Undescribed Species of Crane Flies from the Himalaya Mountains (Diptera: Tipulidae), XXII

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Undescribed Species of Crane Flies from the Himalaya Mountains (Diptera: Tipulidae), XXII[1]

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Abstract: Five new species of crane flies from Iran, Sikkim, and India are described, these being *Limonia* (*Sivalimnobia*) **pererratica**, *Limnophila* (*Dicranophragma*) **recurvata**, *Gonomyia* (*Idiocera*) **nigroterminalis**, *Erioptera* (*Psiloconopa*) **iranica**, and *Ormosia* (*Ormosia*) **neidioneura**. Three further previously described Himalayan species of *Ormosia* are illustrated.

Limonia (*Sivalimnobia*) **pererratica**, n. sp.

General coloration of thorax uniformly light yellow, head brown; male antennae long, about one-half the body; legs yellow, femoral tips vaguely darkened; wings yellowed, stigma pale brown, Sc_1 ending opposite three-fifths the length of Rs; abdominal tergites bicolored, bases brown, apices yellowed, sternites uniformly light yellow; male hypopygium with a single dististyle, the dorsal style lacking; apex of rostral prolongation of style with a small sclerotized flange margined with about five small points.

Male. Length about 7 mm.; wing 8.5 mm.; antenna about 3.5 mm.

Rostrum and palpi brown. Antennae of male (Fig. 8) unusually long, as shown; brown, bases of flagellar segments slightly paler; flagellar segments long and cylindrical, bases slightly enlarged, verticils subequal to the segments; terminal segment very long, about one-half longer than the penultimate. Head dark brown.

Thorax uniformly light yellow. Halteres with stem light yellow, knob small, light brown. Legs with coxae and trochanters light yellow; femora yellow, tips vaguely darkened; tibiae yellowed, tarsi slightly darker; claw long and slender, with a long spine at near one-fourth the length, with microscopic more basal roughenings. Wings (Fig. 1) faintly yellowed, stigma short-oval, pale brown; veins brown. Longitudinal veins beyond level of origin of Rs with trichia, including outer end of *2nd A*. Venation: Sc relatively long, Sc_1 ending about opposite three-fifths Rs; cell *1st* M_2 subequal in length to distal section of M_{1+2}; *m-cu* shortly beyond fork of M.

Abdominal tergites bicolored, proximal segments with basal half light brown, apices yellow, outer segments more uniformly brown; sternites and eighth tergite uniformly light yellow. Male hypopygium (Fig. 7) with tergite, *t*, relatively long and narrow, posterior border with a deep V-shaped emargination, lobes conspicuous, with long black marginal setae. Basistyle, *b*, with ventromesal lobe large, central portion with long setae, those at apex smaller. Dorsal dististyle lacking; ventral style, *d*, generally as in other members of the subgenus, outer half

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[1] Contribution from the Entomological Laboratory, University of Massachusetts.

[2] Part XXI of this series of papers was published in the *Journal of the New York Entomological Society*, **81**: 3–9, March 1973. Five further species are described, from Iran, India, and Sikkim, all collected by Dr. Fernand Schmid to whom I again express my deep thanks and appreciation.

of body of style with abundant very long setae, inner face and prolongation glabrous; rostral prolongation narrow on basal half, angularly bent into the subequal beak, the latter at apex with a conspicuous sclerotized flange having five small marginal points, as shown in the subfigures; prolongation at near midlength with a single long seta from a very small tubercle; second rostral spine placed on body of style, as in the subgenus, slender on more than basal half, terminating in a shorter straight black spine. Phallosome with mesal-apical lobe of gonapophysis, *g*, long, apex obtuse; aedeagus, *a*, long and narrow, lateral flanges greatly reduced.

HOLOTYPE. ♂, Jhum La, Northeast Frontier Agency, Kameng, Assam, India, 7,200-8,000 feet, September 12, 1961 (Schmid).

In the present paper and others the words Northeast Frontier Agency (NEFA) are retained since they are on all specimen labels where concerned. In 1972 this area was changed officially to Arunachal Pradesh.

This species differs from all other previously defined members of the subgenus *Sivalimnobia* Alexander (1963) in the elongate male antennae and especially in hypopygial structure, including the loss of the dorsal dististyle. Other generally similar regional species include *Limonia* (*Sivalimnobia*) *approximata* (Brunetti), *L.* (*S.*) *fortis* (Brunetti), *L.* (*S.*) *kali* Alexander, *L.* (*S.*) *rahula* Alexander, and *L.* (*S.*) *uma* Alexander.

Limnophila (*Dicranophragma*) **recurvata**, n. sp.

General coloration of mesonotum orange yellow, patterned with pale brown; legs brownish yellow; wings whitened, with a conspicuous brown pattern that includes six costal bands, some crossing the wing, others more interrupted, cell *2nd A* relatively narrow; male hypopygium with inner gonapophysis long, apex strongly recurved into a pale spine.

Male. Length about 4.8–5 mm.; wing 5.6–6.2 mm.; antenna about 1–1.2 mm.

Rostrum and palpi black. Antennae with proximal three segments yellow, remainder of flagellum brown; proximal flagellar segments oval, outer ones more elongate, with very long verticils. Head light gray, especially the very broad anterior vertex.

Prothorax brownish yellow. Mesonotal praescutum obscure orange yellow with four vaguely indicated stripes that chiefly are evident by capillary brown lines on the interspaces and midregion, pseudosutural foveae large, orange; posterior sclerites of notum orange yellow, postnotum vaguely more pruinose. Pleura obscure yellow below, above with a narrow darker brown stripe, dorsopleural region more buffy. Halteres with stem pale yellow, knob slightly darker. Legs with coxae and trochanters yellow; remainder of legs pale brownish yellow, tips of femora very narrowly paler; claws yellow, long and slender. Wings (Fig. 2) with ground whitened, with a conspicuous brown pattern that appears as crossbands and extensive suffusions in cells *M* and *Cu*; darkened costal areas six in number, the first postarcular, extending from *C* to *Cu*; second band at origin of *Rs*, from *C* almost to *M*; third band relatively narrow, at fork of *Sc*, crossing the wing at cord to tip of *1st A*; fourth and fifth bands united at costal border to form the stigma, the third and fourth united over the fork of *Rs*, thence virtually continuous to posterior margin, narrowest at outer end of cell *1st* M_2; fifth costal area very short, reaching vein R_4 behind; sixth band subterminal, extending from vein R_3, including the supernumerary crossvein, ending in margin of medial field; other darkenings include large marginal spots on all longitudinal veins excepting R_5, smallest in medial field, the largest at *2nd A*; a narrow continuous seam on vein R_5; cells *M*, *Cu*, and *2nd A* suffused; veins yellow in the ground, darker in the patterned areas. Macrotrichia on veins beyond cord, including also the outer end of *Rs*, outer two-thirds of

M and less extensive on basal section of *Cu* and *1st A*, lacking on *2nd A*. Venation: Vein *2nd A* simple, the cell relatively narrow.

Abdomen dark brown, hypopygium yellow. Male hypopygium (Fig. 9) with outer dististyle, *d*, narrowed on outer half, apex bispinous, axial spine slightly larger, curved; inner style very stout. Phallosome, *p*, with inner gonapophysis, *g*, longer than the outer pair, apex strongly recurved into a pale spine.

HOLOTYPE. ♂, Talung Dzong, Northeast Frontier Agency, Kameng, Assam, India, 7,000–7,800 feet, September 13, 1961 (Schmid).
PARATOPOTYPES: 7 ♂♂, on three pins.

The most similar regional species include *Limnophila* (*Dicranophragma*) *analosuffusa* Alexander, Manipur, and *L.* (*D.*) *kamengensis* Alexander, Assam, differing in details of coloration of the body and wings and in hypopygial characters, especially the phallosome.

Gonomyia (*Idiocera*) **nigroterminalis**, n. sp.

Mesonotum brownish gray, praescutal stripes slightly darker brownish gray; pleura, pleurotergite and dorsopleural membrane clear light yellow; wings brownish yellow, prearcular and costal fields clear light yellow, including the veins; Sc_1 ending shortly beyond origin of *Rs*; vein R_3 nearly erect, about twice the distance on costa between veins R_2 and R_3.

FEMALE. Length about 4.5 mm.; wing 5.5 mm.

Rostrum and palpi black. Antennae dark brown; flagellar segments elongate, subequal in length to the verticils. Head brownish gray, the broad anterior vertex clearer gray.

Pronotum and pretergites brown, sparsely gray pruinose. Mesonotum gray, praescutal stripes only slightly darker brownish gray; remainder of dorsum brownish gray. Pleura, pleurotergite and dorsopleural region uniformly clear light yellow. Halteres brown, base of stem narrowly yellow. Legs with coxae and trochanters clear yellow; femora yellow, tips abruptly brownish black, including about the outer tenth of segment; tibiae yellow, more narrowly brownish black; tarsi brown. Wings (Fig. 3) faintly tinged with brownish yellow, prearcular and costal fields clear light yellow, the latter extended distally to the wing tip, including the veins, remaining veins brown, cord still darker. Venation: Sc_1 ending shortly beyond origin of *Rs*; vein R_3 nearly erect, about twice the distance on costa between veins R_2 and R_3; *m-cu* about one and one-half times its length before the fork of *M*.

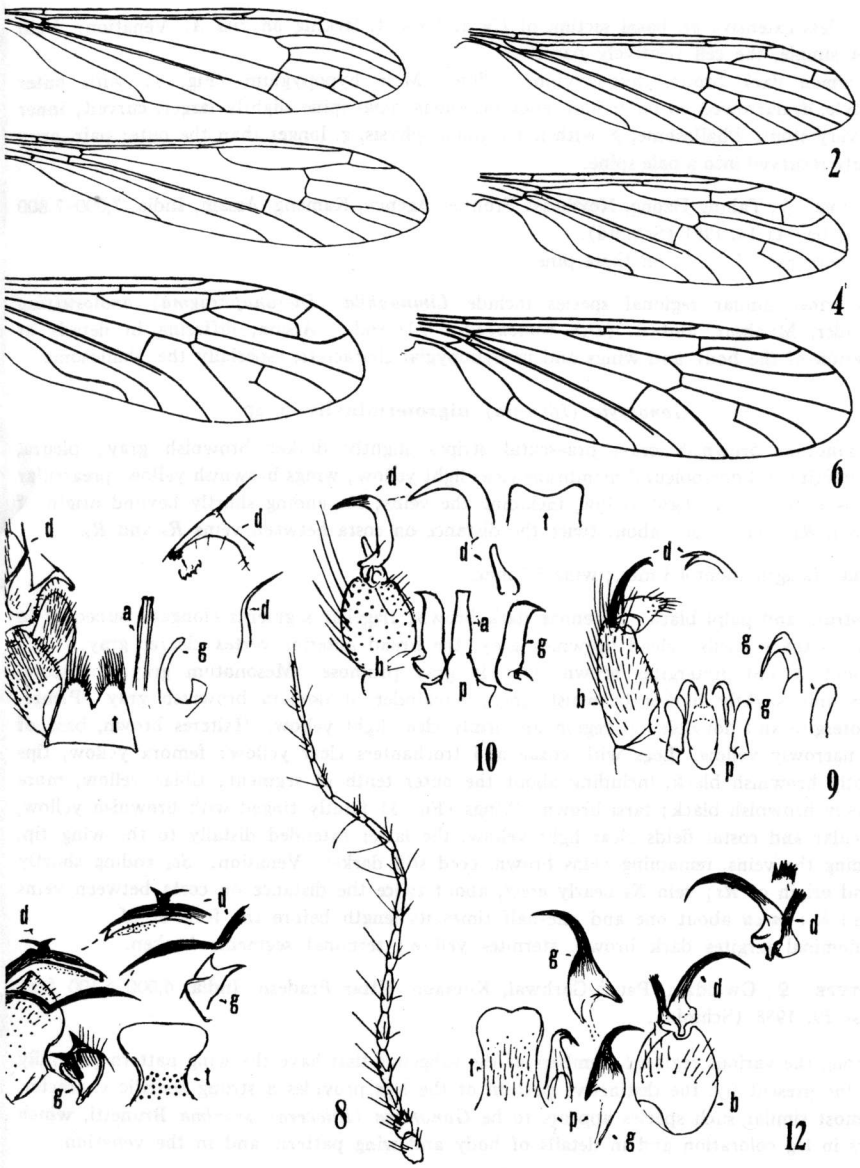
Abdominal tergites dark brown, sternites yellow; terminal segments broken.

HOLOTYPE. ♀, Gwaldam, Pauri Garhwal, Kumaon, Uttar Pradesh, India, 6,000–6,400 feet, August 29, 1958 (Schmid).

Among the various regional members of the subgenus that have the wing pattern generally as in the present fly, the distinctive pattern of the legs provides a strong specific character. The most similar such species appears to be *Gonomyia* (*Idiocera*) *proxima* Brunetti, which differs in leg coloration and in details of body and wing pattern, and in the venation.

Erioptera (*Psiloconopa*) **iranica**, n. sp.

Belongs to the *areolata* group; general coloration gray, praescutum scarcely patterned; antennae brown; knobs of halteres weakly darkened; femora obscure yellow, slightly darker shortly before the tips; wings brownish yellow, veins comprising the cord darker; male hypopygium with outer dististyle bifid, inner style simple, produced into a long terminal spine; phallosome with two blackened rods on either side, the outer one scabrous; tergite terminating in a pair of acute black spines.



1. *Limonia* (*Sivalimnobia*) **pererratica**, n. sp.; venation.
2. *Limnophila* (*Dicranophragma*) **recurvata**, n. sp.; venation.
3. *Gonomyia* (*Idiocera*) **nigroterminalis**, n. sp.; venation.
4. *Ormosia* (*Ormosia*) **neidioneura**, n. sp.; venation
5. *Ormosia* (*Ormosia*) *idioneurodes* Alexander; venation.
6. *Ormosia* (*Ormosia*) *furcivena* Alexander; venation.
7. *Limonia* (*Sivalimnobia*) **pererratica**, n. sp.; male hypopygium.
8. *Limonia* (*Sivalimnobia*) **pererratica**, n. sp.; male antenna.

Male. Length about 4.5 mm.; wing 5.3 mm.

Female. Length about 5.5 mm.; wing 6 mm.

Rostrum brown, palpi black. Antennae brown; flagellar segments oval, shorter than the verticils. Head gray.

Pronotum gray. Mesonotal praescutum and scutum gray, humeral region more yellowed, without distinct darker pattern; praescutal interspaces indicated by a linear row of darkened setigerous punctures; scutellum more yellowed, postnotum gray. Pleura with dorsal mesepisternum light brown, mesepimeron and ventral pleurites more yellowed. Halteres with stem pale yellow, knob weakly darkened. Legs with coxae and trochanters light yellow; femora obscure yellow, slightly darker just before tips; tibiae brownish yellow; tarsi dark brown or black. Wings brownish yellow, prearcular and costal fields clearer yellow; a vague darkened pattern along the cord, indicated by a deepening in color of the veins; veins yellowish brown to pale brown. Venation: R_2 slightly oblique; cell *1st* M_2 small; M_{3+4} about one-third as long as the gently arcuated M_4.

Abdominal tergites brown, posterior borders very narrowly pale; sternites yellow, hypopygium brownish yellow. Male hypopygium with posterior border of the tergite bearing two acute black spines, at midline separated by a U-shaped notch. Basistyle at apex produced into a slender lobe, the dististyles thus subterminal; outer style bifid, including a long gently curved outer arm that narrows into a long acute point and a shorter flattened black blade that has an appressed black spine on outer margin beyond base; inner style elongate, yellow basally, outer third blackened, curved, narrowed into a long black spine. Phallosome including two blackened rods on either side, the outer apophysis scabrous by appressed spinules, the subequal inner element smooth, tips narrowly acute, decussate across the midline.

HOLOTYPE. ♂, Zanus, Mazanderan, Iran, 2,000 meters, September 21, 1955 (Schmid).

ALLOTOPOTYPE. ♀, pinned with the type.

The present fly belongs to the group of species having the inner dististyle of the male hypopygium elongate and terminating in a long black spine. Other members of the group having this character include *Erioptera* (*Psiloconopa*) *margarita* Alexander, of the western Nearctic region and *E.* (*P.*) *complicata* (Bangerter), of the Swiss Alps, all such species differing among themselves in the details of hypopygial structure, particularly the tergite, outer dististyle and the phallosome.

Ormosia (*Ormosia*) **neidioneura**, n. sp.

Allied to *idioneurodes*; size small (wing of male 4.5 mm.); general coloration of thorax dark brownish gray, abdomen dark brown; halteres light yellow; wings whitened, restrictedly clouded with brown, chiefly at and beyond the cord; vein R_2 far before the outer

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FIG. 9. *Limnophila* (*Dicranophragma*) **recurvata**, n. sp.; male hypopygium.
FIG. 10. *Ormosia* (*Ormosia*) *idioneurodes* Alexander; male hypopygium.
FIG. 11. *Ormosia* (*Ormosia*) *idiostyla* Alexander; male hypopygium.
FIG. 12. *Ormosia* (*Ormosia*) **neidioneura**, n. sp.; male hypopygium.
(Symbols: Male hypopygium—*a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *p*, phallosome; *t*, 9th tergite).

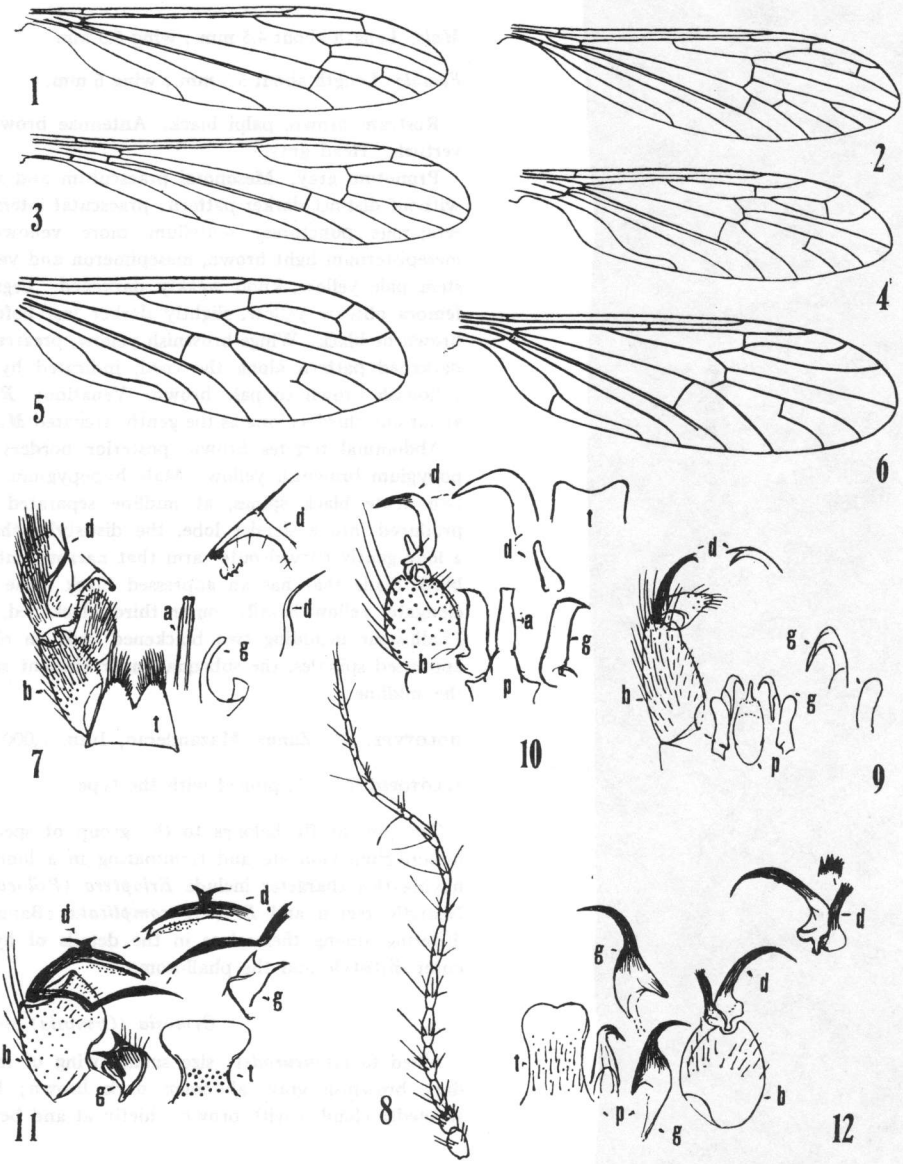

FIG. 1. *Limonia* (*Sivalimnobia*) **pererratica**, n. sp.; venation.
FIG. 2. *Limnophila* (*Dicranophragma*) **recurvata**, n. sp.; venation.
FIG. 3. *Gonomyia* (*Idiocera*) **nigroterminalis**, n. sp.; venation.
FIG. 4. *Ormosia* (*Ormosia*) **neidioneura**, n. sp.; venation
FIG. 5. *Ormosia* (*Ormosia*) *idioneurodes* Alexander; venation.
FIG. 6. *Ormosia* (*Ormosia*) *furcivena* Alexander; venation.
FIG. 7. *Limonia* (*Sivalimnobia*) **pererratica**, n. sp.; male hypopygium.
FIG. 8. *Limonia* (*Sivalimnobia*) **pererratica**, n. sp.; male antenna.

Male. Length about 4.5 mm.; wing 5.3 mm.

Female. Length about 5.5 mm.; wing 6 mm.

Rostrum brown, palpi black. Antennae brown; flagellar segments oval, shorter than the verticils. Head gray.

Pronotum gray. Mesonotal praescutum and scutum gray, humeral region more yellowed, without distinct darker pattern; praescutal interspaces indicated by a linear row of darkened setigerous punctures; scutellum more yellowed, postnotum gray. Pleura with dorsal mesepisternum light brown, mesepimeron and ventral pleurites more yellowed. Halteres with stem pale yellow, knob weakly darkened. Legs with coxae and trochanters light yellow; femora obscure yellow, slightly darker just before tips; tibiae brownish yellow; tarsi dark brown or black. Wings brownish yellow, prearcular and costal fields clearer yellow; a vague darkened pattern along the cord, indicated by a deepening in color of the veins; veins yellowish brown to pale brown. Venation: R_2 slightly oblique; cell *1st* M_2 small; M_{3+4} about one-third as long as the gently arcuated M_4.

Abdominal tergites brown, posterior borders very narrowly pale; sternites yellow, hypopygium brownish yellow. Male hypopygium with posterior border of the tergite bearing two acute black spines, at midline separated by a U-shaped notch. Basistyle at apex produced into a slender lobe, the dististyles thus subterminal; outer style bifid, including a long gently curved outer arm that narrows into a long acute point and a shorter flattened black blade that has an appressed black spine on outer margin beyond base; inner style elongate, yellow basally, outer third blackened, curved, narrowed into a long black spine. Phallosome including two blackened rods on either side, the outer apophysis scabrous by appressed spinules, the subequal inner element smooth, tips narrowly acute, decussate across the midline.

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Ormosia (*Ormosia*) **neidioneura**, n. sp.

Allied to *idioneurodes*; size small (wing of male 4.5 mm.); general coloration of thorax dark brownish gray, abdomen dark brown; halteres light yellow; wings whitened, restrictedly clouded with brown, chiefly at and beyond the cord; vein R_2 far before the outer

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FIG. 10. *Ormosia* (*Ormosia*) *idioneurodes* Alexander; male hypopygium.

FIG. 11. *Ormosia* (*Ormosia*) *idiostyla* Alexander; male hypopygium.

FIG. 12. *Ormosia* (*Ormosia*) **neidioneura**, n. sp.; male hypopygium.

(Symbols: Male hypopygium—*a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *p*, phallosome; *t*, 9th tergite).

radial fork; male hypopygium with the outer dististyles and gonapophyses blackened, spinelike, inner dististyles very small, terminating in six small blackened points.

Male. Length about 4 mm.; wing 4.5 mm.; antenna about 0.7 mm.

Head broken. Thorax almost uniformly dark brownish gray, pretergites inconspicuously yellow; praescutal stripes differentiated chiefly by abundant light yellow setae on the interspaces. Halteres light yellow. Legs with coxae grayish brown; trochanters obscure yellow; remainder of legs yellowish brown, the dark color produced by abundant long setae. Wings (Fig. 4) whitened, with restricted brown clouds over various veins, chiefly at and beyond the cord, basal cells almost clear, their trichia reduced in number and very inconspicuous; veins yellow in the clear parts, pale brown in the darkened pattern. Venation: R_2 far before outer radial fork, R_2 and R_{3+4} subequal; a supernumerary crossvein in cell R_3 partially atrophied on one wing of type; veins R_3 and R_4 very strongly upcurved, at margin cells R_2, R_3, R_4 and R_5 subequal in extent; cell M_2 open by atrophy of basal section of M_3, *m* perpendicular; *m-cu* about one-third its length before fork of *M*; vein *2nd A* very strongly sinuous, as shown.

Abdomen dark brown. Male hypopygium (Fig. 12) with tergal plate, *t*, gently expanded outwardly, sides nearly parallel, apex very insensibly emarginate medially. Dististyles, *d*, with outer style a long blackened rod from a dilated base, curved very gently into a long spine; inner style very small, beyond the expanded base straight, apex terminating in six small acute crowded points. Gonapophyses, *g*, blackened, in shape generally similar to the outer dististyle, base more expanded, the length subequal to the outer style.

HOLOTYPE. ♂, Zomphuk, Sikkim, 6,500–8,000 feet, April 11, 1959 (Schmid).

The most similar regional species include *Ormosia* (*Ormosia*) *idioneura* Alexander, of Northeast Burma, and *O.* (*O.*) *idioneurodes* Alexander, of Manipur, Assam, which have the venation generally as in the present fly, differing in details, as the position of vein R_2 in relation to the outer radial fork (compare Figs. 4 and 5).

Ormosia (*Ormosia*) *furcivena* Alexander

Ormosia (*Ormosia*) *furcivena* Alexander; *Jour. N.Y. Ent. Soc.*, **76:** 67–68; 1968.

Type, ♀, Hkayam Boum, Manipur, Assam [Fig. 6 (venation)].

Ormosia (*Ormosia*) *idioneurodes* Alexander

Ormosia (*Ormosia*) *idioneurodes* Alexander; *Jour. N.Y. Ent. Soc.*, **76:** 68–69; 1968.

Type, ♂, Sirhoi Kashong, Manipur, Assam [Fig. 5 (venation); Fig. 10 (male hypopygium)].

Ormosia (*Ormosia*) *idiostyla* Alexander

Ormosia (*Ormosia*) *idiostyla* Alexander; *Jour. N.Y. Ent. Soc.*, **76:** 69–70; 1968.

Type, ♂, Rumkhang, Khasi-Jaintia, Assam [Fig. 11 (male hypopygium)].