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ENTOMOLOGISCHE ERGEBNISSE DER SCHWEDISCHEN KAMTCHATKA-EXPEDITION 1920—1922

12.

THE TIPULIDAE

BY

CHARLES P. ALEXANDER
(AMHERST, MASSACHUSETTS)

WITH 5 FIGURES IN THE TEXT

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With 5 Figures in the Text.

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The itinerary, general ecological conditions and summary of results of the Swedish Kamtchatka-Expedition of 1920—1922 have been discussed by Dr. SJÖSTEDT in the first part under this general title (Entomologische Ergebnisse der schwedischen Kamtchatka-Expedition 1922. Arkiv för Zoologi, 17 A, No. 33: 1—3, 1925). Through the kindness of Dr. SJÖSTEDT and the collector of the material, Cand. phil. RENÉ MALAISE, I have been enabled to study the crane-flies of the expedition. Types and representatives of all the species have been placed in the Naturhistoriska Riksmuseet in Stockholm. I would express my sincere thanks to Dr. SJÖSTEDT and Cand. MALAISE for the privilege of studying this small but very interesting series.

As might be expected from its geographical location, the Tipulid fauna of Kamtchatka shows a distinctly Holarctic facies, several of the species showing scarcely any modification from European types while still others are considered as representing valid races of European species. This northern Palaearctic element is shown strikingly in the genera *Limonia*, *Di-*

cranomyia and *Dictenidia*. The species of *Limnophila*, on the other hand, seems to be most closely related to the Nearctic *L. platyphallus* ALEXANDER, of which it is at most the vicarious representative in North-eastern Asia. The very interesting *Tipula malaisei*, sp. n., belongs to a peculiar group of the genus (the *cineracea* group) that is confined to the region of Bering Straits. The only earlier paper that considers the crane-flies of Kamtchatka is a brief one by the writer (ALEXANDER Journ. N. Y. Ent. Soc., 26: 66—75; 1918).

Subfamily **Limoniinae.**

Tribe ***Limoniini.***

Genus **Dicranomyia** STEPHENS.

Dicranomyia decora (STAEGER).

1840. *Limnobia decora* STAEGER; Kröjer's Naturhist. Tidsskr., 3: 47.

Nos. 1854, 1855.
Habitat: Kamtchatka: Petropavlovsk, 28. VII—5. VIII (1920).

D. decora (STAEGER), with *D. tenuipes* (ZETTERSTEDT) as a synonym according to NIELSEN, has a wide range throughout the northern Palaearctic Region. The Nearctic *D. terræ-novæ* ALEXARDER, with a wide range over northern Canada and Newfoundland, is at most a race of the above and may be identical with it.

Genus **Limonia** MEIGEN.

Limonia annulus (MEIGEN) var.

1818. *Limnobia annulus* MEIGEN; Syst. Beschr., 1: 145.

1 ♂, No. 1891.
Petropavlovsk 28. VII—5. VIII (1920).

Limonia trivittata (SCHUMMEL), var.

1829. *Limnobia trivittata* SCHUMMEL; Beitr. zur Ent., 1: 114.

6 ♂, Nos. 1878, 1882, 1884, 1887, 1890 and 2562.
Petropavlovsk 28. VII—5. VIII (1920).
The specimens average a little larger and more darkly colored than typical specimens from northern Europe.

Limonia flavipes karafutonis ALEXANDER.

1924. *Limonia karafutonis* ALEXANDER; Philippine Journ. Sci., **24**: 550—551.

4 ♂♀, Nos. 1859, 1880, 1886 and 1889.
Petropavlovsk 28. VII—5. VIII (1920).

Limonia nubeculosa MEIGEN, var.

1804. *Limonia nubeculosa* MEIGEN; Klass., 1: 60.

1 ♀, No. 3619.
Petropavlovsk 12. VII (1922).
All of the femora show three dark annuli.

Tribe *Hexatomini.*

Genus **Limnophila** MACQUART.

Subgenus **Phylidorea** BIGOT.

Limnophila (Phylidorea) kamtchatkensis, sp. n.

Belongs to the *fulvonervosa* group; thoracic dorsum blackened, the praescutum with the humeral triangles castaneous; legs blackened, the femora yellow basally; wings with a yellowish tinge, cell *C*, the wing-tip and vein Cu_1 infuscated; abdominal segments broadly yellowish medially, the lateral margins brown; subterminal segments dark brown.

Male. — Length about 10 mm.; wing 9,6 mm.

Rostrum dark, heavily gray pruinose. Antennae broken. Head light gray, the sides of the vertex behind with an extensive blackish area.

Pronotum shiny black medially, the sides paler. Mesonotal praescutum blackened medially, sparsely pruinose, the lateral margins somewhat paler, the humeral regions extensively castaneous; scutal lobes dark, sparsely pruinose; scutellum pale brown; postnotal mediotergite heavily pruinose medially, the sides paler. Pleura almost uniformly darkened, sparsely pruinose. Halteres pale, the knobs infuscated. Legs with the coxae and trochanters fulvous; femora yellow on basal third, thence passing into brown, the distal portion broadly brownish black, the extreme tips very narrowly paler; tibiae dark brown, the tips narrowly blackened; tarsi dark brown, soon passing into black. Wings a yellowish tinge, the prearcular region clearer yellow; cell *Sc* yellow; cell *C* brown;

stigma oval, dark brown; wing-apex narrowly infuscated; a conspicuous brown seam along vein Cu_1; veins brown. Venation: About as in *L.* (*P.*) *platyphallus* ALEXANDER; vein R_2 straight or nearly so, cell *2nd* R_1 being usually small, on the margin only about one-third cell R_2; cell M_1 twice its petiole.

Abdominal tergite one dark brown; succeeding tergites broadly yellowish medially, dark brown laterally; sternites similarly patterned; segments eight and nine (♂) dark brown, the hypopygium again paler. Male hypopygium as in the *fulvonervosa* group, the aedeagus being greatly compressed. Outer dististyle (Fig. 1, o) relatively slender, the apex only a little dilated, the subterminal spine on the outer margin conspicuous, broad-based; inner dististyle (i) with the shoulder on

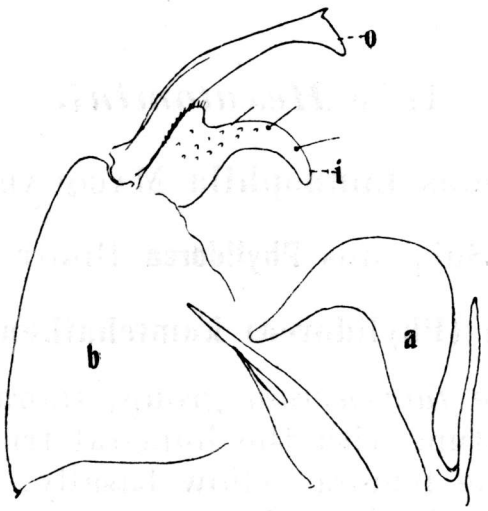

Fig. 1. Details of male hypopygium of *Limnophila (Phylidorea) kamtchatkensis*, sp. n.
a = aedeagus; b = basistyle; i = inner dististyle; o = outer dististyle.

the outer margin of the basal half very distinct. Aedeagus (a) greatly compressed, the apex and margins more heavily blackened; this pod-shaped structure shorter and broader than in *platyphallus*, the apical beak more elongate. The slender apophyses subtending the aedeagus are here shorter than in *platyphallus* and the longest arm of the bifid gonapophysis is even more slender, spine-like.

Habitat. — Kamtchatka: Petropavlovsk 28. VII—5. VIII. (1920).

Holotype, ♂, No. 1883 (R. MALAISE).

L. (*P.*) *kamtchatkensis* is most closely allied to *L.* (*P.*) *platyphallus* ALEXANDER (Northeastern North America), differing especially in the details of structure of the male hypopygium. The only regional described species is *L.* (*P.*) *fulvocostalis* COQUILLETT (Fur-Seals and Fur-Seal Islands of the North

Pacific Ocean, Part 4: 342—343; 1898), described from Bering Island off the coast of Kamtchatka, collected in July—August, 1897. COQUILLETT's description calls for a fly of very different coloration, the legs being yellow with only the apices of the tarsi brown; cell M_1 shorter than its petiole; and other distinctions.

Tribe *Pediciini.*

Genus **Dicranota** ZETTERSTEDT.

Dicranota galactoptera, sp. n.

General coloration gray, the praescutum with three conspicuous dark brown stripes; antennae (♀) 12-segmented; wings with a strong milky-white tinge; stigma conspicuous, dark brown; a broken brown seam along the cord and a similar

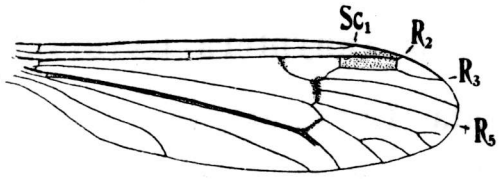

Fig. 2. Wing venation of *Dicranota galactoptera,* sp. n. R = Radial veins; Sc = Subcostal vein.

longitudinal line occupying the space between the branches of *Cu*; cell M_1 present; cell *1st* M_2 open by the atrophy of *m*.

Female. — Length abouth 7 mm.; wing 8,2 mm.

Rostrum dark, pruinose; palpi brownish black. Antennae black throughout, only 12-segmented; first flagellar segment elongate-pyriform, enlarged outwardly; remaining segments oval, decreasing in size outwardly, the last segment smallest. Head brown, the orbits and anterior vertex light gray; anterior vertex broad.

Mesonotal praescutum yellowish gray with three conspicuous dark brown stripes, the median stripe narrowly and incompletely divided on anterior half by a pale capillary vitta; lateral stripes short; scutum yellowish gray, the centers of the lobes dark brown; scutellum and postnotum light gray. Pleura gray, the dorso-pleural region buffy-brown. Halteres pale, the knobs infuscated. Legs with the coxae pruinose; trochanters yellow; femora brown, their bases paler, the tips passing into dark brown; tibiae and tarsi dark brown; posterior basitarsi about one-half the length of the tibia.

Wings (Fig. 2) with a strong milky-white tinge; stigma conspicuous, dark brown; a narrow broken brown seam along

the cord; a dark brown longitudinal seam between the branches of *Cu*; veins dark brown, the tip of Sc_1 paler. Venation: Sc_1 ending shortly beyond the supernumerary crossvein in cell R_1; *Rs* angulated at origin; outer deflection of R_2 very close to the tip of R_1, cell R_2 thus being relatively shallow; cell M_1 small, tending to become obsolescent by the atrophy of M_1; cell M_3 about as long as its petiole.

Abdomen dark gray, the ovipositor light horn-colored, the valves stout.

Habitat. — Kamtchatka: Petropavlovsk 6.—20. VI (1922). Holotype, ♀, No. 3231 (R. MALAISE).

D. galactoptera is distinguished by the milky-white wings with a conspicuous brown pattern; the 12-segmented antennae; venation; and the thoracic pattern.

Subfamily **Tipulinae.**

Genus **Tanyptera** LATREILLE.

Tanyptera atrata (LINNÆUS), var.

1758. *Tipula atrata* LINNÆUS; Syst. Nat., Ed. 10: 586.

1 ♂, 1 ♀, Nos. 97, 3726.
Petropavlovsk 2.—5. VII (1920).

Entirely similar to typical *atrata* from Europe but much smaller (Male, wing, 11,5 mm.; female, wing, 11 m.).

Genus **Dictenidia** BRULLÉ.

Dictenidia bimaculata (LINNÆUS).

1761. *Tipula bimaculata* LINNÆUS; Fauna Suec., Ed. 2: 433.

1 ♂, No. 3725.
Petropavlovsk 13—14. VII (1922).

Genus **Tipula** LINNÆUS.

Tipula malaisei, sp. n.

Belongs to the *cineracea* group; basal section of R_2 very long, simulating a radial crossvein, faintly preserved to subobsolete; cell M_1 relatively deep.

Female. — Length about 17 mm.; wing 12,5 mm.

Frontal prolongation of the head dark gray, without a nasus, this being represented only by a few long yellow setae; palpi black. Antennae with the scapal and basal two flagellar segments obscure fulvous, the remaining segments passing into black; flagellar segments simple, about cylindrical. Head yellowish gray, a little clearer anteriorly and on the occipital region.

Mesonotal praescutum light gray with three slightly darker gray stripes, the median stripe very broad in front, narrowed behind; lateral stripes very poorly delimited; pseudosutural foveae almost obliterated; scutum light gray, the centers of the lobes marked with slightly darker gray; scutellum gray, more infuscated medially; postnotum short, yellowish gray, with vague indications of a brown median capillary vitta. Pleura clear gray, the dorso-pleural region dirty brown. Halteres elongate, yellow. Legs with the coxae gray, the middle and posterior coxae elongate; trochanters obscure yellow;

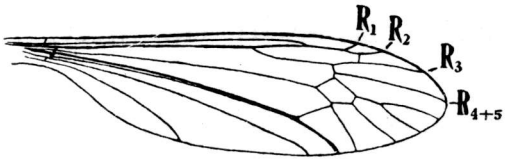

Fig. 3. Wing venation of *Tipula malaisei*, sp. n. Symbols as in Figure 2.

femora yellow, the tips narrowly blackened; tibiae obscure yellow, the tips more broadly infuscated; tarsi black; legs relatively short and stout. Wings with a yellowish tinge, the base and cells *C* and *Sc* clearer yellow; stigma oval, faint, the proximal portion yellowish, the distal end more darkened; a small brown cloud at the fork of *Rs* and a conspicouous broad brown seam along vein *Cu*; less distinct brown seams along most of the longitudinal veins; obliterative areas very conspicuous and extensive. Venation (Fig. 3): *r* in alignment with R_1 and the distal section of R_2, the basal section of R_2 being very extensive, simulating a radial crossvein, but faint and subobsolate; tip of R_1 preserved, without macrotrichiae; cell *1st* M_2 very high; cell M_1 from one and one-half to two times the length of its petiole; *m—cu* on M_4 shortly beyond its origin; vein Cu_2 extending to the wing-margin at the tip of Cu_1.

Abdomen relatively elongate (12,5 mm.), the tergites obscure yellow with a poorly defined brown median stripe; sternites more extensively darker. Ovipositor with the tergites and sternites shiny dark brown on the basal shields, the valves

paler; tergal valves straight, slender; sternal valves shorter and deeper.

Habitat. — Kamtchatka: Petropavlovsk 13.—14. VII (1922).

Holotype, ♀, No. 3724 (R. MALAISE).

This interesting crane-fly is named in honor of the collector, Cand. RENÉ MALAISE, whose extensive collections made in Kamtchatka have added very materially to our knowledge of a scarcely known region. *T. malaisei* is of exceptional interest in the venation of the radial field of the wing (Fig. 3) which shows the alignment of the three elements consituting the serial vein R_1 (i. e., R_1 *r* distal section of R_2), a condition that quite approaches the subfamily Limoniinae. The usual more or less zig-zag arrangement of these three elements as found in other *Tipulini* is thus largely lost and the basal section of R_2, though weakly preserved, assumes the appearance of the radial crossvein, quite as in the *Limoniinae*. This problem of the true nomenclature of the radial field in the Tipulidae and all higher families of Diptera has been made the subject of a separate paper by the writer, still in the press.

Tipula sachalinensis ALEXANDER.

1925. *Tipula sachalinensis* ALEXANDER; Ann. Mag. Nat. Hist., (9) **15**: 395—397.

1 ♀, No. 3727.

Petropavlovsk 13.—14. VII (1922).

Tipula sublimitata, sp. n.

In general appearance much as in *T. limitata* SCHUMMEL; nasus lacking; obliterative band before the cord of the wing restricted.

Male. — Length about 16 mm.: wing 17,5 mm.

Female. — Length about 18 mm.; wing 19 mm.

Male. Frontal prolongation of the head relatively long, gray above, brownish yellow laterally and beneath; nasus lacking; palpi brownish yellow basally, darker outwardly. Antennae of moderate length, if bent backward extending about to the base of the abdomen; scape and basal segment of the flagellum clear yellow, the remainder of the organ black; first flagellar segment about three-fourths as long as the first scapal segment; remaining flagellar segments with the basal enlargement marked, the segments moderately incised. Head dark gray, the anterior vertex clearer gray.

Mesonotal praescutum light gray with four darker leaden-gray stripes, the intermediate pair rather widely separated by

a parallel-sided vitta of the ground-color; lateral stripes relatively narrow, widely separated from the intermediate stripes; scutum light gray, each lobe with two darker gray marks; scutellum and postnotum light gray. Pleura gray, the dorso-pleural region more buffy. Halteres elongate, yellow, the knobs brown. Legs with the coxae pale reddish brown, sparsely pruinose; trochanters yellow; femora yellow, clearer basally, the tips narrowly brownish black; tibiae brown, passing into dark brown at tips; tarsi brownish black. Wings with a strong brownish tinge, the base and cells *C* and *Sc* clearer yellow; stigma dark brown; a conspicuous brown seam along the distal section of Cu_1 and on *m—cu*, as in *limitata;* a less distinct brown seam on the anterior cord; conspicuous whitish obliterative areas before the cord, extending into the basal third of cell M_4 but continued to the wing-margin as a very narrow seam along

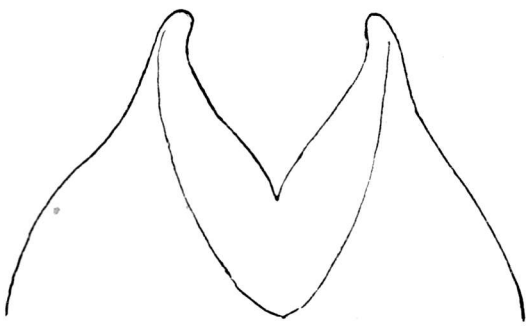

Fig. 4.

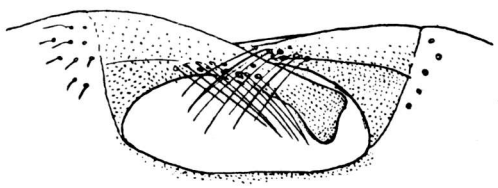

Fig. 5.

Figs. 4 and 5. Details of male hypopygium of *Tipula sublimitata,* sp. n.
Fig. 4. Ninth tergite; dorsal aspect.
Fig. 5. Eighth sternite; ventro-caudal aspect.

vein M_4; similar obliterative areas beyond the stigma in cell *2nd* R_1 and the base of R_2; veins brown, paler in the yellowish areas. Venation: R_2 entire; *Rs* long, only a little shorter than R_3; cell *1st* M_2 long-pentagonal; petiole of cell M_1 relatively short, about one-half longer than *m*.

Abdomen with the basal tergite fulvous; intermediate segments rather bright brown, with a dark brown median stripe, the outer segments passing into brownish black; caudal margins of the segments narrowly ringed with pale, broader and more distinct on the outer segments; lateral margins of the tergites broadly pale, margined internally with a darker sublateral line; sternites blackened. Male hypopygium moderately incrassated. Ninth tergite (Fig. 4) relatively massive, broad at base, narrowed distally, the caudal margin with a deep, V-shaped median notch, the lateral lobes thus formed extended into narrow glabrous points, their tips obtuse. Basistyle complete, very slightly narrowed outwardly, the apex truncate.

Outer dististyle very small, finger-like. From the dorso-medial portion of the ninth sternite a stout, cylindrical, blackened lobe hangs pendulously in the notch of the sternite, these sausage-shaped lobes provided with short, inconspicouos, yellow setae. Caudal margin of the eighth sternite (Fig. 5) with a broad U-shaped notch, each dorso-lateral angle of the notch with a broad-based chitinized lobe, these directed mesad, decussate across the mid-line, the tips expanded, blunt; outer surface of these arms with long, golden-yellow setae.

Female. This sex is much like the male, differing especially in the sexual characters, as the shorter antennae with the basal two flagellar segments yellow.

Habitat. — Kamtchatka: Petropavlovsk, 28. VII—5. VIII 1920 (R. MALAISE).

Holotype, ♂, No. 1877.

Allotopotype, ♀, No. 1879.

Paratopotype, ♀, No. 1867.

T. sublimitata is generally similar in appearance to *T. limitata* SCHUMMEL, of northern Europe, differing in the conspicuous lack of a nasus, the different coloration of the antennae and other characters. In *limitata* the obliterative band before the cord is so extensive that it includes the proximal ends of both cells M_3 and M_4 and the pale marks beyond the stigma are scarcely evident. The lack of the nasus in both sexes of the present species probably indicates that the species is not as closely allied to *limitata* as the general appearance might indicate.

Genus **Nephrotoma** MEIGEN.

Nephrotoma saghaliensis ALEXANDER.

1924. *Nephrotoma saghaliensis* ALEXANDER; Ann. Ent. Soc. America, **17**: 447—448.

2 ♂♂, 1 ♀, Nos. 1881, 1885, 1888.

Habitat: Kamtchatka: Petropavlovsk 28. VII—5. VIII (1920).

This species was described from Saghalien but is now known to range southward in Japan to the higher mountains of Honshiu.

Tryckt den 22 april 1927.

Uppsala 1927. Almqvist & Wiksells Boktryckeri-A.-B.

Uppsala 1927. Almqvist & Wiksells Boktryckeri-A.-B.