

RECORDS AND DESCRIPTIONS OF JAPANESE
TIPULIDÆ (DIPTERA), PART V
THE CRANE-FLIES OF HONSHU, I

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FOUR PLATES AND TWO TEXT FIGURES

INTRODUCTION

The preceding four parts under this general title were devoted to a consideration of the Tipulidæ of Shikoku, including a total of 263 species. It is certain that many further species will be added to the Shikoku list as a result of future collecting.

At the present time it appears advisable to begin the listing of these flies as known from Honshu, the main island of Japan. As was indicated in the initial paper under this title,¹ it is planned to number the species for each of the main islands consecutively throughout the parts that are devoted to them, so the total number recorded for any individual island in this series of reports may be known at any time. However, it seems advisable to provide a record of the total number of species considered in the entire series of reports and such consecutive totals will be provided following each species as added to the list, this figure being placed in parenthesis.

In the initial paper I had discussed briefly the historical development of our knowledge of this subject during the preceding century and had listed many of the entomologists who were active in the collecting and study of these flies during that period. As concerns the island of Honshu, this list of students and collectors is repeated here, with a certain few additions, providing a fairly complete record for the period through 1950.

Esaki, Gallois, Hibi, Hilgendorf, Imanishi, Inoue, Ishimori, Issiki, Ito, Kariya, Kato, Kawase, Kitakami, Kuwana, Kuwa-

¹ Philip. Jour. Sci. 82 (1953) 21-75, 2 pls.

yama, Machida, Masaki, Matusumura, Monzen, Mutuura, Nakahara, Nohira, Oda, Okada, Saito, Sakaguchi, Sekiya, Shiraki, Suenson, Takahashi, Takeuchi, Tanaka, Teranishi, Tokunaga, Ueno, Yamamoto, and Hadiro Yuasa.

Since 1950 various further students and collectors have added materially to our knowledge of the Tipulidæ of Honshu, these including the following.

Kintaro Baba, George F. Byers, Fukuhara, Toshiro Haruta, H. Hasegawa, Seiiji Higuma, Masami Honma, Hiroshi Ishida, Ishizuka, S. Iwano, T. Kodama, Hiroshi Koilke, Takashi Kuwayama, Yoshitomo Maruyama, Akira Nobuchi, Hiroaki Ohira, Yasumasa Omori, S. Sagimoto, Zyûzô Sawano, Hanssen Shenker, Kotaro Shirahata, Marion E. Smith, Takeichi Takei, and Hisao Yamazaki.

Of primary importance are the outstanding series of these flies taken in the provinces of Echigo and Sado by Dr. Kintaro Baba, of Kurokawa, assisted by various friends and colleagues. Most of these specimens were secured by Dr. Baba in the vicinity of Kurokawa in 1954 and 1955, with further interesting materials from Mount Sumon, Echigo, taken in June, 1954, and from Mount Amakazari, Echigo, in June, 1955. An important further series were taken by Dr. Baba on Mount Donden, Sado, in July, 1955. Collectors on behalf of Dr. Baba on the island of Sado include Messrs. Higuma, Honma and Yamazaki, of the preceding list. Other materials were taken by Koiki on Mount Yakamine, in Echigo, and by Ohira on Mount Takamori, likewise in Echigo. Shirahata secured a few specimens on Mount Chokai in Uzen.

Important collections of these flies have been received from Professor Syusiro Ito, taken chiefly by himself on his various trips to many sections of Honshu, in cases being accompanied by Issiki and Mutuura. In June, 1951, together with Issiki, he secured large series of these flies in Ugo province, in north-eastern Honshu. Very interesting specimens were taken in the alpine sections of Shinano in August, 1949 and again in May, 1953, with further materials from the same general area secured by Kodama and Sagimoto. Smaller series of these flies were taken by Ito in 1951, 1953, and 1954 in the provinces of Aki, Hoki, Inaba, Kii, Suo, and Tajima.

In addition to these two extensive series of crane-flies, other collections were received from Messrs. Hasegawa, Inoue and Ishizuka, taken in the Japanese Alps, chiefly between 1951

and 1953; from Kawase, taken in Echigo in 1951 and 1952, and from Takei, secured in Kotsuke in 1954 and 1955. Two American colleagues, Dr. George F. Byers and Dr. Marion E. Smith, made collections of these flies in Honshu in 1954. I wish to express my deepest thanks to all of the above listed friends and co-workers for such invaluable aid in the study of the crane-flies of Honshu.

Attention is called to the preparation by Hiroshi Ishida of the first part of a Catalogue of the Japanese Tipulidæ, with keys to the genera and subgenera.² This is an outstanding work that will be of great importance in advancing our knowledge of the rich crane-fly fauna of the islands. A further excellent report by Messrs. Tokunaga, Ishida, and Nobuchi concerns the species of crane-flies that cause damage to mushrooms in Japan.³

THE ISLAND OF HONSHU

Honshu is the largest of the four major Japanese islands, with a total area of about 86,772 square miles and a coast line of approximately 6,040 miles. The central mountainous area forms almost a square measuring 130 miles across, beginning in the west with the Alps in Etchu, Hida, and Shinano, ending in the east with Mount Fuji. South of this mountainous belt, the chief peaks are Omine (6,169 feet) and Odai-go-hara (5,540 feet), in Yamato, and Daisen (Oyama) in Hoki. The highest peaks, with their location and altitude in feet, are as follows:

Fuji	Suruga-Kai	12,394
Shirane Kitadake	Kai	10,472
Shirane Ainotake	Kai-Suruga	10,462
Yarigatake	Shinano-Hida	10,432
Higashidake	Suruga	10,321
Akaishidake	Shinano-Suruga	10,236
Oku-Hodaka	Shinano-Hida	10,180

² Ishida, Hiroshi. The catalogue of the Japanese Tipulidæ, with the keys to the genera and subgenera. I. Tipulinæ (Part). Kenkyu Shuroku (Annual Reports of the Hyogo Agricultural College) 4 (1954) 106-135; issued June 28, 1955.

³ Tokunaga, M., H. Ishida, and A. Nobuchi. Crane-flies injurious to useful mushrooms in Japan, with revision of the Japanese *Ula* species and descriptions of a known and three new species and immature stages of two species (Tipulidæ, Diptera). Scient. Repts, Saikyo Univ., Agriculture, No. 6 (1954) 1-10, *figs.* 1-19.

Hodaka	Shinano-Hida	10,137
Arakawadake	Suruga	10,114
Ontake	Shinano-Hida	10,047
Shiomidake	Shinano-Suruga	9,996
Kita-Hodaka	Kai	9,950
Senjogadake	Shinano-Kai	9,950
Shirane Nodoridake	Kai-Suruga	9,927
Norikuradake	Shinano-Hida	9,927
Hijiridake	Shinano-Suruga	9,878

The highest peak in the Nikko Mountains is Nantaisan, 8,169 feet. The mountainous center of Honshu leaves narrow coastal plains and relatively short rivers having narrow alluvial valleys. The chief of such rivers are the following:

Flowing to the Japan Sea. Agano (105 miles); Go-no (124); Mogami (134); Jinzu (78); Noshiro (85); Omomo (93); Shinano (229). To the Pacific Ocean. Abukuma (122 miles); Ara (110); Kiso (144); Kitakami (152); Naka (78); Shingu (100); Fuji (100); Tenryu (134); Tone (200). To the Inland Sea. Yodo (49 miles).

The largest lake is Biwa-ko (area 674 square kilometers). The more important mountain lakes include Chuzenji in Shimotsuke; Ashi-no-ko, at Hakone; and Suwa-ko in Shinano.

The plains, with their principal cities and their chief rivers are:

Echigo	Niigata	Agano, Shinano Rivers
Kinai	Kobe, Kyoto, Osaka	Yodo River
Kwanto	Tokyo, Yokohama	Ara, Naka, Sagami, Tama, and Tone Rivers
Nobi	Gifu, Nagoya	Kiso system
Sendai	Sendai	Abukuma, Kitakami Rivers

Provinces and Prefectures. Many published records of crane-flies have been reported by Provinces while others are similarly listed by Prefectures and in order to avoid confusion the equivalent names are indicated herewith. Wherever possible records are given in names of Provinces.

Province (Kuni)	Prefecture (Ken)
Aki	Hiroshima
Awa	Chiba
Awaji	Hyogo
Bitchu (Bichiu)	Okayama
Bingo	Hiroshima
Bizen	Okayama
Echigo	Niigata
Etchu (Echiu)	Toyama
Echizen	Fukui

Province (Kuni)	Prefecture (Ken)
Harima	Hyogo
Hida	Gifu
Hitachi	Ibaraki
Hoki	Tottori
Iga	Miye
Inaba	Tottori
Ise	Miye
Iwaki	Fukushima
Iwami	Shimane
Iwashiro	Fukushima
Izu	Shizuoka
Izumi	Osaka
Izumo	Shimane
Kaga	Ishikawa
Kai	Yamanashi
Kawachi	Osaka
Kazusa	Chiba
Kii	Wakayama
Kotsuke	Gumma
Mikawa	Aichi
Mimasaka	Okayama
Mino	Gifu
Musashi	Tokyo, Saitama
Mutsu	Aomori
Nagato	Yamaguchi
Noto	Ishikawa
Oki	Shimane
Omi	Shiga
Owari	Aichi
Rikuchu	Iwate
Rikuzen	Miyagi
Sado	Niigata
Sagami	Kanagawa
Settsu	Osaka
Shima	Miye
Shimosa	Chiba
Shimotsuke	Tochigi
Shinano	Nagano
Suo	Yamaguchi
Suruga	Shizuoka
Tajima	Hyogo
Tanba (Tamba)	Kyoto
Tango	Kyoto
Totomi	Shizuoka
Ugo	Akita
Uzen	Yamagata
Wakasa	Fukui
Yamashiro	Kyoto
Yamato	Nara

The maps showing the provinces of Honshu were prepared for me by Mr. Y. Hirashima, assistant to Dr. Teiso Esaki in the Entomological Laboratory, Kyushu University, Fukuoka. I am deeply indebted to Mr. Hirashima for the extreme care devoted to the preparation of these maps, which will prove to be of great aid in using the present paper and those to follow.

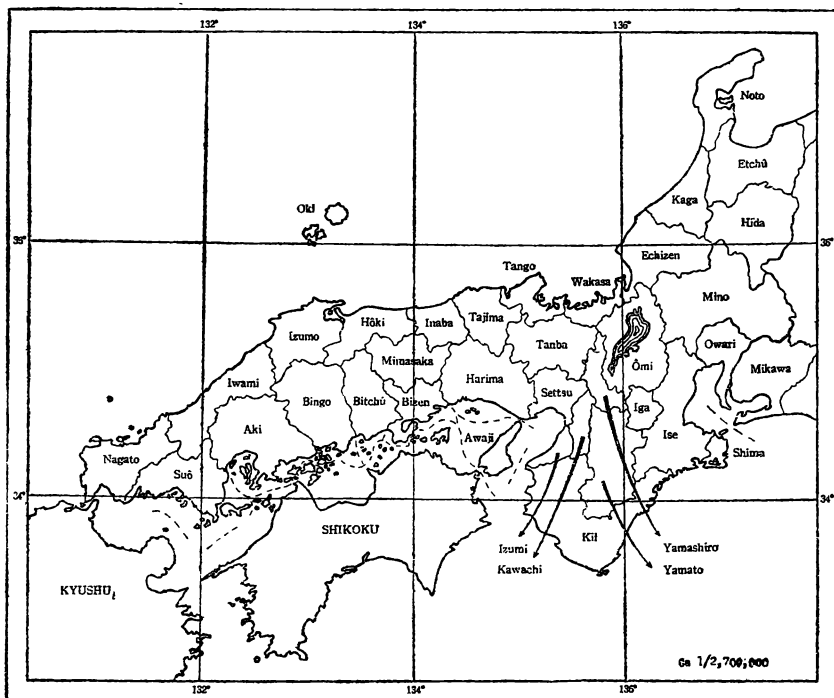


FIG. 1.

RECORDS OF DISTRIBUTION

LIMONINÆ

PEDICINI

1 (264). *PEDICIA (TRICYPHONA) TENULOBA* sp. nov.

Allied to *vetusta*; general coloration of thorax gray, the præscutum with three black stripes; femora yellow, the tips brownish black, broadest on the fore pair where more than the outer third is included; male hypopygium only slightly

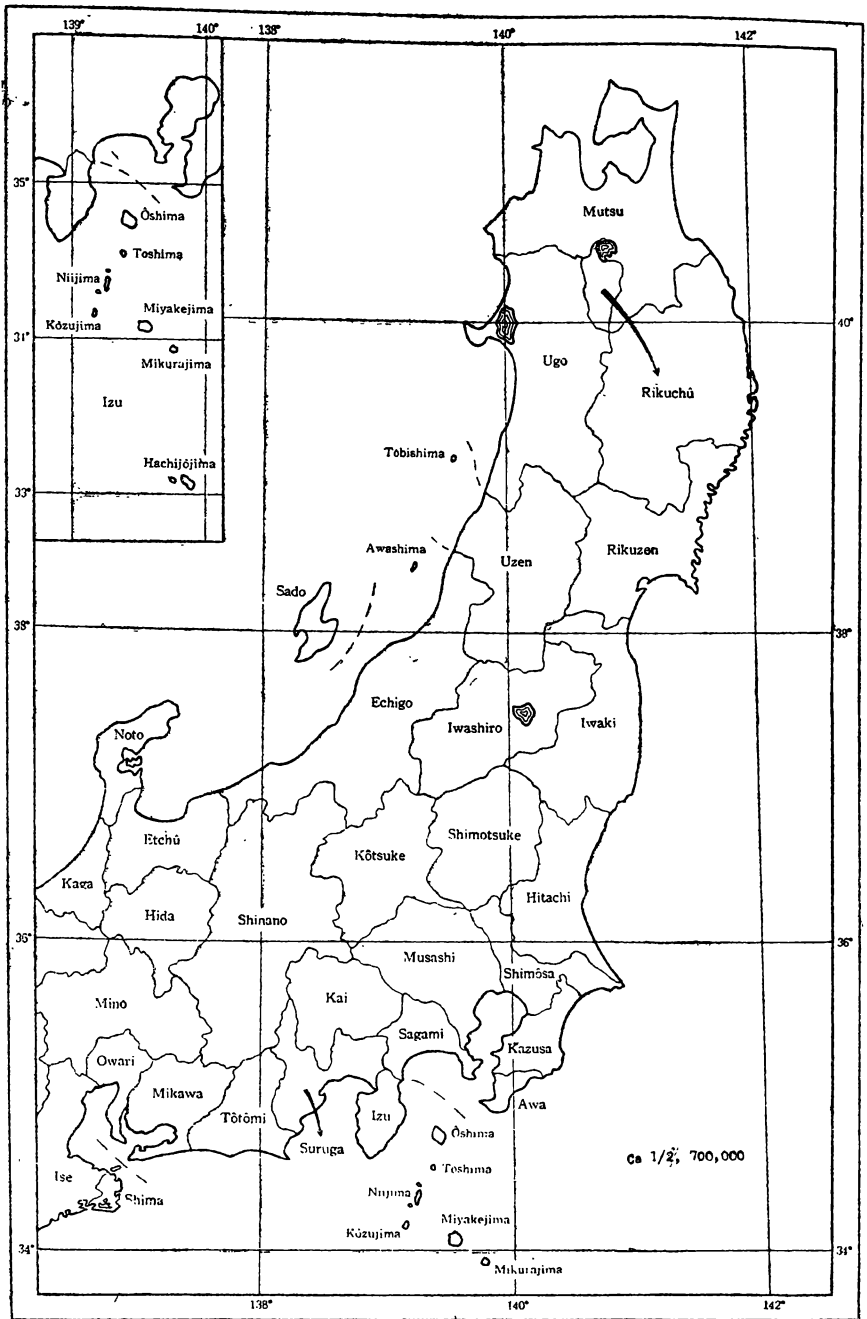


FIG. 2.

hairy; apical lobe of basistyle long and slender; interbase a sinuous blade, directed caudad, its surface microscopically setulose; dististyle a narrow paddlelike blade.

Male.—Length, about 9 millimeters; wing, 11; antenna, about 1.1.

Rostrum dark gray; palpi black. Antennæ short, black, scape pruinose; flagellar segments oval to long-oval; verticils conspicuous. Head brownish gray, the orbits clearer gray.

Pronotum dark gray. Mesonotal præscutum gray, in male with three black stripes, the central one broad; the allotype female has the central stripe completely divided by a narrow median ground vitta; posterior sclerites of notum gray, scutal lobes slightly darker; postnotum and pleura clear light gray; dorsopleural membrane dark. Halteres with stem dusky, knob infuscated. Legs with the coxæ light gray, the fore pair paler at tips; trochanters brown; femora yellow basally, the tips brownish black, broadest on the fore pair where more than the outer third is included, on the remaining femora much narrower; tibiæ and tarsi brown, the outer tarsal segments brownish black. Wings brownish yellow, the base clearer yellow; a conspicuous brown pattern, arranged as in the *vetusta* group, including areas at Sc_2 , origin of R_s , cord, R_{1+2} , m , narrow wing tip, and as small marginal spots at ends of the longitudinal veins, largest but still inconspicuous on 2nd A; veins light brown, darker in the patterned areas, yellow at wing base. Venation: r-m close to fork of R_s , R_{2+3+4} subperpendicular; cell 1st M_2 elongate, basal section of M_3 about one-half longer than the distal section.

Abdomen brownish yellow, the base dark brown; outer segments, including hypopygium, black, gray pruinose. Male hypopygium (Plate 1, fig. 2) with the tergite large, narrowed posteriorly, the border produced into two low lobes separated by a broad shallow emargination (in the unique type slide, the apex of the tergite is somewhat damaged and may be somewhat different from the figure and description). Basistyle, *b*, slender, the setæ sparse and relatively inconspicuous; apical lobe long and slender, with scattered black spicules; interbase a long narrow blade, gently sinuous, narrowed to the acute tip, the surface with abundant appressed setulæ. Dististyle, *d*, a narrow paddlelike blade. Phallosome, *p*, including short obtuse gonapophyses and a longer ædeagus, capitate at apex.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, October 10, 1954 (*Kintaro Baba*); Baba No. 294. Allotopotype, female.

The present fly is quite distinct from *Pedicia* (*Tricyphona*) *vetusta* (Alexander), which is the nearest relative, differing in the hypopygial characters, particularly the tergite, apical lobe of basistyle, interbase, and dististyle. The coloration of the female specimen herein assigned as being conspecific is sufficiently distinct to warrant the suspicion that it may be incorrectly placed with the holotype male.

2 (265). DICRANOTA (RHAPHIDOLABIS) PARACONSORS Alexander.

Dicranota (*Rhaphidolabis*) *paraconsors* ALEXANDER, Ann. Ent. Soc. America 48 (1955) 372.

The type was from Yatsugatake, Shinano, altitude 2,000 meters, August 10, 1949, collected by Syusiro Ito.

The venation is shown (Plate 1, fig. 1); male hypopygium (Plate 1, fig. 6).

HEXATOMINI

3 (266). PARADELPHOMYIA (OXYRHIZA) MACRACANTHA sp. nov.

Size small (wing, male, about 4.5 millimeters); general coloration of thorax testaceous yellow; legs pale brown, tibial spurs two, long and slender; wings weakly tinged with brown; macrotrichia of cells numerous; Sc_1 long, more than one-half Rs ; petiole of cell M_1 long, nearly three times the cell; male hypopygium with the dististyles subterminal, apex of basistyle produced into a stout spine; outer dististyle unusually slender; spines of ventral fork unusually long and slender, approximately equal in length to the gonapophyses.

Male.—Length, about 3.5 millimeters; wing, 4.5; antenna, about 0.8.

Female.—Length, about 3.5 millimeters; wing, 4.

Rostrum brown; palpi dark brown. Antennæ dark brown or brownish black; flagellar segments oval, with long verticils, the outer segments still longer. Head brown.

Thorax obscure testaceous yellow, vaguely patterned with brown on the praescutum and dorsal pleurites. Halteres weakly infuscated. Legs with the coxæ and trochanters testaceous yellow; remainder of legs brownish yellow to pale brown; tibial spurs two, both unusually long and slender. Wings (Plate 1, fig. 4) weakly tinged with brown, the prearcular and costal fields a trifle more yellowed; stigma poorly indicated; veins light

brown, a little paler in the costal field. Macrotrichia well distributed in outer wing cells, from R_2 to Cu inclusive (position shown in figure by stippling). Venation: Sc_1 long, approximately one-half Rs ; R_{2+3} and R_2 subequal; petiole of cell M_1 long, nearly three times the cell.

Abdomen, including hypopygium, brown. Male hypopygium (Plate 1, fig. 3) with the dististyles, d , subterminal, the apex of basistyle, b , produced into a stout and relatively short spine, provided with long setæ almost to the pointed tip; outer setæ of basistyle long and powerful. Outer dististyle, d , glabrous, unusually slender, the axial spine longest, the outer one very reduced. Spines of the ventral fork of the phallosome, p , unusually long and slender, widely separated at their bases, glabrous, approximately equal in length to either the gonapophysis or the ædeagus.

Habitat.—Japan (Honsu).

Holotype, male, Kami-Ishikawa, Echigo, June 27, 1954 (*Hiroshi Koike*); Baba No. 226. Allotype, female, Kurokawa, Echigo, July 18, 1954 (*Kintaro Baba*).

The present fly is quite distinct from the other regional small members of the genus in the tibial spurs, details of venation, and structure of the male hypopygium. The closest of such related forms is *Paradelphomyia (Oxyrhiza) nipponensis* (Alexander), which has the apical spine of the basistyle more elongate and the spines of the ventral fork shorter.

4 (267). TAIWANOMYIA BABAELLA sp. nov.

General coloration brownish black, the præscutum with three broad brown stripes; antennæ of male very elongate, about one-half longer than the wing; wings heavily patterned with brown, including paler brown washes over the base and disk; Rs about four times the basal section of vein R_5 ; cell M_1 lacking; cell 1st M_2 elongate about one-half longer than the distal section of vein M_{1+2} ; m-cu beyond the fork of M .

Male.—Length, about 3.4 to 3.5 millimeters; wing, 4 to 4.2; antenna, about 6 to 6.2.

Rostrum and palpi black. Antennæ of male very elongate, about one-half longer than the wing; scape and pedicel small, black, flagellum pale brown; segments very long-cylindrical, with relatively inconspicuous erect setæ that are about one-fourth as long as the segment. Head brownish gray; anterior vertex about as wide as the diameter of the vertex.

Pronotal scutum brownish black, scutellum and pretergites whitened. Mesonotal præscutum chiefly covered by three broad brown stripes, the restricted interspaces darker brown; pseudo-sutural foveæ and tuberculate pits black; posterior sclerites of notum brown, the pleurotergite darker. Pleura dark brown, with a broad more blackened dorsal stripe. Halteres with stem light brown, yellow at base, knob brownish black. Legs with coxæ dark brown; trochanters testaceous yellow; femora obscure yellow with a virtually terminal darker ring, the extreme tip and narrow base of tibiæ whitened; tibiæ and tarsi yellowish brown, the outer tarsal segments a trifle darker; tibial spurs distinct. Wings (Plate 1, fig. 5) with the ground color of the costal fourth whitened, the center of the disk more clouded with darker; a heavy brown costal pattern, including major areas in cell C, origin of Rs, fork of Sc, confluent with a band along cord, tip of vein R_1 and over vein R_2 ; tips of remaining longitudinal veins darkened, largest on R_3 and on the anal veins, smallest near the wing tip, lacking on vein R_5 which is narrowly pale; the central clouded portion is especially evident in cells M and the Anals; veins brown, more yellowed in the costal interspaces. Venation; Sc relatively short, Sc_1 ending about opposite the fork of Rs, Sc_2 at its tip; Rs about one-fourth longer than R_{2+3+4} and nearly four times as long as the basal section of Rs; R_{2+3} and R_2 subequal, a little longer than the basal section of R_3 ; cell M_1 lacking; cell 1st M_2 elongate, about one-half longer than the distal section of vein M_{1+2} ; m-cu about one-fourth to one-half its length beyond the fork of M; vein 2nd A curved strongly into the wing margin.

Abdomen, including hypopygium, brownish black.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, August 17, 1954 (*Kintaro Baba*); Baba No. 142. Paratopotypes, males, August 18, 1954; Kurokawa, July 14, 1955, August 23 to 26, 1955; Baba No. 383, Paratypes, 1 male, 1 female, Mount Donden, Sado Island, altitude 600 meters, June 19, 1955; Baba No. SA 37.

I take great pleasure in naming this very distinct fly for Dr. Kintaro Baba, who has made many outstanding discoveries in the crane-flies of Japan. The species is entirely distinct from *Taiwanomyia flicornis* (Alexander), the only other member of the genus at present known from Japan, in the conspicuously patterned wings. In the latter regard it is more like *T. fragili-*

cornis (Riedel), of Formosa, which is quite distinct in its venation.

During the past thirty years rather numerous species of this group have been discovered, showing a considerable range in venation and quite bridging the characters formerly used to separate the two supposed genera *Taiwanomyia* and *Troglophila*. It no longer seems advisable to attempt to maintain the two groups as distinct. The three generic names that have been proposed in this particular section are as follows:

Taiwanomyia ALEXANDER, Philip. Jour. Sci. 22 (1923) 476-477; type, *fragilicornis* (Riedel, 1916)—Formosa.

Troglophila BRUNETTI, as *Limnophila* (*Troglophila*) BRUNETTI, Rec. Indian Mus. 26 (1924) 99-100; type, *cavernicola* (Brunetti, 1924)—Assam.

Esakiomyia ALEXANDER, Ann. and Mag. Nat. Hist. (9) 15 (1925) 73-75; type *filicornis* ALEXANDER, 1925—Honshu.

Riedel's figure of the wing of *fragilicornis* [as *Taseocera fragilicornis*, Arch. für Naturgeschichte 82A 5 (1916) 112, fig. 2] is excellent but was published in a journal that is not generally available. Its venation is shown (Plate 1, fig. 8) for comparison with that of the present fly (Plate 1, fig. 5) and with *filicornis* (Plate 1, fig. 7).

5 (268). *TAIWANOMYIA FILICORNIS* (Alexander).

Esakiomyia filicornis ALEXANDER, Ann. and Mag. Nat. Hist. (9) 15 (1925) 74-75.

The type was from Mount Hakone, Sagami, altitude 2,300 feet, July 12, 1933, taken by Teiso Esaki.

Kurokawa, Echigo, altitude 300 meters, August 23, 1955 (*Kintaro Baba*); Baba No. 376.

The venation (Plate 1, fig. 7) is shown for purposes of comparison with that of *Taiwanomyia babaella* sp. nov. (Plate 1, fig. 5).

6 (269). *PSEUDOLIMNOPHILA TELEPHALLUS* sp. nov.

General coloration dark gray, præscutal stripes scarcely differentiated; knobs of halteres weakly infuscated; femora dark brown to brownish black, their bases yellow; wings weakly infuscated, stigma narrow, pale brown; cell M_1 present; abdomen, including hypopygium, black; male hypopygium with the outer dististyle long, slender, sinuous, narrowed to the acute tip, the outer and spinulose; ædeagus very long and conspicuous, jutting from the genital chamber as a vertical loop, the concave surface of the coil with hyaline membrane that bears

scattered microscopic spines.

Male.—Length, about 6.5 to 7.5 millimeters; wing, 7.5 to 9; antenna, about 1.8 to 2.0.

Female.—Length, about 7.5 millimeters; wing, about 8.

Rostrum brown; palpi black. Antennæ with scape and pedicel black, succeeding segments dark, in cases with the outer flagellar segments paler; basal flagellar segments cylindrical, the outer ones still longer with very long verticils. Head gray; anterior vertex moderately broad, about twice the diameter of the scape; a small median tubercle on anterior vertex.

Thoracic notum dark gray, præscutal stripes scarcely differentiated; pronotal scutellum restrictedly obscure yellow. Pleura dark gray. Halteres with stem yellow, knob weakly infuscated. Legs with the coxæ pale yellow, the fore pair slightly more darkened basally; trochanters yellow; femora with tips dark brown to brownish black, more extensively so on fore legs; tibiæ and tarsi brownish yellow, outer tarsal segments darker. Wings (Plate 1, fig. 9) with a weak brownish tinge, the prearcular and costal regions more yellowed; stigma narrow, pale brown; veins pale brown. Venation: Sc_1 ending shortly before level of fork of R_s , Sc_2 near its tip; R_{2+3+4} variable in length, commonly about twice the basal section of R_5 ; cell M_1 about one-third to one-half longer than its petiole; m-cu at near one-third its length beyond the fork of M .

Abdomen, including the hypopygium, brownish black, only the ædeagus obscure yellow. Male hypopygium (Plate 1, fig. 10) with the outer dististyle, *d*, long and slender, sinuous, gradually narrowed to the acute tip; surface of more than the outer third with microscopic spinules; inner style fleshy, nearly as long as the outer, cylindrical, narrowed outwardly, with abundant long setæ Phallosome, *p*, with the gonapophysis bispinous; ædeagus very long and conspicuous, arising from an enlarged basal portion, thence coiled vertically and projecting ventrad from the genital chamber, the concave surface of the narrowed part with hyaline membrane that is set with scattered microscopic spines.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, May 29, 1954 (*Kintaro Baba*); *Baba* No. 204. Paratopotypes, males, June 11, 1955; paratypes, 1 male, Tamagawa, Ugo, altitude 350 meters, June 18, 1951 (*Issiki-Ito*); males and females, Lake Tazawa, Ugo, altitude 260 meters, June 13, 1951 (*Issiki-Ito*).

Pseudolimnophila telephallus is quite distinct from other generally similar regional members of the genus, including *P. chikurina* Alexander and *P. inconcussa* (Alexander), in the very distinct male hypopygium. The other species have the aedeagus short and inconspicuous.

7 (270). LIMNOPHILA (ELÆOPHILA) KINTARO sp. nov.

Size relatively large (wing, 7 millimeters or more); general coloration of thorax dark brown, the præscutum and scutum more chestnut brown; halteres and legs yellow; wings brownish yellow, with a restricted brown pattern and with sparse macrotrichia in the outer cells; male hypopygium with the lobe of the outer dististyle very large, broad-based.

Male.—Length, about 5.5 to 6 millimeters; wing, 7 to 7.5; antenna, about 1.5 to 1.6.

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

Rostrum and palpi black. Antennæ with scape dark brown, pedicel and proximal flagellar segments testaceous yellow, outer flagellar segments infuscated; basal flagellar segments short-oval, the outer ones longer, with a short erect pubescence and long verticils. Head dark brown.

Pronotum dark brown, scutellum more chestnut brown. Mesonotal præscutum and scutum chestnut brown, virtually unpatterned except for a capillary dark median vitta and lateral borders on the præscutum, pseudosutural foveæ large, black; posterior sclerites of notum and the pleura darker brown, the ventral part of the latter somewhat paler. Halteres yellow. Legs with coxæ infuscated, vaguely paler at tips; remainder of legs yellow, the outer tarsal segments a trifle darker. Wings (Plate 1, fig. 12) with the ground brownish yellow, the prearcular and costal fields somewhat clearer yellow; a restricted brown pattern, including the stigma, and spots and seams at h, near base of Sc, origin of Rs, fork of Sc, cord outer end of cell 1st M_2 , fork of M_{1+2} , and spots at ends of certain of the longitudinal veins, largest on R_3 and R_4 , much smaller on the medial, cubital and anal veins, virtually lacking on veins R_5 , M_1 and M_2 ; veins brownish yellow, clearer yellow in the prearcular and costal regions, darker in the patterned portions. Sparse macrotrichia in outer ends of cells R_4 to M_1 , inclusive, in cases more restricted, most persistent in cells R_4 and R_5 (their position indicated by stippling in figure). Venation: Sc_1 ending shortly before origin of Rs, the latter weakly an-

gulated at origin; cell M_1 subequal to or longer than its petiole; m-cu at or beyond midlength of cell 1st M_2 ; supernumerary crossvein in cell M nearly opposite origin of Rs.

Abdomen dark brown, hypopygium more brownish yellow. Male hypopygium (Plate 1, fig. 11) with the lobe of the outer dististyle, *d*, very large, its base extensive, apical hook of style small; surface and margins without microscopic spinulæ, as common in many species of the subgenus; inner style fleshy, narrowed outwardly, with numerous strong setæ. Phallosome, *p*, relatively small; ædeagus, *a*, short and slender.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, May 28, 1954 (*Kintaro Baba*); Baba No. 150. Allotopotype, female, May 29, 1954. Paratopotypes, males and females, May 28 to June 10, 1954.

This distinct fly is named in honor of Doctor Kintaro Baba. It differs from all other regional members of the subgenus in the macrotrichia of the outer cells of the wing and in the structure of the male hypopygium, particularly the outer dististyle. In its general appearance it is most like *Limnophila* (*Elæophila*) *persalsa* Alexander, *L. (E.) serenensis* Alexander, and *L. (E.) ussuriiana iwatensis* Alexander, differing from all in the features above indicated. Species of the subgenus in the eastern Nearctic region likewise have macrotrichia in the outer cells of the wing and a supposed new subgeneric group, *Tricéphelia* Alexander, was proposed for them, based primarily on this character. However, in the light of more recent discoveries in the Tipulidæ it scarcely seems advisable to try to maintain the name *Tricéphelia*.

8. (271). NIPPOLIMNOPHILA PERPRODUCTA sp. nov.

General coloration dark brown, sparsely pruinose; antennæ of male longer than the body and almost equal to the wing; male hypopygium with the tergite produced into a slender median lobe; ædeagus relatively long and slender, sinuous.

Male.—Length, about 3.5 millimeters; wing, 4.5; antenna, about 4.

Rostrum dark brown; palpi brown, short, the terminal segment very small. Antennæ of male very long, exceeding the body, brown; flagellar segments very long-cylindrical, with dense erect setæ and pubescence; second flagellar segment at least ten times as long as thick; scape only about one-third as long as the first flagellar segment; apex of antenna broken

and the number of segments cannot be definitely stated. Head dark brown; anterior vertex broad, about four times the diameter of the scape.

Pronotum and mesonotum dark brown, sparsely pruinose, the posterior sclerites of the latter somewhat paler. Pleura dark brown, sparsely pruinose. Halteres elongate, pale yellow. Legs with the coxæ brown, trochanters more testaceous; remainder of legs obscure yellow, the tips of the femora and tibiæ, with the outer tarsal segments, slightly darker. Wings (Plate 2, fig. 13) whitish subhyaline, the costal border a trifle more yellowed; stigma very vaguely darker; veins pale brown. Macrotrichia of outer veins sparse and scattered. Anal angle of wing lacking. Venation: Sc_2 at extreme tip of Sc_1 , opposite two-thirds the length of R_s ; R_2 not apparent in the type; cell 1st M_2 large, subequal to vein M_{3+4} ; cell 2nd A narrow.

Abdomen brown, including the hypopygium. Male hypopygium (Plate 2, fig. 14) with the tergite, *t*, produced into a slender median lobe that is a little stouter than in *omogiana*. Outer dististyle, *d*, with the apex a flattened dark-colored blade, the lower or inner face with microscopic appressed spinulæ; inner style shorter, narrowed beyond base, blackened, curved gently to the obtuse tip. Gonapophysis, *g*, appearing as a flattened blade that is extended into an apical spine, shorter than in *omogiana*. Ædeagus relatively long and slender, sinuous.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, May 2, 1954 (*Kintaro Baba*); *Baba* No. 219.

Of the three species of *Nippolimnophila* previously described, the present fly is closest to *N. omogiana* Alexander, of Shikoku, which is well distinguished by the much shorter antennæ and by slight details of structure of the male hypopygium.

ERIOPTERINI

9 (272). CLADURA (CLADURA) SUPERNUMERARIA sp. nov.

Allied to *machidella*; general coloration of thorax brownish yellow, præscutum and scutal lobes patterned with darker, scutellum and pleura yellow; antennal flagellum brownish black; femora yellow, the tips narrowly brownish black; wings very pale yellow, the costal border brighter, veins chiefly blackened, cord and Cu narrowly seamed with brown; supernumerary crossveins in cells R_3 and R_4 ; abdominal tergites

brown, subterminal segments still darker; male hypopygium with posterior border of tergite broadly emarginate, the lobes slender; dististyle broad, its apex short and obtuse, gonapophyses black, longer than the small slender ædeagus.

Male.—Length, about 6.5 to 7 millimeters; wing, 7 to 7.5.

Female.—Length, about 7.5 millimeters; wing, 9.

Rostrum and palpi dark brown. Antennæ brownish black, the scape paler. Head dark gray.

Pronotum obscure brownish yellow, darker laterally. Mesonotal præscutum brownish yellow, with three dark stripes, the broader central one opaque black, the lateral pair much paler to scarcely defined; scutum obscure yellow, the lobes with opaque blackened centers; scutellum light yellow; postnotum yellow, the central part of the mediotergite more infuscated. Pleura yellow, the anepisternum weakly infuscated. Halteres light yellow. Legs with the coxæ and trochanters yellow; femora yellow, the tips narrowly brownish black; tibiæ and basitarsi obscure yellow, the tips more narrowly darkened; remaining tarsal segments passing into black. Wings (Plate 2, fig. 17) very pale yellow, the prearcular and costal fields clear light yellow; a restricted dark pattern, chiefly involving the veins slightly more extensive over the cord, Cu and the supernumerary crossveins. Venation: Supernumerary crossveins in cells R_3 and R_4 , in approximate alignment with R_2 , which lies near the outer end of the yellow stigmal area, a little shorter than R_{1+2} ; cell M_1 deep, its petiole subequal to or a trifle longer than m .

Abdominal tergites brown, the subterminal segments in male still darker brown to form a ring; hypopygium brown. Male hypopygium (Plate 2, fig. 18) with the tergite elongate, the posterior border broadly and shallowly emarginate, the lateral lobes very slender. Basistyle, *b*, elongate, the proximal half of mesal face more expanded, with pale membrane and abundant setæ. Dististyle, *d*, broad, the apex short and obtuse, with a concentration of short dark-colored setæ; dorsal margin of style elevated into a very low ridge or flange. Gonapophysis, *g*, black, conspicuous, each consisting of two larger outer blades, the inner one of which terminates in an acute point, its edge microscopically serrulate; outer blade with coarser denticles and a triangular toothed flange. Ædeagus shorter than the gonapophysis, its outer half very slender.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, November 7, 1954 (*Kin-*

taro Baba); Baba No. 327. Allotopotype, female, November 24, 1954. Paratopotypes, 2 males, November 7 to 24, 1954.

Other Japanese species of the genus having supernumerary crossveins in the wing cells include *Cladura* (*Cladura*) *fuscivena* Alexander, *C. (C.) machidella* Alexander, and *C. (C.) microphallus* Alexander. The present fly is closest to *microphallus* in the small ædeagus, differing evidently in all details of structure of the hypopygium, including the tergite, dististyle, and gonapophyses. *C. (C.) fuscivena* is known to me only in the female sex. It lacks the supernumerary crossvein in cell R₄ of the wings, as found in the other species, but this character may prove to be inconstant in a series of specimens.

10 (273). CLADURA (CLADURA) ITOI Alexander.

Cladura (*Cladura*) *itoi* ALEXANDER, Bull. Brooklyn Ent. Soc. 50 (1955) 19-30.

The type was from Sigakôgen, Shinano, altitude 1,600 meters, taken September 11, 1953, by Syusiro Ito.

Male hypopygium (Plate 2, fig. 19) of the *megacauda* type but even more accentuated, representing the extreme of ornamentation as far as known in the genus. Ninth segment large and complex, the tergite and sternite fused into a continuous ring; tergal region produced into two relatively slender dorsally directed lobules; cephalad of these with a group of long erect pale setæ; region of sternite with abundant long erect pale setæ. Basistyle, *b*, elongate, erect, its ventral margin rounded, with a brush of very long setæ; basal lobe of mesal face of style deeply bilobulate, the larger lobule foot-shaped, the appressed smaller one fingerlike, tipped with a few long setæ; apical lobe of style subequal to or a little longer than the style itself, very slender, terminating in three or four long setæ, with other scattered erect very long bristles down the outer margin. Dististyle, *d*, stouter than the apical lobe of basistyle, a little more than one-half as long, near its base with a slender erect rod that is fully one-fourth as long as the style; apex of style with a dense brush of black setæ, with fewer similar darkened setæ on the cephalic and mesal faces. Gonapophysis, *g*, about equal in length to the ædeagus, appearing as a flattened blade, the outer margin with microscopic denticles, the apical spine largest.

11 (274). CLADURA (CLADURA) SAWANOI sp. nov.

Allied to *megacauda*; general coloration yellow, the meso-

notal præscutum and scutum conspicuously patterned with polished black spots; tips of femora narrowly brownish black; wings subhyaline, unpatterned; male hypopygium very large; ninth tergite with the upper lobes slightly divergent, the inner apical angle produced mesad into a fingerlike lobe; cephalic lobe of basistyle relatively stout, with a row of strong setæ extending the entire length; gonapophyses appearing lyriiform, each a powerful sclerotized rod, the apex unequally bidentate; ædeagus small.

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

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

Rostrum and palpi yellow. Antennæ yellow, the flagellum a little darker in the female. Head yellow.

Prothorax light yellow. Mesonotum yellow, conspicuously patterned with black spots, there being a pair near anterior end of præscutum, narrowly separated at midlength, and a widely separated pair near posterior border of præscutum, representing the usual lateral stripes; further black areas on scutum, in the holotype male with two marks on each scutal lobe, the inner one of each lobe small, in the allotype female the inner pair of spots lacking; remainder of notum and the pleura yellow. Halteres yellow. Legs with the coxæ and trochanters yellow; femora and tibiæ yellow, the tips narrowly but distinctly brownish black; tarsi dark brown to brownish black, the proximal end of basitarsus paler. Wings subhyaline, the prearcular and costal regions pale yellow, including the veins, the remaining veins light brown. Venation: Vein R_2 very faint to scarcely evident, about one-fourth as long as R_{2+3} ; cell M_1 deep, its petiole subequal to m ; $m-cu$ at or shortly beyond the fork of M .

Abdomen obscure yellow, in the male the posterior borders of the tergites vaguely darkened; hypopygium brownish yellow. Male hypopygium (Plate 2, fig. 20) very large, most nearly as in *megacauda*. Ninth tergite, *t*, about as shown, the upper lobes divergent, their inner apical angle produced mesad into a fingerlike lobe; ventral tergal lobes shorter, obtuse. Region of ninth sternite with abundant very long and conspicuous setæ. Apical lobe of basistyle, *b*, a little more than one-half as long as the body of style, flattened, slightly widened outwardly, with conspicuous setæ; at proximal end of basistyle on mesal face with two lobes, the outer bilobulate, the second lobe longer, with a row of relatively short setæ extending

the entire length. Dististyle, *d*, a trifle longer than the outer lobe of basistyle, gradually narrowed outwardly, the surface with long very pale setæ, apex obtuse, with short stiff setæ. Gonapophyses, *g*, lyriform, appearing as very stout arms that are united at the midline, the outer ends of the arms strongly carinate, the apex unequally bidentate, the outer tooth spinous, the inner or apical one more obtuse. *Ædeagus* small, shorter than the apophyses.

Habitat.—Japan (Honshu).

Holotype, male, Mount Daisen, Hoki, altitude 800 meters, November 8, 1954 (Zyuzô Sawano). Allotopotype, female, November 9, 1954.

This interesting crane-fly is dedicated to the collector, Dr. Zyuzô Sawano, friend and colleague of Dr. Kintaro Baba. The species is closest to *Cladura* (*Cladura*) *megacauda* in the armature of the basistyle of the male hypopygium, differing conspicuously in the other structures of the hypopygium and in the coloration of the thorax. The arrangement of markings on the mesonotum suggests the condition in *C. (C.) decemnata* Alexander and some allied species which belong to a different group of the genus with the hypopygial structure quite distinct.

12 (275). *CLADURA (CLADURA) RECURVALIS* sp. nov.

Allied to *megacauda*; size medium (wing, 7 millimeters); general coloration of body and appendages light yellow; tips of femora and tibiæ narrowly darkened; male hypopygium with the tergite narrowed outwardly, terminating in two flattened glabrous blades that are slightly divergent; outer lobe of basistyle shorter than the dististyle; *ædeagus* very large, recurved, the outer two-thirds heavily sclerotized, the apex scooplike, with a single strong spinous subapical spine.

Male.—Length, about 6 millimeters; wing, 7.

Rostrum brown; palpi yellow. Antennæ yellow, the bases of the flagellar segments a trifle more darkened. Head uniformly yellow.

Thorax uniformly light yellow. Halteres relatively long, yellow, the tips of the femora and tibiæ very narrowly blackened, the former more extensively so; outer tarsal segments brownish black. Wings subhyaline, the prearcular and costal regions a trifle more yellowed; veins pale, especially in the brightened areas. Venation: R_{2+3+4} long, more than one-

third Rs; petiole of cell M_1 about one-half the cell.

Abdomen yellow, slightly patterned with pale brown, the eighth sternite conspicuously darker. Male hypopygium (Plate 2, fig. 21) with the tergite narrowed outwardly, divided into two flattened blades that diverge slightly, entirely glabrous, their tips obtuse. Basistyle, *b*, with the outer lobe elongate, with very long bristles on about the outer half of the inner face, not as concentrated as in some allied forms; mesal lobe unequally bifid, including a short truncated outer blade and a longer oval lobe that is densely setuliferous. Dististyle, *d*, about one-fourth longer than the outer lobe of the basistyle, gradually narrowed to the obtuse tip which bears only five or six long scattered setæ. Gonapophyses appearing as flattened blades, the tips obtuse. Ædeagus, *a*, distinctive, very large and conspicuous, decurved and thence directed cephalad to lie along the ventral floor of the genital chamber, the outer two-thirds heavily sclerotized; apex more dilated, terminating in a shallow scoop, before which is a single strong spine.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, November 1, 1954 (*Kintaro Baba*); Baba No. 324.

Cladura (*Cladura*) *recurvialis* is most like *C. (C.) telephallus* Alexander and *C. (C.) trifilosa* sp. nov., in the unusual development of the ædeagus, differing in all details of structure of the hypopygium, especially the tergite, lobes of the basistyle, dististyle, and particularly the ædeagus.

13 (276). *CLADURA* (*CLADURA*) *SHIRAHATAI* Alexander.

Cladura (*Cladura*) *shirahatai* ALEXANDER, Bull. Brooklyn Ent. Soc. 50 (1955) 21-22.

The type was from Sagata, Uzen, taken October 15, 1953, by Kotaro Shirahata, sent to me by Dr. Kintaro Baba.

Male hypopygium (Plate 2, fig. 22) with the tergite relatively large, its posterior border produced into two slender lobes that are separated by a U-shaped notch, with two further smaller and weaker lobules lying still more ventrad. Apical lobe of basistyle, *b*, a little more than one-half the length of the style itself, shorter than the dististyle, *d*, the latter clavate, broader at apex than at base, provided with sparse setæ; mesal lobe of basistyle stout, produced into a slender apical

lobule and a stouter more basal one. Phallosome, *p*, distinctive, the gonapophysis foot-shaped, its apex or sole microscopically corrugated; ædeagus slender, subequal in length to the apophysis.

14 (277). CLADURA (CLADURA) TRIFLOSA sp. nov.

Allied to *megacauda*; general coloration pale yellow; femora and tibiæ with tips narrowly darkened; abdomen brownish yellow, the posterior borders of the tergites slightly darker, the eighth sternite more heavily so; male hypopygium with the tergite terminating in two broad lobes that are separated by a circular notch; outer lobe of basistyle and the dististyle relatively short, subequal in size; gonapophysis oval, relatively narrow; ædeagus elongate, terminating in three conspicuous filiform rods.

Male.—Length, about 5.5 to 6.5 millimeters; wing, 6 to 7.

Female.—Length, about 5.5 to 6.5 millimeters; wing, 7 to 8.

Rostrum, palpi and antennæ pale yellow, the remainder of head a trifle darker.

Thorax uniformly pale yellow. Halteres yellow. Legs yellow the tips of the femora and tibiæ very narrowly blackened, the latter a little more narrowly so; tarsi passing into brownish black. Wings subhyaline or very pale yellow, veins pale brown, those in the prearcular and costal fields somewhat more yellowed. Venation: Both the petiole of cell M_1 and the position of m-cu very variable, in cases cell M_1 only a little longer than its petiole, in other specimens four or five times as long; m-cu ranging from just beyond fork of M to midlength of M_{3+4} .

Abdomen brownish yellow, the tergites vaguely patterned with pale brown on posterior borders; eighth sternite of male more conspicuously blackened to form a partial ring; hypopygium very large, pale brown. Ovipositor with cerci very long and slender. Male hypopygium (Plate 2, fig. 15) with the tergite produced into two broad lobes that are separated by a circular notch, the apices of the lobes extensively glabrous. Basistyle, *b*, with the apical lobe relatively short, partly constricted at base to simulate a dististyle; apex obtuse, with a concentration of long reddish bristles; mesal lobe small, more or less oval, with conspicuous setæ. Dististyle, *d*, of nearly the same size and shape as the outer lobe of the basistyle, its outer third narrowed, the setæ of the outer surface long and conspicuous, of the lower face

small and little evident. Phallosome with the blades of the gonapophyses oval, much narrower than in *telephallus*. Ædeagus extended, much as in *telephallus*, at the end of the dilated part constricted and produced into three elongate filiform rods, one a little shorter than the others, their tips pale and a little dilated; a single genital tube in the ædeagus despite the triple ending.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, November 1, 1954 (*Kintaro Baba*); Baba No. 324. Allotopotype, female. Paratopotypes, 3 males, 1 female.

The most similar species is *Cladura (Cladura) telephallus* Alexander, from the higher mountains of Honshu. The present fly is readily distinguished by the details of structure of the male hypopygium, including the tergite, dististyle, gonapophysis and, especially, the ædeagus, as the three long-extended terminal filaments.

15 (278). *TRENTEPOHLIA (MONGOMA) SUBPENNIPES* sp. nov.

Allied to *pennipes*; general coloration of thorax and abdomen yellow; head light gray; legs pale brownish yellow, the tarsi and tips of tibiæ snowy-white; mid-tibiæ not dilated and without a fringe of elongate setæ.

Male.—Length, about 7 to 7.5 millimeters; wing, 7 to 7.5.

Rostrum and palpi testaceous yellow. Antennæ with the scape and pedicel yellow, flagellum brown; flagellar segments subcylindrical, verticils short. Head light gray; anterior vertex reduced to a narrow carinate strip.

Entire thorax, including pronotum and cervical region, pale yellow, the dorsum slightly more reddened than the pleura. Halteres yellow. Legs with the coxæ and trochanters yellow; femora pale yellow throughout; tibiæ similar, the tips whitened, somewhat more extensively so on the mid-tibiæ where about the outer fifth or sixth is included, the vestiture white but not long and outspreading as in *pennipes*; in the latter, the setæ on the slightly expanded tips of the mid-tibia exceed the diameter of the tibia at the point of insertion; in the present fly not or scarcely one-half the diameter; tarsi snowy-white throughout. Wings (Plate 2, fig. 16) subhyaline; veins pale yellow, inconspicuous. Costal fringe short. Venation: R_{3+4} about one-half vein R_2 or less; apical fusion of Cu_1 and 1st A short.

Abdomen brownish yellow to obscure yellow, including the

hypopygium.

Habitat.—Japan (Honshu).

Holotype, male, Yoshigahira, Mount Sumon, Echigo, June 25, 1954 (*Kintaro Baba*); Baba No. 87. Paratypes, male, Kurokawa, Echigo, July 13, 1954 (*Kintaro Baba*); I female, Mount Donden, Sado Island, Sado, (*Kintaro Baba*); Baba No. SA 67. Aridagun, Kii, August, 1928 (*M. Horie*).

The defective specimen from Kii had been in my collection for several years and had been considered as being *Trentepohlia (Mongoma) pennipes* (Osten Sacken). The two flies are best distinguished by the structure and ornamentation of the legs, as described above. The present fly is the the most northerly representative of the subgenus *Mongoma* Westwood so far made known.

16 (279). GONOMYIA (IDIOCERA) NIGRILOBATA sp. nov.

General coloration of mesonotum pale brown, darker behind, the ventral pleurites yellow; legs obscure yellow; wings pale yellowish gray, restrictedly patterned with darker; cell R_2 large Sc_1 very long; male hypopygium with the apical lobe of basistyle terminating in an acute blackened spine, with abundant spinules back from the tip; three dististyles, the intermediate one forked, arising from a stout base; ædeagus slender, not blackened at apex, terminating in a short recurved hook.

Male.—Length, about 4.6 to 4.8 millimeters; wing, 5.2 to 5.5.

Rostrum brownish black; palpi black. Antennæ relatively long; scape, pedicel and first flagellar segment yellow, the scape more or less darkened at base; outer flagellar segments long-suboval, with very long verticils and a dense pale pubescence. Head obscure yellow, more infuscated behind.

Pronotum obscure yellow, narrowly darker medially, the pretergites clearer yellow; sides of pronotum dark brown. Anterior end of mesonotal præscutum pale brown, sparsely pruinose, the humeral and lateral regions yellow; posterior sclerites of notum, including the posterior end of the præscutum, darker, this represented by the ends of the intermediate stripes. Pleura yellow ventrally, a little darker on dorsal part. Halteres with stem pale, knob weakly infuscated. Legs with coxæ and trochanters yellow, the fore coxæ a little darker; remainder of legs obscure yellow, the tips of the femora and tibiæ narrowly darker; outer tarsal segments passing into brownish black. Wings (Plate 3, fig. 23) pale yellowish gray, the prearcular and costal regions clearer yellow; stigma small, pale brown, short-

oval; a vague darkening at origin of Rs, cord and m-cu, best indicated by a deepening in color of the included veins which otherwise are brownish yellow, clear yellow in the brightened parts. Venation: Sc_1 ending about opposite one-third to one-fourth the strongly arcuated Rs, Sc_2 far retracted, Sc_1 alone subequal to Rs; distance on costa between tips of veins R_{1+2} and R_3 about one-half the latter; m-cu nearly twice its length before fork of M.

Abdominal tergites dark brown, the posterior borders of the segments yellow, more extensive on the outer segments; sternites and hypopygium obscure yellow or brownish yellow. Male hypopygium (Plate 3, fig. 24) with the lobe of the basistyle, *b*, very long, at apex narrowed into a black spine, the inner face back from the tip blackened and provided with abundant peglike spinules. There dististyles, *d*, the outer a simple curved sickle that narrows to a long acute spine; intermediate style conspicuously forked, the stem unusually short, outer arm longest, appearing as a parallel-sided rod, its tip obtuse, inner arm about two-thirds as long, broader, the tip acute; inner style a slender nearly straight rod, the tip acute, darkened, the lower margin with four or five erect setæ. Ædeagus unblackened, long, straight and unusually slender, the tip a short curved hook.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, July 8, 1954 (*Kintaro Baba*); *Baba* No. 216. Paratopotypes, 2 males.

Gonomyia (Idiocera) nigrilobata is quite distinct from other similar regional species, including *G. (I.) serrulifera* sp. nov., and *G. (I.) teramishii* Alexander, in the structure of the male hypopygium, especially the basistyle and ædeagus.

17 (280). GONOMYIA (IDIOCERA) SERRULIFERA sp. nov.

Size medium (wing slightly more than 5 millimeters); mesonotum chiefly dark brown, pleura and prothorax yellowed; femora obscure yellow; wings grayish yellow, unpatterned; Sc_1 ending before midlength of Rs, veins R_{1+2} and R_3 very narrowly separated at margin; male hypopygium with an unusual array of lobes and styles, including two apical lobes of the basistyle and four dististyles or branches thereof; ædeagus at apex forking into two blackened points, their surface scabrous.

Male.—Length, about 4.5 millimeters; wing, 5.3.

Rostrum brown; palpi dark brown. Antennæ with the scape and pedicel yellow, flagellum dark brown; flagellar segments elongate-suboval, a trifle shorter than the verticils. Head whitish gray, the center of the posterior vertex more darkened.

Prothorax and pretergites light yellow. Mesonotum dark brown, the sides of the præscutum broadly light brown, the humeral region restrictedly more yellowed; scutellum broadly yellowed posteriorly; postnotum dark brown, the pleurotergite and sides of the mediotergite yellow. Pleura yellow, with a broad paler stripe across the ventral pleurites, extending from the fore coxæ to the base of the abdomen. Halteres pale, knob weakly darkened. Legs with the coxæ and trochanters yellow, fore coxæ a very little darker; femora obscure yellow, tibiæ and tarsi a trifle darker, outer tarsal segments darker. Wings (Plate 3, fig. 25) grayish yellow, the prearcular and costal regions clearer yellow; stigma not indicated; veins brownish yellow, clearer yellow in the brightened fields. Venation: Sc moderately long, Sc₁ ending about opposite two-fifths the length of Rs, Sc₂ far from its tip; R₁₊₂ and R₃ very narrowly separated from one another at the margin; cell 2nd M₂ about one-half longer than its petiole; m-cu about its own length before fork of M.

Abdominal tergites brown, sternites and hypopygium paler. Male hypopygium (Plate 3, fig. 29) with both the basistyle and dististyles with an unusual number of branches. Basistyle, *b*, terminating in a long stout fleshy lobe, and a shorter and more slender one, both pale, with abundant setæ. Four dististyles, *d*, or profound branches, including a long slender pale blade that narrows to an acute point; intermediate style subequal in length, prolonged into a long point, with a shorter lobe or branch at beyond two-thirds the length; a very small slender spine tipped with black; innermost style pale, narrowed and blackened at tip, with a few serrulations near apex and about six long erect setæ. Ædeagus distinctive, pale, forking into two blackened points, these scabrous, with several appressed spines, the apical one longest.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, July 18, 1954 (*Kintaro Baba*); *Baba* No. 222.

Among the described regional species, this fly is most like *Gonomyia* (*Idiocera*) *kuwayamai* Alexander, differing in the coloration and details of venation. The structure of the male hypopygium in *kuwayami* is not known to me. In the present species this is unusually complicated, as described.

18 (281). GONOMYIA (GONOMYIA) GRACILISTYLUS Alexander.

Gonomyia (*Gonomyia*) *gracilistylus* ALEXANDER, Ann. and Mag. Nat. Hist. (9) 15 (1925) 70-71.

The type was from Mount Hakone, Sagami, altitude 2,300 feet, taken July 13, 1923, by Teiso Esaki. There are further records from various stations in Kyushu.

Kurokawa, Echigo, June 9, 1954 (*Kintaro Baba*); Baba No. 222.

The venation (Plate 3, fig. 26) and the male hypopygium (Plate 3, fig. 30) are shown. The species is most likely allied to *Gonomyia* (*Gonomyia*) *abbreviata* Loew, of the western Palæarctic region, differing conspicuously in the structure of the male hypopygium. Whether the species should more properly be placed in the subgenus *Lipophleps* Bergroth remains in question.

19 (282). *GONOMYIA* (*GONOMYIA*) *KUROKAWÆ* sp. nov.

Size small (wing of male 4.5 millimeters); mesonotum medium brown, pleura yellow; legs obscure yellow; wings with a faint brownish tinge, stigma scarcely darker; Sc_1 ending shortly beyond origin of R_s ; cell M_2 open by atrophy of basal section of M_3 , cell 2nd M_2 about twice its petiole; abdominal tergites bicolored, brown, bordered with yellow; male hypopygium with the outer lobe of the inner dististyle blackened, its truncated apex serrulate; ædeagus long, obtuse at tip, subtended by two strong blackened gonapophyses that are slightly unequal in shape.

Male. Length, about 3.7 millimeters; wing, 4.5.

Rostrum and palpi brownish black. Antennæ dark brown throughout; flagellar segments elongate, with very long verticils. Head bright yellow.

Pronotum and pretergites bright yellow. Mesonotum light to medium brown, the præscutum with a narrow darker line on anterior part; mid-region of scutum yellow; scutellum obscure yellow, restrictedly darkened medially at base; mediotergite yellow anteriorly, more infuscated behind. Pleura and pleurotergite yellow. Halteres with stem pale, knob weakly infuscated. Legs with the coxæ and trochanters light yellow; remainder of legs obscure yellow, the outer tarsal segments weakly infuscated. Wings (Plate 3, fig. 27) with a faint brownish tinge, the costal border a trifle more yellowed; stigma scarcely darker; veins very pale brown. Venation: Sc_1 ending shortly beyond origin of R_s , Sc_2 very faintly indicated; cell R_3 large, vein R_4 fully as long as R_{2+3+4} ; cell M_2 open by atrophy of basal section of M_3 ; cell 2nd M_2 approximately twice its petiole; m-cu close to fork of M.

Abdominal tergites brown, the posterior and lateral borders yellow; sternites yellow; hypopygium brownish yellow. Male hypopygium (Plate 3, fig. 31) with the basistyle, *b*, stout, the outer apical lobe small, much shorter than either dististyle. Outer dististyle, *d*, a simple straight rod, the tip obtuse, outer half with very long setæ; inner style broader, at apex produced into a lobe that bears the two usual fasciculate or modified setæ; on outer margin beyond midlength with a blackened blade, its truncated apex serrulate. Two very strong gonapophyses, *p*, that are heavily blackened, acutely pointed at tips, differing slightly from one another in conformation. Ædeagus a long yellow rod, the blunt tip recurved.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, June 9, 1954 (*Kintaro Baba*); *Baba* No. 220.

Gonomyia (*Gonomyia*) *kurokawæ* differs from all other regional species by having cell M_2 of the wings open by the atrophy of the basal deflection of M_3 . In *G. (G.) luteipleura* Alexander, the cell is open by the atrophy of *m*. Other somewhat similar species having cell 1st M_2 closed include *G. (G.) gilvipennis* Alexander and *G. (G.) omogænsis* Alexander, which have the male hypopygium quite distinct.

20 (233). GONOMYIA (GONOMYIA) NECOPINA sp. nov.

Size small (wing of male less than 4.5 millimeters); mesonotum brownish gray, the scutellum, sides of mediotergite, pleurotergite and pleura yellow; wings with R_s and R_{2+3+4} subequal in length, cell R_3 relatively small; male hypopygium with the outer margin of the inner dististyle bearing a flattened blade and an outer spine; gonapophyses two, subequal in length but one more slender; ædeagus without an apical spine.

Male.—Length, about 3 to 3.5 millimeters; wing, 3.5 to 4.3.

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

Rostrum yellow; palpi black. Antennæ black, scape paler at base; flagellar segments elongate-suboval, with moderately long verticils and a dense erect pale pubescence. Front yellow, vertex darkened.

Pronotum and pretergites light yellow. Mesonotal præscutum and scutum dark brownish gray, the lateral præscutal borders and interspaces, with the central region of scutum, paler; scutellum yellow; mediotergite brownish gray, the lateral borders, with the pleurotergite, reddish yellow. Pleura reddish yellow, with a longitudinal ventral clearer yellow stripe, more diffuse

behind; in cases the entire pleura more uniformly pale yellow. Halteres with stem pale yellow, knob infuscated. Legs with the coxæ and trochanters yellow, the fore coxæ a trifle darker; remainder of legs pale brown, the femoral bases a little paler, the outer tarsal segments slightly darker. Wings (Plate 3, fig. 28) with a weak brownish tinge, the prearcular and costal fields a little more yellowed; veins pale brown, yellowed in the brightened fields. Costal fringe of male relatively long and conspicuous. Venation: Sc_1 ending opposite or just beyond origin of R_s , Sc_2 near its tip; R_s and R_{2+3+4} subequal in length, cell R_3 relatively small; m-cu at or close to fork of M.

Abdominal tergites brown, the incisures and lateral borders a trifle paler; sternites and hypopygium more yellowed. Male hypopygium (Plate 3, fig. 32) with the apical lobe of the basistyle, *b*, short and stout. Both dististyles, *d*, pale and only feebly sclerotized; outer style a long narrow blade that is extended into an acute hyaline point, setæ relatively few and restricted to the outer margin; inner style diagnostic, its body with a narrow spine lying above the apex, with a second much larger black blade that exceeds the main style in length, bearing a single strong setæ near base; apex of style terminating in the usual two modified setæ. Phallosome, *p*, with the ædeagus pale, its apex flaring or dilated; two blackened gonapophyses, subequal in length, one more slender.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, June 10, 1954 (*Kintaro Baba*); *Baba* No. 218. Allotopotype, female, June 9, 1954. Paratopotypes, a few males, July 9 to 13, 1954 (*Kintaro Baba*).

Gonomyia (*Gonomyia*) *necopina* is most readily told from its nearest relatives, *G. (G.) gilvipennis* Alexander and *G. (G.) omogoensis* Alexander, by the structure of the male hypopygium, especially the dististyles and phallosome.

21 (234). *LIPSOTHRIX APICIFUSCA* sp. nov.

General coloration of body pale yellow; legs yellow, the tips of the femora and tibiæ narrowly infuscated; wings with R_s long, approximately four times R_{2+3+4} basal section of R_5 short, only a little longer than r-m; male hypopygium with the outer dististyle narrowly obtuse at tip, the spine placed at near midlength; interbase moderately long, gently curved to the acutely pointed tip.

Male.—Length, about 7.5 millimeters; wing, 8; antenna, about 1.3.

Rostrum and palpi yellow. Antennæ short; scape and pedicel yellow, flagellum somewhat more obscure yellow; flagellar segments oval, shorter than the conspicuous verticils. Head yellow.

Thorax entirely pale yellow; præscutal interspaces with relatively sparse elongate setæ. Halteres with stem pale yellow, knob weakly infuscated. Legs with the coxæ and trochanters pale yellow; femora yellow, the tips narrowly but conspicuously brown; remainder of legs very pale yellowish white, the tips of the tibiæ more narrowly darkened; claws with a very long basal spine and apparently with very microscopic crowded spinules nearer base. Wings (Plate 4, fig. 33) pale yellow; veins darker yellow, their position clearly indicated, in part, by the abundant trichia. Venation: Rs long, approximately four times R_{2+3+4} basal section of R_5 short, subequal to or only a little longer than r-m, almost transverse in position; m-cu at or close to fork of M.

Abdomen clear yellow, the hypopygium even more brightened. Male hypopygium (Plate 4, fig. 39) with the outer dististyle, *d*, relatively short and stout, heavily blackened, the tip narrowly obtuse; spine of lower margin at near midlength. What have been interpreted as being interbases appear as moderately long gently curved rods, narrowed to the acutely pointed tips, the base dilated. In *tokunagai*, these structures are unusually long and slender, strongly sinuous, the long tips acute.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, September 10, 1954 (*Kintaro Baba*); Baba No. 270. Paratopotype, male.

The most similar regional species is *Lipsothrix tokunagai* Alexander, described from Mount Daisen, Hoki, where it was taken on July 2, 1931, by Tokunaga. This has the wings even clearer yellow, with the veins very pale and difficult to see against the ground; Rs shorter, less than three times R_{2+3+4} , and the basal section of R_5 longer and more arcuated.

The homologies of the hypopygial structures here discussed as presumably representing interbases remain in question. Edwards had considered them to be gonapophyses (parameres) and they may well represent such structures despite their location.

22 (285). RHABDOMASTIX (SACANDAGA) ANGUSTICELLULA sp. nov.

Size medium (wing of male, 5 millimeters); mesonotal præscutum light brown, with three darker brown stripes, the median one not reaching the suture, each scutal lobe with a dark spot; legs black, the femoral bases yellowed; wings with a strong

blackish tinge; macrotrichia on outer veins; cell 2nd A very narrow, especially on outer end; male hypopygium with the gonapophysis terminating in a well-developed spatula; ædeagus bilobed at apex.

Male.—Length, about 4.5 millimeters; wing, 5; antenna, about 1.1.

Rostrum obscure yellow; palpi black. Antennæ with the scape testaceous, pedicel and flagellum black; basal flagellar segments short-oval, the outer ones more elongate, with long verticils. Head grayish brown above, obscure yellow beneath.

Pronotal scutum dark brown, scutellum and pretergites yellow. Mesonotal præscutum light brown with three dark brown stripes, the median one becoming obsolete far before the suture, the anterior ends of the lateral strips darker; scutal lobes with a darkened lateral spot; scutellum light brown; postnotum obscure yellow. Pleura chiefly yellow, clearest behind, vaguely patterned with brown on the propleura, anepisternum, ventral sternopleurite and meron. Halteres weakly infuscated, especially the knob, the base of stem pale. Legs with the coxæ and trochanters yellow; remainder of legs black, the femoral bases yellowed, narrowly so on the fore and middle legs, somewhat more extensively on the posterior pair, where about the proximal third or fourth is included. Wings (Plate 4, fig. 34) with a strong blackish tinge, unpatterned; veins darker. Macrotrichia on outer veins, lacking on R_s , R_{2+3+4} and R_3 . Venation: Sc of moderate length, Sc_1 ending about opposite two-thirds R_s , the latter long; vein R_3 nearly erect, separated on margin from R_{1+2} by a distance nearly equal to its own length; basal sections of M_{1+2} and M_3 reduced; cell 2nd A very narrow, especially on its outer end.

Abdomen dark brown, the hypopygium scarcely brightened. Male hypopygium (Plate 4, fig. 37) with the basistyle, *b*, elongate, much longer than the dististyles. Outer dististyle, *d*, slightly clavate, with abundant appressed spinules on outer face and apex, the terminal decurved spine larger; inner style stout. Gonapophysis with the apical spatula well-developed. Ædeagus bilobed at tip.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, June 18, 1954 (*Kintaro Baba*); *Baba* No. 225.

The most similar regional species is *Rhabdomastix (Sacandaga) atrata* Alexander, which differs in the coloration and

venation. The present fly is especially well-distinguished by the very narrow cell 2nd A.

23 (236). RHABDOMASTIX (SACANDAGA) NEBULIFERA sp. nov.

Size relatively large (wing of male 6.5 millimeters); general coloration dark brownish gray; antennæ black throughout; fore legs chiefly infuscated, femora paler basally; wings with a brownish tinge, weakly patterned with darker clouds, the most evident at the cord, prearcular and costal fields more yellowed; abundant macrotrichia on veins beyond cord; Sc relatively long, Sc₁ ending nearly opposite three-fourths the length of Rs; cell 2nd A broad; male hypopygium with the outer blade of the gonapophysis narrow.

Male.—Length, about 5.5 millimeters; wing, 6.5; antenna about 1.4.

Rostrum and palpi black. Antennæ relatively short, black throughout; pedicel enlarged, flagellar segments oval, the outer ones more elongate; longest verticils unilaterally distributed; lower face of segments with conspicuous white pubescence. Head dark gray; anterior vertex broad.

Thorax dark brownish gray, the præscutum with a still darker central stripe that ends far before the suture; pseudosutural foveæ large, black. Pleura and pleurotergite dark brownish gray; dorsopleural membrane darkened. Halteres yellow. Legs with the fore coxæ darkened, remaining coxæ obscure yellow; trochanters yellow; fore femora chiefly infuscated, paler basally; remaining femora obscure yellow, the tips narrowly darkened; fore tibiæ and tarsi blackened, on the other legs paler; tarsi passing into black. Wings (Plate 4, fig. 35) with a brownish tinge, weakly patterned with darker clouds, especially over the cord and less evidently in cells R and M; stigma oval, medium brown; prearcular and costal fields light yellow; veins brown, more yellowed in the brightened fields. Macrotrichia on outer veins, including R₂₊₃₊₄ and base of R₃. Venation: Sc relatively long, Sc₁ ending nearly opposite three-fourths Rs, Sc₂ apparently atrophied; vein R₃ oblique, the distance on costa between R₁₊₂ and R₃ exceeding the length of the latter; Rs about one-third longer than R₂₊₃₊₄; veins issuing from cell 1st M₂ only moderately arched; m-cu beyond midlength of M₃₊₄; anal angle prominent, vein 2nd A sinuous, the cell broad.

Abdomen, including hypopygium, brownish black. Male hypopygium (Plate 4, fig. 38) with the basistyle, *b*, very long, approximately three times the outer dististyle. Dististyles, *d*,

terminal; outer style narrow, the outer surface scabrous, with numerous appressed spinules, the terminal spine larger, decurved; inner style broad-based, narrowed to the slender tip, the surface with many setæ. Gonapophysis unusually long and slender, the blade very feebly dilated, acute at the tip. *Ædeagus* blackened, the tip obtuse, possibly broken in the unique type.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, July 17, 1954 (*Kintaro Baba*); *Baba* No. 229.

The present fly is very different from the most similar regional species, *Rhabdomastix (Sacandaga) japonica* Alexander, in the coloration of the body, legs and wings.

24 (287). *ORMOSIA (ORMOSIA) ECHIGOENSIS* sp. nov.

Belongs to the *similis* group; general coloration of the mesonotum yellowish brown, the præscutum with three very slightly darker brown stripes, pleura darker brown; antennæ testaceous yellow; legs golden yellow, the outer tarsal segments darkened; wings yellowish brown, stigma darker brown, the veins less evidently seamed with brown; abdomen dark brown, hypopygium abruptly brownish yellow; male hypopygium with the inner dististyle triangularly dilated on outer half; gonapophysis deeply bifid, the outer arm a powerful scabrous rod, the longer inner arm narrowed into a slender black spine.

Male.—Length, about 4.8 millimeters; wing, 5.7.

Rostrum brown; palpi black. Antennæ testaceous yellow, the outer segments darker; flagellar segments elongate-oval to subcylindrical, with long verticils. Head brown.

Pronotum brown, vaguely patterned with paler; pretergites light yellow. Mesonotum yellowish brown, the præscutum with three very slightly darker brown stripes; pseudosutural foveæ dark brown. Pleura and pleurotergite darker brown. Halteres light yellow. Legs with the coxæ and trochanters yellow; remainder of legs golden yellow, only the outer tarsal segments darkened, terminal segment black. Wings (Plate 4, fig. 36) yellowish brown, brighter yellow on the basal and costal portions; stigma darker brown; vague more darkened seams on most longitudinal veins; veins and macrotrichia darker brown. Trichia of cells very abundant, in all the cells (the position shown in figure by stippling). Venation: R_2 shortly beyond fork of R_{2+3+4} , leaving a short element R_{2+3} ; cell M_2 open by atrophy of basal section of M_3 ; vein 2nd A gently sinuous on outer third.

Abdomen dark brown or brownish black, the hypopygium abruptly brownish yellow. Male hypopygium (Plate 4, fig. 40) with the posterior border of the ninth tergite produced caudad into a depressed central plate, indistinctly divided medially, the margin darkened but ill-delimited. Outer dististyle, *d*, with parallel rows of microscopic scales, as in the group; inner style dilated at base, thence constricted and finally triangularly expanded at near midlength. Gonapophysis, *g*, distinctive, deeply bifid, the outer arm a powerful rod, its surface roughened by microscopic scales, the longer inner arm expanded on more than the basal half, thence abruptly narrowed into a slender black spine. Ædeagus long and slender.

Habitat.—Japan (Honsu).

Holotype, male, Kurokawa, Echigo, October 16, 1954 (*Kintaro Baba*); *Baba* No. 305.

There are various other somewhat similar species of the *similis* group in Japan, all being most evidently separated from one another by the structure of the male hypopygium. Such species include *Ormosia* (*Ormosia*) *dicax* Alexander, *O.* (*O.*) *kamikochiæ* Alexander, *O.* (*O.*) *machidana* Alexander, *O.* (*O.*) *remissa* Alexander, *O.* (*O.*) *seclusa* Alexander, *O.* (*O.*) *takahashii* Alexander, *O.* (*O.*) *takeuchii* Alexander, and *O.* (*O.*) *tokunagai* Alexander. In the present fly, the chief distinguishing characters are found in the tergite, inner dististyle, and especially in the gonapophyses.

25 (238). **MOLOPHILUS (MOLOPHILUS) BABANUS** sp. nov.

Belongs to the *gracilis* group and subgroup; allied to *procericornis*; general coloration brownish black, sparsely pruinose; antennæ of male long and beadlike, approximately three-fourths as long as the wing, the flagellar segments with long erect verticils at near midlength; halteres infuscated; wings weakly infuscated, vein 2nd A unusually short, ending some distance before m-cu; male hypopygium with the dorsal lobe of the basistyle and both dististyles very long and slender, a smaller third dististyle bears about six setæ at apex; ædeagus with a conspicuous flange on basal three-fourths.

Male.—Length, about 4 to 4.2 millimeters; wing, 4.4 to 4.5; antenna, about 3.2 to 3.3.

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

Rostrum and palpi black. Antennæ of male elongate, black throughout; flagellar segments elongate-fusiform, with abundant long outspreading verticils at near midlength of each segment.

Head black, sparsely pruinose.

Thorax brownish black, sparsely pruinose. Halteres infuscated, base of stem yellow. Legs with coxæ dark brown; trochanters brownish yellow; fore femora blackened, the bases obscure yellow, remaining femora pale, obscure yellow, with narrowly darkened tips; tibiæ and tarsi light brown. Wings weakly infuscated, the prearcular and costal fields slightly more yellowed; veins and macrotrichia darker brown. Venation: R_2 just beyond level of r-m; petiole of cell M_3 long, approximately three times m-cu; vein 2nd A unusually short, ending some distance before the level of m-cu.

Abdomen, including hypopygium, brownish black. Male hypopygium (Plate 4, fig. 42) with the dorsal lobe of the basistyle, *b*, long and slender, nearly as long as the inner dististyle, its apex glabrous, ventral lobe shorter and stouter. Three dististyles, *d*, the two longer ones entirely glabrous and unarmed, outer style black, strongly curved into a long slender spine, inner style nearly as long, with more than the basal half widened, the outer part more slender, the tip acute; third style very small but slender, with about six long setæ at outer end. Phallosome narrow, more or less oval, the apex narrowly obtuse. Ædeagus, *a*, with a broad basal flange that narrows outwardly, becoming obsolete at near three-fourths the length, the apical end sinuous, very slender and acute.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, June 1, 1954 (*Kintaro Baba*); *Baba* No. 194. Allotopotype, female, pinned with type. Paratopotypes, males.

This unusually interesting fly is named for the collector, Dr. Kintaro Baba, to whom we owe most of our present knowledge of the Tipulid fauna of Echigo. It constitutes the first record in Japan for any species of an extensive group of Oriental members of the genus, well represented in the Philippines and southward, of which *Molophilus* (*Molophilus*) *procericornis* Alexander, of the Philippines, may be considered as being typical. All of these species have elongate beadlike antennæ in the male sex and all are distinguished among themselves chiefly by the structure of the male hypopygium. The most northerly previously described member of the group is *M. (M.) hoplostylus* Alexander, of Formosa.

26 (289). *MOLOPHILUS (MOLOPHILUS) PERFEROX* sp. nov.

Belongs to the *gracilis* group and subgroup; allied to *ferox*; general coloration black; antennæ short; wings strongly in-

fuscated, veins and macrotrichia darker; vein 2nd A long; male hypopygium with the outer armature of the basistyle very large and complex, of two distinct parts; ventral lobe of style reduced, with about seven setæ; two dististyles, the outer one longer.

Male.—Length, about 4 millimeters; wing, 4.6; antenna, about 1.

Rostrum and palpi black. Antennæ short, brown; flagellar segments oval, passing into long-oval, with conspicuous verticils. Head brownish black.

Thorax black, the posterior border of the pronotal scutellum yellow. Halteres obscure yellow. Legs with the coxæ obscure yellow; trochanters clearer yellow; legs brownish yellow, the color appearing much darker because of the black vestiture; outer segments slightly darker. Wings strongly infuscated, the prearcular and costal regions slightly more yellowed; veins light brown, macrotrichia darker brown. Venation: R_2 lying shortly beyond level of r-m; petiole of cell M_3 nearly twice m-cu; vein 2nd A long and gently sinuous, terminating nearly opposite the base of cell M_3 .

Abdomen, including hypopygium, black. Male hypopygium (Plate 4, fig. 43) very complex in structure; basistyle, *b*, with a large and complex apical armature on outer margin, including two distinct structures, one a flattened blade that is directed mesad into a long needlelike point, the other a comparably large flattened blade that divides into two points, the outer a more slender spine (in the figure these are shown separately from the two dististyles and as individual outlines at lower right); ventral lobe of basistyle very reduced, with only about seven setæ. Outer dististyle, *d*, longer, broad on more than the basal half, thence narrowed and bent into a slender blackened spine; inner style a gently curved sickle, narrowed to an acute spine, with a few scattered spinules on the lower or concave margin. Phallosome obtuse at apex; surface with microscopic setulæ. Ædeagus very long and slender.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, July 17, 1954 (*Kintaro Baba*); *Baba* No. 194.

Molophilus (Molophilus) perferox is most nearly related to *M. (M.) ferox* Alexander and *M. (M.) efferox* Alexander, from which it differs especially by the structure of the male hypopygium, particularly in the details of armature of the basistyle and in the dististyles.

27 (263 A). *MOLOPHILUS (MOLOPHILUS) TRIACANTHUS DEBILISPINUS* subsp. nov.

Very similar to typical *triacanthus*, differing in the details of structure of the male hypopygium.

Inner dististyle only slightly expanded on basal half, the stem being approximately twice the diameter of the outer spine. Phallosome narrow, the three spines relatively small and weak.

Habitat.—Japan (Honshu).

Holotype, male, Yoshikiya, Shinano, altitude 1,500 meters, July 28, 1951 (*Hirosaki Inoue*). Allotopotype, female, pinned with type.

28 (290). *MOLOPHILUS (MOLOPHILUS) PAUCISPINUS* sp. nov.

Belongs to the *gracilis* group, *pubipennis* subgroup; size small (wing, less than 4 millimeters); general coloration yellow; rostrum and palpi black; antennæ yellow, the terminal segment blackened; legs pale but appearing dark-colored because of the abundant vestiture; wings yellow, trichia of veins brown; male hypopygium with sparse spinules on ventromesal lobe of basistyle; both dististyles of approximately equal length, the outer one pointed at apex, with microscopic spinules on outer margin; inner style obtuse at tip, with sparse pale points at and back from apex; phallosomic plate obtuse but slightly pointed at outer end, the surface with microscopic setulæ.

Male.—Length, about 3 to 3.2 millimeters; wing, 3.8 to 4.

Rostrum and palpi black. Antennæ short, pale yellow, only the terminal segment blackened; flagellar segments oval, with very long verticils. Head pale yellow.

Pronotum yellow. Mesonotum almost uniformly dull orange yellow, the præscutum with long erect black setæ. Pleura and pleurotergite clearer yellow. Halteres pale. Legs with the coxæ and trochanters yellow; femora pale but appearing to be almost black because of abundant dark-colored setæ; outer segments darker. Wings yellow, the prearcular and costal regions clear light yellow; basal part of wing slightly more darkened; macrotrichia long and conspicuous, brown. Venation: R_2 nearly opposite r-m; petiole of cell M_3 less than twice m-cu; vein 2nd A ending about opposite m-cu.

Abdomen yellowish brown, the hypopygium deeper yellow. Male hypopygium (Plate 4, fig. 41) with the dorsal lobe of basistyle, *b*, relatively long and slender, mesal lobe about as long but very broad; ventral lobe shorter, with conspicuous yellow setæ and about 10 small blackened peglike spines. Two

subequal dististyles, *d*, the outer terminating in an acute spine, with a few microscopic appressed spinules on outer margin near apex; inner style narrowed before the obtuse tip, with a few microscopic pale points in a longitudinal row along face of style, including two at the apex. Phallosomic plate, *p*, broad, very obtusely pointed at tip, surface with abundant microscopic setulæ. Ædeagus very slender on outer third, the base with a lateral flange.

Habitat.—Japan (Honshu).

Holotype, male, Kurokawa, Echigo, August 7, 1954 (*Kintaro Baba*); *Baba* No. 199. Paratopotype, male.

The nearest allied regional species include *Molophilus* (*Molophilus*) *kiushiuensis* Alexander and *M. (M.) pegasus* Alexander, which are best distinguished by the details of structure of the male hypopygium, including the armature of the ventral lobe of the basistyle, and the details of both dististyles.

In addition to the type specimens of the various species, as recorded in this paper, it should be noted that additional materials of virtually all of these are preserved in the collection of Dr. Kintaro Baba, in Kurokawa, where they are arranged under his personal number, as given in conjunction with each species.

ILLUSTRATIONS

[Legend: a, aedeagus; b, basistyle; d, dististyle; g, gonapophysis; p, phallosome; t, tergite.]

PLATE 1

- FIG. 1. *Dicranota (Rhaphidolabis) paraconsors* Alexander; venation.
2. *Pedicia (Tricyphona) tenuiloba* sp. nov.; male hypopygium.
3. *Paradelphomyia (Oxyrhiza) macracantha* sp. nov.; male hypopygium.
4. *Paradelphomyia (Oxyrhiza) macracantha* sp. nov.; venation
5. *Taiwanomyia babaella* sp. nov.; venation.
6. *Dicranota (Rhaphidolabis) paraconsors* Alexander; male hypopygium.
7. *Taiwanomyia filicornis* (Alexander); venation.
8. *Taiwanomyia fragilicornis* (Riedel); venation.
9. *Pseudolimnophila telephallus* sp. nov.; venation.
10. *Pseudolimnophila telephallus* sp. nov.; male hypopygium.
11. *Limnophila (Elæophila) kintaro* sp. nov.; male hypopygium.
12. *Limnophila (Elæophila) kintaro* sp. nov.; venation.

PLATE 2

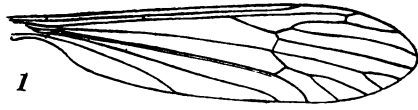
- FIG. 13. *Nippolimnophila perproducta* sp. nov.; venation.
14. *Nippolimnophila perproducta* sp. nov.; male hypopygium.
15. *Cladura (Cladura) triflosa* sp. nov.; male hypopygium.
16. *Trentepohlia (Mongoma) subpennipes* sp. nov.; venation.
17. *Cladura (Cladura) supernumeraria* sp. nov.; Venation.
18. *Cladura (Cladura) supernumeraria* sp. nov.; male hypopygium.
19. *Cladura (Cladura) itoi* Alexander; male hypopygium, lateral aspect.
20. *Cladura (Cladura) sawanoi* sp. nov.; male hypopygium.
21. *Cladura (Cladura) recurvalis* sp. nov.; male hypopygium.
22. *Cladura (Cladura) shirahatai* Alexander; male hypopygium.

PLATE 3

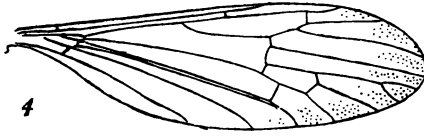
- FIG. 23. *Gonomyia (Idiocera) nigrilobata* sp. nov.; venation.
24. *Gonomyia (Idiocera) nigrilobata* sp. nov.; male hypopygium.
25. *Gonomyia (Idiocera) serrulifera* sp. nov.; venation.
26. *Gonomyia (Gonomyia) gracilistylus* Alexander; venation.
27. *Gonomyia (Gonomyia) kurokawæ* sp. nov.; venation.
28. *Gonomyia (Gonomyia) necopina* sp. nov.; venation.
29. *Gonomyia (Idiocera) serrulifera* sp. nov.; male hypopygium.
30. *Gonomyia (Gonomyia) gracilistylus* Alexander; male hypopygium.
31. *Gonomyia (Gonomyia) kurokawæ* sp. nov.; male hypopygium.
32. *Gonomyia (Gonomyia) necopina* sp. nov.; male hypopygium.

PLATE 4

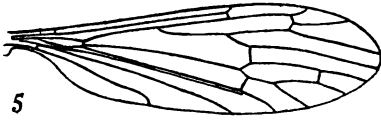
- FIG. 33. *Lipsothrix apicifusca* sp. nov.; venation.
34. *Rhabdomastix (Sacandaga) angusticellula* sp. nov.; venation.
35. *Rhabdomastix (Sacandaga) nebulifera* sp. nov.; venation.
36. *Ormosia (Ormosia) echigoensis* sp. nov.; venation.
37. *Rhabdomastix (Sacandaga) angusticellula* sp. nov.; male hypopygium.
38. *Rhabdomastix (Sacandaga) nebulifera* sp. nov.; male hypopygium.
39. *Lipsothrix apicifusca* sp. nov.; male hypopygium.
40. *Ormosia (Ormosia) echigænsis* sp. nov.; male hypopygium.
41. *Molophilus (Molophilus) paucispinus* sp. nov.; male hypopygium.
42. *Molophilus (Molophilus) babanus* sp. nov.; male hypopygium.
43. *Molophilus (Molophilus) perferex* sp. nov.; male hypopygium.



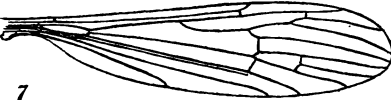
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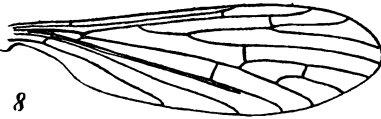
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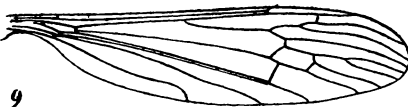
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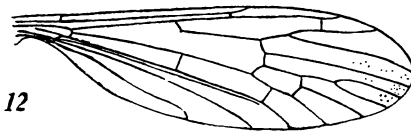
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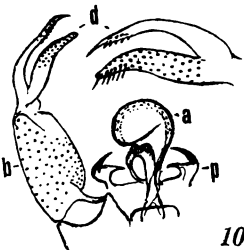
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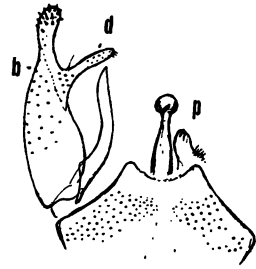
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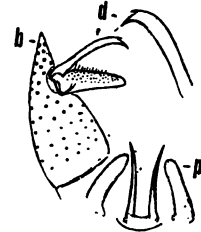
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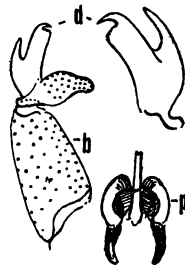
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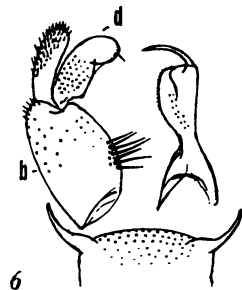
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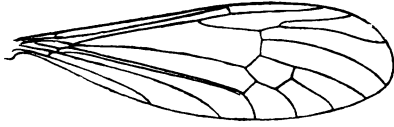
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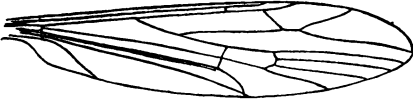
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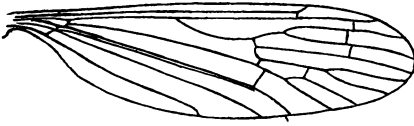
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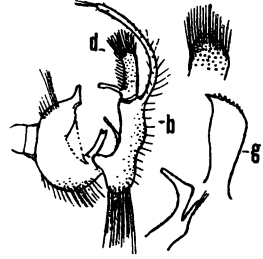
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16



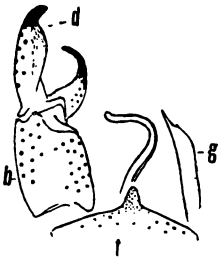
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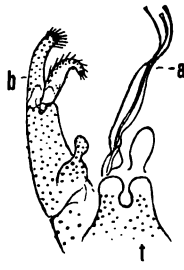
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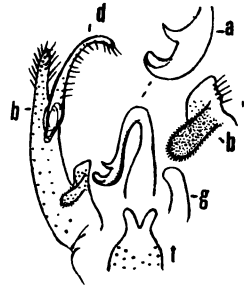
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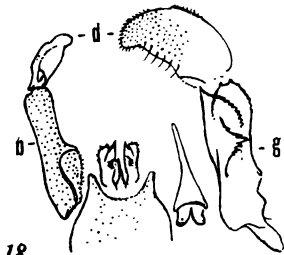
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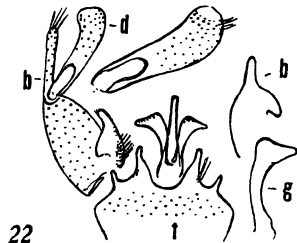
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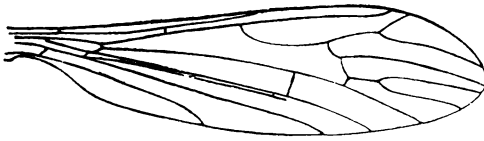
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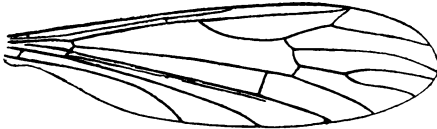
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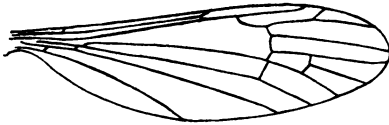
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23



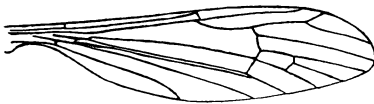
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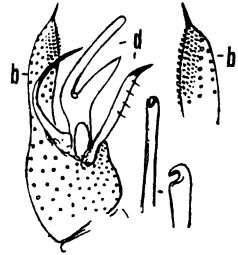
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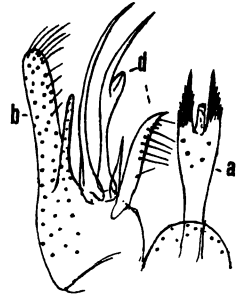
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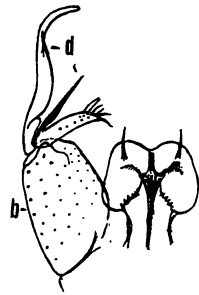
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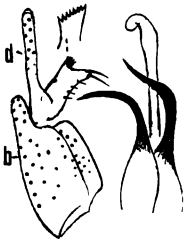
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29



30



31



32

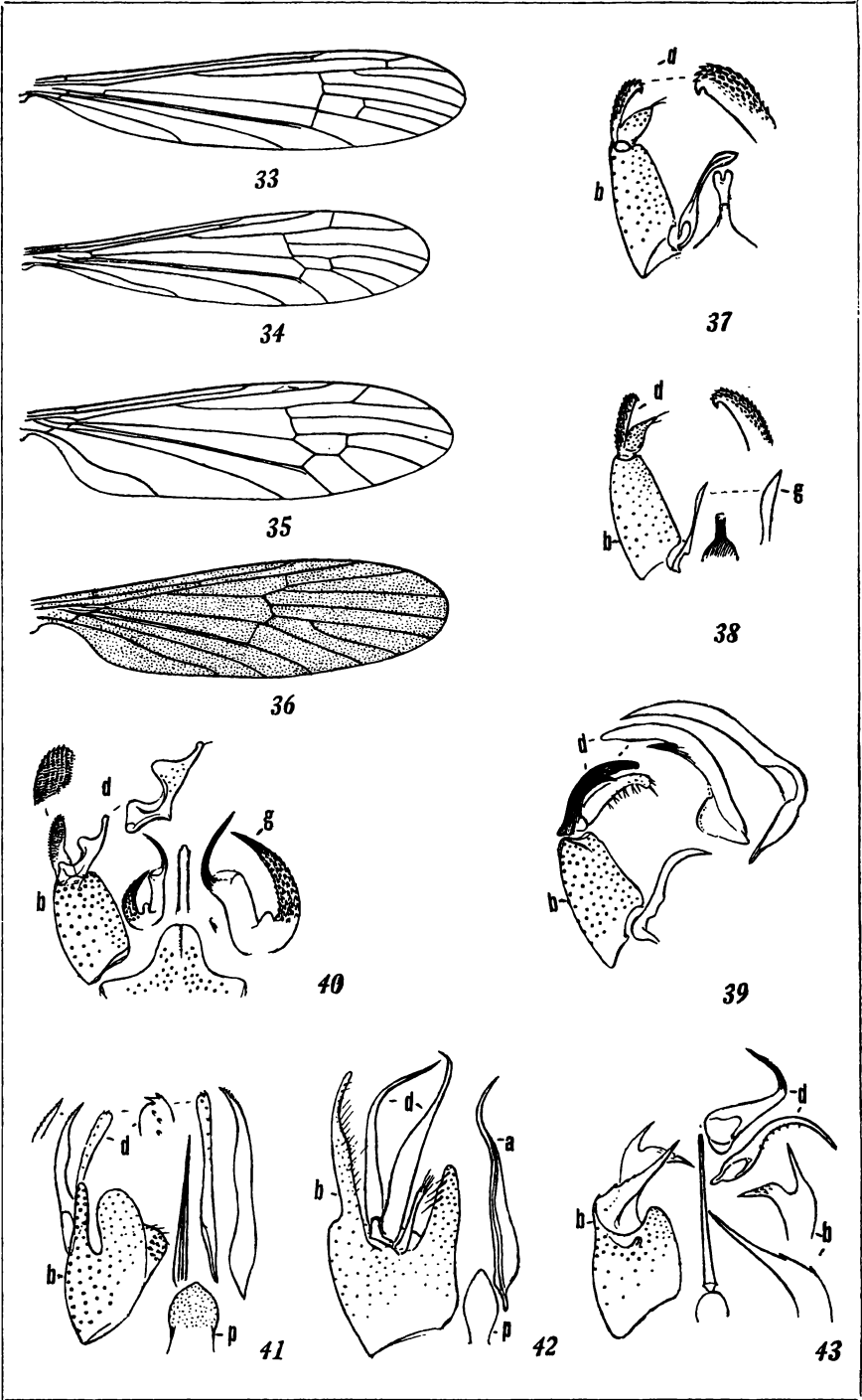


PLATE 4.