

NEW OR LITTLE-KNOWN TIPULIDÆ FROM EASTERN ASIA (DIPTERA), XXX¹

By CHARLES P. ALEXANDER
Of Amherst, Massachusetts

THREE PLATES

The materials considered in the present report are chiefly derived from the following sources: China, collected in Hopei Province, northern China, by Mr. Chi Ho, and sent to me for study by my long-time friend, Dr. Chi Ping; a further series of interesting species from Mount Omei, secured by the Rev. Mr. George M. Franck. Japan, collected by Messrs. Esaki, Imanishi, Okada, Tokunaga, and Yamamoto. Eastern Siberia, based on very interesting collections submitted by the Russian Academy of Sciences, through the interest of Dr. Theodore Pleske and Dr. A. von Stackelberg. A few scattered specimens from diverse sources are acknowledged in the text. The types resulting from the Ho collections are deposited in the Fan Memorial Institute of Biology, Peiping; those from eastern Siberia in the collection of the Russian Academy of Sciences, Leningrad. Except where stated to the contrary, all further types are preserved in my personal series of these flies. I express my deep thanks to all of the above-mentioned entomologists for this continued friendly interest in submitting for study these neglected flies.

I am taking this opportunity to describe a new species of *Ptychoptera* from Sumatra, collected by Mrs. M. E. Walsh.

PTYCHOPTERIDÆ

PTYCHOPTERA SUMATRENSIS sp. nov. Plate 1, fig. 1.

General coloration of head and thorax blue-black; rostrum and front reddish yellow; cephalic third of postnotal mediotergite opalescent yellow; thoracic pleura yellow, the anepisternum and sternopleurite abruptly black; halteres black, the base of stem yellow; wings grayish yellow, the costal portion brighter yellow; two narrow dark brown crossbands; abdominal tergites annulated black and yellow.

¹ Contribution from the entomological laboratory, Massachusetts State College.

Male.—Length, about 8.5 millimeters; wing, 7.5.

Female.—Length, about 10 to 11 millimeters; wing, 7.7 to 8.2.

Rostrum reddish yellow; palpi with basal segment yellow, the outer segments brownish black. Antennæ with scape and pedicel yellow, flagellum black (antennæ of male broken). Front and anterior vertex reddish, the posterior portions of head blue-black.

Pronotum and propleura honey yellow. Mesonotum with scutum and scutellum uniformly blue-black, the præscutal interspaces more uniformly black; mediotergite opalescent yellow across the basal one-third to two-fifths, the posterior portion blackened; pleurotergite polished black. Pleura honey yellow, including the dorsopleural membrane; anepisternum and sternopleurite abruptly blackened. Halteres black, the base of stem narrowly yellow. Legs with the coxæ and trochanters yellow; femora yellow, the tips narrowly but conspicuously blackened; tibiæ obscure brownish yellow, the tips very narrowly darkened; tarsi black, the basitarsi paler, especially the posterior pair. Wings (Plate 1, fig. 1) tinged with pale grayish yellow, the prearcular and costal fields brighter yellow; two narrow, nearly continuous, dark brown crossbands, the first at cord, extending from R to the bend of vein Cu_1 ; second band extending from stigma across the forks of the outer veins, continuous or nearly so; wing tip insensibly darkened. Macrotrichia of outer cells abundant, extending basad in center of cell R before the cord (trichia indicated in figure by stippled dots). Venation: Rs short to very short; basal section of R_5 present or lacking.

Abdominal tergites annulated black and yellow, the bases of the segments beyond the second yellow, the apices broadly black, increasing in amount outwardly, the subterminal segments almost uniformly blackened; second tergite blackened at either end, yellow on central portion; basal tergite black, yellow at extreme base; sternites and genital segments of both sexes orange-yellow.

Habitat.—Sumatra (south).

Holotype, male, Pagar Alam, Palembang, altitude 2,250 feet, May 23, 1935 (*Walsh*). Allotopotype, female. Paratopotypes, 2 females.

The nearest described relatives of the present fly are *Ptychoptera annandalei* Brunetti (Burma) and *P. formosensis* Alexander (Formosa), both of which have the scutellum reddish yellow and the pleura pale yellow, unmarked. The hypopygial details are quite distinct in all three species. I have

recorded² an undetermined species of *Ptychoptera* as occurring in western Sumatra. The present record marks the most southeasterly distribution of the family yet made known.

TIPULIDÆ

TIPULINÆ

CTENOPHORARIA

Members of the subtribe Ctenophoraria are abundantly represented in eastern Asia, a few of the species (*Pselliophora*) occurring east of Wallace's Line in Wallacea. I am providing a key to the genera but have been obliged at this time to use only male characters. Females of several of the groups are very similar in their general appearance and no adequate characters seem to be available to distinguish such critical species. It seems very probable that *Dictenidia*, *Ctenophora*, and *Pselliophora*, at least, will eventually be reduced to subgeneric rank under the oldest name, *Ctenophora* Meigen.

Cnemoncosis Enderlein³ can scarcely be maintained even as a subgeneric name as distinct from *Ctenophora*. The name is based on a species, *nohirai* Matsumura (as *hilgendorfi* Enderlein), that shows in both sexes a conspicuous dilation of the posterior tibiæ. It may be noted that the nearest ally, *Ctenophora yezoana* Matsumura, does not show this dilation, and it is evident that in the case where it occurs it is a specific feature only. Moreover, there are still other species of *Ctenophora* (as *C. pilosa* Pierre and *C. tricolor* Loew) that show a comparable expansion of the posterior femora, but these undoubtedly are congeneric with *Ctenophora* and no special name has been required for their reception.

Key to the Ctenophoraria of eastern Asia.

GENERA (MALE SEX ONLY)

1. Flagellar segments with obtusely rounded lobes, the longest not three times the diameter of the segment 2.
- Flagellar segments beyond the first with distinct branches that are several times as long as the diameter of the segment..... 3.
2. Flagellar segments 3 to 13 each with two obtuse semiovate lobes, the more basal one slightly larger, about two and one-half times the diameter of the segment, the outer lobe a little shorter.

Plocimas Enderlein.

Flagellar segments 3 to 12 each with a single obtuse lobe.

Prionota van der Wulp.

² Supplementa Entomologica 15 (1927) 90.

³ Zool. Anzeig. 52 (1921) 219-220.

3. Flagellar segments each with two branches, one basal, one subapical, the former with setæ at tip; wings (except in *inæquiptinata*) with sparse macrotrichia in outer cells..... *Dictenidia* Brulle.
 Flagellar segments each with three or four branches; wings without macrotrichia in cells 4.
4. Flagellar segments each with three branches, the basal pair with scattered elongate setæ, the outer unpaired lobule shorter and without major setæ *Tanyptera* Latreille.
 Flagellar segments with four branches, a basal and an outer pair..... 5.
5. Flagellar branches unequal, the outer pair shorter than the basal ones. *Ctenophora* Meigen.
 Flagellar branches equal in length or virtually so..... 6.
6. Flagellar branches short; first flagellar segment with two short branches, one basal, the other subapical, the latter deeply bifid. *Malpighia* Enderlein.
 Flagellar branches long and slender, abundantly clothed with delicate erect setulæ; first flagellar segment with a single lobe that is pointed at apex *Pselliophora* Osten Sacken.

MALPIGHIA VITTATA (Meigen).

Ctenophora vittata MEIGEN, Syst. Beschreib. 6 (1830) 285.

Ctenophora amœna LOEW, Beschreib. Europ. Dipteren 2 (1871) 22-24; 3 (1873) 3 (in part).

Malpighia vittata ENDERLEIN, Zool. Jahrb., Syst. 32 (1912) 19-21, figs. C, D.

This species appears to be very wide-spread over the entire northern Palæarctic Region. The degree of variation in the structure of the male antennæ and hypopygium seems to permit the recognition of but a single valid species throughout this vast area. Moreover, it is very questionable whether *Malpighia angustipennis* (Loew), of western North America, can possibly be maintained as being more than a geographic race. The validity of *M. portschinskyi* Enderlein, described from a figure made many years ago by Portschinsky, is very questionable, and presumably can be settled only by examination of Portschinsky's type, if such still exists. Regarding the synonymy of *amœna* (Loew), as indicated above, the type specimen is a composite, the head being from a *Tanyptera atrata* (Linnæus) and glued to the body of a male *Malpighia vittata*.

The species, as it occurs in eastern Asia, may be briefly re-described:

Antennal scape and pedicel black in both sexes. In the male the simple basal lobe of the first flagellar segment is usually bright orange, the bifid outer lobe brownish black, similar to the other flagellar branches. In the female only nine distinct antennal segments, the seventh flagellar being pointed at tip and evidently the product of fusion of five segments, its total

length less than the combined seventh and eighth antennal segments. Enderlein⁴ figures the female antennæ as having thirteen distinct segments, but this condition certainly does not obtain in any material that I have seen. The flagellum of the female is orange throughout. Head and mesothorax black, variegated only by the bright yellow dorsopleural membrane and the orange pronotal scutellum. Abdominal tergites with the broad black median stripe of female continuous and of nearly equal width throughout, but in some specimens with the dorsum of the outer three or four tergites black, interrupted by yellow caudal rings; lateral tergal darkenings distinct or greatly reduced, in cases virtually lacking.

Numerous records are available from eastern Siberia and northern China, but to this date I have no record of the genus or species from Japan.

Golden Horn, Vladivostok, June 4, 1911 (*Rydzewski and Kusnetzov*); Vinogradovka, Ussuri, June 13, 1929 (*Djakonov and Filippjev*); Jakovlevka, Spassk district, June 3, 1926 (*Djakonov and Filippjev*); Maiche region, near Shkotovo, Ussuri, June 4, 1927 (*Stackelberg*); Okeanoskaja, near Vladivostok, June 25, 1926 (*Mordvilko*); Uval, Ussuri, May 12, 1913 (*Jemeljanov*); Amur River, near Kolvo, June 22 to 25, 1911 (*Soldatov*); near Permskaje, Habarovsk, June 3, 1911 (*Soldatov*); material in the Russian Academy of Sciences.

Eastern Tombs, Hopei Province, northern China, altitude 4,875 feet, June 7, 1931 (*C. Ho*); Fan Memorial Institute of Biology.

DICTENIDIA BIMACULATA (Linnæus).

Tipula bimaculata LINNÆUS, Fauna Suec. ed. 2 (1761) 433; Syst. Naturæ ed. 12 (1767) 972.

Okeanoskaja station, near Vladivostok, July 22 and August 7 to 12, 1911 (*Schavinskaya*); Russian Academy of Sciences.

I had earlier⁵ recorded this European species from Kamchatka.

DICTENIDIA LUTEICOSTALIS Alexander.

Dictenidia luteicostalis ALEXANDER, Philip. Journ. Sci. 59 (1936) 228.

The type was from Szechwan, western China. A second female, Eastern Tombs, Hopei Province, northern China, altitude 4,875 feet, July 17, 1930 (*Ho*).

⁴ Zool. Jahrb., Syst. 32 (1912) 19, fig. D.

⁵ Arkiv för Zoologi 19 A, No. 9 (1927) 6.

This second specimen is a little larger than the type, the posterior leg being correspondingly conspicuous. The black pattern of the mesonotum is somewhat different from the type, there being three entire præscutal stripes and conspicuous blackened areas on the scutal lobes.

DICTENIDIA PICTIPENNIS PICTIPENNIS Portschinsky.

Ctenophora pictipennis PORTSCHINSKY, Horæ Soc. Ent. Rossicæ 21 (1887) 3-4, pl. 1, fig. 1.

Dictenidia fasciata semifasciata ALEXANDER, Ann. & Mag. Nat. Hist. IX 15 (1925) 392.

The type of *pictipennis* was from Vladivostok; that of *semifasciata* from various stations in Hokkaido, northern Japan. There is no doubt that the name *pictipennis* must replace *fasciata* Coquillett for the commonest species of the genus in eastern Asia; the latter name may be retained for the form or subspecies having the broad basal dark fascia completely traversing the wing without change in color.

The two forms seem to intergrade almost insensibly. A female from Iwate, Japan (July, 1916, *Nohira*) has cells Cu, 1st A, and 2d A pale. The type material of *semifasciata* has the dark color of the basal fascia restricted to cells C to R, inclusive. The Chinese specimen recorded below has this dark pattern still different, restricted to cells R and M, cells C and Sc being uniformly pale.

As now known, typical *pictipennis* has a range including northern Japan, eastern Siberia, and northern China.

Sedanka, near Vladivostok, August 10, 1913 (*Berger*); Habarovsk, Ussuri, July 28, 1927 (*Stackelberg*). Eastern Tombs, Hopei Province, northern China, altitude 4,875 feet, July 17, 1930 (*Ho*).

CTENOPHORA YEZOANA Matsumura.

Ctenophora yezoana MATSUMURA, Thousand Insects of Japan 2 (1906) 124, pl. 29, fig. 6.

Cnemoncosis uniplagiata ALEXANDER, Ann. Ent. Soc. America 17 (1924) 442.

Matsumura's original description of *yezoana* is entirely in Japanese. The type material of *uniplagiata* differs markedly from the description of *yezoana*, especially in the pattern of the thorax, and it seems evident that the sclerites of the thoracic dorsum were much confused by Matsumura. The color pattern, as shown by the types of *uniplagiata*, varies somewhat in dif-

ferent individuals but always within restricted limits that may be described as follows:

Anterior border of præscutum uniformly blackened, the yellow referred to by Matsumura evidently pertaining to the broad central yellow area of the pronotal scutellum; three distinct black or brownish black præscutal stripes, in cases with the laterals joined to the median by a dark cloud on the anterior interspace; yellow ground color of præscutum restricted to the humeral triangle and the interspaces; scutum black, usually including the median area, the broad posterior borders of the scutal lobes yellow; scutellum entirely black; mediotergite black, each anterolateral angle broadly yellow. Pleura black, the dorsopleural membrane broadly light yellow.

Antennal scape and pedicel black dorsally, paler beneath; flagellum (female) light yellowish brown. Frontal prolongation of head and front yellow, narrowly lined medially with black; genæ protuberant, yellow. Second abdominal tergite yellow, the outer third blackened, sending a median dark line to anterior border; posterior yellow margins of succeeding segments entire or broken by a median black prolongation.

CTENOPHORA YEZOANA NIGROBASALIS subsp. nov. Plate 1, fig. 2.

Male.—Length, about 20 millimeters; wing, 15.

Female.—Length, about 20 to 25 millimeters; wing, 13 to 17.

Characters as in typical *yezoana* Matsumura, differing as follows:

Antennæ (male) black, the entire lower surface of scape yellow; in female, antennal flagellum entirely black. Surface of thorax entirely dull, not at all polished as in most species of the genus. Thoracic pleura conspicuously variegated by yellow, including major areas on the ventral pleurotergite, almost the entire pteropleurite and the dorsal sternopleurite. Fore and, in cases, middle coxæ yellow or reddish, posterior coxæ black, pruinose; posterior tibiæ black, with a broad whitish ring at and beyond midlength; in typical *yezoana* the entire basal half of this tibia is chiefly pale. Wing venation as shown (Plate 1, fig. 2). Abdominal tergites yellow, with a median black line that expands at the posterior border; basal rings of tergites narrowly blackened, the color continued caudad along the lateral border of the tergite almost to the posterior margin, inclosing sublateral areas of the ground color; eighth and ninth segments (male) uniformly black; basal sternites almost uniformly yellow, the outer seg-

ments progressively more darkened medially. In the female the yellow intersegmental membrane shows on the dorsum as transverse annuli between the tergites.

Habitat.—Eastern Siberia (Ussuri).

Holotype, male, Jakovlevka, Spassk district, June 17, 1926 (*Djakonov and Filippjev*). Allotopotype, female, July 2, 1926. Paratype, female, Golden Horn, Vladivostok, May 29, 1911 (*Rydzevski and Kusnetzov*).

The essential distinctions lie in the black antennal flagellum of female, the variegated thoracic pleura, the blackened bases of the posterior tibiae, and the abdominal pattern.

CTENOPHORA BIGUTTATA Matsumura.

Ctenophora biguttata MATSUMURA, Thousand Insects of Japan, Add. 2 (1916) 454–455, pl. 24, fig. 16.

This fly, described from northern Japan, is now known from several stations in eastern Siberia, recorded below. The species varies very notably in the pattern of the mesonotal præscutum, in many cases, including the type, there being three entire black stripes, in other individuals with the lateral stripes partly or entirely obliterated. The brownish black to black subterminal ring of the posterior femur is conspicuous and usually entire, but in some cases obliterated on the ventral surface of the sclerite.

Jakovlevka, Spassk district, Ussuri, June 17, 1926 (*Djakonov and Filippjev*); June 25, 1927 (*Martynov*); Tigrowaja, Suchan district, June 16, 1927 (*Stackelberg*); 20 kilometers east of Spasskoje, May 11 to June 24, 1910 (*Skonninov*). All of these specimens are females.

CTENOPHORA FEMUR-RUBRA sp. nov. Plate 1, fig. 3.

Closely related to *Ctenophora biguttata* Matsumura, differing especially in certain features of coloration.

Female.—Length, 20 to 24 millimeters; wing, 17 to 18.

Frontal prolongation of head reddish throughout or (type) blackened on sides.

Mesonotal præscutum reddish, with a single median black stripe, narrowed behind and not or scarcely reaching the suture; posterior sclerites of notum uniformly reddish, with the exception of a posterior darkening on the mediotergite. In *biguttata* there are usually three distinct præscutal stripes, the centers of the scutal lobes are blackened, the scutellum is uniformly black, and the dark area on mediotergite is more extensive. Pleura reddish, the dorsopleural membrane bright yellow; anepister-

num and sternopleurite black. Legs with all coxæ, trochanters, and femora reddish, the posterior femora less swollen near tips than in *biguttata* and without the conspicuous black subterminal darkening of the latter; posterior tibiæ orange-yellow on basal half, the posterior half clearer yellow; in *biguttata*, yellowish at base, with a broad blackish ring near midlength; posterior tarsi entirely pale. Wings (Plate 1, fig. 3) with the pattern much as in *biguttata*, the anterior half darkened, the posterior cells paler; in the paratype the posterior cells are darker, not contrasting markedly with the remainder of wing. Abdomen with outer tergites more variegated laterally with yellow.

Habitat.—Saghalien; northern China.

Holotype, Manui, Saghalien, August 3, 1922 (*Esaki*).

Paratype, female, Eastern Tombs, Hopei Province, northern China, altitude 4,875 feet, June 9, 1931 (*Ho*).

I have recorded⁶ the above-mentioned Saghalien material as being *Ctenophora biguttata* Matsumura. A third closely related species is *C. parva* Portschinsky (Ussuri), which differs especially in the smaller size and almost uniformly blackened head and thorax. It is possible that these three supposed species may be found to represent forms or races of a single highly variable species.

PSELLIOPHORA BIFASCIIPENNIS Brunetti.

Pselliophora bifasciipennis BRUNETTI, Rec. Indian Mus. 6 (1911) 241–242.

Pselliophora sackeni EDWARDS, Ann. & Mag. Nat. Hist. VIII 18 (1916) 257.

Dictenidia Horikawæ MATSUMURA, Thousand Insects of Japan, Add. 2 (1916) 449–450.

Pselliophora compta ENDERLEIN, Zool. Anzeig. 52 (1921) 220–221.

A male specimen, Harbin, Manchoukuo, July 1, 1909 (*Vassiljev*), in the Russian Academy of Sciences, provides the most northern known record for this genus and species.

In body coloration this specimen might well be taken to represent a distinct species, but the wing pattern and structure of the male hypopygium indicate that it pertains to this highly variable species. Head and thorax uniformly orange, without dark markings. Abdomen orange, the tergites with a narrow median dark vitta; hypopygium dark brown, the tergal lobes passing into black.

Scarcely anything is known concerning the degree of color variation in this genus. The allied *Ctenophora apicata* Osten

⁶ Philip. Journ. Sci. 24 (1924) 596.

Sacken (Nearctic) has been shown to be highly polymorphic, the body coloration ranging from black to reddish yellow.⁷

TANYPTERA JOZANA UNILINEATA subsp. nov.

General coloration of mesonotum reddish, the præscutum with a single, median, polished, black stripe; antennæ (male) with flagellar segments chiefly yellow, the tips of the branches dusky; wings strongly suffused with yellow, stigma black or brownish black; abdomen, including the hypopygium, reddish, the tergites with a nearly continuous median black stripe.

Male.—Length, about 20 millimeters; wing, 15 to 17.

Female.—Length, 25 to 28 millimeters; wing, 15 to 18.

Male.—Antennæ with the scape black; pedicel and flagellum chiefly yellow, the outer ends of the branches dusky, more evident on the outer segments. Head black.

Mesonotal præscutum deep reddish, with a single median black stripe, narrowed behind and reaching the suture; posterior sclerites of mesonotum reddish, the caudal margin of mediotergite blackened; in cases (Vladivostok specimen) with the scutellum black. Pleura reddish, variegated with darker areas, the ground color more or less restricted to beneath the wing root; dorso-pleural membrane yellow. Halteres yellow. Legs yellow, the outer tarsal segments black; in cases (Vladivostok specimen) with femoral tips narrowly blackened. Wings strongly suffused with yellow; stigma black or brownish black.

Abdomen reddish, the color including the hypopygium; tergites with a narrow, nearly continuous, black, median stripe, the areas a little expanded behind on the individual segments; hypopygium relatively large.

Female.—Abdomen with basal two segments reddish, the remainder black, or reddish with a black median line on tergites, the caudal borders of the segments yellow.

Habitat.—Eastern Siberia; northern China.

Holotype, male, Kamen-Rybolov, Lake Chanka, Ussuri, Siberia, May 22, 1908 (*Djukan*). Allotype, female, Reinovo, Dshalinda, Amur, July 1 to 3, 1915 (*Popoff*). Paratypes, male, Golden Horn, Vladivostok, May 28, 1911 (*Rydzewski and Kusnetzov*); male, Ulunga, Amur Province, June 3, 1910 (*Mishin*); female, Eastern Tombs, Hopei Province, northern China, altitude 4,875 feet, July 14, 1930 (*Ho*).

The reddish mesonotum, with a single median black stripe, distinguishes the present fly from typical *jozana* (Matsumura).

⁷ Johannsen, O. A., Maine Agr. Exp. Sta. Bull. 177 (1910) 32-35.

TIPULARIA

TIPULA (TIPULODINA) HOPEIENSIS sp. nov. Plate 1, fig. 4; Plate 2, figs. 25 and 26.

General coloration gray, the præscutum with three brown stripes; pleura uniformly light yellow; antennæ (male) short, if bent backward not attaining the wing root; posterior tibia with two white rings; all tarsi with outer three segments darkened; wings weakly infumed, clearer white before and beyond cord; a restricted darker brown pattern at wing tip; male hypopygium with the eighth sternite only moderately sheathing; appendage of basistyle straight, with a blackened spine near tip.

Male.—Length, about 15 millimeters; wing, 14.5.

Frontal prolongation of head brown; nasus distinct; palpi brownish black, the terminal segment of moderate length only, paling to yellow. Antennæ short, if bent backward not attaining the wing root; scape and pedicel light yellow, flagellum black; flagellar segments subcylindrical, the basal enlargement very insignificant; verticils chiefly unilateral in distribution, shorter than the segments. Front light silvery gray; posterior part of head darker brownish gray, with very vague suggestions of a median darker vitta.

Pronotum brownish gray medially, yellow on sides. Mesonotal præscutum light gray, with three brown stripes, the median one divided on anterior half by a capillary darker vitta; scutum dark gray, each lobe with two brown areas; scutellum blackish, the parascutella a little paler; mediotergite brownish gray; pleurotergite yellow, the dorsal portion more grayish. Pleura, including the dorsopleural region, light yellow. Halteres brownish yellow, the knobs infuscated. Legs with the coxæ and trochanters yellow; all femora yellow, the tips narrowly but conspicuously blackened; fore tibia black, the basal fifth a trifle brightened; a relatively narrow snowy white ring before the subequal black apex; midtibia similar, the white ring a trifle more extensive than the apex; posterior tibia with two white rings, the subbasal one less clearly white than the subapical, the latter about one-third more extensive than the dark apex; basitarsi black on proximal portions; second tarsal segment dirty white, more or less darkened at either end; outer three tarsal segments darkened; legs long and slender. Wings (Plate 1, fig. 4) with the ground color weakly infumed, clearer white before and beyond the cord; cell Sc and stigma dark brown; wing tip in cells R₂ to R₅, inclusive, paler brown; cord narrowly seamed with brown, interrupted at fork of M; veins brown, paler

in the whitish areas. Venation: Rs a little shorter than R_{2+3} ; second section of vein M_{1+2} arcuated, narrowing the base of cell R_5 ; petiole of cell M_1 shorter than m ; basal section of M_3 shorter than m ; cell 2d A very narrow, striplike.

Abdominal tergites brownish black, the basal three segments more brownish on sides; hypopygium black; styli and hypopygial appendages yellow. Male hypopygium (Plate 2, fig. 25) with the tergite, 9t, separated from the sternite by membrane; basistyle, *b*, relatively large, fused with the sternite except on ventral portion, the caudal margin obtusely rounded; appendage of basistyle as figured (Plate 2, fig. 26). Ninth tergite (Plate 2, fig. 25, 9t) transverse, the caudal-lateral angles rounded, the median region produced slightly caudad and bearing a small tuft of black setæ at lateral portions; viewed from beneath, these lateral portions are produced ventrad into flattened sclerotized plates. Outer dististyle (Plate 2, fig. 26, *od*) slender, entirely pale. Inner dististyle (Plate 2, fig. 26, *id*) of complicated structure, as figured; a highly compressed pale blade, with a powerful posterior blackened arm. Eighth sternite, 8s, relatively short and only moderately sheathing the ninth, the apex obtuse and provided with a sparse fringe of short setæ; distal portion of sternite thinner and paler than basal portion.

Habitat.—China (Hopei).

Holotype, male, Eastern Tombs, altitude 4,875 feet, July 13, 1930 (*Ho*); Fan Memorial Institute No. 2730.

The closest relative is *Tipula* (*Tipulodina*) *nipponica* (Alexander), of Kiushiu, Japan, which differs in the larger size, gray pleura and coxæ, white outer tarsal segments, and wider cell 2d A. I have never seen a male of this latter species. The present record indicates the most northern distribution for any member of the subgenus (40° north latitude).

TIPULA (YAMATOTIPULA) PARVINCISA Alexander.

Tipula (*Tipula*) *parvincisa* ALEXANDER, Philip. Journ. Sci. 52 (1933) 311-312.

The types were from the Ussuri district, eastern Siberia, as far south as Vladivostok.

Males and females, Peiping, Hopei, China, June 18, 1930 (*Ho*).

TIPULA (OREOMYZA) PINGI sp. nov. Plate 1, fig. 5; Plate 2, fig. 27.

General coloration gray, the præscutum with four entire darker brownish gray stripes; antennæ with basal three segments yellow, the remainder black; head with a capillary brown median vitta on vertex; wings with borders chiefly darkened,

the disk and bases of anal cells whitened; outer half of cell R_5 white; abdominal tergites obscure yellow, trivittate with brownish black, the fifth and succeeding segments uniformly darkened; male hypopygium with the tergite bearing an acute median point; outer dististyle broadly spatulate.

Male.—Length, about 13 millimeters; wing, 14.

Female.—Length, about 20 millimeters; wing, 16.5.

Frontal prolongation of head light brown, moderately elongate, nasus conspicuous; palpi black. Antennæ (male) relatively short, if bent backward not attaining the wing root; basal three segments yellow, the remainder black; basal enlargements of the segments only feebly indicated; longest verticils subequal to the segments; terminal segment reduced to a small oval structure. Head light gray, the front and anterior vertex more whitish; a very delicate capillary brown vitta from the vertical tubercle to the occiput; posterior genæ suffused with dusky.

Mesonotal præscutum gray, with four darker brownish gray stripes that are unbordered with darker and not well-defined against the ground; intermediate stripes strongly narrowed behind; posterior sclerites of notum gray, without distinct markings. Pleura pale gray, the dorsopleural membrane light yellow. Halteres yellow, the knobs dark brown. Legs with the coxæ pruinose; trochanters yellow; femora yellow, the tips narrowly but conspicuously blackened; tibiæ yellowish brown, the tips narrowly darkened; tarsi brownish black; tibial spur formula 1-2-2; claws (male) with long basal tooth. Wings (Plate 1, fig. 5) with the borders chiefly darkened, the center of disk and bases of anal cells white; prearcular field and cells C and Sc uniformly darkened, the latter a little more intense; a conspicuous white poststigmatal band, beginning at costa, ending in bases of cells M_3 and M_4 , more or less confluent across the cord with the major pale area in cell M; distal half of cell R_5 conspicuously pale; pale areas before and beyond origin of Rs in cell R; pale area in cell M divided at near midlength by a narrow, oblique, brown vitta, the outer pale subarea a little larger; cell Cu chiefly pale on more than basal half, the distal portion darkened; cell Cu_1 and seam on m-cu narrowly dark brown; veins pale yellow in the whitish areas, darker in the brown markings. Venation: Rs nearly twice as long as m-cu; R_{1+2} entirely preserved; m-cu on M_4 just beyond base.

Abdominal tergites obscure yellow, trivittate with brownish black, on the fifth and succeeding segments becoming more uniformly blackened. Male hypopygium (Plate 2, fig. 27) with the

tergite, *9t*, entirely separated from the sternite; basistyle completely separated, its outer portion not produced caudad. Ninth tergite, *9t*, with a median dorsal depression that is further produced caudad into an acute compressed point that does not extend beyond level of the blackened, obtuse, sublateral lobes; dorsum of tergite with scattered setæ, except in the median depression. Outer dististyle, *od*, very narrow at base, the distal two-thirds dilated into a spatula. Inner dististyle, *id*, as figured; basal portion on outer margin more blackened. Gonapophyses, *g*, appearing as flattened black blades, each terminating in a ventrally directed spine, the caudal margin with a series of smaller spines. Eighth sternite, *8s*, unarmed.

Habitat.—China (Hopei).

Holotype, male, Eastern Tombs, altitude 4,875 feet, July 17, 1930 (*Ho*). Allotopotype, female, in author's collection.

I take great pleasure in naming this handsome species in honor of Dr. Chi Ping, my long-time friend and colleague. The species is quite distinct from other somewhat similar species, as *Tipula (Oreomyza) famula* Alexander, *T. (O.) futilis* Alexander, and *T. (O.) vitiosa* Alexander. Of the above, only the last has the outer portion of cell R_5 white, as in the present fly, and in all other regards is a very different species.

TIPULA (OREOMYZA) PLATYGLOSSA sp. nov. Plate 1, fig. 6; Plate 2, fig. 28.

Belongs to the *juncea* group; mesonotum chiefly dark gray; antennæ (male) long, the flagellar segments binodose; wings hyaline, the costal border and stigma pale brownish yellow; R_{1+2} entire; male hypopygium with the tergite deeply notched medially, the lateral lobes truncated and blackened at tips; outer dististyle unusually long and slender; eighth sternite with a broad shovel-shaped lobe.

Male.—Length, about 18 millimeters; wing, 17.

Frontal prolongation of head relatively short; nasus short but distinct; palpi with basal segment obscure brownish yellow, the remainder black. Antennæ with scape and pedicel yellow, flagellum black; antennæ broken at near midlength, when entire apparently about one-half as long as wing; flagellar segments elongate, incised to appear weakly binodose, the basal enlargement shorter but a little deeper than the apical portion; verticils much shorter than the segments. Front and anterior part of vertex yellow, posterior portions of head dark gray.

Mesonotal præscutum deformed in type, apparently almost uniformly blackish gray; scutal lobes similarly darkened; scutellum and central portion of mediotergite darkened, the parascutella, lateral portions of mediotergite, and the pleurotergite yellow. Pleura yellow, variegated with darker on ventral portions. Halteres elongate, pale, the knobs weakly darkened. Legs with the coxæ brownish yellow; trochanters yellow; femora brownish yellow, the bases clearer, the tips narrowly brownish black; tibiæ and tarsi passing into brownish black; vestiture of bases of femora very short and delicate. Wings (Plate 1, fig. 6) hyaline, cells C, Sc, Cu₁, and the stigma pale brownish yellow; veins brown. Macrotrichia relatively numerous on veins beyond cord; squama naked. Venation: Rs about one-half longer than m-cu; R₁₊₂ entire; M₃₊₄ short, subequal to basal section of M₁₊₂; cell M₄ of nearly equal width at base and apex; m-cu just beyond origin of M₄.

Abdomen with tergites chiefly yellow, weakly variegated with darker; sternites yellow. Male hypopygium (Plate 2, fig. 28) with the tergite, 9t, separated from the sternite, 9s, by membrane; basistyle not clearly differentiated from sternite, its caudal-dorsal angle produced caudad and slightly dorsad into a subacute sclerotized projection; caudal-ventral portion of basistyle with a small setiferous arcuate lobe, directed mesad. Ninth tergite, 9t, with a deep V-shaped notch, the lateral lobes truncated and blackened at tips; on ventral face, on outer margin back from tip, a small blackened point, most evident when viewed from the side. Outer dististyle long and slender, as in the group; basal third slightly dilated on cephalic face. Inner dististyle, *id*, with the beak unusually slender; base of style produced into a flattened leaflike blade, the disk of which bears a few scattered setæ. Eighth sternite, 8s, bearing a broad, liguliform lobe, its apex truncated; along either lateral border with a dense brush of delicate setæ, these longer and covering the entire surface at and near apex of lobe.

Habitat.—Siberia.

Holotype, male, Tunkun, Sajan (in author's collection through Staudinger and Bang-Haas).

From the other regional members of the *juncea* group, as *juncea* Meigen and *mystica* Alexander, the present fly differs especially in the hyaline wings, with distinct venational details, and minor differences in the structure of the male hypopygium.

TIPULA (LUNATIPULA) VALIDICORNIS Alexander.

Tipula (Lunatipula) validicornis ALEXANDER, Philip. Journ. Sci. 52 (1933) 322-324.

Described from eastern Siberia. Specimens from the Eastern Tombs, Hopei Province, northern China, altitude 4,875 feet, July 6, 1930 (male), July 5, 1930 (female) (*Ho*).

TIPULA HOI sp. nov. Plate 1, fig. 7.

General coloration of body polished ferruginous-yellow; præscutum with a very conspicuous black median stripe; legs yellow, long and slender; wings hyaline, the prearcular region, cells C and Sc, and the stigma conspicuously pale yellow; Rs much shorter than m-cu; ovipositor with cerci long and slender, straight.

Female.—Length, about 25 millimeters; wing, 20.

Frontal prolongation of head polished yellow; nasus distinct; palpi with basal two segments yellow, the terminal segments infuscated. Antennæ yellow, the outer flagellar segments a little more brownish yellow; scape elongate, slightly exceeding the first flagellar segment; flagellar segments with basal enlargements poorly to scarcely developed; longest verticils on outer face, each segment with additional elongate setæ at and near midlength of the segment on outer face; terminal segment long-oval, a little exceeding one-third the length of the penultimate. Head polished yellow.

Pronotum yellow. Mesonotal præscutum polished ferruginous-yellow, with a single, conspicuous, median, black stripe, narrowed behind and nearly attaining the suture; this stripe feebly divided on anterior half by a pale line; lateral stripes polished yellow, entirely concolorous with the interspaces but without short yellow setæ, as in the case of the latter; pseudo-sutural foveæ inevident; posterior sclerites of notum entirely polished ferruginous-yellow. Pleura polished ferruginous-yellow, entirely glabrous. Halteres yellow, the knobs weakly darkened. Legs long and slender, yellow, only the terminal two tarsal segments darkened; tibial spur formula 1-1-2. Wings (Plate 1, fig. 7) hyaline, the prearcular field, costal and subcostal cells, and the stigma conspicuously yellow, the two latter elements clearer but paler yellow; veins pale brown. Macrotrichia present on veins R_{2+3} , R_2 , base of R_{1+2} , R_3 , R_{4+5} , M_1 , and M_2 ; lacking on Rs and remainder of medial field; squama naked. Venation: Sc_2 ending just beyond midlength of Rs, the latter short, subequal to R_{2+3} and much shorter than m-cu; R_{1+2} short, diverging strongly from R_3 , its basal portion more thickened

and provided with trichia; petiole of cell M_1 only about one-third m; M_{3+4} subequal to basal section of M_3 ; m-cu at fork of M_{3+4} ; cell M_4 wide at base; cell 2d A wide.

Abdomen polished ferruginous, without clearly defined darker marking. Ovipositor with cerci long and slender, straight, much exceeding the compressed hypovalvæ.

Habitat.—China (Hopei).

Holotype, female, Eastern Tombs, altitude about 4,875 feet, July 17, 1930 (*Ho*).

I take great pleasure in naming this fly in honor of Mr. Chi Ho, of the Fan Memorial Institute of Biology. *Tipula hoi* is a singularly beautiful species that bears a great resemblance to a large species of *Nephrotoma* but is unquestionably a species of *Tipula*. There is no described ally in eastern Asia, though somewhat similar forms occur in western North America. Without the male sex, I am unwilling to hazard an opinion as to the sub-generic position of the fly.

LIMONIINÆ

LIMONIINI

ORIMARGA (ORIMARGA) STREPTOCERCA sp. nov. Plate 1, fig. 8; Plate 2, fig. 29.

General coloration of thorax light gray; rostrum, palpi, and antennæ black; femora and tibiæ obscure yellow, the tips narrowly and conspicuously dark brown; wings pale yellow, the veins pale; R_{2+3} nearly as long as R_s ; R_{1+2} and R_2 subequal; m-cu usually far basad, before level of origin of R_s ; abdomen, including hypopygium, black; male hypopygium with the gonapophyses complex, the outer branch very strongly curved.

Male.—Length, about 6.5 millimeters; wing, 5.5.

Female.—Length, about 8 millimeters; wing, 7.

Rostrum and palpi black. Antennæ black throughout. Head light gray.

Mesonotum light gray, with three barely indicated præscutal stripes. Pleura almost uniformly light gray. Halteres pale throughout. Legs with the coxæ and trochanters whitish yellow; femora obscure yellow, the tips rather narrowly but conspicuously dark brown; tibiæ obscure yellow, the tips very narrowly dark brown; tarsi passing into dark brown. Wings (Plate 1, fig. 8) uniformly pale yellow, with pale veins. Costal fringe of moderate length; macrotrichia of veins beyond cord relatively numerous and well distributed, including a complete series of about 16 on vein R_3 ; about 25 on almost the entire length of the distal section of vein R_{4+5} ; and about 15 on each

of veins M_{1+2} and M_3 , restricted to the distal two-thirds of the veins. Venation: Sc_1 ending nearly opposite two-thirds the length of R_s , Sc_2 near its tip; R_2 and R_{1+2} subequal; R_{2+3} nearly as long as R_s ; basal section of R_{4+5} strongly arcuated before midlength; M_{3+4} about two-thirds as long as M_4 alone; m-cu lying far basad before the level of origin of R_s ; cell 2d A relatively long and wide.

Abdomen, including hypopygium, black. Male hypopygium (Plate 2, fig. 29) with the basistyle, *b*, unarmed, but with a heavy grouping of setæ on mesal face at base. Outer dististyle, *od*, slender, gently sinuous to the acute apex. Inner dististyle, *id*, subequal in length, with numerous setæ. Gonapophyses, *g*, complex, the outer branch very strongly curved, the distal free end a flattened blade with the tip acute.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Chu Lao Tong Temple, altitude 6,000 to 7,000 feet, July 27, 1935 (*Franck*). Allotopotype, female.

By my key to the Chinese species of *Orimarga*⁸ the present fly runs to *Orimarga (Orimarga) omeina* Alexander, which seems to be its nearest ally. The species is readily told by the pattern of the legs, the pale yellow wings with pale veins, and especially by the peculiar structure of the gonapophyses of the male hypopygium.

DICRANOPTYCHA CÆSIA PALLIDIBASIS Alexander.

Dicranoptycha cæsia pallidibasis ALEXANDER, Philip. Journ. Sci. 44 (1931) 353-354.

Described from the Japanese Alps, Shinano, Honshiu, Japan.

Two specimens, Eastern Tombs, Hopei, northern China, altitude 4,875 feet, July 6 to 10, 1930 (*Ho*).

PEDICIINI

DICRANOTA (RHAPHIDOLABIS) ANGULATA sp. nov. Plate 1, fig. 9.

Size large (wing, female, 7.5 millimeters); general coloration of thorax gray, the præscutum with three darker plumbeous-gray stripes, the posterior interspaces, scutellum, and cephalic portion of the mediotergite pale; halteres pale throughout; femora obscure yellow basally, the tips infuscated, broadly so on forelegs; wings yellowish subhyaline, the stigma merely indicated; veins pale yellowish brown; R_{2+3+4} present; R_s strongly arcuated to feebly angulated at near midlength.

Female.—Length, about 6 millimeters; wing, 7.5.

⁸ Philip. Journ. Sci. 54 (1934) 327.

Rostrum and palpi brownish black. Antennæ with scape and pedicel black; flagellum broken. Head uniformly gray.

Pronotum and mesonotum gray, the præscutum with three darker plumbeous-gray stripes, the lateral pair narrow, the broad median vitta nearly reaching the suture; posterior interspaces passing into light brown; scutal lobes darkened; scutellum pale testaceous-brown, more yellowish behind; mediotergite with cephalic fourth yellowish, the remainder blackened, pruinose. Pleura chiefly light gray, the dorsal portion and the ventral sternopleurite darker brown. Halteres pale throughout. Legs with the coxæ and trochanters obscure yellow; femora obscure yellow basally, the tips infuscated, more extensively so on the forelegs where only about the proximal fourth is brightened; tibiæ pale brown, the tips narrowly darker; tarsi brownish black. Wings (Plate 1, fig. 9) yellowish subhyaline, the stigma merely indicated against the ground; veins pale yellowish brown. Venation: R_2 erect, subequal to or longer than R_{1+2} ; R_{2+3+4} preserved, exceeding the basal section of R_5 ; R_s strongly arcuated to feebly angulated at near midlength.

Abdomen dark brown, sparsely pruinose. Ovipositor with the powerful upcurved cerci yellow.

Habitat.—Japan (Honshiu).

Holotype, female, Iwate-gun, Iwate-ken, altitude 3,000 feet, June 9, 1935 (*Yamamoto*).

The nearest described ally is *Dicranota (Rhaphidolabis) subconsors* Alexander, which differs most evidently in the smaller size, different thoracic coloration, and details of venation, especially of the radial field.

DICRANOTA (AMALOPINA) NEBULIPENNIS sp. nov. Plate 1, fig. 10; Plate 2, fig. 30.

General coloration pale yellowish white, including the palpi, antennæ, and legs; wings whitish hyaline, heavily variegated with brown and gray spots and clouds, including a major area occupying the outer radial field and large clouds at ends of veins Cu_1 and 2d A; abdomen pale yellow, the subterminal segments brown; male hypopygium with the interbasal structures flattened, their outer ends expanded and broadly obtuse.

Male.—Length, about 5.5 millimeters; wing, 6.5.

Rostrum, palpi, and antennæ entirely pale yellow, the latter relatively short. Head yellow.

Prothorax and mesothorax uniformly yellowish white. Halteres pale yellow throughout. Legs pale yellow, the outer tarsal segments dark brown. Wings (Plate 1, fig. 10) with the

ground color whitish hyaline, heavily spotted and marbled with pale brown and gray; cell C chiefly pale; crossveins and deflections with dark seams; a series of gray spots along vein Cu; outer radial and medial field chiefly covered by a large, irregular, darkened area extending across the outer radial field from R_{1+2} to the fork of M_{1+2} ; large darkened clouds at ends of veins Cu_1 and $2d A$; veins pale, darker in the clouded areas. Venation: A supernumerary crossvein in cell R_1 ; cell 1st M_2 closed; both sections of M_{3+4} subequal.

Abdomen pale yellow, the subterminal segments brown; hypopygium more yellowish brown. Male hypopygium (Plate 2, fig. 30) with the tip of basistyle, *b*, beset with abundant acute spines. Dististyle, *d*, simple, narrowed to outer end, which bears spinous setæ of various lengths. Interbase, *i*, a flattened rod, the distal portion broadly obtuse. Lateral tergal spine, *9t*, long and slender, the tip acute.

Habitat.—Japan (Honshiu).

Holotype, male, Iwate-gun, Iwate-ken, altitude 3,000 feet, May 17, 1935 (*Yamamoto*).

The heavily spotted wings suggest *Dicranota* (*Amalopina*) *siberica* Alexander, but in the present fly the pattern is unusually heavy, especially in the outer radial field.

HEXATOMINI

Genus ADELPHOMYIA Bergroth

Adelphomyia BERGROTH, Mittheil. Naturf. Ges. Bern für 1890 (1891) 134.

Oxydiscus DE MEIJERE, Tijds. voor Ent. 56 (1913) 350.

Subgenus PARADELPHOMYIA novum

Characters as in *Adelphomyia*, differing especially in the presence of a supernumerary crossvein in cell R_3 at near two-thirds the length (Plate 1, fig. 11).

Type of subgenus.—*Adelphomyia* (*Paradelphomyia*) *crossospila* sp. nov. (Eastern Palæarctic Region: Western China.)

The relationship of the present group to *Adelphomyia* is exactly comparable to that existing between *Dicranophragma* Osten Sacken and *Limnophila* Macquart.

ADELPHOMYIA (PARADELPHOMYIA) CROSSOSPILA sp. nov. Plate 1, fig. 11; Plate 2, fig. 31.

General coloration black, the sublateral portions of præscutum brighter; antennæ black, the basal flagellar segment pale; halteres and legs yellow; wings cream-colored, with a heavy brown

pattern, including a series of marginal spots; cell 1st M_2 elongate; anal veins strongly incurved to margin; male hypopygium with the outer dististyle terminating in three major spines; inner dististyle very broad, especially near base.

Male.—Length, about 3.5 millimeters; wing, 4.2.

Rostrum and palpi black. Antennæ black, 16-segmented; first flagellar segment whitish; flagellar segments elongate, the verticils exceeding the segments in length. Head brownish black.

Pronotum black. Mesonotal præscutum black, the region of the usual lateral stripes occupied by more brownish areas; posterior sclerites of mesonotum black. Pleura black. Halteres relatively elongate, whitish throughout. Legs with the fore and middle coxæ darkened; the posterior coxæ paler; trochanters obscure yellow; remainder of legs pale yellow, only the terminal tarsal segments darkened; tibial spurs present. Wings (Plate 1, fig. 11) cream-colored, the prearcular and costal regions clearer yellow; a conspicuous brown pattern, distributed as follows: Arculus; origin of Rs; stigma; tip of vein R_{1+2} ; along cord and outer end of cell 1st M_2 ; supernumerary crossveins in cell R_3 ; a series of large areas at ends of all longitudinal veins, smallest on R_5 , thence becoming progressively larger to the last anal vein; axillary margin infumed; veins pale, darkened in the infuscated areas. Coarse and sparse macrotrichia in cells R_2 to M_4 , inclusive (indicated in figure by stippled dots). Venation: Sc_1 ending just before fork of Rs; R_2 a little shorter than R_{2+3} ; a supernumerary crossvein in cell R_3 ; cell 1st M_2 very long, the second section of vein M_{1+2} exceeding any of the veins issuing from the cell; m about one-half the basal section of M_3 ; m-cu at near midlength of vein M_{3+4} ; anal veins strongly curved into wing margin.

Abdomen, including hypopygium, black, the segments with long erect setæ. Male hypopygium (Plate 2, fig. 31) with the outer dististyle, *od*, armed at tip with three major spines, the two outermost curved. Inner dististyle, *id*, very broad, the surface set with numerous setæ and setulæ. Basistyle, *b*, obtuse at apex, not produced into a spinous apical point, as in certain other eastern Asiatic species of the genus, including *ariana* Alexander and *nipponensis* Alexander, but not *latissima* Alexander.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Chu Lao Tong Temple, altitude 6,000 to 7,000 feet, at light, July 27, 1935 (*Franck*).

This interesting *Adelphomyia* requires no comparison with any previously described member of the genus, since the subgeneric character of a supernumerary crossvein in cell R_3 of the wings is not possessed by any other species. The most generally similar form in the typical subgenus is *Adelphomyia* (*Adelphomyia*) *nebulosa* (de Meijere).

LIMNOPHILA (PHYLIDOREA) YAMAMOTOI sp. nov. Plate 1, fig. 12.

General coloration of entire body polished black; antennal flagellum and legs yellow; wings amber yellow, the basal and costal fields clearer yellow; outer veins brownish black, conspicuous; m-cu just before midlength of cell 1st M_2 .

Female.—Length, about 10 millimeters; wing, 9.5.

Rostrum and palpi black. Antennæ with scape black; pedicel brownish yellow; flagellum pale yellow; flagellar segments elongate, with verticils that exceed the segments. Head black, sparsely pruinose, especially on anterior vertex.

Entire thorax polished black, only the membrane surrounding the wing root a little paler. Halteres pale yellow. Legs entirely pale yellow, excepting only the terminal three tarsal segments, which are darkened. Wings (Plate 1, fig. 12) chiefly clear amber yellow, the prearcular and costal regions a trifle clearer yellow; stigma not differentiated; veins in the prearcular and costal fields clearer yellow, the outer veins brownish black, conspicuous against the ground, these darkened elements including also veins M, Cu, 1st A, and 2d A. Venation: Sc_1 ending opposite the fork of Rs, Sc_2 longer, extending shortly beyond this fork; Rs relatively long, angulated at origin; veins R_{2+3} and R_5 approximated, cell R_3 widened beyond R_2 ; m-cu just before midlength of cell 1st M_2 .

Abdomen entirely polished black, with long, erect, whitish setæ. Ovipositor with the genital shield and bases of cerci, as well as all of hypovalvæ, black, the tips of cerci paler.

Habitat.—Japan (Honshiu).

Holotype, female, Iwate-gun, Iwate-ken, altitude 3,000 feet, June 28, 1935 (*Yamamoto*).

This very distinct *Limnophila* is named in honor of the collector, Mr. Hiromu Yamamoto, to whom I am indebted for many Tipulidæ from northern Honshiu. The species is readily told from all other members of the subgenus by the uniformly polished black body, in conjunction with the entirely yellow legs and antennal flagellum.

LIMNOPHILA (IDIOPTERA) USSURIANA IWATENSIS subsp. nov.

Differs from the typical form (eastern Siberia) in various details.

Antennæ (female) black throughout; antennæ of male broken. Mesonotum uniformly black, sparsely pruinose, but without evident stripes. Pleura more conspicuously pruinose. Fore femora black, only the proximal fifth yellow; middle femora with about the basal third yellow; posterior femora with about the basal two-thirds yellow, gradually passing into black. Venation and wing pattern much as in the typical form. Abdomen black in both sexes, the hypopygium somewhat brightened. Male hypopygium with the terminal spine of the outer dististyle central in position and unusually small, the outer apical region of the style being expanded and glabrous. In typical *ussuriana* the spine is larger and arises from the outer apical portion of the style.

Habitat.—Japan (Honshiu).

Holotype, male, Iwate-gun, Iwate-ken, altitude 3,000 feet, June 21, 1935 (*Yamamoto*). Allotopotype, female, June 28, 1935.

It seems very probable to me that the present fly will deserve full specific rank when perfect specimens of the male become available. The subgenus *Idioptera* had not been recorded from the Japanese Empire.

ERIOPTERINI

CHIONEA GRACILISTYLA sp. nov. Plate 2, fig. 32.

Size small (length, male, 3.5 to 4.5 millimeters); legs moderately incrassated, the vestiture delicate; general coloration brown, the hypopygium and preceding segment blackened; antennæ 6-segmented, there being three flagellar segments beyond the fusion segment, the terminal segment small; male hypopygium with the outer lobe of dististyle preserved as a small bilobed blackened structure; inner lobe of dististyle slender, with a group of erect spines at and near apex, and with a conspicuous basal tubercle on mesal face; phallosome with both pairs of gonapophyses obtuse, not projecting caudad beyond level of ædeagus.

Male.—Length, about 3.5 to 4.5 millimeters.

General coloration (in alcohol) brown, the hypopygium and preceding segment brownish black to black; antennæ dark brown throughout. Legs yellowish brown.

Antennæ 6-segmented, there being three flagellar segments beyond the fusion; terminal segment a little less than one-half the penultimate. Legs, including the posterior pair, only moderately incrassated, more strongly so in the Amur paratypes; vestiture of legs consisting of long, erect, silken setæ. Male hypopygium (Plate 2, fig. 32) having the general structure of *C. nipponica*, there being a small, blackened, more or less bidentate, basal lobe or distinct style, *d*, at base of the long inner lobe, the latter relatively long and slender, with a triangular lobe or tooth on base of mesal face; distal end of style set with numerous microscopic spines. Phallosome, *p*, much as in *nipponica*, the gonapophyses incurved and not projecting caudad beyond the distal end of the ædeagus; lateral apophyses with delicate setulæ scattered over surface. In the Amur paratype, the lateral apophyses are broader and more truncated at their tips, the longer inner apophyses with the tips more slender and less expanded than in the Japanese type.

Habitat.—Japan; eastern Siberia.

Holotype, male on microscope slide, Chiosen, Honshiu, Japan (*Imanishi*); additional material from this same source in Kyoto Imperial University collection. Paratype, male, Tukuringa Mountains, Amur Province, eastern Siberia, November 1, 1915 (*Koshantschikov*), in the Russian Academy of Sciences.

The present fly is much smaller than *Chionea nipponica* Alexander, the only species hitherto described from eastern Asia, differing moreover in the marked reduction in the number of antennal segments, there being only six, instead of nine or ten. The nearest relative in the western Palearctic fauna is *C. crassipes* Boheman, which has 7-segmented antennæ, dark, incrassated legs, and is of somewhat larger size. The antennæ of the holotype of the present insect are shriveled and possibly may not conform exactly to the description given above which is based primarily on the paratype. The western Nearctic *C. alexandriana* Garrett likewise has 6-segmented antennæ, but in all other regards is a very different fly.

GONOMYIA (LIPOPHLEPS) FUNESTA sp. nov. Plate 1, fig. 13.

Belongs to the *abbreviata* group; antennæ black throughout; pronotum and anterior lateral pretergites obscure yellow; mesonotum gray, the præscutum obscure yellowish gray; pleura almost uniformly reddish gray, the anepisternum and ventral sternopleurite a trifle darker; legs brownish black to black; wings with a strong brownish gray tinge, the prearcular field

yellow; cell 1st M_2 closed; abdominal tergites and sternites brownish black.

Female.—Length, about 4.8 millimeters; wing, 5.

Rostrum and palpi dark. Antennæ black throughout; segments passing through oval and long-oval to subcylindrical; longest verticils a trifle longer than the segments. Head dark-colored, the front and anterior vertex paler.

Pronotum and anterior lateral pretergites obscure yellow. Mesonotal præscutum and scutum dark brownish gray, the pseudosutural foveæ blackened; scutellum obscure yellowish gray; mediotergite gray. Pleura almost uniformly reddish gray, the anepisternum and ventral sternopleurite a trifle darker. Halteres obscure yellow, the knobs a little more obscure. Legs with the coxæ and trochanters obscure testaceous; remainder of legs brownish black or black. Wings (Plate 1, fig. 13) with a strong brownish gray tinge, the prearcular field and costal border more yellowish; stigmal region vaguely darkened, occupying most of cell R_1 ; veins brown, luteous at wing base. Venation: Sc short, with Sc_2 at tip of Sc_1 ; distance along vein R between Sc_2 and origin of Rs subequal to petiole of cell R_3 ; Rs short, arcuated to weakly angulated at origin; R_3 unusually erect, subequal to the distance on margin between veins R_{1+2} and R_3 ; cell 1st M_2 closed; m-cu shortly beyond fork of M.

Abdominal tergites and sternites brownish black, the genital segments only a little brightened; valves of ovipositor dark horn-colored.

Habitat.—China (Szechwan).

Holotype, female, Mount Omei, Chu Lao Tong Temple, altitude 6,000 to 7,000 feet, at light, July 27, 1935 (*Franck*).

Allied to *Gonomyia* (*Lipophleps*) *gracilistylus* Alexander (Japan) and *G. (L.) prædita* Alexander (Formosa), differing chiefly in various colorational details, as the grayish mesonotum, darker thoracic pleura, uniformly darkened abdomen, and black legs. Unfortunately the male sex is still unknown.

GONOMYIA (GONOMYIA) JUSTIFICA sp. nov. Plate 1, fig. 14; Plate 2, fig. 33.

Belongs to the *subcinerea* group; antennæ black throughout; scutellum bright yellow; pleura yellow, variegated on anepisternum and ventral sternopleurite by reddish brown; legs black; wings with a strong brown tinge, the prearcular and costal portions a little more yellowish; vein R_{2+3+4} strongly arched; male hypopygium with both the inner dististyle and the ædeagus bearing a single, blackened, spinous point.

Male.—Length, about 3.5 millimeters; wing, 4.2.

Rostrum obscure yellow; palpi black. Antennæ black throughout; flagellar segments long-oval to elongate; longest verticils exceeding the segments. Head gray.

Pronotum and anterior lateral pretergites light sulphur yellow. Mesonotal præscutum dark brownish gray, the humeral region obscure yellow; scutal lobes similarly dark brownish gray, the median area broadly obscure yellow; scutellum bright yellow; mediotergite brownish gray, the cephalic lateral angle more yellowish. Pleura yellow, variegated by reddish brown on the anepisternum and ventral sternopleurite; dorsopleural region yellow. Halteres yellow, the knobs weakly darkened. Legs with the coxæ reddish brown; trochanters obscure yellow; remainder of legs black. Wings (Plate 1, fig. 14) with a strong brown tinge, the prearcular and costal portions a little more yellowish; stigma vaguely darkened; veins brown, more luteous in the yellow areas. Venation: Sc_1 ending shortly beyond origin of R_s , the distance slightly variable, in the type being immediately opposite this origin; R_{2+3+4} strongly arched; $m-cu$ slightly variable in position, from close to, to about one-third its own length beyond, the fork of M .

Abdominal tergites brown, the sternites yellow; hypopygium yellow. Male hypopygium (Plate 2, fig. 33) with the basistyle, b , produced apically into a short lobe. Outer dististyle, od , a long pale cylindrical lobe, provided with scattered setæ, including a group of longer ones at apex. Inner dististyle, id , triangular in outline, terminating in a single, powerful, horn-like spine. Phallosome, p , with a single blackened spine, arising near base.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, Chu Lao Tong Temple, altitude 6,000 to 7,000 feet, at light, July 27, 1935 (*Franck*). Paratopotype, male.

The nearest regional ally of the present fly is *Gonomyia* (*Gonomyia*) *omeiensis* Alexander, which differs especially in the details of wing venation and structure of the male hypopygium, notably of both dististyles.

ERIOPTERA (ERIOPTERA) HOLOXANTHA sp. nov. Plate 1, fig. 15; Plate 3, fig. 34.

Size large (wing, male, over 6 millimeters); general coloration yellow, including the antennæ, halteres, and legs; wings strongly suffused with yellow, the veins darker yellow; male hypopygium with the outer dististyle short-stemmed, the outer half expanded into a triangular head, its distal margin thickened and more or less bifid on outer cephalic angle; inner dististyle

long and slender, gently curved, narrowed to the acute decurved apex, on outer face at near three-fourths the length with a low blackened tooth.

Male.—Length, about 5.5 to 6 millimeters; wing, 6.5 to 6.8.

Rostrum yellow; palpi pale brown. Antennæ pale yellow, the outer segments a trifle darker; flagellar segments oval, the outer ones more attenuated. Head uniformly light yellow.

Pronotum yellow. Anterior lateral pretergites pale sulphur yellow. Mesonotal præscutum yellow, with three more reddish brown stripes that are but little conspicuous against the ground; humeral region brighter yellow; posterior sclerites of mesonotum yellow. Pleura pale yellow. Halteres pale yellow throughout. Legs yellow, only the outer tarsal segments a trifle darkened. Wings (Plate 1, fig. 15) with a strong, uniform yellow suffusion, the veins deeper yellow; outer costal fringe a little darkened. Venation: Vein 2d A rather strongly sinuous on distal third.

Abdomen, including hypopygium, yellow, the gonapophyses and distal end of outer dististyle blackened. Male hypopygium (Plate 3, fig. 34) with the outer dististyle, *od*, short-stemmed, the outer half expanded into a triangular head, its distal margin thickened and more or less bifid on outer cephalic angle, the surface unroughened. Inner dististyle, *id*, long and slender, gently curved, narrowed to the acute decurved apex; on outer face at near three-fourths the length with a low, obtuse, blackened tooth. Gonapophyses, *g*, appearing as slender, straight rods, the margins smooth, the distal half of each intensely blackened.

Habitat.—Japan (Honshiu).

Holotype, male, Iwate-gun, Iwate-ken, altitude, 3,000 feet, July, 7, 1935 (*Yamamoto*). Paratopotypes, 7 males.

In its general appearance the present fly is most similar to such species as *Erioptera* (*Erioptera*) *flavescens* (Linnæus), *E. (E.) flavohumeralis* Alexander, and *E. (E.) xanthoptera* Alexander, differing from all in the larger size, the yellow body coloration, and especially the hypopygial structure.

ERIOPTERA (EMPEDA) NIGROSTYLATA sp. nov. Plate 1, fig. 16; Plate 3, fig. 35.

General coloration gray; halteres light yellow throughout; legs dark brown, the femora with abundant appressed flattened scales, in addition to the usual setæ; wings grayish subhyaline, the prearcular and costal regions slightly more yellow; Sc₁ ending about opposite midlength of Rs; veins R₃ and R₄ both relatively long and lying generally parallel to one another; male hypopygium with the outer dististyle entirely blackened, bifid, with both arms glabrous.

Male.—Length, 3.5 to 4 millimeters; wing, 3.5 to 4.

Female.—Length, about 4 millimeters; wing, 4.

Rostrum, palpi, and antennæ black. Head light gray.

Anterior lateral pretergites light yellow. Mesonotal præscutum gray laterally, more brownish gray medially; posterior sclerites of mesonotum light gray. Pleura gray. Halteres clear light yellow throughout. Legs with the coxæ and trochanters yellow; remainder of legs dark brown; femora with appressed flattened scales interspersed with the setæ. Wings (Plate 1, fig. 16) grayish subhyaline, the prearcular and costal region slightly more yellow; veins brown, more luteous in the yellow regions. Venation: Sc relatively long, Sc₁ ending near midlength of R_s; veins R₃ and R₄ both relatively long and lying generally parallel to one another; m-cu at fork of M.

Abdomen dark brown, the hypopygium yellow. Male hypopygium (Plate 3, fig. 35) with the outer dististyle entirely blackened, both arms smooth, the outer slender and more or less parallel-sided; inner arm much expanded at distal end. Inner dististyle, *id*, appearing as a pale compressed blade.

Habitat.—China (Szechwan).

Holotype male, Mount Omei, Chu Lao Tong Temple, altitude 6,000 to 7,000 feet, at light, July 27, 1935 (*Franck*). Allotopotype, female. Paratopotypes, males and females.

The present fly is quite distinct from the other species of *Empeda* so far described from Palæarctic Eastern Asia in the long Sc, appressed scales on femora, and structure of the outer dististyle of the male hypopygium. It is apparently most nearly related to *Erioptera* (*Empeda*) *sulfureoclavata* Alexander, which has the styli of the male hypopygium entirely pale.

ORMOSIA NIGRIPENNIS sp. nov. Plate 1, fig. 17; Plate 3, fig. 36.

Belongs to the *nigripila* group; general coloration black, the præscutum and scutum rich reddish brown; antennal flagellum obscure yellow; legs (male) with femora black, tibiæ abruptly yellow; legs (female) black, the extreme bases of tibiæ yellow; wings with a strong blackish tinge, the stigmal area a trifle darker; cell 1st M₂ closed, small; anal veins divergent; male hypopygium with the gonapophyses appearing as flattened blades, the tips simple, acute.

Male.—Length, about 4.2 to 4.4 millimeters; wing, 5.

Female.—Length, about 5 to 5.5 millimeters; wing, 5.2 to 5.8.

Rostrum and palpi black. Antennæ with scape and pedicel dark, flagellum obscure yellow; flagellar segments short-cylin-

dricul, with verticils that exceed the segments in length. Head dark.

Pronotum black. Anterior lateral pretergites restrictedly obscure yellow. Mesonotal præscutum and scutum rich reddish brown, the anterior portion of the former a little darkened; scutellum brown; mediotergite black. Pleura black. Halteres yellow, with light yellow setæ. Legs with the coxæ black; trochanters brighter; in male with femora black, the tibiæ abruptly yellow, the tarsi passing into brown; in female, legs entirely black, excepting the yellow extreme bases of tibiæ. Wings (Plate 1, fig. 17) with a strong blackish tinge throughout, the stigmal field only a trifle darker; veins a little darker than the ground. Macrotrichia dark, well distributed over the wing surface, lacking in the bases of the cells on both sides of arculus (shown by stippled dots in figure). Venation: Sc_1 ending opposite R_2 , Sc_2 about opposite one-third the length of R_s ; R_2 subequal to R_{2+3} , oblique; cell 1st M_2 closed, small, as in the group; m-cu sinuous, at fork of M ; anal veins divergent.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 36) as in the group. Ninth tergite deeply concave caudally. Inner dististyle, *id*, with five powerful subequal setæ. Gonapophyses, *g*, appearing as strong flattened blades, the long-extended tips acute, simple. Ovipositor with cerci horn yellow, hypovalvæ black.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, White Cloud Temple, altitude 9,000 feet, at light, July 29, 1935 (*Franck*). Allotopotype, female, summit, altitude 11,000 feet, July 30, 1935. Paratopotypes, 3 males; paratypes, 1 female, with allotype.

The nearest described ally is *Ormosia diversipes* Alexander (Japan), which differs especially in the larger size, darkened mesonotum, paler, more grayish brown wings, with slightly different venational details, and the male hypopygium, especially the deeply bifid gonapophyses. The striking difference in the coloration of the legs of the two sexes of the present fly is exactly paralleled in *O. diversipes*, and the name *O. atripes* Alexander, based on the female sex of this species, must be placed in the synonymy. It is strange that none of the numerous Nearctic species of the *nigripila* group shows this sexual dimorphism.

ORMOSIA TENUISPINOSA sp. nov. Plate 1, fig. 18; Plate 3, fig. 37.

Belongs to the *similis* group; general coloration dark gray; antennæ (male) elongate, exceeding one-half the length of body;

halteres yellow; legs black; wings obscure yellow, patterned with darker, including cell C, stigmal area, seams along cord and outer fork of M, and a narrow apical darkening; anal veins convergent; abdomen, including hypopygium, black; male hypopygium with the ninth tergite broad, its caudal margin gently concave; outer gonapophyses of unusual length and slenderness, trispinous.

Male.—Length, about 5 millimeters; wing, 5.5; antenna, about 2.8.

Rostrum gray; palpi black. Antennæ black throughout, of unusual length when compared with other regional species, if bent backward extending to shortly beyond the base of abdomen; basal flagellar segment unusually long and apparently formed by the fusion of two normal segments; succeeding segments elongate, the outer ones becoming more nearly cylindrical; segments with individual elongate secund verticils and a shorter dense erect pale pubescence. Head dark gray.

Pronotum dark gray. Anterior lateral pretergites obscure. Mesonotum and pleura almost uniformly dark gray, the præscutum a trifle more brownish gray, not at all brightened; pseudosutural foveæ and tuberculate pits black. Halteres golden yellow. Legs with the coxæ gray; trochanters brownish yellow; remainder of legs black. Wings (Plate 1, fig. 18) with the ground color obscure yellowish brown, rather conspicuously patterned with darker; cell C chiefly infuscated; stigmal area and seams along cord, together with outer fork of M darkened; apical border of wing narrowly and inconspicuously darkened, not appearing as dark spots at ends of veins; prearcular field restrictedly yellow; veins pale in the ground areas, darker in the infuscated portions. Macrotrichia of cells abundant (indicated in figure by stippled dots). Venation: R_2 more than twice R_{2+4} ; m-cu at fork of M; anal veins sinuous, convergent.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 37) with the tergite, *9t*, broad, duplicated beneath, the outer margin gently concave; isolated patches of setæ in pale membrane before outer end of tergite. Inner dististyle, *id*, narrow, more or less triangular in outline. Gonapophyses entirely blackened, the outer pair, *og*, very conspicuous, slender, the longer axial spine strongly decurved; inner apophysis, *ig*, bidentate at apex.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, summit, altitude 11,000 feet, at light, July 30, 1935 (*Franck*).

The combination of elongate antennæ and structure of the male hypopygium readily separates the present fly from any of the other regional species. I am using the term *similis* group for numerous species in the Holarctic Region that have the outer dististyle of the hypopygium more or less flattened-clavate, the outer surface clothed with parallel rows of closely appressed spines or spinous setæ.

ORMOSIA FIXA sp. nov. Plate 1, fig. 19; Plate 3, fig. 38.

Belongs to the *similis* group; general coloration, including præscutum, dark gray; antennæ short, black throughout; halteres light yellow; legs black; wings weakly suffused with brownish, cell C and the stigma darker; anal veins convergent; abdomen, including hypopygium, black; male hypopygium with the outer gonapophyses profoundly divided, the outer arm stouter, bearing a small lateral spine before apex; inner dististyle a horn-colored flattened blade, the apex acute, the outer margin with conspicuous setæ.

Male.—Length, about 4 millimeters; wing, 4.5.

Rostrum and palpi black. Antennæ black throughout, short, if bent backward extending about halfway to the wing root; flagellar segments oval, the longest verticils unilaterally distributed and approximately two or more times as long as the segment; flagellar segments gradually decreasing in length outwardly. Head dark gray.

Mesothorax almost uniformly dark gray, the præscutum with the pseudosutural foveæ and tuberculate pits black. Halteres with base of stem dusky, the remainder light yellow. Legs with the coxæ dark gray; trochanters brownish black; remainder of legs black. Wings (Plate 1, fig. 19) weakly suffused with brownish, cell C darker; stigmal region infumed; a scarcely indicated brown tinge along cord; veins dark brown. Macrotrichia numerous (indicated in figure by stippled dots). Venation: Sc_2 about opposite midlength of R_s ; R_2 close to fork of R_{2+3+4} , R_{2+3} being thus obliterated or virtually so; union of distal section of vein M_3 and m angulated; $m-cu$ close to fork of M ; anal veins convergent.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 38) with the ninth tergite, $9t$, having the apex entire, gently convex. Inner dististyle moderately broad, the apex bearing the usual fasciculate bristle hyaline. Outer gonapophyses, og , black, profoundly divided, the inner arm a long slender rod, the apex obtuse; outer arm much stouter, from an

expanded base, before apex bearing a small lateral spine. Inner gonapophyses, *ig*, appearing as curved flattened blades, horn-colored, the apex of each acute; outer margin with conspicuous setæ.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, summit, altitude 11,000 feet, at light, July 30, 1935 (*Franck*).

The present species is quite distinct from other black-legged regional species in the group in the short black antennæ and the somewhat peculiar structure of the male hypopygium, notably of the gonapophyses.

ORMOSIA PROFESTA sp. nov. Plate 1, fig. 20; Plate 3, fig. 39.

Belongs to the *similis* group; antennæ and legs black; mesothorax dark gray; legs black; wings rich buff-yellow, conspicuously variegated by dark spots and seams, including a marginal series on all longitudinal veins; abdomen black; male hypopygium with the outer gonapophyses appearing as flattened plates, the outer angle produced into a strong spine, the remainder of the apophysis terminating in from six to ten smaller teeth.

Male.—Length, about 5 millimeters; wing, 6.

Rostrum and palpi black. Antennæ black throughout, of moderate length. Head dark gray.

Pronotal scutellum obscure yellow. Mesonotum dark gray, without distinct markings, the humeral areas of the præscutum a trifle brighter; pseudosutural foveæ and tuberculate pits black. Pleura gray. Halteres light yellow throughout. Legs with the coxæ brownish gray; trochanters obscure yellow; remainder of legs black. Wings (Plate 1, fig. 20) rich buff-yellow, with a conspicuous brown pattern, including areas at origin of R_s ; Sc_2 ; tip of Sc_1 , the latter confluent with a band across cord; a cloud at outer fork of M ; marginal spots at ends of all longitudinal veins, somewhat larger and more conspicuous in the radial field; cell C slightly more infumed than cell Sc ; stigmal area, between the dark spots at tips of veins Sc_1 and R_{1+2} , more saturated yellow; veins and macrotrichia yellow, darker in the infuscated areas. Macrotrichia unusually abundant, including cell Cu , lacking only in the basal portions of cell Sc (shown in figure by stippled dots). Venation: Sc_1 ending opposite R_2 ; veins R_3 and R_4 slightly upcurved at tips; cell 1st M_2 open; union of m and distal section of vein M_3 a gentle curve; vein 2d A sinuous.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 39) with the tergite, $9t$, relatively narrow, the apex

slightly narrower than base, transverse, set with abundant delicate setulæ. Outer dististyle, *od*, a flattened scooplike structure, set with numerous transverse to oblique rows of spinous setæ, as in group. Inner dististyle, *id*, produced outwardly into a narrow point that bears a single strong fasciculate seta. Gonapophyses of powerful structure; outer pair, *og*, darkened, expanded distally, the apex with numerous spinous points, including a strong outer spine; the number of lesser apical points ranges from six to ten on the two sides of the type, so is evidently a highly variable character; at base of apophysis a slender smooth rod. Inner gonapophysis, *ig*, a little shorter than the outer, darkened, at apex produced into two flattened flaplike lobes, their tips acute.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, White Cloud Temple, altitude 9,000 feet, at light, July 29, 1935 (*Franck*).

The only other species from this general region having somewhat similarly patterned wings is *Ormosia auricosta* Alexander, which differs in the yellow legs, with narrow subterminal darkened ring on femora, and in the strongly suffused wings with much brighter costal border.

ORMOSIA OFFICIOSA sp. nov. Plate 1, fig. 21; Plate 3, fig. 40.

Belongs to the *nimbipennis* group; general coloration of thorax black, the præscutum and scutum reddish brown; antennæ (male) of moderate length, dark throughout; male hypopygium with a single well-developed dististyle, appearing as a curved hook, the apical fifth blackened; gonapophyses appearing as blackened toothlike structures, without evident lateral denticles.

Male.—Length, about 4 millimeters; wing, 4.5; antenna, about 1.6.

Female.—Length, about 4.5 millimeters; wing, 4.8 to 5.

Rostrum and palpi black. Antennæ of moderate length, dark throughout; flagellar segments subcylindrical to long-oval. Head dark.

Mesonotal præscutum and scutum reddish brown, the scutellum, postnotum, and pleura conspicuously blackened. Halteres clear pale yellow, the stem a trifle darker. Legs with the coxæ dark; trochanters obscure yellow; femora dark brown, with dark setæ; tibiæ and tarsi a trifle brighter in color. Wings (Plate 1, fig. 21) with a very pale brown tinge, cells C and Sc a trifle darker; stigmal region infuscated; veins pale, those along the cord a little darker. Macrotrichia of cells relatively numerous

though lacking in bases of cells M to 2d A (indicated in figure by stippled dots). Venation: Sc_2 shortly before midlength of R_s ; R_2 oblique, subequal to R_{2+3} ; outer fork of M gently curved to subangular; m-cu close to fork of M; anal veins convergent.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 40) with the tergal plate, $9t$, gently expanded outwardly, the caudal end feebly emarginate. A single well-developed dististyle, d , as in the group, appearing as a curved hook, the apical fifth blackened; on the concave side before tip with several setæ; other scattered setæ nearer base of style; a small obtuse structure at base of style presumably represents the usual second dististyle. Gonapophyses, g , reduced to blackened, conical, toothlike structures. \mathcal{A} edeagus expanded on basal two-thirds, the apical portion slender, the tip decurved.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, White Cloud Temple, altitude 9,000 feet, at light, July 29, 1935 (*Franck*). Allotopotype, female, pinned with type. Paratopotypes, males and females.

The nearest ally is the species herewith described as *Ormosia affixa* sp. nov., which differs most evidently in the longer antennæ of the male and in details of structure of the hypopygium.

ORMOSIA AFFIXA sp. nov. Plate 1, fig. 22; Plate 3, fig. 41.

Belongs to the *nimbipennis* group; general coloration of thorax dark gray, the præscutum and scutum reddish brown; antennæ (male) relatively elongate, if bent backward extending nearly to root of halteres; male hypopygium with the outer dististyle blackened, the surface with numerous setigerous punctures and tubercles; gonapophyses blackened, acute at tip, each with a sharp lateral spine on outer margin at near midlength.

Male.—Length, about 5 millimeters; wing, 5.5 to 5.8; antenna, about 2.

Rostrum and palpi black. Antennæ black, relatively elongate, as shown by the measurements; if bent backward extending nearly to root of halteres; flagellar segments long-cylindrical, with a dense, erect, white pubescence and scattered verticils. Head dark gray.

Pronotum dark brownish gray. Mesonotal præscutum and scutum reddish brown, contrasting with the dark gray scutellum, postnotum, and pleura. Halteres light yellow. Legs with the coxæ dark gray; trochanters brownish yellow; remainder of legs chiefly dark brown, the tarsi passing into black. Wings (Plate 1, fig. 22) with a faint brown tinge, the costal cell and stigma

darker; veins brown. Venation: R_2 at or close to fork of R_{3+4} , in cases beyond this fork to a distance subequal to its length; outer fork of M not or scarcely angulate; m-cu at fork of M; anal veins convergent.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 41) very similar in structure to *O. officiosa* sp. nov., but differing in several details. Dististyle, *d*, chiefly blackened, with numerous setigerous punctures and small tubercles. Gonapophyses, *g*, blackened, acute at tip, with a sharp lateral spine on outer margin at near midlength; a smaller, curved, finger-like lobule at base, presumably representing the rudimentary outer apophyses. \mathcal{A} edeagus less dilated on basal portion.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, summit, altitude 11,000 feet, at light, July 30, 1935 (*Franck*). Paratopotypes, 2 males.

The nearest ally is *Ormosia officiosa* sp. nov., which differs especially in the smaller size, shorter antennæ of the male, and slight but constant differences in the male hypopygium. The remaining members of the *nimbipennis* group are restricted to the eastern Nearctic Region.

DASYMOLOPHILUS JUBATUS sp. nov. Plate 1, fig. 23; Plate 3, fig. 42.

Wings broad, without macrotrichia in centers of cells; male hypopygium with the \mathcal{a} edeagus bent at a right angle; phallosomic structure a slender pale rod, without spinous armature.

Male.—Length, about 1.8 to 2 millimeters; wing, 2.5 to 2.6.

Female.—Length, about 2.5 millimeters; wing, about 2.8.

Rostrum and palpi black. Antennæ brownish black, relatively short, if bent backward ending some distance before wing root. Head dark brown.

Thorax brownish black to dark brown, both the pronotum and mesonotum with very long erect black setæ. Halteres with base of stem pale, the remainder brownish black. Legs black throughout. Wings (Plate 1, fig. 23) grayish, with darker brownish gray veins; macrotrichia and setal fringes dark brown. Wings slightly wider than in *nokoensis*; no macrotrichia in cells, the only ones present being close to outer margin of wing. Venation: R_2 and R_{2+3} in transverse alignment and lying just basad of the basal section of R_5 and r-m.

Abdomen, including hypopygium, black. Male hypopygium (Plate 3, fig. 42) with the dististyle, *d*, unusually long and slender, the apical point a long blackened spine; subapical spine elongate, preceded by a series of four or five smaller, more dorsal

denticles. *Ædeagus* *a*, bent at a right angle just beyond mid-length. Phallosomic structure, *p*, a slender, pale rod that does not attain the point of angulation of the *ædeagus*, without spinous armature.

Habitat.—China (Szechwan).

Holotype, male, Mount Omei, altitude 6,500 feet, July 31, 1935 (*Franck*). Allotopotype, female. Paratopotypes, males.

The nearest relative is *Dasymolophilus nokoensis* Alexander, of Formosa. The various regional species may be separated by the following key:

Key to the Palæarctic species of Dasymolophilus.

MALES

1. Outer cells of wing with series of macrotrichia appearing in linear rows along the centers of certain cells, especially M_4 2.
Cells of wing without macrotrichia, except for scattered marginal ones at extreme outer ends of cells 3.
2. Phallosomic structure appearing as a slender strobiloid rod, with scattered spinose points. (Japan, Formosa.) *kibunensis* sp. nov.
Phallosomic structure large, heavily blackened, with obtuse denticles on outer face. (Europe.) *murinus* (Meigen).
3. General coloration of mesonotum and pleura light brown; wings relatively narrow. (Formosa.) *nokoensis* Alexander.
General coloration of mesonotum and pleura brownish black; wings broader. (Western China.) *jubatus* sp. nov.

DASYMOLOPHILUS KIBUNENSIS sp. nov. Plate 3, fig. 43.

Male.—Length, about 1.6 to 1.7 millimeters; wing, 2.4 to 2.5.

Characters as in *D. murinus* (Meigen), differing especially in the structure of the male hypopygium.

A restricted series of macrotrichia in cells of wings, most persistent as a linear row up the center of cell M_4 between m-cu and fork of M_{3+4} ; in the type specimen, with such trichia in outer ends of cells R_2 , R_3 , R_4 , R_5 , M_2 , and M_3 . Venation: m-cu slightly variable in position, in the holotype located less than its own length before the fork of M , in other cases a little more than this length.

Male hypopygium (Plate 3, fig. 43) with the dististyle, *d*, slender, the apical point relatively short, preceded by four or five acute spines, with a partial second row of smaller spinulæ. *Ædeagus*, *a*, nearly straight, the distal third angularly bent. Phallosomic structure, *p*, small, subcylindrical to nearly terete, covered with microscopic spinulose points to appear somewhat strobiloid.

Habitat.—Japan, Formosa.

Holotype, male, Kibune, Kyoto, Honshiu, Japan, altitude 750 feet, at light, June 1, 1930 (*Tokunaga*); on slide. Paratopotypes, 2 males, on slide. Paratype, male, Arisan, Formosa, altitude 6,500 to 8,000 feet, July 7, 1929 (*Issiki*).

The Formosan paratype certainly appears to be conspecific with the Japanese types. The species is most nearly allied to the European *Dasymolophilus murinus* (Meigen), the interrelationships being shown in the key provided under the account of the preceding species. *Dasymolophilus murinus* has the phallosomic structure (Plate 3, fig. 44, *p*) of the male hypopygium considerably larger, more sclerotized and blackened, and of distinct construction.

MOLOPHILUS OKADAI sp. nov. Plate 1, fig. 24; Plate 3, fig. 45.

Belongs to the *gracilis* group and subgroup; general coloration of entire body intense black; antennæ short, flagellum pale brown; halteres yellow; legs yellow, the femoral tips broadly and conspicuously blackened; tibial bases narrowly, the tips more broadly, blackened; outer four tarsal segments black; wings uniformly suffused with grayish yellow, the prearcular and costal regions clearer yellow; veins yellowish brown; male hypopygium with the dorsal lobe of basistyle bifid; both dististyles simple, with microscopic spinulæ on distal portions.

Male.—Length, about 3.2 to 3.4 millimeters; wing, 4.2 to 4.5.

Female.—Length, about 4 millimeters; wing about 5.

Head and palpi black. Antennæ short in both sexes; scape and pedicel black; flagellum pale brown; flagellar segments oval, the verticils much exceeding the segments.

Thorax entirely intense black. Halteres yellow. Legs of male with the coxæ brownish black; trochanters yellow; femora light yellow, the tips broadly and conspicuously blackened, including about the distal third on fore and middle legs and about the distal fourth on the posterior legs; tibiæ yellow, the bases very narrowly, the tips somewhat more extensively blackened, the latter about equal to from one-third to one-half the femoral darkening; basitarsi yellow, the tips and remainder of tarsi brownish black. Wings (Plate 1, fig. 24) uniformly suffused with grayish yellow, the prearcular and costal portions clearer light yellow; veins yellowish brown, clearer yellow in the more luteous portions. Venation: R_2 opposite or slightly before r-m; m-cu about one-third to one-half the petiole of cell M_3 ; vein 2d A relatively long, extending beyond the cephalic end of m-cu.

Abdomen, including hypopygium and all appendages, intense black. Male hypopygium (Plate 3, fig. 45) with the dorsal lobe of basistyle, *db*, appearing as a double structure, the outer spine straight, narrowed to an acute point, the surface of outer half with microscopic appressed spinulæ; inner arm a glabrous curved spine; ventral lobe of basistyle, *vb*, a long clavate structure, provided with abundant, very long, recurved setæ. Outer dististyle, *od*, longer than the other appendages of the hypopygium, the basal half a trifle expanded, the outer portion gently curved and densely set with microscopic appressed spinulæ. Inner dististyle, *id*, smaller, the base expanded, the long apical spine with several small erect conical spines.

Habitat.—Japan (Hokkaido).

Holotype, male, Sapporo, Ishikari, July 2, 1935 (*Okada*). Allotopotype, female. Paratopotypes, 4 males and females.

Holotype and allotype returned to Professor Okada for inclusion in the Entomological Museum, Hokkaido Imperial University; paratypes in author's collection.

I take unusual pleasure in naming the species in honor of the collector, Prof. I. Okada. The fly is the most distinctively colored species so far discovered in eastern Asia. The coloration of the legs is very striking, somewhat similar to the condition found in the otherwise very different *Molophilus nakamurai* Alexander (Japan). In the present species the uniformly black body, in conjunction with the pale wings, is very conspicuous.

ILLUSTRATIONS

[Legend: *a*, Aedeagus; *b*, basistyle; *d*, dististyle; *db*, dorsal lobe of basistyle; *g*, gonapophysis; *id*, inner dististyle; *ig*, inner gonapophysis; *od*, outer dististyle; *og*, outer gonapophysis; *p*, phallosome; *s*, sternite; *t*, tergite; *vb*, ventral lobe of basistyle.]

PLATE 1

- FIG. 1. *Ptychoptera sumatrensis* sp. nov.; venation.
2. *Ctenophora yezoana nigrobasalis* subsp. nov.; venation.
3. *Ctenophora femur-rubra* sp. nov.; venation.
4. *Tipula* (*Tipulodina*) *hopeiensis* sp. nov.; venation.
5. *Tipula* (*Oreomyza*) *pingi* sp. nov.; venation.
6. *Tipula* (*Oreomyza*) *platyglossa* sp. nov.; venation.
7. *Tipula hoi* sp. nov.; venation.
8. *Orimarga* (*Orimarga*) *streptocerca* sp. nov.; venation.
9. *Dicranota* (*Rhaphidolabis*) *angulata* sp. nov.; venation.
10. *Dicranota* (*Amalopina*) *nebulipennis* sp. nov.; venation.
11. *Adelphomyia* (*Paradelphomyia*) *crossospila* sp. nov.; venation.
12. *Limnophila* (*Phylidorea*) *yamamotoi* sp. nov.; venation.
13. *Gonomyia* (*Lipophleps*) *funesta* sp. nov.; venation.
14. *Gonomyia* (*Gonomyia*) *justifica* sp. nov.; venation.
15. *Erioptera* (*Erioptera*) *holoxantha* sp. nov.; venation.
16. *Erioptera* (*Empeda*) *nigrostylata* sp. nov.; venation.
17. *Ormosia nigripennis* sp. nov.; venation.
18. *Ormosia tenuispinosa* sp. nov.; venation.
19. *Ormosia fixa* sp. nov.; venation.
20. *Ormosia profesta* sp. nov.; venation.
21. *Ormosia officiosa* sp. nov.; venation.
22. *Ormosia affixa* sp. nov.; venation.
23. *Dasymolophilus jubatus* sp. nov.; venation.
24. *Molophilus okadai* sp. nov.; venation.

PLATE 2

- FIG. 25. *Tipula* (*Tipulodina*) *hopeiensis* sp. nov.; male hypopygium, details.
26. *Tipula* (*Tipulodina*) *hopeiensis* sp. nov.; male hypopygium, details.
27. *Tipula* (*Oreomyza*) *pingi* sp. nov.; male hypopygium, details.
28. *Tipula* (*Oreomyza*) *platyglossa* sp. nov.; male hypopygium, details.
29. *Orimarga* (*Orimarga*) *streptocerca* sp. nov.; male hypopygium.
30. *Dicranota* (*Amalopina*) *nebulipennis* sp. nov.; male hypopygium.
31. *Adelphomyia* (*Paradelphomyia*) *crossospila* sp. nov.; male hypopygium.
32. *Chionea gracilistyla* sp. nov.; male hypopygium.
33. *Gonomyia* (*Gonomyia*) *justifica* sp. nov.; male hypopygium.

PLATE 3

- FIG. 34. *Erioptera* (*Erioptera*) *holoxantha* sp. nov.; male hypopygium.
35. *Erioptera* (*Empeda*) *nigrostylata* sp. nov.; male hypopygium.
36. *Ormosia* *nigripennis* sp. nov.; male hypopygium.
37. *Ormosia* *tenuispinosa* sp. nov.; male hypopygium.
38. *Ormosia* *fixa* sp. nov.; male hypopygium.
39. *Ormosia* *profesta* sp. nov.; male hypopygium.
40. *Ormosia* *officiosa* sp. nov.; male hypopygium.
41. *Ormosia* *affixa* sp. nov.; male hypopygium.
42. *Dasymolophilus* *jubatus* sp. nov.; male hypopygium.
43. *Dasymolophilus* *kibunensis* sp. nov.; male hypopygium.
44. *Dasymolophilus* *murinus* (Meigen); male hypopygium.
45. *Molophilus* *okadai* sp. nov.; male hypopygium.

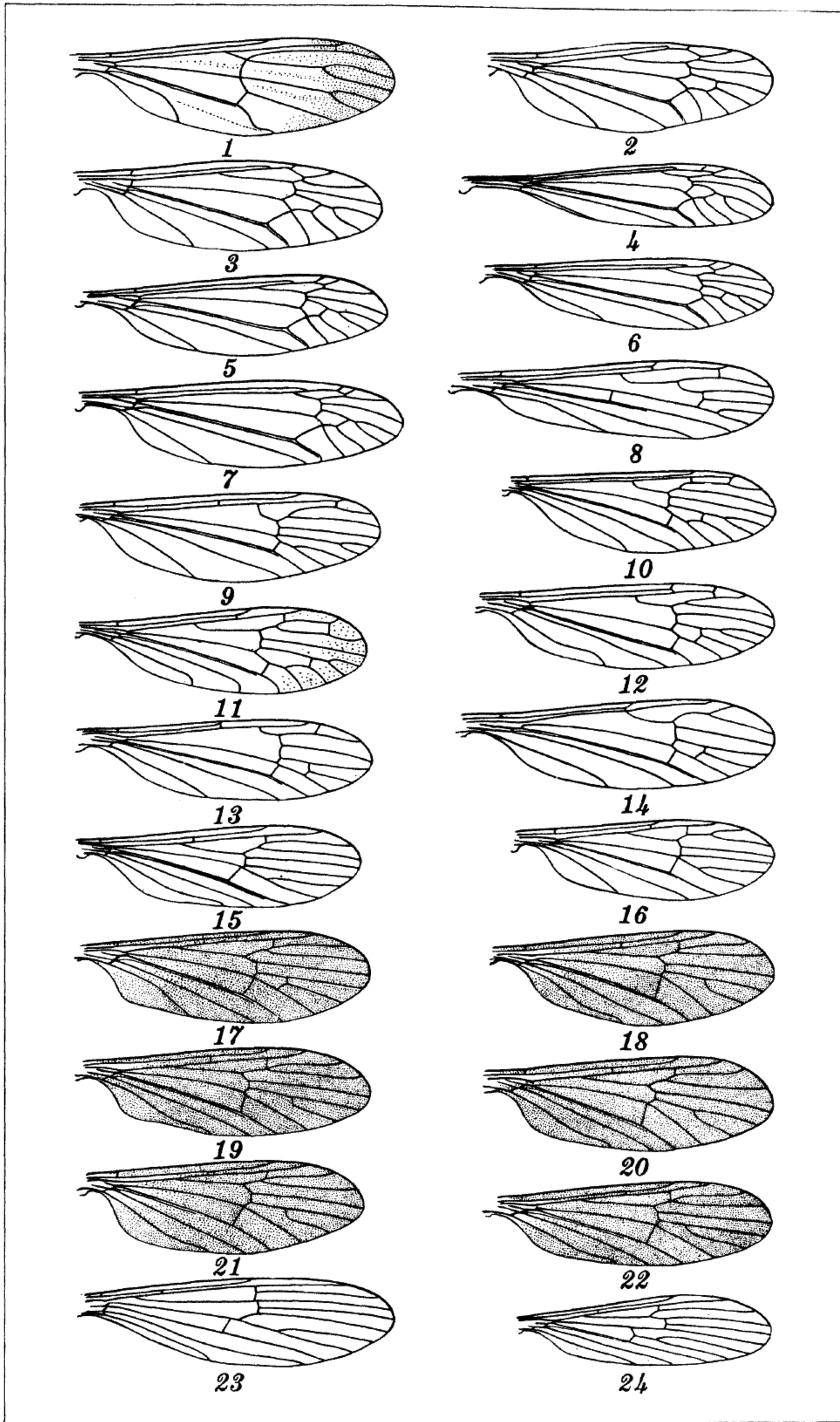


PLATE 1.

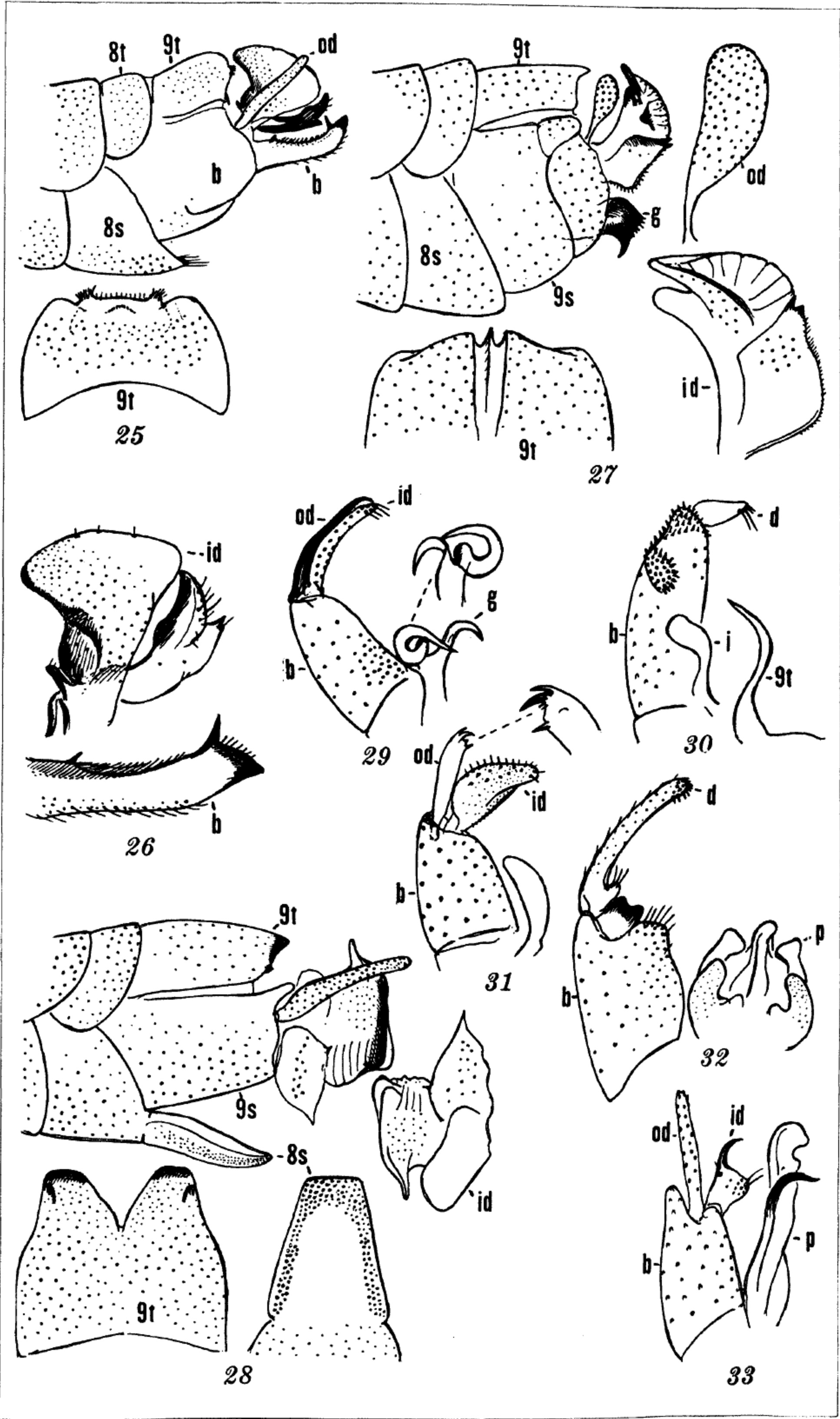


PLATE 2.

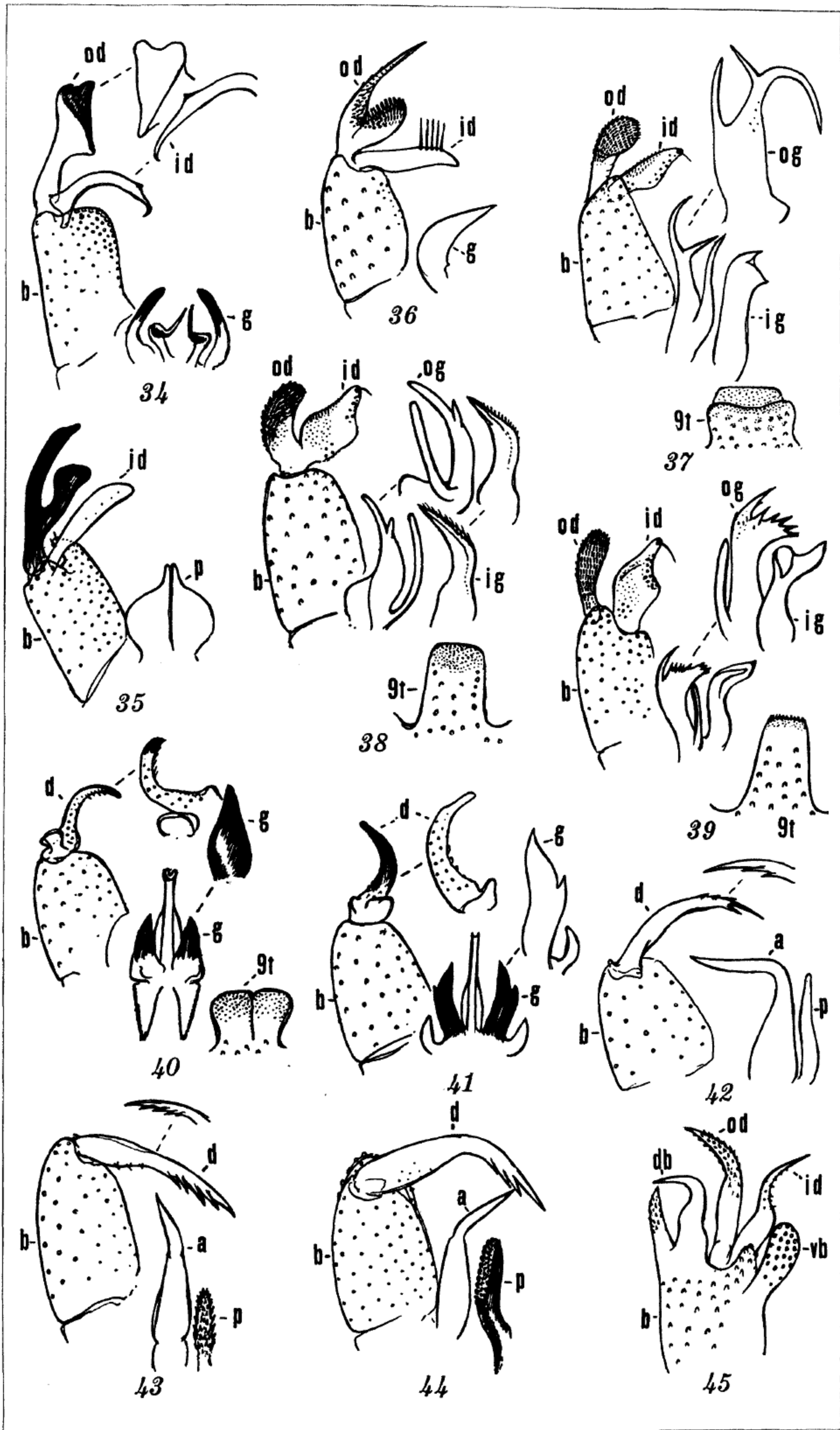


PLATE 3.