A LIST OF THE CRANE-FLIES TAKEN IN THE VICINITY OF HAZLETON, PENNSYLVANIA

(DIPTERA)

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The material forming the basis of this paper was collected by
the writer during the past twelve years and is contained in the
latter's collections. Hazleton, Luzerne County, Pennsylvania,
is located on one of the highest plateaus in the State. The highest
points within its limits are about eighteen hundred feet above
sea-level. It is situated in the middle anthracite coal field and
immediately over the Hazleton coal basin, and extends beyond
the North outcrop. Underlying the coal measures are strata
of "Pottsville Conglomerate" and "Mauch-Chunk Red Shale." Overlying them, are beds of slate and sandstone.

The general topography of the region is hilly or mountainous,
traversed by creeks, brooks and rills. The vegetation, erstwhile,
consisted essentially of hard-woods, with a lesser percentage of
soft-woods and conifers. Practically all the large trees have
been cut down for use in the coal industry, and, to-day, scrub oak
furnishes the principal growths of our hills.

As to the climatic conditions, it may be stated, that the winters
are rather severe, with considerable snowfall; the summers are
rarely oppressively hot, though here, as elsewhere, seasons vary.
As to the life zones, the fauna belongs to the Canadian and
Transition Zones, with a predominance of northern forms.

Probably ninety percent of the material here used has been
collected in the north-western quadrant of the region and with-
in one mile and a half from the city limits.

The principal collecting places examined are:

1. A swampy part of what is known as Hazle Park, north-
west of and adjacent to the borough of West Hazleton, the latter
adjoining Hazleton proper. This is open, swampy ground, con-
sisting chiefly of decayed vegetable matter. Here the vegetation
consists chiefly of Acer—young growth—, Sambucus, Smilax, Rubus, Lappa, Bidens and Polygonum. North-west of the Park is a very wet brush-swamp. The principal vegetation here consists of Alnus, Betula, ferns, etc. These two areas are directly upon the "Pottsville Conglomerate" series.

2. A circumscribed locality, less than one-half mile from the city limits, and situated on the east side of the highway in a northerly direction, and known as Fisher's Hill. This is open woodland, the principal trees are oak, maple and some pines; of lower growth, Rhododendron, Sambucus, Alnus and Smilax. The lower and more swampy portion is overgrown with Polygonum pennsylvanicum, and several interesting species were taken here, notably Dichromomyia pelucidiguttata. This area is also upon the "Pottsville Conglomerate."

North-west, and about six miles distant, is the Conyngham Valley, an agricultural district, the floor of which is about six to eight hundred feet lower than the Hazleton plateau. To the south-east of this Valley, is Conyngham Mountain. At the foot of the latter, and directly below the Hazleton Country Club House, is a small, very wet locality, surrounded by meadow and field land. Here considerable collecting was done. This area lies upon the lower series of the "Mauch Chunk Red Shale."

About six miles further up the Valley, in a north-easterly direction, is St. Johns, a farming village, situated on the north-west side of the Wilkes-Barre and Hazleton Railway. It is traversed by the Nescopeck Creek—a stream of considerable size. Collecting here was done chiefly in the swampy region to the north-west of the Railway, in the woodland to the east of it, and along the banks of the creek. This area is also upon the lower series of the "Mauch-Chunk Red Shale."

The species recorded in the following list number 163, and twenty of these are described here as new. They are distributed in three families and thirty-eight genera. It is singular that some species, which were common, or at least of frequent occurrence, during the earlier years of my collecting, have become rare, or have not been observed at all in later years. The reverse is true of others. The number of crane-flies recorded in the last New Jersey list, 1909, is 138. A comparison of the two lists forces the conclusion, that intensive collecting, even in our Eastern States, will bring to light many, as yet unknown, forms.
Although increasing the size of this paper considerably, I have deemed it proper to add the bibliography of the original description, as in instances where the description by the same author appeared in two different publications, such as in most of Say and Loew's species. A generic name in brackets, following the bibliographical citation, indicates the name of the genus under which it was described originally. In the arrangement I have followed, with few exceptions, that of Alexander.¹

Family PTYCHOPTERIDAE

Subfamily PTYCHOPTERINAE

Genus PTYCHOPTERA Meigen

PTYCHOPTERA Meigen. Illiger's Mag., n. p. 262.


June to August. Common in swampy localities.

Subfamily BITTACOMORPHINAE

Genus BITTACOMORPHA Westwood


May to September. Swampy localities; common locally.

Genus BITTACOMORPHELLA Alexander


BITTACOMORPHELLA JONESI Johnson, Psyche, 1905, p. 75.


Family RHYPHIDAE

Subfamily RHYPIDINAE

Genus RHYPIDERA Meigen

The species of this genus are in need of a critical revision,

¹ The Craneflies of New York, Part 1, 1919.

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especially so in relation to those of other faunas. The species are common in early Spring and late Fall.

**Trichocera bimacula** Walker, List, 1, 1848, p. 81.


**Trichocera hiemalis** DeGeer, Ins., vi, p. 360, pl. xxi, fig. 1, 2, 5 (Tipula).

September 20, 1909, October 4, 1909.

**Trichocera brumalis** Fitch, Winter Insects of New York, p. 9, 1848.

Common in October and November.

**Trichocera venosa** spec. nov.

Brown; wing-veins seamed with fuscous.

Female, length, 6.5 mm.; wing, 7 mm.

General coloration brown. Head, rostrum, mouthparts and antennae concolorous. Thorax concolorous, the stripes not well-defined and but little darker than the narrower interspaces, the latter with a row of short white hairs, which are continued upon the scutum. The posterior margin of the scutell with a row of short white hairs. Halteres pale, club infuscate. Legs obscure yellow; femora darkened at the apex; tibiae yellowish brown; tarsi fuscous; pilosity very short, appressed, dark, more evident on the posterior tarsi. Wings subfuscous, all the veins, except A₁ and A₂, distinctly seamed with fuscous, most conspicuous along the cord and the veins beyond, and Cu and its branches; a fuscous spot close to the origin of Rs; the fuscous darkening on basal deflection of R₁+₂ and r-m and on the medial cross-vein, expanded into spots. The distance of the subcostal cross-vein from the origin of Rs equals Cu₁. Abdomen dark brown, with scattered, short white hairs; a dark fuscous spot near the lateral margin of tergites two to five. Ovipositor dark yellow, and, as usual in the genus, curved downward.


It is with some temerity I add this species to a genus, the species of which, at least of North America, are ill-defined and greatly in need of a thorough revision. The above species is greatly at variance with any other known to me. Its nearest allies appear to be *bimacula* Walker and *maculipennis* Meigen. The wings, however, are much darker, aside from the fuscous seaming of the veins. In wing color it resembles *subsinuata* Alexander, though a trifle darker; in the latter species, the wings are unicolorous.
Subfamily Rhynphinae

Genus RHYPHUS Latreille


**Rhyphus punctatus** Fabricius, Mant. Ins., ii, p. 333 (*Rhagis*); Ent. Syst., iv, p. 274; (id.) Syst. Anth., p. 59 (*Sciara*).

June 25, 1905; July 3, 1909; September 7, 1910.

Family TIPULIDAE

Subfamily Limnobiinae

Tribe Limnobiini

Genus GERANOMYIA Haliday

*Geranomyia* Haliday, Ent. Mag., i, p. 154, 1833.


June to September. In wet places; not common.


August, September. Rather common in swampy situations.

**Geranomyia costomaculata** spec. nov.

Dark fuscous. Thoracic stripes obliterated. Costal margin of wing with three fuscous spots. Sc ends opposite origin of Rs.

Female, length, 5.5 mm.; wing, 6.5 mm.

Head dark fuscous; rostrum about as long as the thorax, thickened about the palpal insertion. Scapal joints of the antennae stout, first joint pale and about one-half longer than the second joint, this and the flagellum dark brown; flagellar joints moniliform, the outer joints somewhat elongated and attenuated. Thorax fuscous, overlaid with a grayish bloom; stripes obsolete. Scutel whitish. Pleura concolorous. Halter pale, knob and end of pedicle dark fuscous. Wings pale-gray, semipellucid; the Sc ends a trifle beyond the origin of the sector, the latter markedly curved at its base; the basal deflection of Cu, at the fork of M in the left wing, a little before the forking; a dark fuscous costal spot at about one-third the wing length, a second at the origin of Rs inclusive of end of the subcostal vein, a third spot, large, rhomboidal, includes the stigma. Legs pale fuscous, long, slender; femora, tibiae and tarsal joints darker apically. Abdomen brown, sparsely hairy. Ovipositor pale brown, and rather short.

Agrees with A. diversa Osten-Sacken in the termination of the subcostal vein. The costal spots distinguish it from our other species.

Genus **DISCOBOLA** Osten-Sacken


**Discobola argus** Say, Long's Exped., App., p. 358; Complete Works, i, p. 243 (*Limnobia*).

Not common. July 2, 1917; September 9, 1914; September 9, 1910; September 11, 1920. Mr. Harry B. Weiss of the New Jersey Department of Agriculture has bred this species from *Polyporus albiceps*.

Genus **RHIPIDIA** Meigen


**Rhipidia maculata** Meigen, Syst. Beschr., t, p. 153, pl. v, fig. 9 to 11.

Rare in July and August, common in September and even October.


A single male specimen, taken May 15, 1911. Conyngham Valley.

Genus **DICRANOMYIA** Stephens


**Dicranomyia longipennis** Schum., Beitr. zur Ent., i, p. 101, pl. t, fig. 2, 1829, (*Limnobia*).

I have never taken this species in numbers. June 13, 1912; May 12, 1912; August 30, 1913; August 10, 1914; September 17, 1910; September 15, 1914 and 1915; September 29, 1919. Very few specimens seen in later years.


Very common in a swampy place, overgrown with *Polygonum pennsylvanicum* L.; July.


Rare. May 18, 1919; June 7 and 19, 1912; June 29, 1913; August 25, 1914.

Rare. June 3, 1913; June 12, 1916.

Diceromyia isabellina Doane, Journ. N. Y. Ent. Soc., viii, p. 183, pl. 7, fig. 5, 1900.

Diceromyia flavescens spec. nov.
Close to brevivena.
Male, length, 3.5 mm.; wing, 5.5 mm.
Head black, occiput grayish-silvery; rostrum dark yellow; palpi entirely fuscous. Antennae fuscous, rather robust, flagellar joints subcyathiform. Thorax dull yellow, a little darker above, the stripes faint, the median one divided by a pale line. Halteres pale brown, club dark brown. Legs pale yellow throughout, pubescence fine, very short. Wings yellowish, subpellucid, with an iridescent luster. The Sc ends about the length of the stigma before the origin of the sector; Sc1 about as long as the stigma. Rs and R1+ subequal; cell 1st M2 closed. Abdomen yellow, a trifle darker above.

Holotype. — ♂; Hazleton, Pennsylvania, September 24, 1919.
Paratypes, two males, topotypic.

Differs from brevivena in its dull yellow thorax, indistinct stripes, the median one divided by a pale line, and the abdomen much less darkened above.

Diceromyia pennsylvanica spec. nov.
Close to flavescens.
Male, length, 5 mm.; wing 5.5 mm.
Head, palpi and antennae fuscous; rostrum yellow: the first three joints of the antennae somewhat incrassate, rest of flagellum slender, joints ovoidal, longer than wide, with a dense, fine, pale pubescence. Thorax reddish-yellow, the median stripe reddish-brown, strongly marked, shining and extending upon the neck; the lateral stripes less distinct and extend upon the scutum. Pleura pale. Halteres pale, lightly infuscate apically, club dark fuscous. Legs pale, pubescence scarcely noticeable; tarsi infuscate towards the apex. Wings somewhat narrow, iridescent, pellucid; Sc ends just before origin of sector; Sc1 about as long as the stigma, the latter pale; Rs

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approximately twice the length of $R_4^+ + 5$; cell 1st $M^2$ closed. Abdomen
darker above, the tergites indistinctly margined with fuscous posteriorly;
venter pale. Hypopygium brownish-yellow.


Distinguished from *flarescens* by the conspicuous, shining med-
ian stripe, and Rs nearly twice the length of $R_4^+ + 5$.

**Dicranomyia brevivena** Osten-Sacken, Mon. N. A. Dipt., iv, p. 66, 1869

Not rare; September.

**Dicranomyia diversoides** spec. nov.

Very close to *diversa*.

Female, length, 4.5 mm.; wing, 5.3 mm.

Yellow; head above and face yellowish-gray; rostrum and palpi dark brown. Antennae yellowish; outer half of first scapal joint, and second scapal joint
almost entirely, brown. Thorax entirely yellow, stripes obsolete, somewhat
shining above. Pleura with a faint, whitish bloom. Halteres pale, knob
fuscous. Legs pale yellow, finely pubescent; outer tarsal joints darker. Wings with a faint yellowish tint; stigma scarcely indicated; veins pale, $R$ and $S_e$ darker, the latter ends opposite origin of Rs; $S_e^1$ very long, approx-
imately as long as the sector, the latter distinctly longer than $R_4^+ + 5$, the
latter strongly curved; cell 1st $M^2$ closed. Abdomen yellow, with scant,
dispersed, pale hairs. Ovipositor concolorous, short.


Although closely resembling *diversa* and *pudica*, it is at once
distinguished from the former by Rs distinctly longer than $R_2^+ + 3$, from the latter by the very long $S_e^1$, and from both by the
dark brown rostrum.

Infrequent. August 11, 1913; September 19, 1913; Septem-
ber 27, 1919.

**Dicranomyia badia** Walker, List, 1, p. 46, pl. xxi, fig. 20, *(Limnobia)*;

Mon. N. A. Dipt., iv, p. 72, pl. iv, fig. 2.

Rare. Not taken in recent years. August 15, 1911; Septem-
ber 21, 1910.

**Dicranomyia helva** Doane, Journ. N. Y. Ent. Soc., vii, p. 183, pl. vii, fig. 4.

Rare. September 15, 1914; September 30, 1915; October 7, 1913.

**Dicranomyia halterata** Osten-Sacken, Mon. N. A. Dipt., iv, p. 71, 1869.

Infrequent. May 27, 1916; September 24, 1918.
Dicranomyia ochracea Doane, Journ. N. Y. Ent. Soc., viii, p. 182, pl. vii, fig. 1.

Rare. Only two specimens taken. August 11, 1913; September 5, 1917.


Not rare. June 7, 1910; July 27, 1915; August 1, 1918; September 2, 1915.


Rare. June 21, 1919; October 7, 1913.


Very common. Damp situations; May to October.


Rather frequent. August to October.


Common. June to October, in swampy places.

Dicranomyia varipes spec. nov.

Brownish yellow; Sc long, ends some distance beyond the origin of the sector. Tarsal joints three and four white.

Male, length, 5.5 mm.; wing, 6 mm.

Head brownish-yellow; rostrum yellow, short; palpi dark brown, extreme base pale; face yellowish-white. Antennae dark brown, four basal joints large, cyathiform, following joints diminishing in thickness, last three joints elongate, slender. Thorax shining, brownish-yellow above; stripes obsolete; a fine, dark fuscous median line; a similar line, limiting the space occupied by the lateral stripes; pronotum and lateral thoracic margin a little paler with a pale sheen. Pleura paler with a faint sheen, shining. Halteres rather short, pale brown, club dark fuscous, elongate and but little broader than the pedicle. Legs yellowish, tarsal joints three and four white, last joint almost black. Wings light grayish-fuscous, slightly darker in apical portion. Sc ends at a considerable distance beyond the origin of Rs, Sc very short. Rs nearly twice the length of R²+³, very slightly curved; stigma pale fuscous, cross-vein r heavily infuscated, cell 1st M² closed. Abdomen brown above, shining; venter yellowish-brown; eight sternite pale yellow. Hypopygium brownish-yellow; the lower appendages smaller than usual in this genus.

Female, length, 4 mm.; wing, 5.5 mm.

General aspect a little darker; basal joints of antennae less thickened. Ovipositor sordid yellow, short.
Holotype.—♂; Hazleton, Pennsylvania. September 19, 1912.

Allotype.—♀; topotypic, September 22, 1912.

Paratypes, seven males and seven females, typotypic, September 17 to 23, 1912. All bred from a fungus on the trunk of a dead birch tree.

The long Sc with the peculiar coloration of the tarsal joints readily distinguish this species from all others.

Dieranomyia pellucidiguttata spec. nov.

Wings light fuscous, with pellucid spots and patches in all the cells; long; femora with a pale band before the apex.

Female, length, 7 mm.; wing, 7.5 mm.

Head, rostrum, palpi and scapal joints of the antennae, brownish-black; flagellar joints light brown, joints oval, outer joints more elongate, each joint with one or two long setae on the underside, and some of the segments with one or two short setae on the upper side. Thorax coffee brown, shining; pronotum and lateral margin paler; the median stripe of the presentum ill-defined and a trifle paler than the ground color, more so anteriorly. Scutum with pale, median vitta. Postnotum paler. Pleura pale brown with a faint sheen. Halter pale fuscous in basal half, outer half including club, fuscous. Legs brownish-yellow, pilosity moderately long and dense; coxae yellow; femora with a pale, subapical band; tibiae and tarsi darker, claws very small, with a slender tooth near the base beneath. Wings ample, light fuscous, with pellucid, or sub-pellucid, spots or patches in all the cells, except M2; the spots predominate in the apical cells, the patches, irregular or streak-like, in cells R, M, Cu, and A1. Sc long, ending at some distance beyond the origin of Rs; Sc1 \( 1^{\circ} \) subequal. Stigma large, oval, brown, a small, dark fuscous spot at end of Sc; Cu dark brown, smeared with fuscous; vein A1 slightly, A2 more markedly, undulated; cell 1st M2 closed. Abdomen brown, tergites indistinctly paler posteriorly; venter paler near the base. Ovipositor short, sordid yellowish, dorsal valves curved upward.


Taken in company with D. gladiator, in a swampy location at the foot of Fisher’s Hill, to the right of the highway, north of the city.

This pretty fly is unlike any other known to me. The long Sc, spotted wings and banded femora are similar to simulans Walker; it differs in the spots being pale on a darker ground color.

Genus LIMNOBIA Meigen

Limmobia Meigen, Illiger’s Mag., ii, p. 262, 1803.

Limnobia indigena Osten-Sacken, Proc. Acad. Nat. Sci. Phila., 1861, p. 215, pl. 3, fig. 3; Mon. X. A. Dipt., iv, p. 91, pl. iii, fig. 7.
   Infrequent. June 5, 15 and 27, 1911; October 2, 1919.

   Common in open woods. July.

   Not rare. August and September. I have bred this species from a Polyporus.

Tribe Antochini

Genus RHAMPHIDIA Meigen


Rhamphidia flavipes Macquart, Dipt. Exot. Suppl., v, p. 17, pl. 1, fig. 1.
   Rather common, in damp places; May to September.

Genus ELEPHANTOMYIA Osten-Sacken


Elephantomyia westwoodi Osten-Sacken, Proc. Acad. Nat. Sci. Phila., 1859, p. 221; Mon. X. A. Dipt., iv, p. 109, pl. 1, fig. 5 and pl. iii, fig. 8.
   Common in wet places with abundant vegetation; June to August.

Genus TOXORHINA Loew

Toxorhina Loew, Linnaea Entomol., v, p. 100.

   Rare. June 29, 1912; July 7, 1919; July 1, 1920.

Genus ATARBA Osten-Sacken

Atarba Osten-Sacken, Mon. X. A. Dipt., iv, p. 127, 1869.

Atarba picticornis Osten-Sacken, Mon. X. A. Dipt., iv, p. 128, pl. 1, fig. 13.
   Rare. July 29, 1912; July 1, 1919; July 6, 1920. Only three specimens taken.

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Genus **ANTOCHA** Osten-Sacken


Rare. A single example taken, June 26, 1909.

**Tribe Eriopterini**

Genus **GONOMYIA** Meigen


**Gonomyia manea** Osten-Sacken, Mon. N. A. Dipt., iv, p. 178, 1869.

St. Johns. June 21, 1918, six specimens; the only record.


Not common. June and September.


Scarce. May 29, 1912; July 18, 1910; July 27, 1915; July 20, 1920; September 2, 1915; September 12, 1917.

Genus **EMPEDA** Osten-Sacken

*Empeda* Osten-Sacken, Mon. N. A. Dipt., iv, p. 183, 1869.

**Empeda stigmatica** Osten-Sacken, Mon. N. A. Dipt., iv, p. 184, 1869.

Common locally. May to September.

Genus **HELOBIA** St. Fargeau and Serville

*Helobia* St. Fargeau and Serville, Encyclop. Method., Ins., x, p. 585.

**Helobia hybrida** Meigen, Klassif., p. 57, 1804; System. Beschr., i, p. 147, *(Limnobia)*; vi, p. 283, *(Symplecta)*.

Generally distributed. At times common; from April to late Fall.
Genus **GNOPHOMYIA** Osten-Sacken


Rare. May 29, 1916; July 19, 1911.

Genus **ERIOPTERA** Meigen

*Erioptera* Meigen, Illiger's Mag., ii, p. 262.

Subgenus **Erioptera** Meigen


Very common. Occurs from early Spring until late Fall; often seen in swarms in September.


Rare. July 6, 1920, August 29, 1919.

*Erioptera holoptica* spec. nov.

Near *megalophthalma* Alexander. Eyes large, narrowly separated above, broadly continuous beneath. Thoracic stripes well-marked; scutum, scutellum and postnotum spotted with reddish-brown.

Male, length, 3.5 mm.; wing, 4.2 mm.

Rostrum and mouthparts brownish; the narrow space between the eyes projects as a yellow, elevated ridge. Antennae rather short; scapal joints large, the first dark brown, the second paler; three to four basal joints of flagellum pale yellow, rapidly diminishing in thickness, outer joints very slender, light fuscous. Thorax pale yellow, prescutal stripes reddish-brown, very broad, leaving a very narrow interspace of the ground-color; the lateral stripes of the prescutum are broadly continued upon the scutum, leaving a narrow line of the ground color each side of the median line; a median stripe of scutellum and postnotum, and posterior border of scutellum, yellowish-
brown. Pleura light brownish-yellow, with a slight sheen. Halters sulphur-yellow, rather short, club large. Legs pale sulphur-yellow, pilosity sparse, scarcely perceptible except on the tarsi, outer joints of the latter infuscate.

**Abdomen** pale, reddish-brown, pilosity pale yellow, short and sparse. Hypopygium reddish-yellow.

**Holotype.** — ♂; Hazleton, Pennsylvania. June 18, 1914.

**Paratypes,** males, topotypic, two, July and August, 1910; one, August 1912; two, July 1913; one, August 1914; one, June 1915; one, June 1916; one, August 1919; one male Palmerton, Carbon County, Pennsylvania, June 6, 1920.

Distinguished from *megalophthalma* by its smaller size, absence of silvery line along inner orbital margin, well-marked thoracic stripes and strongly marked spotted scutum, scutel and postnotum.

A certain divergence from the type is observed in the eye, which in some specimens appears to be quite holoptic, while the inter-orbital ridge in others is nearly yellowish-brown. The color of the rostrum likewise varies from yellowish to brownish. The thoracic stripes, however, are well marked in all my specimens.

Two specimens, taken in 1920, differ sufficiently to be considered as a new variety.

**Erioptera holoptica fusco-antennata** var. nov.

Rostrum, mouth-parts and antennae, entirely dark fuscous. Antennae a little longer and less slender. The wings rather pale grayish, instead of yellowish.


**Paratype.** — ♂; topotypic.

It appears that *E. megalophthalma* Alexander, the above described species and variety, and *megalophthalma* Loew (Europe), form a distinct group, if not a subgenus.

**Subgenus Eryphona** Osten-Sacken

Mon. N. A. Dipt., iv, p. 151, pl. 11, fig. 17.


Rare. July 5, 1910; July 7, 1913; July 20, 1920.

**Erioptera armillaris** Osten-Sacken, Mon. N. A. Dipt., iv, p. 158, 1869.

Rare. July 14, 18, 23, 1910; July 29, 1912.
Subgenus: **Hoplolabis** Osten-Sacken

Mon. N. A. Dipt., iv, p. 152, pl. 1, fig. 18.


Not rare. May to September.

Subgenus: **Mesocyphona** Osten-Sacken

Mon. N. A. Dipt., iv, p. 152.

**Erioptera caloptera** Say, Journ. Acad. Nat. Sci. Phila., iii, p. 17; Complete Works, ii, p. 44.

Common, June to October.


A single specimen, taken July 7, 1910.

**Genus MOLOPHILUS** Curtis


Very common, June to September.


Common with the preceding in damp situations. June to August.


Very common, especially late in the season. Occurs from May to September.

**Molophilus forcipula** Osten-Sacken, Mon. N. A. Dipt., iv, p. 163, 1869, _Erioptera_.

Rather scarce from May to August; very common in September among low herbage in swampy situations.

**Molophilus forcipula heterocera** subsp. nov.

Differs from the typical form in the pale yellow antennal flagellum; the first scapal joint brown, the second, yellowish-brown. The sulphur-yellow humeral spot is scarcely noticeable. Other differences, if any, I fail to see.

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Holotype, —♂; Hazleton, Pennsylvania. September 16, 1913.
Paratype, two males, topotypic, same date.

Molophilus costopunctatus spec. nov.
Close to forcipula. Scapal and basal joints of flagellum, pale yellow. Wings with a dark fuscous costal spot.
Male, length, 2.3 mm.; wing, 4 mm.
Head reddish-brown above, palpi and rostrum dark fuscous. Antennae a little longer than the prescutum; scapal and basal joints pale yellow, outer joints light brown. Thorax light brown above. Pseudosutural foveae dark; stripes indistinct; a fine, darker, median line in anterior half. Pleura darker brown. Halteres pale, club fuscous. Legs yellowish-brown, coxae and base of femora paler; tarsi fuscous; pubescence fine, short. Wings pale with a yellowish tint; veins pale; a small but conspicuous, blackish spot on the costal margin, midway between cross vein r and end of R; basal deflection of Cu¹ longer and nearly in a line with the basal deflection of M 3+4; pilosity pale, fine, long and inconspicuous. Abdomen brown, venter scarcely paler, with pale yellow hairs. Hypopygium reddish-brown; pleurites elongated, dorsal appendages blackish, claw-like, curved dorsad; ventral appendages similar, curved ventrad.

Holotype.—♂; Hazleton, Pennsylvania. September 16, 1913.
Easily recognized by the dark costal spot.

Genus ORMOSIA Rondani

Ormosia Rondani, Prodromus, i, p. 180.

The holotype is the only specimen taken thus far. July 11, 1913.

(Erioplera); Mon. X. A. Dipt., iv, p. 111, pl. i, fig. 14.
Common in swampy localities; May. A number of specimens in my collection from other localities are labeled August and September.

Common. April and May, and again in September along rivulets.

Ormosia abnormis Dietz, Trans. Amer. Ent. Soc. xlii, p. 137, pl. x, fig. 3.
No more examples have turned up since the species was de-


The same remarks, as under the preceding species, apply here. June 11, 1913, July 1, 1913; July 25, 1914.

**Ormosia pygmaea** Alexander, Psyche, xix, p. 166, pl. xiii, fig. 3, 1912, (Trimmica); **Ormosia pilosa** Dietz, Trans. Amer. Ent. Soc., xlii, p. 139, pl. x, fig. 5.

Not rare. May to September.

**Ormosia nigrispila** Osten-Sacken, Mon. N. A. Dipt., iv, p. 142, 1869, (Rhyopholopus).

Rare. May and June; common in September in swamps.

**Ormosia palpalis** Dietz, Trans. Amer. Ent. Soc. xlii, p. 140, pl. x, fig. 6.

No additions to be reported to the holotype and single para-type; October 16, 1913; September 14, 1915.

**Ormosia rubella** Osten-Sacken, Mon. N. A. Dipt., iv, p. 144, pl. 1, fig. 15, (Rhyopholopus).

Very common. September and October.

**Ormosia rubella enigmatica** variety (?) nov.

This female specimen, agrees in every particular with the normal form except in the head, which is prolonged into a rostrum nearly as long as the thorax, moderately curved and of nearly equal thickness, tapering towards the apex. I cannot discover any palpal structures, except two very short projections near the base above. It may prove a freak.

Holotype.—♀; Hazleton, Pennsylvania. September 19, 1918.

**Ormosia deviata** Dietz, Trans. Amer. Ent. Soc., xlii, p. 143, pl. x, figs. 9 and 9a.

Not rare. May and June, and again in September.


This species was very common in May 1910 and 1911, but since then no specimens have been taken.

**Ormosia subcostata** spec. nov.

Wings unicolorous; costa darker from density of pubescence, the stigma a trifle darker; cell 1st M₂ opens into cell M₃; anal veins converging.

Male, length, 4 mm.; wing, 5.5 mm.

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Head gray above; rostrum and mouth-parts dark brown. Antennae light brown, of moderate length, slender; covered with a long, dense, whitish pilosity, approximately as long as the segments, and giving the antennae a pale appearance. Thorax grayish-livid, with a grayish-white pruinosity; sordid yellow, median dorsal stripe, wider anteriorly, margined each side by a dark, fuscous line, the latter becoming wider posteriorly; exteriorly to these lines, is a row of short, whitish hairs and beside these are scattered, whitish hairs. Postnotum darker. Pleura reddish-brown with whitish pruinosity. Halteres sordid yellow, club paler. Legs yellow, pubescence short and fine (tarsi wanting). Wings yellowish-gray, base more yellowish; costal cells and cell 2nd R appear infuscated; the darkening being due to the density of the pubescence; stigmal region a trifle darker. Veins rather strong, brown; cell 1st M² opens into cell M³; anal veins approach each other towards the wing margin. Pubescence long, brown and conspicuous, giving the wing a subfuscous appearance. Abdomen brown, covered with long, yellowish hairs. Hypopygium concolorous, pleurites large, bent ventrad and diverging; appendages small, blackish; the ninth sternite prolonged into a spatulate process.

Holotype. —♂; Hazleton, Pennsylvania, August 15, 1911.

Its nearest ally appears to be *perplexa*, from which it differs in its larger size, more slender antennae and the pale, median, thoracic stripe. The two dark lines, edging the yellow median stripe, resemble in some respect the dark thoracic lines of *bilincola*; the latter, however, is devoid of a yellow median stripe, besides other differences.

**Ormosia divergens** Dietz, Trans. Amer. Ent. Soc., xlii, p. 114, pl. x, fig. 10.

Rare. July 5, 1910 and July 22, 1915; June 14, 1915.

**Ormosia monticola** Osten-Sacken, Mon. N. A. Dipt., iv, p. 145, 1869, (Rhyophilophus).

Not common. June, September.

Tribe *Limnophilini*

Genus *ULA* Halidae

Ent. Mag., i, p. 153.

**Ula paupera** Osten-Sacken, Mon. N. A. Dipt., iv, p. 232.

Rare. May 25, 1912; September 29, 1919 and September 11, 1920. Only three specimens taken.

**Ula longicornis** spec. nov.

Antennae (♀) much longer than in *U. paupera* (♂), not paler at base. Thorax with sharply defined, broad, shining, brown stripes.

Male, length, 5 mm.; wing, 6.5 mm.
Head, rostrum and palpi, dark fuscous; a grayish margin along the orbits. Antennae long and slender, extended backward, they reach to about the middle of the abdomen; scapal joints short, not paler; basal flagellar segments about three times as long as thick, outer segments at least twice the length of their thickness; pubescence whitish, dense and evenly distributed; very few, but long, verticellar setae. Thorax brownish, with pale pollinosity and some luster; a sharply defined, rather broad, very shining, darker median stripe present. Pleura grayish-brown, pollinose. Halteres pale, club dark fuscous apically. Legs sordid yellow; anterior femora brown, except at base; outer half of middle femora, and apical part of posterior femora, brownish. Pubescence dense, and rather coarse. Wings grayish, unicolorous; veins brown; pubescence fine and evenly distributed. Abdomen brown, pilosity long, scattered. Hypopygium yellow, hairy; upper appendages blackish, short, claw-like.


Distinguished from paupera by the unicolorous and more strongly elongated antennae.

Genus **ULOMORPHA** Osten-Sacken


Not rare. May to September.

Genus **ADELPHOMYIA** Bergroth


*Adelphomyia pleuralis* spec. nov.

General coloration reddish-brown. Cell M1 present, cross-vein r absent; wing pubescence distinct. Pleura with fuscous stripes.

Male, length, 2.5 mm.; wing, 3.7 mm.

Head, rostrum and mouthparts dark fuscous; occiput dark gray with white periorbital line. Antennae, with the exception of the second joint, brown, the latter blackish; verticels strongly marked, pubescence short, pale. Thorax brownish-yellow; slightly pollinose, with some luster above; antero-lateral margin paler. Pleura paler, whitish pollinose; a dark fuscous, oblique line from the pronotum across the mesosternum; another fuscous line, parallel with the former, along the base of the coxae. Halteres pale throughout. Legs yellow; femora infuscate at the apex; tarsi scarcely darker; pilosity...
long and dense, especially on the tarsi. Wings semi-pellucid; pubescence rather long, and quite distinct in apical portion of wing; stigma indicated by a slight darkening of the membrane; cross-vein r absent; the Sc ends just about on a line with the basal deflection of R^{1+2}; Sc1 about five or six times the length of Sc2; sector long, slightly curved at its origin, and about as long as R2; basal deflection of R^{1+2}, a little more than one-half the length of cross-vein r-m, the latter is four-fifths the length of the basal deflection of Cu1, the latter before the middle of cell 1st M2. Abdomen light brown, sparsely hairy, hairs long; eighth segment nearly black. Hypopygium honey-yellow, hairy; appendages strong, claw-like, blackish.

Female, length, 3 mm.; wing, 4.5 mm.
Abdomen light brown, the penultimate segment scarcely darker. Ovipositor yellowish, curved upwards, the apical half of the valves blackish.


_Allotype._—♀; topotypic, June 21, 1919.

_Paratypes_, five males, July 6, 1910; five males, June 28, 1920; one female, July 6, 1920. All topotypic.

This species resembles _A. americana_ in its general coloration. The fuscous pleural stripes distinguish it from the three heretofore described American species. In some specimens cross-vein r is faintly indicated, and I find this also in some examples of _minuta_. The almost black, second antennal joint and penultimate abdominal segment of the male, are quite constant. The pedicle of cell M1 varies from three to four times the length of the cell.

**Adelphomyia hazletonensis** spec. nov.

_Near capuga._ Cell M1 absent; cross-vein r distinct.

_Male_, length, 3 mm.; wing, 4.5 mm.

General coloration yellowish-brown. Head grayish-brown above; rostrum, palpi and antennae dark brown, five to six basal joints incrassate, the flagellar joints one to three or four somewhat fused together, remainder of flagellum slender, joints elongate; hairs of the vertex very long, pubescence very fine. Thorax brown, shining; stripes obsolete; anterior half of pleura brown, posterior half yellowish-gray. Basal half of pedicle of halters white, outer half light brown, club dark brown. Legs dusky yellow; pilosity long, dense, brown, giving the legs a fuscous color; tarsi fuscous; tibiae nearly twice the length of the metatarsi, apical spurs very minute. Wings pale gray; veins brown, M weak; cross-vein r distinct, Sc1 long, nearly equal to R^{2+3}, cell M1 wanting; veins Cu1, A1 and A2 strongly incurved to the wing-margin; pubescence very sparse and confined to the apex of the wing, scattered long hairs over the wing surface; veins with setigerous punctures. Abdomen brown, somewhat paler beneath, with scattered hairs. Hypopygium brown, pleurites elongate, densely hairy.

_Holotype._—♂; Hazleton, Pennsylvania. September 1, 1920.
Paratype: — ♂, topotype and taken same day.

The two specimens were taken in a very wet, swampy place.

The neuration agrees exactly with that given by Alexander of his A. cayuga; there, cross-vein r is represented as present. This figure differs from that accompanying the original description, 3 where vein r is absent. Comparing the above type with a specimen of cayuga—minus abdomen—kindly given me by Dr. Alexander, hazletonensis is darker, the pleura anteriorly conspicuously dark brown, and paler posteriorly; the wings a trifle narrower, clearer pale gray and not yellowish near the base; the pubescence much more scanty and scarcely noticeable. I fail to see any long scattered hairs on the wing of cayuga, and the latter is a decidedly larger insect.

Genus **EPIPHRAGMA** Osten-Sacken


Common. May and June; in open woodlands on sandy soil near water; wet meadows.

Genus **LIMNOPHILA** Macquart

**Limnophila** Macquart, Suite à Buffon, Hist. Nat. Ins. Dipt., p. 95, 1834.

Subgenus **Dicranophragma** Osten-Sacken


Very common. May to August in moist places.

Subgenus **Ephelia** Schiner

**Ephelia** Schiner, Wiener Entom. Monatschrift., vi, p. 222, 1836; Schiner, Fauna Austriaca, ii, p. 519.

1 The Craneflies of New York, Part i, pl. xii, fig. 162.
2 Pomona Journ., iv, p. 830, 1912.

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Not rare. June, July and August.

Subgenus *Lasiomastix* Osten-Sacken


Not rare. Swampy localities, June, July and August.

Limnophila tenuicornis Osten-Sacken, Mon. N. A. Dipt., iv, p. 208, 1869.
Rare. My material was taken in June and July, from 1912 to 1916, none since.

Subgenus *Prionolabis* Osten-Sacken

*Prionolabis* Osten-Sacken, Proc. Acad. Nat. Sci. Phila., 1859, p. 239; Mon. N. A. Dipt., iv, p. 197, pl. ii, fig. 3 and pl. iv, fig. 27.

Limnophila rufibasis Osten-Sacken, Proc. Acad. Nat. Sci. Phila., 1859, p. 239; Mon. N. A. Dipt., iv, p. 225, pl. ii, fig. 3 and pl. iv, fig. 27.
Not rare. June and July in open woodlands; occasionally as early as April.

Limnophila mundoides Alexander, Journ. N. Y. Ent. Soc., xxiv, p. 120, pl. 8, fig. 3, 1916.
This species was of frequent occurrence in May and June, 1919. Not taken before or since.

Subgenus *Pseudolimnophila*


Quite common. June to August, in open woods.

Very common. June, July.

Limnophila inornata Osten-Sacken, Mon. N. A. Dipt., iv, p. 219, 1869
Rare. June 5, 9, and 19, 1912; June 30, 1913.
Limnophila contempta Osten-Sacken, Mon. N. A. Dipt., iv, p. 218, 1869.
Not rare. May to August.

Subgenus *Eulimnophila* Alexander


**Limnophila tenuipes** Say, Journ. Acad. Nat. Sci. Phila., iii, p. 21, 1823; Compl. Works, ii, p. 16 (*Limnobia*).
Common. June to August.

A single female taken June 21, 1919.

**Limnophila recondita** Osten-Sacken, Mon. N. A. Dipt., iv, p. 212, 1869.
Very common in June and July some years ago; rather scarce of late.

Subgenus *Phylidorea* Bigot

Rather common from May to August, some years ago, more rarely seen of late years.

**Limnophila lutea** Doane, Journ. N. Y. Ent. Soc., xvi, p. 191, 1900.
Of frequent occurrence from May to July in the years 1910 to 1916. No specimens taken since.

June 5, 1911; June 11, 1912; June 1, 1915; May and June, 1919.

**Limnophila consimilis** spec. nov.
Similar to *adjuncta* Dietz in size and coloration, especially of the legs. Costal cells not infuscated.

Male, length 8.4 mm.; wings, 8.2 mm.
Head dark fuscos, the ground color concealed under a dense, gray pollenosity on the vertex, less marked on front and rostrum. Antennae of moderate length, scapal joints dark brown, the first finely pruinose, elongate; the second short, cyathiform; flagellum yellowish-brown, the hairs of the verticels irregular, weak; pubescence whitish, long but not dense; joints elongated, the basal three joints somewhat thickened. Thorax yellowish. Pronotum reddish-brown in middle portion, extending upon the neck; lateral portion of pronotal scutum reddish-brown; prescutal stripes distinct, dark reddish-

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1 Introduced here on the authority of Dr. Alexander, The Craneflies of New York, part 1, pp. 918 and 919.
brown, highly polished and narrowly separated by fine lines of the ground-color; scutum reddish-brown, paler latero-posteriorly. Scutellum yellowish-brown, with scattered, pale hairs; postnotum yellowish-brown, paler laterally. Pleura brownish-yellow, shining. Halteres pale, pedicle finely pubescent, club infuscate. Legs brown, coxae, basal fourth of anterior femora, basal third of middle femora and basal half of posterior femora, yellowish; tibie pale brown, darkened at the apex, tarsi fuscous; pilosity blackish, dense and appressed. Wings pale yellowish, costal cells concolorous, stigma brown, distinct, the included part of R dark brown; apical portion, especially in costal region infuscate; veins brown, M and A1 paler; Se1 and 2 approximately equal; Rs short, subangulate near base and about one half longer than R2+3; pedicel of cell M 1 a little longer than this cell. Abdomen sordid yellow, darker posteriorly, with rather long, scattered, pale hairs. Hypopygium ferruginous, hairy; appendages short, blackish.

Female, length, 10 mm.; wing, 9.5 mm.

Differs from the male in its larger size, the less defined and paler thoracic stripes. The abdomen entirely light brown. Ovipositor ferruginous, valves very slender, curved. The antennae differ scarcity from those of the male.

*Holotype.—♀; Hazleton, Pennsylvania. June 28, 1912.*

*Allotype.—♂; toptotypic, June 21, 1912.*

*Paratypes*, males, topotypic, one, June 13, 1919; one, July, 1920; Palmerton, Carbon County, Pennsylvania, July 1, 1919; Black Mountains, North Carolina, June 1912, (W. Beutenmueller); females, topotypic, one, July 20, 1920; one, August 1, 1910; Palmerton, Carbon County, Pennsylvania, June 9, 1918; East River, Connecticut, June 1911, (Ely); Black Mountains, North Carolina, June 1912, (W. Beutenmueller).

Varies somewhat in distinctness of the thoracic stripes. The concolorous costal cells and somewhat larger size distinguish it from *adjuncta*.


Rare. June 19, 1911; July 3, 8 and 12, 1912. Not found since, although the same swampy ground has been collected over yearly.

*Subgenus Limnophila* Macquart


Not rare in September, from 1910 to 1915; not observed since.


Not rare, June and July; swamps.

Rare. May 15, 1911, the only record.

Limnophila fratia Osten-Sacken, Mon. N. A. Dipt., iv, p. 220.

Rare. June 4, 1917; a single male.


Rare. May 27, 1912; a single male.


Not rare. June and July.

Limnophila noveboracensis Alexander, Psyche, xviii, p. 196, pl. 16, fig. 3, 1911. This species should have been recorded under the subgenus Pseiuolimnophila.

Rare. July 22, 1915; July 5, 1917.


Common. Occurs the whole season; most frequently in May and June.


Very common. June to August, in swampy situations.

Limnophila congenita spec. nov.

Agrees with L. lenta in size and venation. They are distinguished as follows:

- **lenta**
  - Antennae light yellowish brown.
  - The ninth tergite scarcely projecting in the middle.
  - Pleurites elongate, straight, longer, diverging.
  - Penis guard bilobed at base.

- **congenita**
  - Antennae brown.
  - Ninth tergite emarginate on each side, acutely projecting in the middle.
  - Pleurites compact, bent intradapically.
  - Penis guard not bilobed.


**Allotype.** — ♀; topotypic, June 17, 1911.

**Paratypes,** topotypic, eight males, June 19, 1912; one, June 5, 1912; one, June 13, 1919; two, June 22, 1919, and one, June 21, 1920.
Tribe *Hexatomini*

During the ten years devoted to the collecting of crane-flies, I have failed to take a single representation of this tribe.

Tribe *Pediciini*

*Genus PEDICIA* Latreille


Rare; only four specimens taken in September, one each in 1911, 1913, 1917 and 1919.

*Genus TRICYPHONA* Zetterstedt

*Tricyphona* Zetterstedt, Ins. Lapponica, Dipt., p. 851, 1838.


Our commonest crane-fly; May to September.


Rare; in a swampy locality; May 27, 1920. One male.


Not rare in swampy localities; August, September.

*Genus DICRANOTA* Zetterstedt

*Dicranota* Zetterstedt, Ins. Lapponica, Dipt., p. 851, 1838.

*Dicranota eucera* Osten-Sacken, Mon. N. A. Dipt., iv, p. 281, 1869.


*Genus RHAPHIDOLABIS* Osten-Sacken

*Rhaphidolabis* Osten-Sacken, Mon. N. A. Dipt., iv, p. 284, 1869.

Subgenus *Rhaphidolabina* Alexander


Rare. June, 1912 and 1913; June 12, 1916; September 21, 1910.
Subgenus *Rhaphidolabis* Osten-Sacken

*Rhaphidolabis* Osten-Sacken, Monogr. N. A. Dipt., iv, p. 284.

*Rhaphidolabis tenuipes* Osten-Sacken, Mon. N. A. Dipt., iv, p. 287, 1869.

Infrequent in June and July, common in September, up to 1917. Not taken since.

Subfamily *Cylindrotominae*

Genus *Liogma* Osten-Sacken

*Liogma* Osten-Sacken, Mon. N. A. Dipt., p. 298, 1869.


Genus *Phalacrocera* Shiner


Common in a small, wet area, from the fourth to twenty-sixth of May, 1919.


One female taken June 30, 1913.

Subfamily *Tipulininae*

Tribe *Dolichopezini*

Genus *Dolichopeza* Curtis


*Dolichopeza americana* Needham, N. Y. State Mus. Bull., 124, p. 211, pl. xvi, fig. 5, 1908.

Only two examples taken; June 4, 1912, and June 13, 1919.

Genus *Oropeza* Needham


Common. June and July, in damp open woods.

*Trans. Am. Ent. Soc.*, XLVII.

Took a number of specimens in a swampy region, in June 1912, a few more were taken in June 1913, 1914 and 1915. Not seen since last record.

Tribe Tipulini

Genus PACHYRHINA Macquart


Pachyrhina nobilis Loew, Cent., iv, p. 21.

Not rare in a small, swampy area; in June.


A single specimen, taken July 27, 1915.


Rare. July 3, 1912; July 1, 1920.

Pachyrhina incurva Loew, Berlin Ent. Zeitschr., vii, p. 293, 1863; Cent., iv, p. 32.

Occurs frequently; May to August.


The holotype was taken at St. Johns, July 5, 1917; a second specimen secured at Hazleton, June 29, 1920.

Pachyrhina macrocera virgata subsp. nov.

Differs from the typical form in the posterior margin of the abdominal segments and the lateral margin of the tergum being conspicuously margined with black.


Paratypes, females, topotypic, one, August 4, 1916; Hazleton, Pennsylvania, July 9, 1912, July 24, 1918, July 30, 1920, August 6, 1912; Casco Bay, Maine, July 1913.

The two type specimens were taken May 23, 1916. No more individuals have been secured since.


Not rare. May to September.

Pachyrhina tenuis nigroantennata subsp. nov.

Differs from the typical form in its entirely fuscous antennal flagellum. The legs are brownish yellow and the abdomen darker posteriorly. The emargination of the eighth sternite is but sparsely beset with bristles.


One specimen, taken July 11, 1913.

Pachyrhina ferruginea Fabricius, Syst. Antl., p. 6, (Tipula).

Common. May to September, though less abundant of late years.


In the description of this species, the locality for the holotype was erroneously stated as “Black Mountains, North Carolina,” whereas it should have been—Hazleton, Pennsylvania, September 4, 1911. The paratype, however, came from the Black Mountains, North Carolina, (Wm. Beutenmueller).


Not rare. June to September.


Not rare in a circumscribed, marshy locality: June to August. Not taken since 1915.


A single male taken July 7, 1917. The types of this species were taken at Wyalusing, Bradford County, Penna.
Pachyrhina clandestina spec. nov.

In my Revision of Pachyrhina this form was tabulated in the "Synoptic Table of Species," but not mentioned in the body of the paper.


Female, length, 15.5 mm.; wing, 13.5 mm.

Head and rostrum yellowish-red; mouth-parts dark fuscous. Palpi light brown, paler at base. Frontal prolongation with blackish hairs, much longer on natus. Antennae of moderate length, scapal joints and first flagellar joint yellow, the latter darker at apex; following joints excised beneath, bicolored, basal half yellow. Occiput shining. Thorax sulphur yellow, shining above; stripes reddish-brown, sharply defined, interspaces narrow lines, almost effaced anteriorly; a well-marked oblique, black spot before the lateral stripes. Suture not tinted black. Scutum reddish-brown; median vitta and latero-posterior portion, sulphur yellow. Scutel and postnotum, pale yellow, slightly infuscate along the middle. Pleura concolorous, reddish spots on episterna; an oblique black dash on the lateral part of the pronotal scutel, similar to the one on the prescutum and directly below it. Halteres obscurely yellow, club fuscous. Legs obscurely yellow, darkened by the dense, very short, blackish pilosity; femora broadly, tibiae narrowly, dark fuscous at the apex; metatarsi longer than the tibiae; tarsi infuscate. Wings grayish, with a faint yellowish tint; costal cells and stigma yellow, the latter slightly darker; stem of cell M as long as the basal deflection of R. Cu just before the fork of M.


Distinguished from allied species with bicolored flagellum, and the joints yellow at base, by the conspicuous black spots on the anterior part of the thorax.

The labella in this specimen present a curious modification. They are in the form of a pair of elongate, lanceolate blades. In an effort to separate them in situ, they broke off. Placed on a slide for examination they disclosed a peculiar organ, somewhat in the form of a tuning-fork, both arms of which are knob-like, enlarged at the end, the enlargement directed intrad; from the base, between these arms, a long, slender, stiletto-like rod extends a trifle beyond the arms. This structure, apparently, was underneath the labella. What its homology is, I do not know.

Genus **NEPHROTOMA** Meigen


Not rare. June to August.

Genus **TIPULA** Linnaeus


Subgenus **Trichotipula** Alexander


Occurred frequently in May and June, years ago, in open woods. Not taken since 1915.

Subgenus **Tipula** Linnaeus


Rather common. May and June, open woods, meadows.

**Tipula similissima** spec. nov.

Agrees with *trivittata* in wing picture. Antennal flagellum unicolorous dark fuscous. Thoracic markings and abdomen alike in both.

**similissima**

Color of thorax more grayish-yellow; the mesosternum more distinctly infuscate.

The emargination of the ninth tergite broadly triangular, sides with two or three denticles; lateral angles of the emargination not acute.

Outer apical appendages elongate-triangular; the lower apical appendages shorter, reaching scarcely further than to the middle of the former, bicuspidate, the upper cusp longer.


**Paratypes**, males; topotypic, June 6, 1912, July 10, 1918 and 1919.

6 In my Synopsis of Tipula, etc., (Annals Ent. Soc. of America, 1913, p. 462) the reference to the ninth tergite of *trivittata* applies to the present species.

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Specimens of both these species, taken in coitu, should be pinned, if possible, on the same pin, to determine differences, if any, between the females.

Specimens submitted to Dr. Alexander were considered distinct from *trivittata* and rather close to *angulata*. These three species, together with *entomophthanae* Alexander and *huntsmaniana* Dietz, have the joints of the flagellum bicolored; the angulate post-stigmal fascia reaches the posterior wing margin in *angulata*, not in *huntsmaniana*. *Entomophthanae* is distinguished from *trivittata* and *similissima* by the angulate fascia not reaching the posterior wing margin. The species *stylifera* has a bicolored flagellum, and is distinguished from all its allies by the long slender process of the hypopygial pleurite.

**Tipula stylifera** spec. nov.

*Trivittata* group; joints of antennal flagellum bicolored. Hypopygial pleurite with a long, slender process.

Male; length, 14 mm.; wing, 18 mm.

Head yellowish-gray with dark, fronto-occipital line; frontal tubercle marked. Rostrum of moderate length, dusky-yellow; frontal prolongation grayish-yellow, pilosity very short, appressed and scarcely perceptible; nasus short, obtuse with a few hairs at the apex; mouth-parts dark fuscous; two basal joints of palpi grayish-yellow, outer joints fuscous. Antennae rather stout, three, basal joints yellow, following joints bicolored; basal enlargement marked, blackish, emarginate above the latter; verticils moderate, pubescence very short and fine. Thorax a soild grayish-white. Pronotal scutum dark yellow, scutel pale, infuscate laterally. Stripes of the prescutum grayish-fuscous, the median stripe broad anteriorly, greatly narrowed behind, with a whitish median line, expanded about the middle and narrowly margined with fuscous; lateral stripes about one-half the length of the median, irregularly margined with fuscous anteriorly; interspaces with black, setigerous punctures; pseudosutural foveae black, punctiform. Scutum fuscous, margin and median stripe yellowish-white; scutel gray, fuscous anteriorly; postnotum gray, with fuscous blotches. Pleura grayish-white, with irregular, pale fuscous blotches. Halter dusky-yellow, club fuscous. Wings grayish-fuscous; a fuscous patch at base of cells R and M, origin of sector, stigma and peristigmal space, extending to the base of cells R⁵ and R⁷; cross-veins and longitudinal veins more or less seamed with fuscous; hyaline spaces in cells 1st R, basal part of R and M exterior to the fuscous patch, a larger space at two-thirds of M, a small spot at one-fourth of A¹, two marginal spots in cell A¹, and several less distinct, in cell A²; the post-stigmal fascia
extends to middle of cell M. Legs dusky yellow; femora slightly infuscate at the apex; tarsi darker. Abdomen yellow above, without median stripe; a light fuscous patch on tergite two; border of tergum whitish and more or less margined with fuscous within. Venter pale gray, somewhat dusky along the middle. Eight sternite entire. Hypopygium brown; ninth tergite transversely quadrate, apical margin slightly emarginate, angles acute, transversely impressed; ninth sternite with deep U-shaped emargination. Pleural suture complete; pleurite with a long and slender process from the posterior angle, nearly straight, directed dorsal. Outer apical appendages spatulate; the inner expanded fan-like, hatchet-shaped.


The process of the hypopygial pleurite might suggest a similarity to *macrolabis* or *macrolaboides*, in both of which, however, the process is much heavier and curved. The wing pattern, also, is very different. Its differentiation from allied forms has been considered under *similissima*.

**Tipula fuliginosa** Say, Journ. Acad. Nat. Sci. Phila., iii, p. 18, (Ctenop'ora); Compl. Works, ii, p. 41. (Tipula speciosa Loew is the male.)

A male specimen found June 12, 1912, in a pool of water.


Common, June to August.


Rare. June 2, 1913; June 6, 1920.


Abundant in September, on low grounds, open woods, etc. Have never observed this fly before September.


Conyngham Valley, September 2, 1915. A number of specimens taken, resting on the trunk of a small tree.


Not rare; July to September. Common among reed-grasses in dried-up swamp land.

(Tipula calva) Doane, Journ. N. Y. Ent. Soc., ix, p. 114.)

Rare. June 2, 1913, on a hillside about five miles west of Hazleton; June 6, 1919.


May to September; more common in the earlier months.


Plentiful in a small area of dry waste land, in June 1912. Not observed since.


Rare. July 7, 1913; September 16, 1913.


A single specimen taken July 9, 1909.

Tipula tricolor Fabricius, Ent. Syst., iv, p. 235, 1791.

Rather common in former years, June and July; more rarely seen of late.

Tipula antiopa spec. nov.


Male; length, 17.5 mm.; wing, 21.5 mm.

Head. Face and front yellowish-gray; occiput gray with dark brown fronto-occipital line. Rostrum of moderate length; mouth-parts and palpi brown; frontal prolongation obscure yellow with a whitish bloom; nasus prominent, with short, black hairs. Antennae of medium length and thickness, scapal joints light brown, the second joint a little darker, the former transversely rugulose; first flagellar joint yellow, remainder yellow, basal enlargement blackish, somewhat emarginate beneath above the enlargement; setae of verticils strong, shorter than the respective segments, pubescence pale, very delicate and short. Thorax grayish-yellow. Pronotum brownish in middle and on the sides, the scutel whitish above. Preseutal stripes brown, broad, margined with darker, the middle stripe slightly narrowed behind, with a black, median line. Scutum with gray and fuscous blotches, the ground color merely appearing as a narrow margin. Scutel concolorous, a brown patch on each side. Postnotum concolorous, fuscous posteriorly. Pleura concolorous, with dense, white pollinosity, prosternum and mesosternum darker. Halter brown, extreme base yellow, club fuscous. Legs dark yellow, coxae pollinosie, pilosity short, dense, black; femora and tibiae somewhat infuscate towards the apices; tibiae shorter than the metatarsi; tarsi darker. Wings pale brown, costal cells yellowish-fuscous, vein dark brown, more or less heavily seamed with fuscous; the fuscous costal stripe interrupted
in outer end of cell R and 1st R; Cell M hyaline except a scant basal fourth, a hyaline stripe along base of Cu, A^1 and A^2; outer three-fifths of cell R^2, base of cell M, basal half of cells M^2 and M^1, basal two-thirds of cell Cu and base of 1st M^2, subhyaline.

Abdominal tergites one to six, yellow above, seven and eight, gray, sides of tergum broadly brown, interrupted by gray or yellowish-gray anteriorly on segments three to five, which encloses a short, transverse, fusous line: lateral margin of tergum, broadly grayish-yellow. Venter yellow. Eighth sternite short, simple. Hypopygium fusous, sides of ninth tergite yellow, median part projecting, rounded and impressed at its base. Ninth sternite ascending, deeply incised in the middle. Pleurite large, suture distinct: outer apical appendages large, broad and slightly curved outward, the outer end sub-bilobed and margined with white; the inner apical appendages small, flattened, ascending and widened apically; the lower appendages flattened, perpendicular lobes, margined with pale, somewhat protuberant.

Female: length, 21.5 mm.; wing, 21.8 mm.

Similar to male; the dorsal abdominal stripe is narrower extends upon the seventh tergite, and is yellowish gray in color. Ovipositor brown, shining, the valves rather short, the dorsal pair slender, the ventral pair broader and shorter, and, like the dorsal pair, nearly straight.

Holotype.—♂; Black Mountains, North Carolina. June 1912.
(With Beutenmueller.)

Allotype.—♀; Hazleton, Pennsylvania. June 5, 1912.

Paratypes, two males, topotypic and the same date. One female, Hazleton, Pennsylvania, June 1, 1909; and one female, same locality, June 28, 1920.

Differs from *caloptera* in its somewhat smaller size, less intense coloring, and cell M nearly entirely hyaline. It differs from *calopteroides* Alexander in its dark brown, strongly margined prescutal stripes; from *novobaracensis* Alexander in its distinctly bicolored flagellum.


One male: June 11, 1913.


Very common. June to August.

**Tipula inclusa** spec. nov.

*Hebes* group; close to *hebes* Loew, but general coloration darker; flagellar joints bicolorous. Hypopygium brown, three lateral appendages, all strongly chitinized.

Male; length, 13 mm.; wing, 14 mm.

Head gray above; rostrum short, brown; frontal prolongation with a heavy, gray bloom. Antennae long, slender; joints yellow, those of the flagellum
with dark brown, basal enlargement. Thorax yellowish-brown with the pattern of stripes usual in this group. Pleura obscure yellow with whitish pollinosity. Halter brown, base pale, club dark fuscous. The wing pattern well marked, but not intense. Abdomen yellowish-brown anteriorly, darker brown posteriorly, with some luster. Hypopygium dark brown, shining; the lateral processes strongly chitinized, the upper process prolonged into an acute point; the middle processes claw-like, but short and proximad to each other; the lower process pendulous, long, broad at base, becoming rounded and reaches nearly to the base of the incisure of the eighth sternite, its apex rather obtuse. The blade-like processes are protuberant, divergent, slender, and slightly twisted, the apices hooked. The eighth sternite is deeply tri-lobed, the middle lobe narrow, pointed and sparsely fringed.


Differs from _hebes_ and _latipennis_ (ottowaensis Dietz) which also have the antennal flagellum bicolored, in the dark brown, strongly chitinized pendulous process of the hypopygium, and in the acutely pointed, upper lateral process. From _helderbergensis_ Alexander, which also is a dark colored species, it differs in the bicolored flagellum.

A female taken at the same time as the paratype, though, not in coitus, has a strongly marked pleural stripe; an irregular ill-defined dorsal stripe, and broad, dark fuscous, lateral stripes of the abdomen.


Conyngham Valley; one male taken May 11, 1911.

**Tipula bicornis** Forbes, Sixteenth Rept. State Entom. Ill., p. 78, pl. 6, fig. 4, 1891.

Very common in open woods, meadows, moist places; June.


One male, taken June 26, 1913.


Very common. June.
REHN—NORTH AMERICAN OEDIPODINAE