3} ; petiole of cell M_1 a little less than m ; M_{3+4} short, from about one-third to two-thirds the basal section of M_{1+2} .

Abdomen with basal segment dark brownish gray, succeeding tergites orange yellow with a narrow dark brown central line that is interrupted at the posterior borders of the segments, lateral margins broadly yellowed; basal sternites dull orange, vaguely darkened medially; fifth and succeeding segments blackened, pruinose. Male hypopygium with lobes of tergite broadly obtuse to subtruncate at tips, separated by a narrow U-shaped emargination; lobes with a smaller darkened secondary lobule beneath each; surface of tergal plate with very abundant short black setae almost to base. Outer dististyle relatively broad, widest across the basal half, setae relatively long, pale yellow, inconspicuous; inner style with beak very slender, narrowed gradually outwardly, tip subacute, spine at base blackened, gently curved; outer margin of style at base in region of the outer basal lobe setiferous and bearing a small lobule. Phallosome with aedeagus slender, the apophyses nearly as long, narrow, the outer half membranous. Eighth sternite with posterior border very gently convex, unmodified; setae small, not crowded.

HABITAT.— Alaska.

HOLOTYPE, ♂, Sable Pass, McKinley National Park, along the park highway, July 20, 1952 (Marion E. Smith).

The species is dedicated to the collector, Dr. Marion Estelle Smith, of the Entomological Department of the University of Massachusetts. The most similar species is *Tipula* (*Arctotipula*) *miyadii* Alexander, described from Paramushir Island, in the northern Kurils (Kuriles), Soviet Union. The latter differs in the shorter antennae, simple tarsal claws of male, uniformly darkened stigma, and especially in the details of the hypopygium, including the tergite and both dististyles. The beak of the inner style in the present fly is the most slender of any species of the subgenus so far made known.

Tipula (*Yamatotipula*) *toklatensis*, n.sp.

Size medium (wing of male to 13 mm.); general coloration of head and thorax opaque gray, praescutum with four darker brown stripes, notal vestiture short; wings faintly tinged with brown, stigma dark brown, R_s long, about twice R_{2+3} , cell M_1 deep, M_{3+4} very short; abdomen with proximal tergites reddish, patterned with brown, sternites and outer segments dark brown; male hypopygium with posterior border of tergite produced into two parallel lobes provided with spinoid setae; outer dististyle elongate, expanded outwardly; phallosome simple, gonapophyses not developed; eighth sternite with central area of posterior border pale yellow, membranous, on either side with very long pale setae.

MALE.— Length about 12-13 mm.; wing 12-13 mm.; antenna about 5 mm.

FEMALE.— Length about 14-15 mm.; wing 9-11 mm.; antenna about 2.5 mm.

Frontal prolongation of head dark brown above, broadly yellowed on sides, in cases the ventral surface weakly infuscated; nasus black, with long yellow setae; palpi dark brown. Antennae brownish black; flagellar segments of male with basal enlargements slightly developed, verticils shorter than the segments. Head light gray, occipital region restrictedly patterned with yellow.

Pronotal scutum gray, scutellum yellowed. Mesonotal praescutum light gray, with four darker brown stripes, the broad central area somewhat paler, with a further vague darkened median line, interspaces with numerous very short yellow setae; scutum light gray, lobes vaguely darkened; posterior sclerites gray, parascutella light brown; pleurotergite gray, katapleurotergite with an elongate more yellowed area; vestiture of notum unusually short and inconspicuous. Pleura light gray, dorsopleural region buffy yellow; vestiture of ventral pleurites short and inconspicuous. Halteres with stem light brown, knob dark brown. Legs with coxae gray, with long pale setae; trochanters brownish yellow; femora and tibiae light brown, tips brownish black; tarsi black, claws of male with a strong tooth. Wings faintly tinged with brown, stigma oval, dark brown; veins brown. Wings of female proportionately a little smaller than those of male. Veins beyond cord with numerous trichia, including also the outer ends of *M*, *Cu* and 2nd *A*. Venation: *Sc* long, *Sc*₂ ending shortly beyond midlength of *Rs*, the latter long, about twice *R*₂₊₃; cell *M*₁ very deep, the petiole short, commonly about one-fourth to one-fifth *m*, in cases the two veins subequal; *M*₃₊₄ very short, in cases punctiform, *m-cu* at base of *M*₄.

Abdomen with basal segment gray, yellowed basally, tergites two to five reddish, darkened medially and less evidently as narrow sublateral lines, the lateral borders yellowed, sternites and outer segments dark brown, styli of male hypopygium light brown; abdominal vestiture relatively short, yellow, long and conspicuous on eighth sternite of male, as described. Ovipositor with cerci long and slender, straight, narrowed very gradually to the subacute tips, hypovalvae much shorter. Male hypopygium generally as in *Yamatotipula*, especially the tergite and inner dististyle, the other features, especially the outer dististyle and phallosome, different. Suture between tergite and the large basistyle indicated distally, ventral suture conspicuous, blackened, its cephalic end curved dorsally. Ninth tergite transverse, median area of posterior border produced into two lobes that are provided apically with numerous spinoid setae, the emargination narrow; outer lateral angles of tergite broadly rounded, provided with numerous small setae. Outer dististyle elongate, strongly expanded outwardly, widest across apex; inner style with beak slender, dorsal crest low; region of outer basal lobe large and complex, including a narrowed blackened lobe that occupies the position

normal for the lower beak, and a broader flattened plate with three acute points along its margin, the most basal one larger. Phallosome a simple rod, terminating in a small decurved subapical point, apophyses apparently not developed. Eighth sternite extensive, posterior border with a broad central light yellow membranous area, the margin thus appearing generally concave; on either side of midline the tergite with a concentration of very long pale setae.

HABITAT.— Alaska.

HOLOTYPE, ♂, Toklat River, McKinley National Park, along the park highway, July 20, 1952 (David L. Carson). ALLOTOPOTYPE, ♀, pinned with a paratype male. PARATOPOTYPES, 14 ♂♂, 1 ♀, with the types, on six pins.

I am assigning this interesting species to the subgenus *Yamatotipula* Matsumura with some question. While agreeing in some features of the hypopygium, including the tergite and inner dististyle, the fly differs in other respects, as the outer dististyle, phallosome, and eighth sternite. In its general appearance it suggests species such as *Tipula* (*Yamatotipula*) *dejecta* Walker, *T. (Y.) grenfelli* Alexander, and others. Certain features of venation and hypopygial structure likewise suggest the genus *Nephrotoma* Meigen but the species unquestionably is referable to the assigned genus.

Erioptera (Psiloconopa) chaetophora, n.sp.

Size small (wing of male about 4 mm.); general coloration of head and thorax light gray; head and thorax, including the pleura, with conspicuous stout black setae; tips of femora and tibiae slightly dilated; wings pale brown, veins unusually glabrous, cell M_2 open by atrophy of basal section of M_3 ; male hypopygium with outer dististyle blackened, terminating in three unequal points or blades; arms of aedeagus long and sinuous, narrowed gradually into slender points.

MALE.— Length about 4.5 mm.; wing 4.1 mm.

Rostrum brown, palpi black. Antennae with scape obscure yellow, pedicel brownish black, flagellum black; flagellar segments oval, the terminal pair partially fused; verticils shorter than the segments, the outer ones longer. Head light gray, vertex and genae with stout black setae, the more lateral ones longer, all slightly porrect.

Thoracic dorsum light gray, pseudosutural foveae black; scutellum dark brown medially, more reddened behind, parascutella obscure yellow; pronotum, praescutal interspaces and mesal parts of scutal lobes with conspicuous stout erect black setae. Pleura variegated light yellow and gray, the latter pattern including the ventral anepisternum, sternopleurite, meron and metapleura; sparse scattered erect black setae on all pleural sclerites with the exception of the meron. Halteres light yellow. Legs with coxae grayish brown, with sparse black setae; trochanters obscure yellow; femora brownish yellow, tips of fore and middle pairs narrowly dilated, brownish black, the posterior pair scarcely enlarged or darkened; tibiae of all legs obscure yellow, bases and the slightly dilated apices dark brown

to brownish black; proximal tarsal segments yellow, outer three brownish black to black; vestiture of legs small and weak, longer at tips of all segments. Wings pale brown, prearcular and costal fields light yellow, stigma scarcely more darkened; veins pale brown, more yellowed in the brightened fields. Wing veins unusually glabrous, the costal series short; sparse scattered trichia on veins R_1 and R_{1+2} , with about fifteen on distal section of R_5 , concentrated on outer third. Venation: Sc_1 ending about four-fifths R_s , Sc_2 retracted; R_{2+3+4} slightly longer than R_{2+3} or basal section of R_5 ; cell M_2 open by atrophy of basal section of M_3 ; cell 2nd M_2 longer than its petiole, m lacking, vein M_3 being in nearly longitudinal alignment with M_{1+2} ; $m-cu$ shortly before fork of M ; Anal veins divergent, 2nd A curved gently to margin.

Abdominal tergites brownish gray, lateral borders light yellow; sternites and hypopygium brownish yellow. Male hypopygium with tergite relatively small and narrow, posterior border nearly truncate. Basistyle slender, dististyles terminal; outer style blackened distally, bifid at apex, the smooth blade unequally bispinous, the second blade with microscopic denticles at apex and along outer margin; inner style very broad, smooth, apex obtuse. Gonapophyses appearing as simple blackened hooks, the outer third somewhat angularly bent into a long spine. Arms of aedeagus appearing as longer pale blades that narrow very gradually into very slender divergent spines.

HABITAT.— Canadian Northwest Territories.

HOLOTYPE, ♂, Good Hope, District of Mackenzie, along Mackenzie River, August 22, 1929 (Owen Bryant); No. 73. Note attached by Bryant "Has this thing got rheumatism?", referring to the enlarged apices of the femora and tibia.

The present fly is quite distinct from all other regional members of the subgenus in the chaetotaxy of the head and thorax, the venation, particularly of the medial field, the nearly glabrous wing veins, and the hypopygial structure. In its venation it is most similar to *Erioptera* (*Psiloconopa*) *mckinleyana* Alexander, of Alaska, which is readily told by the lack of modified body setae, normal legs, trichiation of the wing veins, and the structure of the male hypopygium.

Erioptera (*Symplecta*) *platymera*, n.sp.

General coloration of thorax brownish gray, patterned with darker brown and light yellow; wings faintly tinted, with diffuse brown markings; male hypopygium with dististyles terminal, outer style ending in either three or four blackened points, inner style a flattened blade that is gently widened outwardly, apex very obtuse to subtruncate; gonapophyses appearing as broad flattened dark-colored blades, the inner apical angle produced into a strong black spine, apophysis without an accessory blade or lobe.

MALE.— Length about 6 mm.; wing 5.8 mm.

Head broken. Pronotum light gray, darker laterally, pretergites and propleura yellowed. Mesonotal praescutum brownish gray, the

interspaces narrowly and vaguely darker brown, humeral region yellowed, pseudosutural foveae black; posterior sclerites of notum brownish gray, posterior borders of scutal lobes, lateral margins of mediotergite and cephalic area of pleurotergite yellowed; praescutum and scutum with conspicuous erect white setae. Pleura with mesepisternum, meron and metapleura brownish gray, pteropleurite obscure yellow. Halteres with stem pale yellow, under end of knob weakly darkened. Legs with coxae brownish gray; trochanters obscure yellow; remainder of legs dark brown. Wings faintly tinted, with vague more whitened areas; a diffuse brown pattern includes clouds at origin of R_s , cord, top of R_{1+2} , supernumerary crossvein in cell R_3 and outer end of cell 1st M_2 ; veins dark brown. Venation: Sc_2 opposite origin of R_s ; supernumerary crossvein at near midlength of cell R_3 ; $m-cu$ about one-half its length before fork of M ; terminal loop of vein 2nd A small.

Abdomen dark brown. Male hypopygium with dististyles terminal; outer style with stem stout, at apex divided into two more blackened arms that subdivide into one or two points that terminate in three or four obtuse knobs; inner style a flattened blade that widens gently outwardly, apex very obtuse to subtruncate. Gonapophyses appearing as broad flattened dark-colored blades, the inner apical angle produced into a strong black spine, the remaining outer margin with microscopic points; no accessory blade or lobe as in *cana* or *hybrida*. Terminal filaments of aedeagus slender.

HABITAT.— Canada (Yukon).

HOLOTYPE, ♂, Alaska Highway, Mile 1152, along Lake Creek, July 7, 1952 (C. P. Alexander).

Erioptera (*Symplecta*) *platymera* is told readily from the four other regional members of the subgenus by the structure of the male hypopygium, particularly the broad gonapophyses, which has suggested the specific name. The hypopygia of the other species were figured by the writer in an earlier paper (Univ. Michigan, Mus. Zool., Misc. Publ. 90:28-30, figs. 33-36; 1955). The species concerned are *E. (S.) cana* (Walker), *E. (S.) hybrida* (Meigen), *E. (S.) sheldoni* Alexander and *E. (S.) sunwapta* Alexander.

Ormosia (*Parormosia*) *frohnearum*, n.sp.

Allied to *divergens*; general coloration of the body dark brown; antennae relatively long, exceeding one-fourth the length of wing; wings weakly tinged with brown, M_{3+4} long, subequal to M_4 ; male hypopygium with apex of lobe of tergite truncate; outer dististyle bifid, outer arm a slender rod, inner arm stout, curved, at apex with a single powerful spine and numerous smaller points; inner style with apex expanded into a triangular blade, the outer margin with about eight long setae.

MALE.— Length about 5 mm.; wing 5.2 mm.; antenna about 1.6 mm.

Rostrum and palpi dark brown. Antennae relatively long, dark brown throughout; flagellar segments long-oval, with abundant delicate white setulae, verticils very small. Head brown.

Thorax almost uniformly dark brown; pretergites obscure yellow. Halteres brownish yellow, the large knobs clearer yellow. Legs with coxae yellowish brown; trochanters yellow; remainder of legs brown. Wings with a weak brownish tinge, prearcular field slightly more yellowed, stigmal area scarcely darker than the ground; veins light brown. Venation: Sc_1 ending shortly beyond the slightly oblique R_2 ; cell M_2 open by atrophy of m ; M_{3+4} long, subequal to M_4 in *divergens* much shorter, approximately one-fourth M_4 ; $m-cu$ close to fork of M ; Anal veins divergent.

Abdomen, including hypopygium, dark brown. Male hypopygium quite different from that of *divergens*, especially the tergite and dististyles. Ninth tergite with apex of outer lobe truncate; surface with abundant relatively small setae. Outer dististyle conspicuously bifid, the outer arm a slender rod, on inner face near base with a spine or spur; inner arm much stouter, strongly curved, apex with a single powerful spine and several smaller ones; inner style with stem slender, apex extended laterad into a triangular blade, the outer margin with about eight long setae.

HABITAT.— Alaska (First Judicial District).

HOLOTYPE, ♂, Auke Bay, Juneau, July 10, 1952 (William C. Frohne).

The species is named for the Frohne family, William C. and Gertrude Frohne, with their son Richard who was 13 years of age in 1952 when the species was taken. I am greatly indebted to the Frohnes for several new and rare crane flies that were taken in the Juneau area, chiefly in 1952. At that time, Dr. Frohne was Senior Scientist (Entomology), in the Department of Health, Education and Welfare, Alaska. Presently he is with the Alaska Methodist University, Anchorage, Alaska.

The nearest relative of the present fly is *Ormosia* (*Parormosia*) *divergens* (Coquillett), with a wide distribution in western North America. This differs particularly in the venation and in the hypopygial structure, especially the tergite and dististyles.

Molophilus (*Molophilus*) *frohnei*, n.sp.

Size large (wing of male 6 mm.); mesonotum grayish brown, praescutum light yellow laterally; rostrum, palpi and proximal antennal segments black; halteres yellow; wings light yellow, trichia light brown; male hypopygium with mesal and ventral lobes of basistyle distal in position, placed beyond the point of insertion of the dististyles; inner dististyle nearly straight throughout, outer half narrowed into a strong spine, its margin with numerous microscopic spinules.

MALE.— Length about 5.5 mm.; wing 6 mm.

Rostrum and palpi intensely black, the former with long black setae. Antennae with scape and pedicel black; flagellum broken, head gray.

Pronotal scutum yellow, scutellum clearer yellow, dark brown laterally. Mesonotal praescutum with disk grayish brown, without distinct stripes; pretergites and humeral region light yellow, lateral tergal borders more obscure yellow; scutum brownish gray, posterior borders of lobes yellow; scutellum brownish gray, vaguely more yellowed at apex, parascutella obscure yellow; mediotergite brown, the interpostnotal suture broadly yellow. Pleura and pleurotergite light brown. Halteres yellow. Legs with coxae and trochanters yellow; remainder of legs broken. Wings light yellow, the veins more saturated pale yellow; trichia light brown.

Abdomen dark brown, hypopygium more yellowish brown. Male hypopygium with apex of dorsal lobe of basistyle narrowly obtuse; ventral and mesal lobes far distad, beyond the level of point of insertion of the dististyles, the mesal lobe with relatively sparse blackened spinoid setae. Outer dististyle strongly bent beyond midlength, the lower surface of outer part with about 8 or 9 blackened points; inner style distinctive, about two-thirds as long as outer style, nearly straight throughout; basal half yellow, slightly dilated near outer part, thence narrowed to a more slender straight blackened spine, its margin with numerous microscopic spinules.

HABITAT.— Alaska (First Judicial District).

HOLOTYPE, ♂, Eagle River, near Juneau, June 14, 1952 (William C. Frohne).

I am pleased to name this fly for Dr. William C. Frohne. It is generally similar to species such as *Molophilus* (*Molophilus*) *distilobatus* Alexander, *M. (M.) spiculatus* Alexander, and some others, differing in hypopygial structure, particularly the inner dististyle.



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