

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

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

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FIVE PLATES

In the present report I am discussing a part of the Tipulidæ taken by Dr. J. Linsley Gressitt in 1955 in two widely separated sections of New Guinea. This was the first trip to the great island by the Director of the Pacific Insect Survey whose detailed report on the subject has been published elsewhere.¹ A summary of the more important localities where Tipulidæ were taken is provided:

1. *Northeast New Guinea highlands*.—Daulo Pass, northwest of Goroka, 2,450 meters, June 11 to 16; Denglagu, near Mount Wilhelm, 2,350 to 2,400 meters, June 29 to July 3; Goroka, Asaro Valley, southeast of Mount Wilhelm, 1,550 meters, June 21 to 25. Kabebe, foot of Mount Otto, 2,100 meters, June 21 to 24; Korop, 1,300 meters; Miramar, 1,800 meters, June 27. Nenguag, 2,200 meters, June 28. Nonjugl, Ahl Valley, July 6 to 9. Mount Otto, east side of Asaro Valley, 2,100 to 2,600 meters, June 22 to 24; Mount Wilhelm, 2,700 meters, July 4 to 5.
2. *Wisselmeren area, west-central Netherlands New Guinea*.—Enagotadi (Enarotadi), 1,750 to 2,050 meters, July 31 to August 7; Itouda, 1,500 to 1,750 meters, August 12 to 14. Okaitadi, west end of Paniai Lake, 1,760 to 1,800 meters, August 7 to 8; Wissel Lakes (Wisselmeren), Paniai Lake (largest), 1,742 meters, Tage Lake (smallest), 1,765 meters.
3. *Lae area, Northeast New Guinea*.—Along Busu River and in the Nadzab Valley at Bubia, September 14 to 20.

The types of the novelties and representatives of the species considered at this time will be deposited in the Bishop Museum, Honolulu. My deepest thanks are extended to Dr. Gressitt for the privilege of studying this important series of crane-flies.

HISTORICAL DEVELOPMENT OF OUR KNOWLEDGE OF THE CRANE-FLIES OF NEW GUINEA

Over the years various collection of Tipulidæ have been taken in New Guinea and it is believed that a brief summary of the more important of these may be of interest.

* Contribution from the Entomological Laboratory, University of Massachusetts.

¹ Gressitt, J. L. Entomological investigations in New Guinea Mountains. Proc. Hawaiian Ent. Soc. 16 (1956) 47-69, 10 figs., including map.

The earliest materials were from Manokwari (Dorey, Dorei, of Wallace) in the Vogelkop of extreme northwestern Netherlands New Guinea, to the west of Geelvink Bay. These were taken by Alfred Russel Wallace in 1858 and were described in various papers by Francis Walker.

In the early years of the present century various Dutch and British expeditions, chiefly to Netherlands New Guinea, secured a few species of these flies that were discussed by Edwards and de Meijere. Somewhat earlier (1895 to 1902) the entomological collector Ludwig Biró had made important collections in the Morobe District of Northeast New Guinea, chiefly in the vicinity of Salamaua and Huon Gulf (then Kaiser Wilhelm Land in German New Guinea). Biró's materials were discussed by Riedel and by the present writer.

In 1933 and 1934 the veteran collector of Pacific insects, Miss Lucy Cheesman secured large and valuable lots of specimens in Papua, chiefly at Kokoda, Mafulu and on Mount Tafa, in the Owen Stanley Range. This was followed in succession by her later expeditions to the Cyclops Mountains, near Hollandia, in 1936; to the islands of Waigeu and Japen, off the northwestern coast, in 1938; and to the Torricelli Range in Northeast New Guinea in 1939. These important materials are preserved in the British Museum and have been discussed in various reports by the writer. In 1935 the late Frank H. Taylor collected in the Morobe District of Northeast New Guinea, chiefly along Edie Creek near Wau, in the watersheds of the Watut and Markham Rivers flowing into Huon Gulf. The large series of species taken by Taylor have been discussed in earlier reports by the writer. Also in 1935 a further small series of these flies was taken in Papua by Mr. K. J. Clinton.

During the recent wartime operations in New Guinea, various American entomologists collected crane-flies in New Guinea, particularly in the vicinity of Hollandia and the Cyclops Mountains, the most important materials having been taken in 1945 by Drs. Harry Hoogstraal and Jean Laffoon. At about the same time additional lots of these flies were taken in the various eastern satellite islands, particularly Bougainville and Guadalcanal in the Solomons, between 1943 and 1945, by Drs. Clifford O. Berg, Ashley B. Gurney, Richard T. Holway, Robert Staples, and some others.

At the present time some further very important collections of these flies are being studied by the writer and are being

discussed in other papers. The largest and most important of these results from the Third Archbold Expedition of 1938 and 1939, from Hollandia on the north coast to high altitudes in the Snow Mountains of east central Netherlands New Guinea. The entomologist of the expedition, the late Dr. Lambertus Johannes Toxopeus, secured an incredible amount of insects in many groups, including the Tipulidæ. These are being described in a separate series of reports, the first of which ² lists the various collecting stations established by the party.

The Fourth Archbold Expedition to northeastern Papua in 1953 likewise brought back large and varied collections of these flies, despite the fact that they were taken somewhat incidentally to other activities, by the botanist, Dr. L. J. Brass, and the mammalogist, Mr. Geoffrey M. Tate. This expedition stressed particularly Mount Dayman in the Maneau Range and Good-enough Island in the D'Entrecasteaux Group off the eastern coast of Papua. This series of flies is being studied by the writer at the present time.

Still further important collections of Tipulidæ have been made in New Guinea in conjunction with the Pacific Insect Survey of the Bishop Museum, as outlined in the series of papers and unpublished reports by the Director, Dr. Gressitt. Entomologists who collaborated in these most recent surveys include, besides the Director, Messrs. William W. Brandt and E. J. Ford, Jr., in 1956, Dr. D. Elmo Hardy in 1957, and Drs. Tsing-chao Maa and Larry Quate in more recent years. All such surveys of the past and those in operation at the present time will culminate in the comprehensive review of the Tipuloidea of New Guinea now in preparation by the writer.

CYLINDROTOMINÆ

STIBADOCERA LUTEIPENNIS sp. nov.

Plate 1, fig. 1.

Size relatively large (wing of male 10.5 millimeters; antenna 18); mesonotal præscutum and scutal lobes polished dark brown, pleura chiefly brown, the mesepisternum darker; halteres with stem yellow, knob light brown; wings broad, uniformly pale yellow, veins light brown; R_{2+3} suberect to oblique, gently sinuous; basal section of M_3 strongly arcuated, nearly twice m ; cell 2nd A relatively wide, especially on outer half; abdomen

² Alexander, C. P. New or little-known Tipulidæ (Diptera). CVI. Oriental-Australasian species. *Ann. Mag. Nat. Hist.* (13) 1 (1958) 657-676, 9 figs.

brownish yellow, posterior borders of tergites broadly dark brown, producing an annulated appearance; hypopygium dark brown.

Male.—Length, about 11 millimeters; wing, 10.5; antenna, about 18.

Rostrum very reduced, yellow; palpi pale brown, remainder of mouth-parts darker. Antennæ of male very long, as shown by the measurements; scape and pedicel yellow, tinged with green, flagellum yellow; flagellar segments very long-cylindrical, with abundant long erect setæ, the longest subequal to or longer than the segments. Front and anterior vertex yellow; posterior vertex polished brownish yellow, weakly infuscated on orbits behind the antennal fossæ.

Prothorax light yellow. Mesonotal præscutum and scutal lobes polished dark brown, without punctures; scutellum testaceous yellow; postnotum brown. Pleura chiefly brown, the mesepisterum darker brown, including the sternopleurite; propleura pale. Halteres elongate, stem yellow, knob light brown. Legs with coxæ and trochanters pale yellow; remainder of legs broken. Wings (Plate 1, fig. 1) broad, uniformly yellow; veins light brown, paler in the basal and costal fields. Macrotrichia of veins of outer half of wing small but abundant. Venation: Second section of Rs about one-half longer than r-m; R_{2+3} suberect to oblique, gently sinuous; cell 1st M_2 large, basal section of M_3 strongly arcuated, nearly twice m; m-cu at near two-thirds M_{3+4} , shorter than the distal section of Cu_1 ; cell 2nd A relatively broad, especially on outer half.

Abdomen elongate, brownish yellow, the posterior borders of the tergites broadly dark brown, presenting an annulated appearance; second segment with a dusky ring beyond mid-length; eighth segment light yellow, the posterior border of tergite infuscated; hypopygium dark brown; sternites more uniformly brownish yellow.

Habitat.—Northeast New Guinea.

Holotype, male, Daulo Pass, altitude 2,400 meters, at light, June 13, 1955 (*Gressitt*).

The three species at present known from New Guinea include also *Stibadocera daymanensis* Alexander and *S. papuana* Alexander, all distinguished among themselves by the coloration of the body and wings, length of the body and male antennæ, and in the details of venation. It seems probable that in living

specimens of the present fly that the green coloration above indicated will be more evident.

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) PERISSOPTERA sp. nov.

Size medium (wing of female 7 millimeters); general coloration of mesonotum pale brown, præscutum with a broad darker central stripe, pleura dark brown; antennæ black throughout; legs medium brown, claws entirely untoothed; wings subhyaline, stigma small, pale brown; Sc long, cell M_2 open by atrophy of basal section of M_3 , m-cu lacking; cerci very slender, the tips acute.

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

Rostrum and palpi dark brown, the latter small. Antennæ black throughout; flagellar segments oval, a little longer than the verticils, strongly constricted at the incisures. Head in front, on anterior vertex and narrow orbits silvery gray, the posterior part of head darker; anterior vertex relatively narrow, about equal to two rows of ommatidia or slightly less than one-third the diameter of the scape.

Cervical region and pronotum brown, pretergites light brown. Mesonotal præscutum with a broad dark brown central stripe, the lateral parts paler brown; scutum dark brown, scutellum more testaceous; mediotergite reddish brown, gray pruinose. Pleura chiefly dark brown, dorsopleural region paler; sclerites above the middle and hind coxæ narrowly yellowed. Halteres infuscated, stem obscure yellow, brighter at base, with conspicuous setæ on other half. Legs with fore coxæ infuscated, remaining coxæ and trochanters yellow; remainder of legs medium brown; claws entirely untoothed. Wings (Plate 1, fig. 2) subhyaline to faintly suffused; stigma pale brown, small, sub-circular; veins delicate, very pale brown. Macrotrichia of veins long and conspicuous, on all longitudinal veins beyond cord; basad of this on R_s , outer fourth of M and distal third of Cu_1 , none on anal veins. Venation: Sc long, Sc_1 ending about opposite two-thirds R_s , Sc_2 near its tip; free tip of Sc_2 and R_2 in transverse alignment; cell M_2 open by atrophy of basal section of M_3 , cell 2nd M_2 nearly three times its petiole; m-cu entirely lacking; vein 2nd A long, gently sinuous at near midlength.

Abdomen dark brown, subterminal segment obscure yellow. Ovipositor with cerci very slender, gently upcurved to the acute tips.

Habitat.—Northeast New Guinea.

Holotype, female, Mount Wilhelm, altitude 2,700 meters, at light, July 4, 1955 (*Gressitt*).

This surprising fly is entirely distinct from all other known crane-flies in the loss of vein m-cu of the wings. Although only the unique type is available I feel that the condition is normal and not adventitious. The wings of the two sides are quite alike as regards the venation.

LIMONIA (LIBNOTES) ALTERNIMACULA sp. nov.

Plate 1, fig. 3.

Mesonotal præscutum brownish yellow, variegated with brownish black on posterior half, without lateral darkening; pleura light yellow, with a black longitudinal stripe, pteropleurite and sternopleurite entirely pale; femora yellow with a narrow brownish black subterminal ring; wings whitened, variegated with brown spots and streaks, chiefly on the veins, alternating with pale areas; R_2 at or beyond the free tip of Sc_2 ; m angulated and spurred; cell 2nd A relatively narrow.

Female.—Length, about 9 millimeters; wing, 11.5.

Rostrum and mouth-parts pale yellow; palpi light brown, relatively short. Antennæ with scape black; remainder broken. Head brownish gray, the posterior orbits narrowly paler gray; anterior vertex behind the antennal fossæ more silvery; eyes broadly contiguous.

Pronotum yellow, the scutellum tinged with green. Mesonotal præscutum brownish yellow, including the anterior half, the posterior half with four brownish black stripes, the intermediate pair virtually contiguous, sublateral stripes distinct; no lateral præscutal darkening; scutum pale yellow, lobes dark brown; scutellum obscure yellow, posterior border darkened beneath; postnotum, including the pleurotergite and metapleural area black. Pleura light yellow, with a conspicuous black longitudinal stripe extending from the lower pronotum and propleura across the dorsal anepisternum to the wing root, the pteropleurite and sternopleurite entirely yellow. Halteres with stem yellow, apex of knob infuscated. Legs with the fore coxæ yellow, middle and hind coxæ black; trochanters greenish yellow; femora yellow, with a relatively narrow brownish black subterminal ring, subequal to or a trifle broader than the yellow

tip; tibiæ yellow, tips narrowly black; tarsi greenish yellow, outer segments black. Wings (Plate 1, fig. 3) with the ground whitened, variegated with brown spots and streaks, including three in cell Sc; stigma subcircular, small, dark brown; other small darker areas beyond arculus, cord, outer end of cell 1st M_2 and tip of vein 2nd A; a single similar subapical area on each of veins R_3 , R_{4+5} , M_{1+2} , M_3 and M_4 ; paler brownish gray washes in centers of cells R and M, midlength of vein R_{2+3} , and as marginal clouds, very small at ends of veins R_3 and M_{1+2} , more extensive in cells M_4 , Cu and 1st A; veins yellow or greenish yellow, brownish black in the most heavily patterned areas. Venation: Sc moderately long, Sc_1 ending a short distance beyond level of r-m; Rs oblique; R_2 at or beyond the free tip of Sc_2 ; cell 1st M_2 long, widened outwardly, m long angulated to weakly spurred before midlength, the spur jutting basad into cell 1st M_2 ; m-cu at near two-fifths the length of M_{3+4} ; cell 2nd A relatively narrow.

Abdomen obscure yellow, the anterior lateral angles of the tergites with a small blackened spot. Ovipositor with valves blackened; cerci strongly bifid at tips; hypovalvæ produced into an acute point.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, female, Enagotadi, altitude 1,875 meters, July 31, 1955 (*Gressitt*).

Generally similar to *Limonia (Libnotes) grammoneura* sp. nov., differing in the coloration of the body and wings, and in the details of venation, especially of the outer radial field.

LIMONIA (LIBNOTES) GRAMMONEURA sp. nov.

Plate 1, fig. 4.

General coloration of thorax light gray, præscutum with a broad dark brown central stripe that is constricted at near midlength; rostrum yellow; antennæ black throughout; eyes contiguous above; pleura greenish yellow with two incomplete dark brown longitudinal stripes, the ventral one on the dorsal sternopleurite; knobs of halteres dark brown; femora obscure yellow, with a narrow dark brown subterminal ring; wings whitish subhyaline, the veins with brown longitudinal seams; vein R_2 oblique; cell 1st M_2 very long and narrow, m much longer than basal section of M_3 ; abdominal tergites yellowish green, sternites bicolored; tips of cerci and hypovalvæ notched.

Female.—Length, about 7.5 to 9 millimeters; wing, 9.5 to 12.

Rostrum yellow; palpi black. Antennæ black throughout; flagellar segments oval, with short verticils; terminal segment

elongate, the outer half strongly narrowed. Head light gray, silvery behind the antennal fossæ; eyes broadly contiguous above, ommatidia large.

Pronotal scutum light brown, paling to green on sides, scutellum greenish. Mesonotal præscutum with the ground light gray, with a broad dark brown central stripe, expanded over the cephalic end, constricted at near midlength, behind more or less confluent with the very reduced sublateral stripes, the central darkening with a vague pale median vitta; lateral præscutal border darkened; scutal lobes solidly dark brown, central area pale gray; scutellum pale medially and at base, with a large dark brown spot on either side, parascutella pale green; mediotergite dark brown, the disk slightly paler; pleurotergite dark brown, bordered anteriorly by yellow. Pleura greenish yellow, with two incomplete dark brown stripes, the dorsal one including the propleura, passing beneath the wing root, ventral stripe occupying the dorsal sternopleurite; pretergites pale green in front, dark brown before the wing root. Halteres with stem greenish, knob dark brown. Legs with coxæ strongly tinged with green; trochanters brownish yellow; femora obscure yellow, with a narrow dark brown subterminal ring; a more or less distinct darkening just beyond midlength of femur; tibiæ yellow, tips blackened; tarsi obscure yellow, outer segments blackened. Wings (Plate 1, fig. 4) whitish subhyaline, conspicuously patterned with dark brown, appearing essentially as long seams on most veins; prearcular and costal fields slightly tinted with yellow; dark pattern varying slightly in different specimens, in cases the markings more broken, in others confluent to form long streaks; veins pale yellow, very inconspicuous in the ground, much darker in the patterned areas. Venation: Sc relatively short, Sc₁ ending shortly before level of anterior end of m; R₂ oblique, usually shorter than the arcuated R₁₊₂ beyond it; r-m shortened by the approximation of veins; cell 1st M₂ very long and narrow, m long, m-cu at from about two-fifths to midlength of M₃₊₄; anal veins convergent, vein 2nd A strongly arched.

Abdominal tergites light yellowish green, darkened laterally; sternites bicolored, the bases of the segments brown, apices greenish yellow; in cases the dark pattern of the whole abdomen virtually lacking. Ovipositor with the valves short, heavily sclerotized; tips of cerci somewhat unequally bifid; tips of hypovalvæ unequally notched, the lower point produced.

Habitat.—Northeast New Guinea.

Holotype, female, above Kabebe, Mount Otto, altitude 2,100 meters, June 24, 1955 (*Gressitt*). Paratopotypes, 2 females, 2,100 to 2,600 meters, June 22 to 23, 1955; paratype, female, Daulo Pass, altitude 2,400 meters, June 13, 1955 (*Gressitt*).

Generally as in *Limonia* (*Libnotes*) *alternimacule* sp. nov., differing in the coloration of the body and wings and in the details of venation, especially of the outer radial field.

LIMONIA (LIBNOTES) PHILEMON sp. nov.

Plate 1, fig. 5.

General coloration of mesonotum obscure yellow, præscutum with a central reddish brown stripe that widens behind; pleura yellow, mesepisternum extensively reddish brown; femora yellow, with a relatively narrow subterminal brown ring, the subbasal parts more or less darkened, tarsi entirely yellow; wings pale yellow, with a restricted brown pattern appearing as seams to the veins; stigma yellow, completely encircled by brown; cell 1st M_2 small, pentagonal; abdomen pale green; cerci slender, simple, tips acute.

Female.—Length, about 12 millimeters; wing, 11.

Head broken. Pronotum dark brown. Mesonotal præscutum obscure yellow, with a central reddish brown stripe, very narrow and more or less broken on anterior half, expanded near the suture; lateral stripes lacking; scutum yellow, centers of lobes reddish brown; scutellum reddish brown, more yellowed at base; mediotergite dull yellow, brown on cephalic part, narrowed to a capillary central line behind; pleurotergite yellow, reddened ventrally. Pleura yellow, the mesepisternum extensively reddish brown. Halteres uniformly pale greenish yellow. Legs with all coxæ and trochanters pale yellow; femora yellow, with a relatively narrow subterminal brown ring that is only about one-half as extensive as the pale tip; basal half of femora weakly darkened beyond base, most evidently so on fore legs, lacking on middle pair; remainder of legs yellow, including the terminal tarsal segment. Wings (Plate 1, fig. 5) pale yellow, the prearcular and costal fields more saturated yellow; a restricted but conspicuous brown pattern, including seams at arculus, origin of R_s , cord and outer end of cell 1st M_2 , with further marginal seams on all outer veins, very extensive on 2nd A; a small isolated brown spot at fork of M and another at midlength of vein M; stigma extensively yellow, completely encircled by brown; veins yellow, light brown in the patterned

areas. Venation: Sc long, Sc₁ ending about opposite r-m; Rs sinuous on basal half; free tip of Sc₂ and R₂ in transverse alignment, occupying the center of the stigmal area; R₅ in direct longitudinal alignment with Rs; r-m short but distinct; cell 1st M₂ small, pentagonal, second section of M₁₊₂ and basal section of M₃ subequal; m-cu before midlength of ₃₊₄; vein 2nd A bent slightly distad on outer fourth.

Abdomen pale green, more intense outwardly. Ovipositor with cerci slender, simple, gently upcurved to the acute tips; hypovalvæ darkened, the tips narrowly reddened.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, female, Enagotadi, altitude 1,800 meters, July 30, 1955 (*Gressitt*).

The most similar described regional species, *Limonia* (*Libnotes*) *fastosa* Alexander, differs in the coloration and in the details of wing venation.

LIMONIA (LIBNOTES) RUFULA sp. nov.

Plate 1, fig. 6.

Size medium (wing of male 15 millimeters); rostrum yellow; mesonotal præscutum rufous, with three yellow stripes; posterior sclerites of notum pale, the mediotergite with a dark brown lateral spot; femora and tibiæ yellow, the tips narrowly dark brown; wings brownish yellow, very restrictedly patterned with brown; free tip of Sc₂ before the level of R₂; m-cu just before midlength of M₃₊₄; cell 2nd A narrow.

Male.—Length, about 11 millimeters; wing, 15.

Rostrum yellow; palpi yellow, outer segments darker. Antennæ with scape light yellow, pedicel obscure yellow, flagellum testaceous yellow; flagellar segments oval, the outer ones longer, verticils short. Head orange, the anterior vertex and narrow orbits light gray; anterior vertex very narrow, about equal in width to two rows of ommatidia.

Pronotum orange, narrowly infuscated on either side. Mesonotal præscutum with the restricted ground rufous, with three broad yellow stripes; sides of præscutum with an oval impressed brown area on extreme margin, with a pale brown cloud above the anterior spiracle; scutal lobes yellow, the broad central area and the scutellum pale testaceous yellow; mediotergite pale testaceous, with a conspicuous dark brown lateral spot on either side. Pleura deep yellow, paling to whitish yellow behind. Halteres with stem pale brown, knob dark brown. Legs with coxæ and trochanters yellow; femora and tibiæ yellow, tips narrowly dark brown; tarsi broken. Wings (Plate 1, fig. 6)

brownish yellow, very restrictedly patterned with brown, including barely indicated clouds at origin of Rs, fork of Sc, free tip of Sc₂ and R₂, best shown by a deepening in color of the veins; cord and outer end of cell 1st M₂ undarkened; veins light brown, C, Sc, R and most of Cu more yellowed. Venation: moderately long, Sc₁ ending about opposite midlength of cell 1st M₂, Sc₂ near its tip; free tip of Sc₂ far beyond level of R₂; cell 1st M₂ subequal to vein M₄; m-cu shortly before midlength of M₃₊₄, cell 2nd A narrow; anal veins convergent.

Abdomen, including hypopygium, dull orange, lateral tergal borders narrowly more darkened.

Habitat.—Northeast New Guinea.

Holotype, male, Karap, altitude 1,550 meters, July 20, 1955 (*Gressitt*).

The most nearly related species include forms such as *Limonia* (*Libnotes*) *ferruginata* Edwards, *L. (L.) termitina* (Osten Sacken) and *L. (L.) thwaitesiana* (Westwood) which, generally similar, differ in all details of coloration of the body, legs and wings.

LIMONIA (LIBNOTES) VIRIDICOLOR sp. nov.

Plate 1, fig. 7; Plate 3, fig. 37.

Allied to *tayloriana*; general coloration of thorax light green, unpatterned; antennæ, legs and halteres tinged with green; wings faintly tinged with yellow, costa green; male hypopygium with the outer rostral spine of the male hypopygium long, gently curved.

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

Rostrum relatively long and slender, about two-thirds the remainder of head; mouth-parts pale green; palpi brown, weakly tinged with green. Antennæ with scape and pedicel green, flagellum brown; flagellar segments passing into elongate, the verticils subequal to or a little longer than the segments, appressed. Head light gray; anterior vertex greatly reduced.

Thorax uniformly pale green, the color persistent in dead specimens. Halteres with stem pale green, knob small, weakly darkened. Legs with coxæ and trochanters pale green; remainder of legs tinged with green, the outer tarsal segments darker. Wings (Plate 1, fig. 7) faintly tinged with yellow, the costal vein light green, cells C and Sc greenish yellow; stigma pale brown, small and inconspicuous, unusually narrow; veins pale green, both ends of cell 1st M₂ slightly darker brown. Macrotrichia on veins beyond cord, lacking on Rs and the anal veins, excepting a single one near outer end of vein 2nd A.

Venation: Sc long; Rs relatively long, oblique, m-cu before midlength of M_{3+4} .

Abdomen, including hypopygium, light green. Male hypopygium (Plate 3, fig. 37) with the tergite, *t*, relatively narrow, the posterior border produced into two rounded lobes that are separated by a V-shaped notch, the lobes with several powerful bristles. Basistyle, *b*, relatively small, its total area less than half that of the ventral dististyle; ventromesal lobe obtuse at tip. Dorsal dististyle, *d*, a gently curved darkened rod, narrowed very gradually to the acute tip. Ventral style fleshy; rostral prolongation bearing two very unequal spines, the outer long and powerful, from a low darkened tubercle, the spine longer than the prolongation; inner spine less than one-third as long and very delicate. Gonapophysis, *g*, with the mesal-apical lobe long and slender, blackened, nearly straight, apex obtuse, margin with a few microscopic denticles. *Ædægus*, *a*, relatively slender, pale, the tip bilobed.

Habitat.—Northeast New Guinea.

Holotype, male, Goroka, altitude 1,700 meters, at light, June 25, 1955 (*Gressitt*).

The nearest relative is *Limonia (Libnotes) tayloriana* Alexander, which differs especially in the coloration and in the details of structure of the male hypopygium, as the much smaller rostral spine.

LIMONIA (DAPANOPTERA) GRESSITTIANA sp. nov.

Head dark brown; thorax brownish black; antennæ orange throughout; halteres light yellow; legs yellow, tips of femora and tibiæ blackened; wings yellow, restrictedly patterned with brown, including inconspicuous bands at origin of Rs, cord and over the outer crossveins; stigmal area circular, pure white; supernumerary crossvein in cell R_5 less than its own length beyond m; cell 1st M_2 long; abdomen black, segments two to six chiefly reddened.

Male.—Length, about 9 to 10 millimeters; wing, 14 to 15; antenna, about 2.5 to 2.6.

Female.—Length, about 8 to 9 millimeters; wing, 13 to 13.5.

Rostrum black, relatively long, about one-half the remainder of head; palpi brownish black. Antennæ orange throughout; flagellar segments oval, the terminal one elongate, its narrowed apex darkened; flagellar segments of male more strongly constricted at the incisures than in the female. Head dark gray; anterior vertex reduced to a capillary strip, subequal in width to a single row of ommatidia.

Thorax dark chocolate-brown to brownish black, virtually unpatterned, unusually glabrous. Halteres light yellow. Legs with the coxæ brownish black, fore trochanters testaceous, the remainder dark brown; femora yellow, tips narrowly but conspicuously black, tibiæ yellow, the tips more narrowly blackened; tarsi yellow, the outer two segments dark brown. Wings (Plate 1, fig. 8) yellow, restrictedly patterned with brown, including a darker band at origin of Rs, extended back to vein Cu; paler brown bands at cord and across the outer crossveins; outer radial field in cells R_2 and R_3 weakly suffused, forming a ring around the circular pure white stigmal spot; veins yellow, not or scarcely darker in the patterned areas. Venation: Sc ending just beyond the fork of Rs, Sc_2 near its tip; Rs long, arcuated; R_{1+2} and R_2 very pale to scarcely apparent, lying in the white stigmal spot; supernumerary crossvein in cell R_5 less than its own length beyond m; cell 1st M_2 long, gently widened outwardly, subequal in length to cell 2nd M_2 ; m-cu less than its own length beyond the fork of M.

Abdomen with basal segment black, segment two yellow, three to five, inclusive, usually reddish, in cases darkened, segment six reddish, darkened on central part; remainder, including hypopygium, black. Ovipositor with cerci small and weak, upcurved.

Habitat.—Northeast New Guinea.

Holotype, male, Mount Otto, above Kabebe, altitude 2,100 meters, June 24, 1955 (*Gressitt*). Allotype, female, Denglagu to Numbu, July 5, 1955 (*Gressitt*). Paratopotypes, 1 male, 1 female, June 23 to 24, 1955; paratype, 1 male, with the allotype.

This attractive fly is named for the collector, Dr. J. Linsley Gressitt. It is entirely distinct from other described species in the coloration of the body and wings. The most recent key to members of this subgenus is by the writer [Rec. South Australian Mus. 8 (1947) 588 to 589].

LIMONIA (DAPANOPTERA) VIRAGO Alexander.

Limonia (Dapanoptera) virago ALEXANDER, Ann. Mag. Nat. Hist. (13) 1 (1958) 661-662.

The types were from the Moss Forest Camp of the Third Archbold Expedition to New Guinea, altitude 2,800 meters, October 14 to 29, 1938 (*Toxopeus*).

Northeast New Guinea: Mount Otto, above Kabebe, altitude 7,250 feet, June 23, 1955 (*Gressitt*).

HELIUS (HELIUS) GOROKANUS sp. nov.

Plate 1, fig. 9.

General coloration of thorax brown, the præscutum with three dark brown stripes, pleura brownish yellow, variegated with black spots; rostrum black; knobs of halteres infuscated; legs dark brown; wings faintly tinged with brown, stigma very pale brown; r-m short or obliterated by fusion of veins R_{4+5} and M_{1+2} ; abdomen brown, the eighth sternite blackened.

Male.—Length, including rostrum, about 6.5 millimeters; wing, 6.5; rostrum, about 0.7.

Female.—Length, including rostrum, about 7 millimeters; wing, 6.8; rostrum, about 0.7.

Rostrum black, subequal in length to remainder of head; palpi black, conspicuous. Antennæ with pedicel black, remainder dark brown, nearly one-third longer than the rostrum; basal flagellar segment oval, the outer ones more elongate, exceeding the verticils. Head above gray, the center of vertex blackened.

Cervical region black. Pronotal scutum brown, scutellum more testaceous. Mesonotal præscutum with the sides broadly obscure yellow, the disk with three conspicuous dark brown stripes, interspaces yellowish brown; scutal lobes black, median region and posterior callosities obscure yellow; scutellum dark brown, the lower part, with the parascutella, yellow; mediotergite brown, paler laterally, pleurotergite yellow. Pleura brownish yellow, becoming pale yellow on the pteropleurite and meta-pleura; conspicuous shiny black areas before wing root, on anepisternum and on ventral sternopleurite, the last largest. Halteres with stem white, knob infuscated. Legs with coxæ brownish yellow to obscure yellow; trochanters similar, narrowly blackened at tips; remainder of legs dark brown. Wings (Plate 1, fig. 9) faintly tinged with brown, prearcular and costal fields somewhat clearer yellow; stigma long-oval, very pale brown; veins pale brown. Veins beyond cord, including Rs, with abundant macrotrichia. Venation: Sc ending about opposite midlength of Rs; r-m, when present, very short, in cases obliterated by fusion of veins R_{4+5} and M_{1+2} ; cell 1st M_2 large, M_{3+4} about two-thirds M_4 ; m-cu a short distance beyond fork of M.

Abdominal tergites brown, sternites paler brown, the eighth sternite blackened; hypopygium light yellowish brown.

Habitat.—Northeast New Guinea.

Holotype, male, Goroka, altitude 2,000 meters, June 25, 1955 (*Gressitt*). Allotopotype, female.

The present fly is the first representative of the typical subgenus of *Helius* to be discovered in New Guinea. It is quite distinct from other Australasian species being more like certain Holarctic forms, as *Helius (Helius) longirostris* (Meigen) and *H. (H.) flavipes* (Macquart).

HELIUS (RHAMPHOLIMNOBIA) BIGEMINATUS sp. nov.

Plate 1, fig. 10.

Belongs to the *papuanus* group; general coloration of thorax brownish black, præscutum with a broad line of yellow pollen on either side of the median area; wings whitish, with a heavy reticulated pattern, including four areas in cell R_3 , these united behind to form two pairs; center of cell 1st M_2 with a circular ground spot.

Male.—Length, including rostrum, about 5.5 millimeters; wing, 5.5; rostrum, about 0.7.

Rostrum black, about one-third longer than remainder of head. Antennæ with scape and pedicel blackened; flagellum broken. Head brownish gray.

Cervical region black. Pronotum brownish black. Mesonotal præscutum and scutum dark cinnamon brown, the median stripe of the former broad, on neither side with a wide line of yellow pollen, extended backward to about two-thirds the length of the sclerite; scutellum and postnotum brownish black. Pleura brownish black, without distinct brightenings. Halteres with base of stem yellow, outwardly a little darker; knob broken. Legs with coxæ black; trochanters brownish black; remainder of legs broken. Wings (Plate 1, fig. 10) whitened, the prearcular and costal fields more brownish yellow; a very heavy reticulated brown pattern, arranged generally as in *fenestratus*; the chief darkened bands at cord and before origin of R_s entire, their centers a little paler than the margins; no darkening in cell R_1 before stigma; cell R_3 with four darkened areas arranged in pairs, these united behind along vein R_{4+5} ; center of cell 1st M_2 with a circular ground spot. Coastal fringe of male relatively long. Macrotrichia on veins R_{4+5} , M_{1+2} and M_3 . Venation: Cell R_3 at margin very extensive; distal section of R_s about two-thirds $r-m$; $m-cu$ more than two-thirds its length before fork of M .

Abdomen brownish black, the posterior borders of sternites narrowly light gray pruinose.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, male, Enagotadi, altitude 1,800 meters, July 30, 1955 (*Gressitt*).

Although it is very similar in its general appearance to *Helius* (*Rhampholimnobia*) *fenestratus* Alexander, the present fly is distinct in the distribution of the darkened wing markings.

HELIUS (RHAMPHOLIMNOBIA) GRACILIROSTRIS sp. nov.

Male.—Length, including rostrum, about 5.5 to 5.6 millimeters; wing, 5 to 5.2; rostrum, about 1 to 1.2.

Female.—Length, including rostrum, about 6 millimeters; wing, 5.2.

In its general appearance the present fly is much like a small specimen of *Helius* (*Rhampholimnobia*) *subreticulatus* sp. nov., differing in some important features, additional to the small size.

Rostrum unusually long and slender, with conspicuous subappressed black setæ. Antennæ black, the basal segment of flagellum light yellow. Pale central line of mesonotal præscutum narrow or lost by approximation of narrow darker sublateral vittæ. Pleura dark brown, variegated with paler areas, including especially the dorsal pteropleurite and the dorsal and ventral sternopleurite. Halteres pale yellow. Femora with darkened ring more extensive and ill-delimited, the pale brown tip subequal in extent to the subterminal white ring. Wings with the costal fringe of male evidently shorter.

Habitat.—Northeast New Guinea.

Holotype, male, Karap, July 20, 1955 (*Gressitt*). Allotopotype, female. Paratopotype, 1 male.

HELIUS (RHAMPHOLIMNOBIA) MESOLINEATUS sp. nov.

Male.—Length, including rostrum, about 7.5 millimeters; wing, 6.5.

Characters generally as in *subreticulatus*, agreeing in the large size and in the general pattern of the wings, differing in the coloration of the legs and in the short costal fringe of the male. Antennæ with the scape and pedicel black, flagellum brown, the first segment light yellow. Head with anterior vertex restrictedly silvery, remainder of anterior vertex black, the area continued posteriorly to about midlength of the disk which otherwise is brownish gray.

Mesonotal præscutum conspicuously patterned, cinnamon brown on anterior half, darker brown posteriorly, with a

relatively broad gray central line that extends onto the midline of the scutum; lateral præscutal borders broadly more blackened; posterior sclerites of notum dark brown. Pleura and pleurotergite almost uniformly blackened, with vague more brownish gray areas. Halteres with stem obscure yellow, base of knob infuscated, apex obscure yellow. Legs with coxæ and trochanters brownish black; femora yellow, the outer third or more passing into black, with a narrow white ring just before the still narrower brown tip; tibiæ brownish black, the extreme tip white; tarsi yellow. Wings whitened, the prearcular and costal fields more yellowed; a clearly defined dark brown reticulated pattern, arranged much as in *subreticulatus*, including a marking in cell R beyond origin of Rs, and five darkened areas in cell R₃, these subequal in area to their interspaces. Costal fringe of male noticeably shorter than that of *subreticulatus*.

Abdomen brownish black, including the hypopygium; posterior borders of the tergites narrowly and vaguely silvery; sternites with paired silvery spots, as in some other species.

Habitat.—Northeast New Guinea.

Holotype, male, Kabebe, Mount Otto, altitude 2,100 meters, June 24, 1955 (*Gressitt*).

The most similar regional species include *Helius* (*Rhampholimnobia*) *gracilirostris* sp. nov. and *H. (R.) subreticulatus* sp. nov., especially the latter, as compared above. The most evident distinguishing characters include the coloration of the pleura, halteres and legs, and the short costal fringe of the wing.

HELIUS (RHAMPHOLIMNOBIA) PAPUANUS Alexander.

Helius (*Rhampholimnobia*) *papuanus* ALEXANDER, Philip. Jour. Sci. 54 (1934) 324-326, plate 1, fig. 12 (venation), plate 3, fig. 35 (♂ hypopygium).

Described from New Britain and Northeast New Guinea.

Northeast New Guinea: Busu, September 15, 1955 (*Gressitt*).

HELIUS (RHAMPHOLIMNOBIA) SIMULATOR sp. nov.

Male.—Length, including rostrum, about 5.3 to 5.5 millimeters; wing, 4.8 to 5; rostrum alone, about 0.7 to 0.8

Generally similar to *Helius* (*Rhampholimnobia*) *papuanus* Alexander, differing in details of coloration of the body, legs and wings. Both species have the darkened wing pattern relatively narrow, much less extensive than the ground; no darkening in cell R₁ beyond origin of Rs; two darkened areas

in cell R₃, narrower than the interspaces; darkened crossband before origin of Rs not parallel-sided as in *fenestratus* Alexander and *guttulinus* Alexander, the area in cell M lying distinctly basad of those in cells R and 1st A, thus forming a narrow irregular band.

Pronotum and anterior end of præscutum obscure yellow, the posterior sclerites of mesonotum darker. Knobs of halteres light yellow. Tips of femora uniformly yellow, with a weak darkening at or just before apex, the extreme tip not blackened, as in *papuanus*; tibiæ dark brown, the extreme base and tip yellowed. Wings with costal fringe of male slightly longer than in *papuanus*; dark pattern less extensive than the white interspaces, the latter with faintly darkened centers that are encircled by the white ground, this condition somewhat as in the otherwise distinct *guttulinus*.

Habitat.—Northeast New Guinea.

Holotype, male, Korip, July 12, 1955 (*Gressitt*). Paratopotypes, 3 males.

HELIUS (RHAMPHOLIMNOBIA) SUBRETICULATUS sp. nov.

Plate 1, fig. 11.

Size large (wing about 6.5 millimeters); mesonotum yellow to reddish brown, the præscutum with a pale central vitta that is continued backward to the scutellum; pleura uniformly dark brown; halteres light yellow; femora yellow with a broad dark subterminal ring, the apex bicolored, including an internal brown ring and a white subterminal annulus; wings pale yellow with a conspicuous brown reticulated pattern; costal fringe of male long; abdomen dark brown, the posterior border of tergites narrowly silvery, each of the sternites with a pair of silvery spots at posterior border; hypopygium yellow to fulvous yellow.

Male.—Length, including rostrum, about 5.8 to 6 millimeters; wing, 6.5 to 7; rostrum, about 1 to 1.2.

Female.—Length, about 6.8 to 7 millimeters; wing, 6.3 to 6.5.

Rostrum black, relatively long, as shown by the measurements; mouth-parts yellow. Antennæ shorter than the rostrum; scape and pedicel black, flagellum brown; flagellar segments oval, shorter than the verticils. Head with front and fore part of anterior vertex light gray, posterior vertex darker gray; narrowest part of anterior vertex blackened, narrow, less than the diameter of scape.

Cervical region brownish black. Pronotum light brown. Mesonotum yellow to reddish brown, the præscutum more yellowed

anteriorly, with a narrow pale median vitta that extends back to the scutum; scutellum and mediotergite dark brown. Pleura uniformly dark brown. Halteres light yellow. Legs with coxæ dark brown; trochanters testaceous yellow; femora yellow with a broad dark brown ring before apex, the latter bicolored, the extreme tip obscure yellow, with an internal indistinct brown ring and a narrow clear white subterminal annulus; tibiæ and tarsi yellow. Wings (Plate 1, fig. 11) pale yellow, costal field more brownish yellow; a conspicuous reticulated brown pattern, arranged somewhat as in *reticulatus*; cell R_3 with three or four brown dashes, cell R_1 with a single such line; veins brownish yellow, darker in the patterned areas. Costal fringe of male long and conspicuous; anterior branch of R_s without macrotrichia. Venation: Branches of R_s widely divergent, cell R_2 narrow at margin; m-cu before the fork of M.

Abdomen dark brown, tergites with posterior borders narrow and silvery; each sternite with a pair of silvery spots at posterior margin; male hypopygium yellow to fulvous yellow.

Habitat.—Widely distributed in New Guinea.

Holotype, male, Enagotadi, Netherlands New Guinea, altitude 2,000 meters, August 5, 1955 (*Gressitt*). Allotopotype, female, pinned with type. Paratopotypes, males and females, with the types; paratypes, males and females, Obano, Netherlands New Guinea, August 9, 1955; Itouda and Okaitadi, August 1955; males and females from Northeast New Guinea, including Daulo Pass, altitude 2,400 meters, June 13, 1955; Kabebe, Mount Otto, altitude 2,100 meters, June 21, 1955 (*Gressitt*); males and females from Mount Dayman, Maneau Range, Papua, altitude 1,550 to 2,330 meters, May 17 to July 13, 1953 (*Geoffrey M. Tate*); Archbold IV Collection.

The most similar regional species include *Helius (Rhampholimnobia) gracilirostris* sp. nov. and *H. (R.) mesolineatus* sp. nov., described herewith. In the long conspicuous costal fringe of the male it is similar to *H. (R.) papuanus* Alexander, distinguished by the large size, and in the coloration of the body, legs and wings. This evidently is the commonest and most widely distributed member of the subgenus so far discovered in New Guinea.

HEXATOMINI

EPIPHRAGMA (EPHIPHRAGMA) RISORIA sp. nov. Plate 1, fig. 12; Plate 3, fig. 38.

Size medium (wing of male 10 millimeters); mesonotal præscutum light brown, patterned with dark brown and yellow;

antennæ bicolored; halteres yellow; femora brownish yellow, with a vague darker subterminal ring; wings yellow, conspicuously patterned with brown, the costal dark areas with paler centers; r-m shortly before fork of Rs; m very long, more than one-half longer than the transverse basal section of M_3 ; m-cu before midlength of cell 1st M_2 ; male hypopygium with the tergal lobes low, blackened; basistyle slender, with a finger-like lobe on mesal face beyond midlength; inner dististyle with a conspicuous lobe on lower margin near base.

Male.—Length, about 10 millimeters; wing, 10; antenna, about 3.2.

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

Rostrum black; palpi brownish black. Antennæ of male long, as shown by the measurements; yellow, the bases of the second and succeeding flagellar segments darkened to produce a bicolored appearance, the amount of dark increasing slightly on the outer segments; segments longer than their verticils, surface with abundant groups of microscopic setulæ. Head brownish gray, paler behind; anterior vertex moderately broad, nearly twice the diameter of scape.

Pronotum yellow. Mesonotal præscutum light brown in front, conspicuously dark brown on sides, with an intermediate pair of short paler brown stripes before suture, the interspaces more yellowed, the lateral one extended across the suture onto the lateral part of scutal lobe; remainder of scutal lobes dark brown; scutellum testaceous yellow, parascutella brownish black; postnotum dark brown; vestiture of præscutal interspaces sparse but long and conspicuous. Pleura chiefly dark brown, the dorsal sternopleurite and membrane surrounding the anterior spiracle yellowed. Halteres elongate, yellow. Legs with the coxæ yellow, fore pair more brownish yellow; trochanters obscure yellow; femora brownish yellow, brighter at base, darkening to a vague subterminal ring, apex yellow; tibiæ and tarsi brownish yellow, outer tarsal segments dark brown. Wings (Plate 1, fig. 12) yellow, the prearcular and costal fields more saturated yellow; a conspicuous brown pattern, as follows: Region of arculus, extending into cell C; origin of Rs, extended backward, continued as a narrow seam over M, connected with a broad oblique band that extends from the stigma to vein M; major marginal areas at ends of all longitudinal veins, smallest on R_5 , these areas with slightly paler centers; other small darkenings at outer end of cell 1st M_2 , fork of M and along

posterior border of cell 2nd A; narrow dusky seams over veins R_5 , Cu and 1st A; veins yellow, darker in the clouded areas. Venation: Supernumerary crossvein in cell C weak; Sc_2 elongate; r-m shortly before fork of Rs; cell M_1 deep, more than twice its petiole; m elongate, longitudinal in position, more than one-half longer than the transverse basal section of M_3 ; m-cu before midlength of cell 1st M_2 .

Abdominal tergites brownish yellow, the transverse impressed lines concolorous and inconspicuous; sternites brownish yellow, very narrowly bordered by darker. Male hypopygium (Plate 3, fig. 38) with the tergite narrowed outwardly, posterior border with two low blackened lobes that are separated by a very shallow V-shaped notch; surface back from margin with abundant strong setæ that are directed caudad. Basistyle, *b*, slender, with a conspicuous fingerlike lobe on mesal face beyond midlength. Dististyles, *d*, terminal; outer style broad, narrowed gradually into a slender point, its surface microscopically roughened; inner style more slender, the apex narrowed to a point, separated from a lower subapical tooth by a rounded notch; lower margin of style with a conspicuous lobe that is tipped with long delicate setæ. Gonapophysis appearing as a slender curved hook. Ædeagus relatively short, broad-based.

Habitat.—Northeast New Guinea.

Holotype, male, Mount Otto, altitude 2,100 to 2,000 meters, June 22, 1955 (*Gressitt*). Allotopotype, female.

Epiphragma (Epiphragma) risoria is entirely distinct from the other previously described regional members of the subgenus, differing in the pattern and venation of the wings and in the coloration of the legs. Such species include *E. (E.) fuscocalis* Alexander, *E. (E.) fuscoterminalis* Alexander, and *E. (E.) gloriola* Alexander.

AUSTROLIMNOPHILA (AUSTROLIMNOPHILA) CROCEIPENNIS sp. nov. Plate 1, fig. 13.

Mesonotum chiefly light grayish brown, without distinct stripes, anterior third of præscutum brown, the color continued backward over the sides and beneath the wing root; legs yellow; wings pale yellow, with a restricted medium brown pattern.

Sex?—Wing, about 12 millimeters.

Rostrum light brown; palpi brownish yellow. Antennæ with scape brownish yellow, pedicel yellow; basal segments of flagellum yellow, the bases narrowly darkened; outer segments broken. Head dark gray, narrowly yellowed behind. Ante-

rior vertex narrow, about one-half the diameter of scape or about equal to three rows of ommatidia.

Pronotum obscure yellow. Mesonotum chiefly light grayish brown, without distinct stripes; anterior third of præscutum brown, the pattern continued backward over the sides, passing beneath the wing root as a broad diffuse stripe; posterior sclerites of notum ashy gray. Pleura brownish yellow, darkened dorsally, as described. Halteres with stem yellow, knob broken. Legs with coxæ and trochanters reddish yellow; femora and tibiæ yellow; tarsi broken. Wings (Plate 1, fig. 13) pale yellow, the prearcular and costal fields more saturated; a restricted medium brown pattern, as follows: At arculus, origin of Rs, stigma and cord, R_2 and adjoining veins, and as marginal areas, largest of 2nd A, lacking on R_5 ; still fainter seams over m-cu, outer end of cell 1st M_2 , fork of M_{1+2} , a darkening along vein Cu in cell M, and in the axillary area; veins yellow, slightly darker in the patterned areas. Small macrotrichia on veins of outer half or more of wing, lacking on basal half of Rs, Cu and vein 2nd A, appearing as very sparse series on M and outer end of vein 1st A. Venation: Rs square and angulated at origin; R_{2+3+4} about twice the basal section of R_5 ; cell M_1 nearly twice its petiole; m-cu at near two-thirds the length of M_{3+4} .

Abdominal tergites brownish yellow, sternites more testaceous yellow.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, sex?, Okaitadi, altitude 1,800 meters, August 8, 1955 (*Gressitt*).

Readily told from the now numerous species of the genus known from New Guinea by the coloration of the wings, in conjunction with the pattern of the thorax and legs.

AUSTROLIMNOPHILA (AUSTROLIMNOPHILA) EUCHARIS sp. nov.

Plate 1, fig. 14; Plate 3, figs. 39, 40.

Size medium (wing about 11 millimeters); general coloration of thorax brown, patterned with paler; antennal flagellum bicolored; halteres elongate, pale yellow; femora conspicuously patterned dark brown and yellow, the basal half chiefly darkened; wings pale yellow, patterned with brown, including dark markings along the veins; male hypopygium large, upper tergal lobes simple, pale; basistyle at apex produced into a very large flattened blade; dististyles relatively small, the outer one slender.

Male.—Length, about 9 millimeters; wing, 11.5.

Female.—Length, about 10 millimeters; wing, 10.5.

Rostrum and palpi black. Antennæ with scape, pedicel and first flagellar segment yellow, succeeding segments bicolored, narrowly blackened at base, the outer ends yellow; flagellar segments elongate (flagellum broken in type). Anterior vertex blackened, pruinose; posterior part of vertex and occiput chestnut brown, genæ brownish black; anterior vertex in male relatively narrow, a little less than the diameter of the scape.

Pronotum brown. Mesonotal præscutum brownish gray laterally behind, the central area with a broad brown stripe that is more or less interrupted at near midlength; humeral and lateral borders broadly brown; scutum light gray, the center of each lobe dark brown; scutellum brownish testaceous; mediotergite brown, heavily gray pruinose, more infuscated posteriorly, pleurotergite light brown. Pleura dark brown, with a broad pale area on the dorsal sternopleurite, in the female the whole sternopleurite pale; dorsopleural membrane dusky, yellow surrounding the anterior spiracle. Halteres elongate, pale yellow. Legs with the coxæ and trochanters yellow; femora conspicuously patterned, broadly dark brown beyond base, followed by a narrower yellow ring and a still narrower brown annulus, the narrow tip pale; tibiæ yellow, tips narrowly darkened; tarsi brownish yellow, outer segments infuscated; intermediate setæ modified into long slender scales. Wings (Plate 1, fig. 14) pale yellow, the costal border more saturated yellow; a conspicuous brown pattern, including large and smaller areas over most of wing, least so in costal field; the larger markings are marginal, being especially conspicuous in cell 2nd A; other large areas beyond arculus and over the anterior cord and stigmal region; smaller seams at origin of Rs, posterior cord and outer end of cell 1st M₂; scattered spots over the veins, mostly separate but some more confluent; veins yellow, infuscated in the patterned areas. Macrotrichia on veins of outer two-thirds of wing, lacking on 2nd A. Venation: Cell M₁ more than twice its petiole; m-cu at near two-thirds the length of cell 1st M₂.

Abdomen obscure yellow to brownish yellow, the outer segments brown in the male. Male hypopygium (Plate 3, figs. 39, 40) of the general type of *multitergata*, differing in all details. Ninth tergite, *t*, with the dorsal lobes pale, simple, fingerlike, provided with dense setulæ and scattered bristles; lower lobes bifid, heavily blackened at tips. Basistyle, *b*, produced at apex into a very large flattened blade, at its base with a concen-

tration of long setæ; mesal face of style with a darkened corrugated area. Dististyles, *d*, relatively small, the outer slender, its tip acute, on outer margin near base with a small tubercle; inner style longer and broader, at base on lower face with a toothlike flange. Phallosome, *p*, large; ædægus broad, apex slightly trilobed; gonapophyses as shown.

Habitat.—Netherlands New Guinea (Wisselmeren area).

Holotype, male, Itouda, altitude 1,500 meters, August 13, 1955 (*Gressitt*). Allotopotype, female.

The most similar regional species include *Austrolimnophila* (*Austrolimnophila*) *multitergata* sp. nov. and *A. (A.) polydamas* Alexander, both of which have the wing pattern somewhat the same. The present fly is readily told by the medium size, conspicuously patterned femora and by the structure of the male hypopygium, which is quite different from that of *multitergata*. The male of *polydamas* is still unknown.

AUSTROLMNOPHILA (AUSTROLMNOPHILA) MULTITERGATA sp. nov.

Plate 1, fig. 15; Plate 3, figs. 41, 42.

Size medium (wing of male 9 millimeters); general coloration of mesonotal præscutum and scutum buffy yellow, the posterior sclerites of notum and much of the pleura dark brown; antennæ of male elongate, flagellar segments bicolored; legs obscure yellow; wings pale yellow, conspicuously patterned with brown, including series of more or less confluent spots on most of the veins; m-cu lying far distad; male hypopygium large, the tergite produced into two pairs of blackened lobes, all emarginate at tips, the outer face of upper pair with strong setæ; basistyle with a spinelike blade on mesal face near apex; dististyles large, the inner one larger; ædægus small, broadly expanded at base.

Male.—Length, about 10 millimeters; wing, 9; antenna, about 4.5.

Rostrum and palpi black. Antennæ of male elongate, approximately one-half the wing; scape and pedicel light yellow, flagellar segments bicolored, the bases dark brown, apices yellow, on the proximal segments the two colors subequal in amount, the amount of yellow decreasing on the outer segments but persistent to the end; flagellar segments elongate-cylindrical, much longer than the verticils; remaining vestiture short but very abundant, the microscopic setulæ arranged in chiefly transverse palmate groups. Head dark brownish gray, the occipital region paling to brown; anterior vertex narrow, approximately one-half the diameter of scape.

Pronotum buffy yellow. Mesonotal præscutum and scutum buffy yellow, the former darkened on lateral border, the latter on mesal part of each lobe; posterior sclerites or notum more infuscated, sparsely pruinose. Propleura light yellow; mesopleura infuscated, more heavily so dorsally; metapleura and meron paler. Halteres with stem light yellow (knob broken). Legs with coxæ and trochanters obscure yellow; femora obscure yellow, unpatterned; remainder of legs yellow, the outer tarsal segments weakly darkened; interpolated linear scales only slightly differentiated from the normal setæ. Wings (Plate 1, fig. 15) pale yellow, the prearcular and costal fields more saturated; a conspicuous brown pattern, including costal areas at arculus, origin of R_s , tip of Sc and fork of R_{2+3+4} tip of R_{1+2} , and end of vein R_3 ; narrower seams over cord and outer end of cell 1st M_2 ; series of circular spots on most longitudinal veins, these more or less confluent, smaller and more sparse on M ; veins yellow, slightly darker in the patterned areas. Abundant macrotrichia on virtually all veins except near and before arculus. Venation: Sc long, Sc_1 ending beyond fork of R_{2+3+4} , Sc_2 near its tip; R_{1+2} about one-half longer than R_2 ; R_s short, arcuated at origin; R_{2+3+4} about three-fourths R_5 ; cell 1st M_2 long, with $m-cu$ at near three-fourths to four-fifths the length; cell M_1 nearly twice its petiole; cell 2nd A narrow.

Abdomen with conspicuous setæ, light brown, the extreme posterior borders of the tergites paler, of the sternites more broadly so; hypopygium large, dark brown. Male hypopygium (Plate 3, figs. 41, 42) as viewed from the side with the tergite and sternite partly fused, the tergal region, t , with heavily blackened armature, including a pair of smaller erect dorsal blades that are notched at tips and two larger ventral plates that are similarly emarginate at tips; lower or posterior face of dorsal blades with long conspicuous erect setæ. Basistyle, b , with a strong spinelike blade on mesal face near apex. Dististyles, d , with outer style smaller, bearing a small setuliferous lobule on outer margin at near midlength, the extended body of style glabrous, gradually narrowed to the tip; inner style a large flattened blade, the expanded disk with scattered erect setæ, lower margin blackened. Phallosome, p , with the ædeagus very small, broad-based; gonapophysis irregular in outline, the main part a slender rod, bent at an acute angle, the tip obliquely truncate.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, male, Okaitadi, altitude 1,760 meters, August 7, 1955 (*Gressitt*).

The most similar described regional species include *Austrolimnophila* (*Austrolimnophila*) *cyclopica* Alexander, A. (A.) *polydamas* Alexander, and A. (A.) *eucharis* sp. nov., all of which differ among themselves in the coloration of the body, legs and wings, and, where known, in the structure of the male hypopygium. In the present fly the tergal development of the hypopygium is peculiar and noteworthy.

AUSTROLIMNOPHILA (AUSTROLIMNOPHILA) NEBRIAS sp. nov.

Plate 1, fig. 16; Plate 3, fig. 44.

Size medium (wing of male 11 millimeters); mesonotum light brownish gray, the anterior end of præscutum dark brown, the color continued backward along sides of mesonotum to the abdomen; antennæ uniformly yellow to pale brown; femora yellow on central part, brown basally and at apex, tibiæ and tarsi yellow; wings very pale yellow, with a restricted brown pattern, including large circular marginal spots on all veins excepting R_5 and M_1 ; anterior cord oblique, inner end of cell 1st M_2 arcuated, m-cu at near three-fifths the length of cell 1st M_2 ; male hypopygium with the tergite terminating in two blackened lobes; outer dististyle with the body very high, obtuse, inner style expanded at outer end.

Male.—Length, about 11 millimeters; wing, 11; antenna, about 4.

Rostrum and palpi yellow. Antennæ yellow basally, the outer flagellar segments passing into very pale brown; segments much longer than the inconspicuous verticils, clothed with a dense white pubescence (outer segments broken). Head dark gray, occiput paling to light brown; anterior vertex very narrow, about equal to one and one-half rows of ommatidia or about one-fifth the diameter of the scape.

Pronotum yellow. Mesonotum almost uniformly light brownish gray, the anterior and lateral parts of the præscutum conspicuously brown, the color continued backward over the dorsopleural region, including the dorsal pteropleurite and lower pleurotergite, to the abdomen. Pleura light gray, propleura and dorsopleural region yellow, ventral sternopleurite slightly darkened. Halteres elongate, pale yellow. Legs with the coxæ yellow, sparsely whitish pruinose; trochanters yellow; femora brownish basally and at apex, fore pair more uniformly

darkened; tibiæ and tarsi yellow. Wings (Plate 1, fig. 16) very pale yellow, with a restricted brown pattern, the larger areas at stigma, origin of R_s , and as circular marginal spots at ends of the longitudinal veins, lacking on R_s and M_1 , only slightly larger on the anal veins; further smaller areas at arculus, cord, outer end of cell 1st M_2 and fork M_{1+2} veins yellow, darkened in the patterned areas. Small macrotrichia on virtually all veins. Venation: Sc long, Sc_1 ending beyond level of outer end of cell 1st M_2 , Sc_2 at its tip; R_{1+2} about twice R_2 ; anterior cord oblique, inner end of cell 1st M_2 arcuated; R_{2+3+4} about twice the basal section of R_5 ; cell M_1 deep, nearly three times its petiole; $m-cu$ at near two-thirds the length of M_{3+4} .

Abdominal tergites medium brown, the outer segments darker; basal sternites light yellow; hypopygium large, slightly darkened. Male hypopygium (Plate 3, fig. 44) with the tergite, t , narrowed outwardly, terminating in two blackened lobes, their tips obtusely rounded. Basistyle, b , slender, with a small flattened spine on mesal face before tip. Dististyles, d , two, the outer one very high crested, the beak slender, its tip slightly decurved; inner style with the slender base blackened, outer half expanded into a subrectangular blade. Phallosome, p , massive blackened basally; ædeagus slender; gonapophysis a strongly curved hook.

Habitat.—Northeast New Guinea.

Holotype, male, Kabebe, Mount Otto, altitude 2,100 meters, June 23, 1955 (*Gressitt*).

The most similar regional species include *Austrolimnophila* (*Austrolimnophila*) *cyclopica* Alexander and *A. (A.) fluxa* Alexander, distinguished among themselves by the pattern of the legs and wings, the details of venation, and, where known, by the structure of the male hypopygium.

PARALIMNOPHILA (PAPUAPHILA) DELECTA sp. nov.

Plate 1, fig. 17.

General coloration of mesonotal præscutum and scutum chestnut brown, the posterior sclerites dark brown; antennal flagellum yellow; halteres whitened; wings whitened, with a conspicuous brown pattern; male hypopygium with the central plate of the tergite shield-shaped, narrowed posteriorly.

Male.—Length, about 12 millimeters; wing, 10; antenna, about 1.5.

Rostrum black, gray pruinose; palpi black. Antennæ of male short, 13-segments; scape and pedicel brownish black, flagellum yellow, outer segments darker; flagellar segments suboval,

shorter than the longest verticils; terminal segment about one-half longer than the penultimate. Head dull black, gray pruinose; anterior vertex broad, about three times the diameter of the scape.

Pronotum dark brown. Mesonotal præscutum chiefly chestnut brown, representing four stripes that are separated by vague darker interspaces, the central vitta narrow; pseudosutural foveæ reddish, inconspicuous against the ground; scutal lobes dark chestnut brown; scutellum and postnotum dark liver brown. Pleura dark brown dorsally, the ventral and posterior parts paler brown. Halteres whitened. Legs with coxæ and trochanters brown; remainder of legs broken. Wings (Plate 1, fig. 17) whitened, with a conspicuous brown pattern that includes most of cell C, areas at origin of Rs, over Sc₂ and a major oblique marking extending from the stigma to cell 1st M₂; a second large darkening at outer end of cell R₃, involving parts of cell R₂ and especially R₄; further darkenings at arculus, over the cord, outer end of cell 1st M₂, fork of M₁₊₂, and tips of veins M₁, M₂ and M₃; still further but more diffuse clouds over M, at midlength of cells M and Cu, outer end of cell M₄ and including most of cell 2nd A; veins yellow, infuscated in the patterned areas. Macrotrichia on veins beyond the cord, as far basad as M₃. Venation: Sc₁ ending just before fork of R₂₊₃₊₄, Sc₂ long, a little shorter than 2+3+4; cell M₁ slightly shorter than its petiole; cell 1st M₂ relatively short, gently widened outwardly, with m-cu at near one-third the length; vein 2nd A relatively long, gently sinuous, ending distinctly before the level of origin of Rs.

Abdomen brownish black. Male hypopygium (Plate 3, fig. 45) with the central plate of the tergite shield shaped, strongly narrowed behind. Outer dististyle, *d*, with the terminal spine acute.

Habitat.—Northeast New Guinea.

Holotype, male, Nondugl, Ahl Valley, July 8, 1955 (*Gressitt*).

Other regional species of the subgenus having patterned wings include *Paralimnophila* (*Papuaphila*) *decorata* Alexander and *P. (P.) euryphæa* Alexander, differing from the present fly in the coloration of the body and wings.

PARALIMNOPHILA (PAPUAPHILA) EURYPHÆA (Alexander).

Gynoplistia (*Paralimnophila*) *euryphæa* Alexander, Ann. Mag. Nat. Hist. (11) 13 (1946) 751-753.

The type was from Mount Tafa, Papua, altitude 8,500 feet, taken in February 1934 (*Chessman*).

Northeast New Guinea: Mount Wilhelm, altitude 2,700 meters, July 4, 1955 (*Gressitt*).

PARALIMNOPHILA (PAPUAPHILA) HOLOXANTHA sp. nov.

Plate 1, fig. 18.

Size relatively large (wing of female 11.5 millimeters); general coloration of body yellow, pronotum and anterior half of præscutum with a central brown stripe, sublateral præscutal stripes and centers of scutal lobes paler brown; wings brownish yellow, very restrictedly patterned with brown; cell M_1 present; abdomen uniformly yellow.

Female.—Length, about 12 millimeters; wing, 11.5.

Rostrum dark brown; palpi brown basally, outer segments blackened. Antennæ with scape and pedicel testaceous yellow (flagellum broken). Head with the anterior vertex behind the antennal fossæ dull pruinose, the remainder of head black, subnitidous, the narrowed occipital region a trifle more reddened; anterior vertex broad, more than four times the diameter of the scape.

Prothorax yellow, with a broad light brown central area, narrowed and more blackened on the anterior constricted part of the scutum. Mesonotal præscutum light yellow, restrictedly patterned with darker, including a central brown stripe that narrows behind, ending at near midlength of the sclerite; sublateral stripes narrow, much paler; pseudosutural foveæ subtriangular, reddish brown; posterior sclerites of notum light yellow, each lobe with a very pale brown area, this being a posterior extension of the sublateral præscutal area. Pleura yellow; dorsopleural region weakly darkened; anterior spiracle large, transverse. Halteres with stem obscure yellow, knob darkened. Legs with coxæ and trochanters pale yellow; remainder of legs obscure yellow (broken beyond midlength of tibia). Wings (Plate 1, fig. 18) brownish yellow, cell Sc deeper yellow; a very restricted to scarcely evident dark pattern, including brown clouds at origin of R_s , cord, stigma, tip of vein R_3 , outer end of cell 1st M_2 and fork of M_{1+2} ; centers of basal cells, R_1 and M_4 more hyaline; veins brownish yellow, darker in the patterned parts. Macrotrichia on veins beyond cord as far basad as M_1 , lacking on R_3 , R_{2+3} and M_3 , with a few scattered trichia near outer end of M_2 ; a series of longer trichia on basal third of vein R. Venation: R_{2+3+4} less than one-half the arcuated basal section of R_s ; cell M_1 about one-half longer than its petiole; cell 1st M_2 small, m short; m-cu at near one-third the length of M_{3+4} ; vein 2nd A short, very gently sinuous.

Abdomen yellow, including the general shield.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, female, Okaitadi, altitude 1,800 meters, August 8, 1955 (*Gressitt*).

Paralimnophila (*Papuaphila*) *holoxantha* is most similar to species such as *P. (P.) angusticincta* Alexander, *P. (P.) apicalis* (de Meijere), *P. (P.) contingens* (Walker) and *P. (P.) fuscoabdominalis* Alexander, differing in the general yellow coloration of the body, excluding the blackened vertex.

PARALIMNOPHILA (PAPUAPHILA) PERDIFFUSA sp. nov.

Plate 2, fig. 19.

Size medium (wing 9 millimeters); thorax orange yellow, pronotum with a central cinnamon brown line that is continued backward onto the præscutum, lateral præscutal stripes cinnamon brown; head with posterior half polished black; legs black, femora vaguely patterned; wings brownish yellow, with a very diffuse darker brown pattern that includes clouds over origin and fork of Rs; cells C and Sc uniformly dark brown; macrotrichia lacking on vein M; cell M_1 present; cell 2nd A narrow.

Sex?—Wing, 9 millimeters.

Rostrum brownish black; palpi black. Antennæ with scape and pedicel dark brown (flagellum broken). Head with front and anterior vertex light gray pruinose, posterior vertex and occiput polished black; anterior vertex behind the antennal fossæ indistinctly trilobed, about five times as wide as the diameter of scape.

Thorax orange yellow; pronotum with a central cinnamon brown line that is continued backward onto the præscutum, not quite reaching the suture, more intensely darkened at the midline; lateral præscutal stripes cinnamon brown, crossing the suture onto the scutal lobes; pseudosutural foveæ dark brown, oval, shining; posterior sclerites of notum and the pleura orange-yellow, unpatterned. Halteres brownish black (knob broken). Legs with coxæ and trochanters orange; remainder of legs black, the extreme femoral bases more or less yellowed; a vague brightening before the tip of the femur. Wings (Plate 2, fig. 19) brownish yellow, with a very diffuse darker brown pattern, including major clouds over origin and fork of Rs, with narrower seams at posterior cord, outer end of cell 1st M_2 , stigma and outer end of vein R_3 ; cells C and Sc uniformly dark brown; veins brown, relatively stout and conspicuous. Macrotrichia of outer veins more restricted than in other similar species, lacking on Rs, basal section of R_5 and M. Venation:

Rs relatively short; cell M_1 more than one-half longer than its petiole; m-cu about opposite one-fourth the length of cell 1st M_2 ; vein 2nd A unusually short, the cell narrow.

Abdomen broken.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, sex?, Obano, August 9, 1955 (*Gressitt*).

The most similar described regional species include *Paralimnophila* (*Papuaphila*) *angusticincta* Alexander and *P. (P.) fuscoabdominalis* Alexander which are well distinguished by the unpatterned wings, with the costal region concolorous with the remainder of the ground, and with the macrotrichia or the veins more numerous.

GYNOPLISTIA (GYNOPLISTIA) ALBIZONATA Alexander.

Gynoplistia (Gynoplistia) albizonata Alexander, Philp. Jour. Sci. 66 (1938) 236-237, Plate 1, fig. 9 (venation).

The type was from Mount Misim, Morobe District, Northeast New Guinea, altitude 6,400 feet, taken in March.

Northeast New Guinea: Above Kabebe, Mount Otto, at light, June 24, 1955 (*Gressitt*).

GYNOPLISTIA (GYNOPLISTIA) JOCOSA sp. nov. Plate 2, fig. 20; Plate 3, fig. 46.

Belongs to the *jucunda* group; head and thorax fulvous orange, basal segments of abdomen orange yellow, segments seven to nine black; antennæ of male 16-segmented, with ten long branches; halteres yellow; femora yellow, tips broadly black, tibiæ and tarsi black; wings yellow, with a restricted dark brown pattern, the apex broadly paler brown; basistyle of male hypopygium without apical lobes, dististyle black, the narrowed tip with a few conspicuous setæ; phallosome with the gonapophyses decussate at midlength, each with about four apical spines or denticles; lateral arm of phallosome very compact, black.

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

Rostrum and palpi orange. Antennæ of male broken and detached on point; 16-segmented, formula₂₊₂₊₈₊₄; scape, pedicel and proximal two flagellar segments fulvous, remainder of organ, including all branches, black; longest branch (about flagellar segment five) somewhat less than one-half the entire flagellum; last branch shorter than the segment; outer unbranched segments subequal in length. Head fulvous orange; anterior vertex broad.

Thoracic notum uniformly fulvous orange; præscutal vestiture pale, short and abundant; pleura more clearly orange.

Halteres yellow. Legs with coxæ and trochanters light orange; femora yellow, the tips broadly and conspicuously black; tibiæ and tarsi black. Wings (Plate 2, fig. 20) with the ground yellow, the prearcular and costal fields more saturated; dark brown areas at origin of Rs and along the cord, the latter including the stigma, narrowed posteriorly but virtually crossing the wing; wing tip broadly paler brown; a small darkened cloud at arculus; outer end of cell 1st M_2 narrowly darkened; veins light brown, in the prearcular field still paler, in the more heavily darkened areas darker brown. Conspicuous macrotrichia on veins R_{2+3+4} , R_3 , R_4 , R_5 and a scattered series on M_{1+2} . Venation: Sc ending opposite fork of Rs; veins R_3 and R_4 strongly divergent, cell R_3 very broad at margin; cell M_1 lacking.

Abdomen with basal segments clear orange yellow, segments seven to nine, together with the outer half of the sixth tergite, black. Male hypopygium (Plate 3, fig. 46) with tergite transverse, the posterior border broadly convex. Basistyle, *b*, without apical lobes, the dististyle thus strictly terminal in position; mesal face of style with conspicuous elongate setæ. Dististyle, *d*, black, broad on basal three-fourths, the slender outer part with the ædeagus small, constricted at near midlength; gonapophysis appearing as a stout rod with about four apical spines or denticles, the apophyses decussate at the midline; lateral arm of phallosome very compact, black, produced at apex into an acute spine.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, male, Okaitadi, altitude 1,800 meters, August 8, 1955 (*Gressitt*).

This distinct fly has no very similar ally, the most so being *Gynoplistia* (*Gynoplistia*) *lieftinckiana* Alexander, which differs in the pattern of the wings and legs and, especially, in the very different male hypopygium.

ERIOPTERINI

GONOMYIA (LIPOPHLEPS) AUCHETES sp. nov. Plate 2, fig. 21; Plate 4, fig. 47.

Belongs to the *perpicta* group; size large (wing over 5 millimeters); general coloration polished back, the pronotum, pretergites and mesonotal scutellum light yellow; halteres yellow; antennæ and legs black; wings strongly tinged with brown, stigma vaguely more darkened; vein R_4 elongate, exceeding R_{2+3+4} ; male hypopygium with the outer dististyle glabrous, dilated at outer end; inner style terminating in a strong

spine; phallosome with two pairs of strong spines or narrow blades and a strong recurved blackened central spine.

Male.—Length, about 5.5 millimeters; wing, 5.3.

Rostrum brownish black; palpi black. Antennæ black; flagellar segments elongate, with long verticils, as in the subgenus. Head black.

Pronotum light yellow, sides of the scutellum darkened; pretergites light yellow, more extensively so before the wing root. Mesonotum polished black; scutellum broadly light yellow, restrictedly darkened medially at base, parascutella black. Pleura black, the pteropleurite and meron more pruinose. Halteres clear light yellow. Legs with coxæ black; trochanters brown; remainder of legs black. Wings (Plate 2, fig. 21) strongly tinged with brown, the costal region slightly more yellowed; stigmal region very slightly and vaguely darkened; veins light brown. Macrotrichia on veins R_4 , R_5 , both outer section of M_{1+2} , M_3 , M_4 and distal section of Cu_1 , lacking on R_{2+3+4} and R_4 . Venation: Sc short, Sc_1 ending just before origin of Rs, Sc_2 at its extreme tip; cell R_3 present, vein R_4 elongate, exceeding R_{2+3+4} ; m-cu close to fork of M; anterior arculus lacking.

Abdomen brownish black, hypopygium more intensely blackened. Male hypopygium (Plate 4, fig. 47) with the dististyles, *d*, terminal or virtually so; apex of basistyle with a concentration of strong yellow setæ; outer dististyle a strong glabrous arm, its outer end dilated; inner style with outer end with abundant setæ, extended into a long spine. Phallosome, *p*, complex in structure, as shown, including a pair of long black tipped spines, with microscopic setulæ before apex; a pair of slightly shorter narrowly flattened blades that are extended into acute points, the surface with long appressed setæ; a strong central organ, extended into a recurved black spine.

Habitat.—Northeast New Guinea.

Holotype, male, Mount Otto, above Kabebe, altitude 2,100 meters, June 23, 1955 (*Gressitt*).

Distinguished from other members of the *perpicta* group by the coloration of the body and legs and, especially, by the structure of the male hypopygium, particularly the dististyles and phallosome. These allied species include *Gonomyia* (*Lipophleps*) *citribasis* Alexander, *G. (L.) fuscofemorata* Alexander, *G. (L.) ischyria* Alexander, *G. (L.) perpicta* Alexander, and *G. (L.) tenuipollex* Alexander.

GONOMYIA (LIPOPHLEPS) BICIRCULARIS sp. nov. Plate 2, fig. 22; Plate 4, fig. 48.

Size small (wing of male 3.8 millimeters); mesonotum dark gray, variegated with yellow; pleura with a broad white longitudinal stripe; legs brownish black; wings strongly tinged with brown, vaguely patterned with paler before and beyond cord; stigma pale brown, preceded and followed by pale areas; Sc_1 ending before origin of R_s , basal section of R_5 long; male hypopygium with dististyles terminal, outer style profoundly bifid, inner style terminating in a blackened spine; phallosome very compact and massive, unblackened, including three pairs of structures, consisting of subcircular disklike plates and a pair of reddish brown brushes.

Male.—Length, about 4 millimeters; wing, 3.8.

Rostrum and palpi black. Antennæ black throughout; flagellar segments elongate, with very long verticils, as in the males of this subgenus. Head yellow, clearest behind, the center of the disk darkened.

Pronotum and pretergites light yellow. Mesonotum dark gray, the lateral præscutal borders and posterior margins of scutal lobes yellow, the discal area of midregion of scutum more obscure yellow; scutellum broadly yellow posteriorly, the base darkened; postnotum broadly yellow, the extreme cephalic end of mediotergite and broader posterior border of the remainder darkened. Pleura grayish black ventrally, with a broad white longitudinal stripe, dorsal pleurites light brown; anterior dorso-pleural region and the propleura brownish black. Halteres broken. Legs with the fore and hind coxæ yellow, middle pair darkened on basal half, the apex light yellow; trochanters yellow; remainder of legs brownish black. Wings (Plate 2, fig. 22) strongly tinged with brown, prearcular and costal regions light yellow; stigma long-oval, pale brown, preceded and followed by pale areas; cord vaguely seamed with darker; cells before and beyond cord vaguely paler in places to produce a diffuse pattern; veins light brown, light yellow in costal area. Venation: Sc short, Sc_1 ending some distance before origin of R_s , Sc_2 near its tip; branches of R_s strongly divergent, basal section of R_5 relatively long; $m-cu$ shortly before fork of M .

Abdomen dark brown, hypopygium obscure yellow. Male hypopygium (Plate 4, fig. 48) with the dististyles, d , terminal, the outer style longest, profoundly divided near base, outer arm gradually narrowed to the obtuse tip, mesal edge near base with a small blackened tooth (this not evident on one style of the

type); inner arm a little shorter, very gradually narrowed into a long blackened spine; inner style short, at apex bent at a strong angle into a blackened spine, inner margin with a series of strong setæ, none definitely more enlarged or fasciculate. Phallosome, *p*, distinctive, appearing as a large central mass (on the slide mount flattened in order to show the individual parts), consisting of three paired elements, including a lower pair of subcircular disks, a central arm that terminates in a compact brush of long yellow setæ, and a pair of strong bent hooks or spines, the two slightly dissimilar in shape; none of the phallosomic elements blackened.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, male, Debei-Itouda, August 14, 1955 (*Gressitt*).

Most similar to regional species such as *Gonomyia* (*Lipophleps*) *acus* Alexander, *G. (L.) biserpentigera* Alexander, and *G. (L.) subacus* sp. nov., differing conspicuously from all in the structure of the male hypopygium.

GONOMYIA (LIPOPHLEPS) DISPAR sp. nov. Plate 2, fig. 23, Plate 4, fig. 49.

Size medium (wing of male 5 millimeters); mesonotum dark brown, scutellum more testaceous yellow; head gray, anterior vertex relatively narrow; wings tinged with brown, prearcular and costal fields more yellowed; Sc_1 ending just beyond origin of R_s ; male hypopygium with the dististyles of the two sides very dissimilar; phallosome entirely pale, without acute spines or points, longest element consisting of two approximated pale rods.

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

Rostrum brownish yellow; palpi black. Antennæ relatively long, black, scape and pedicel more obscure yellow on basal parts; flagellar segments elongate-cylindrical, with the usual very long verticils and abundant white pubescence. Head light gray; anterior vertex relatively narrow, subequal to the diameter of the scape.

Pronotum light yellow, pretergites narrowly of the same color. Mesonotum dark brown, the scutellum and midregion of scutum more testaceous yellow; postnotum gray. Pleura and pleurotergite reddish brown, with a broad obscure gray longitudinal stripe on the former. Halteres obscure yellow. Legs with coxæ and trochanters obscure yellow, the fore coxæ more darkened basally; remainder of legs broken. Wings (Plate 2, fig. 23) tinged with brown, the prearcular and costal fields more yellowed; stigmal region vaguely more darkened; veins light

brown. Venation: Sc_1 ending just beyond origin of R_s , Sc_2 before this point; branches of the R_s diverging widely at outer ends, the base of cell R_3 relatively narrow; m-cu close to fork of M .

Abdominal tergites brown, sternites and hypopygium more brightened. Male hypopygium (Plate 4, fig. 49) with the dististyles of the two sides asymmetrical. Basistyle, *b*, with the outer apical lobe stout, apex obtuse, dististyles subterminal. Both dististyles, *d*, with the usual basal lobe, terminating in a single powerful fasciculate bristle, with other more normal setæ, the outermost long, exceeding in length the fasciculate bristle; one style produced into a long straight arm that is gently expanded outwardly, narrowed into a spine, before tip with about four setæ; second style with the comparable spine much smaller, narrowed gradually to the acute apex. Phallosome, *p*, entirely pale, without acute spines or points, including a cylindrical structure comprised of two pale rods, these presumably representing the ædeagus, and a larger fleshy organ.

Habitat.—Northeast New Guinea.

Holotype, male, Mount Otto, above Kabebe, altitude 2,100 meters, June 24, 1955 (*Gressitt*).

The present fly is readily told from all other similar members of the subgenus by the asymmetrical dististyles of the male hypopygium.

GONOMYIA (LIPOPHLEPS) MELANOSTYLA sp. nov. Plate 2, fig. 25; Plate 4, fig. 50.

Belongs to the *abbreviata* group; mesonotal præscutum and scutal lobes black, remainder of notum and the pleura chiefly yellow; legs black; wings weakly tinged with brown, Sc short, cell R_3 very small; male hypopygium with the tergite produced into two very long straight spines; dististyles terminal, blackened, the outer style with a comblike row of teeth, inner style terminating in two blackened spines; phallosome with two pairs of spinelike rods or points.

Male.—Length, about 4.3 to 4.5 millimeters; wing, 4 to 4.2.

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

Rostrum light yellow; palpi black. Antennæ with scape yellow, pedicel enlarged, black, flagellum brownish black; flagellar segments elongate, the males with the usual very long verticils. Head dark gray.

Pronotum and pretergites light yellow. Mesonotal præscutum and scutal lobes polished black, with a sparse bloom, most

evident laterally, pseudosutural foveæ black; scutellum, the broad central area of scutum and the posterior margins of the scutal lobes yellow; mediotergite light yellow on anterior half, dark brown behind; pleurotergite yellow. Pleura light yellow, the propleura and especially the mesepisternum variegated with reddish brown. Halteres dusky, the base of stem light yellow, apex of knob obscure yellow. Legs with fore coxæ reddish brown, remaining coxæ light yellow; trochanters brownish yellow; remainder of legs black. Wings (Plate 2, fig. 25) weakly tinged with brown, the prearcular and costal fields more yellowed; stigma not or scarcely darkened; veins light brown. Macrotrichia on vein R_5 , all outer medial branches, Cu, and on outer ends of veins M, Cu and anals, lacking on R_s and its anterior branch. Venation: Sc short, Sc_1 ending a distance before origin of R_s only a little less than the length of the latter; R_s arcuated at origin, in cases strongly so; cell R_3 small to very small; cell R_6 narrowed at margin; m-cu at fork of M.

Abdomen with tergites dark brown, the outer apical angles restrictedly yellowed; basal sternites light yellow, the bases of the outer segments darkened; subterminal segment yellowed; hypopygium chiefly blackened, especially the styli. Male hypopygium (Plate 4, fig. 50) with the tergite, *t*, produced into two long straight divergent rods, their outer ends with microscopic setulæ. Dististyles, *d*, terminal, there being no apical lobe on basistyle; outer style a blackened rod, dilated at base, slightly constricted at midlength, the entire inner face with a comblike row of teeth, smaller and less evident at either end of the row; inner style small, blackened outwardly, terminating in two unequal spines, lower surface with several strong setæ, the terminal pair longer and subfasciculate. Phallosome, *p*, including two pairs of rods, the outer very long, the very slender blackened tips decussate at midlength; lateral rods more basal in position, narrowed to blackened spinelike tips; ædeagus pale, tip strongly decurved.

Habitat.—Northeast New Guinea.

Holotype, male, Nondugl, Ahl Valley, July 8, 1955 (*Gressitt*). Allotopotype, female, pinned with type. Paratopotype, male.

The present fly is readily told from all other regional members of the subgenus that have cell R_3 present by the very small size of this cell and the short Sc. The male hypopygium, especially the tergite, dististyles and phallosome, are quite distinctive.

GONOMYIA (LIPOPHLEPS) PLEUROSTRIATA Alexander.

Plate 2, fig. 24; Plate 4, fig. 51.

Gonomyia (Lipophleps) nigradorsata pleurostriata ALEXANDER, Proc. Linn. Soc. New South Wales 61 (1936) 330.

Hitherto known only from the female sex, collected at Edie Creek, Northeast New Guinea, altitude 6,550 feet, in February 1935 by Frank H. Taylor.

Netherlands New Guinea: Enagotadi, Wisselmeren area, altitude 2,000 meters, July 31, 1955 (*Gressitt*).

The discovery of the male shows that this is a distinct species from *nigradorsata* Alexander, distinguished not only by the coloration of the thorax, as described, but especially by the structure of the male hypopygium.

The wing venation (Plate 2, fig. 24) is very similar to that of *nigradorsata*. Male hypopygium (Plate 4, fig. 51) distinctive in the great elongation of the outer lobe of the basistyle, *b*, which is nearly twice as long as the base, pale, provided with unusually long setæ on inner face. Dististyle, *d*, including a large pale flattened outer blade and a smaller basal structure that narrows strongly at apex and bears the usual fasciculate seta; on outer margin before the narrowed part with a small tubercle that bears a single very long bristle; other strong but more normal setæ on outer half of style. Phallosome, *p*, elongate, including a pale central mass, truncated at tip, subtended by two strong apophyses or spines, one longer and more curved than the other.

GONOMYIA (LIPOPHLEPS) RECLINATA sp. nov.

Plate 2, fig. 26; Plate 4, fig. 52.

General coloration of thoracic notum brownish gray, scutellum silvery white, pleura with a broad silvery longitudinal stripe; femora infuscated above, obscure yellow on lower surface, tips darkened; wings weakly suffused, stigma faintly indicated; basal section of vein R_5 very long, transverse; posterior borders of abdominal segments narrowly silvery; male hypopygium with the inner dististyle terminating in an acute spine, with an appressed reclinate spine on outer margin at near two-thirds the length, the fasciculate setæ subterminal.

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

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

Rostrum and palpi black. Antennæ with scape black beneath, light yellow above; pedicel and flagellum black; flagellar segments with very long verticils in the male, as in the subgenus.

Head above yellow, the center of the posterior vertex extensively brownish black, pruinose.

Pronotum whitened, infuscated on sides; pretergites narrowly whitened. Mesonotal præscutum brownish gray, pseudosutural foveæ black; scutal lobes dark brown, pruinose, the central area extensively more obscure yellow except behind, posterior lateral angles of lobes whitened; scutellum with base of disk blackened, the remainder broadly silvery white; mediotergite pruinose, obscure yellow on anterolateral parts, pleurotergite silvery gray above, narrowly blackened ventrally. Pleura with sternopleurite black, above which is a broad silvery longitudinal stripe, narrowly bordered above by a blackish line, the dorsal sclerites, including the dorsopleural membrane, light brown. Halteres with stem yellow basally, darkened outwardly, knob black, the outer end more brightened. Legs with fore coxæ silvery, remaining coxæ brownish black; trochanters brownish yellow; femora infuscated above, obscure yellow on longer surface, the tips broadly more blackened; tibiæ yellow, the extreme base and narrow tip blackened; tarsi black. Wings (Plate 2, fig. 26) weakly suffused, prearcular and costal fields slightly more yellowed; stigma oval, very pale brown; veins light brown, the cord darker. Macrotrichia on all veins beyond cord. Venation: Sc_1 ending just beyond origin of R_s , Sc_2 just before this point; basal section of R_5 unusually long, subequal to m , transverse in position; inner end of cell 1st M_2 strongly narrowed; $m-cu$ about one-third its length before the fork of M .

Abdominal segments black, sparsely pruinose, the posterior borders narrowly silvery; hypopygium chiefly brown. Male hypopygium (Plate 4, fig. 52) with the basistyle simple, some of the outer setæ very long. Two dististyles, d , the outer an elongate glabrous rod, at base with an attached oval lobe that is densely covered with pale curved setulæ; inner style a sinuous rod, narrowed into an acute spine, on outer face at near two-thirds the length with an appressed acute spine; the usual two fasciculate setæ lie on the lower margin of the style opposite the lateral spine; remainder of surface with several conspicuous erect bristles. Phallosome, p , includes the central ædeagus which terminates in a reflexed blackened cylinder; gonapophyses appearing as slender divergent horns that are extended into long black spines, before the latter with abundant setulæ; outer margin of apophysis at base with a further acute straight spine.

Habitat.—Northeast New Guinea.

Holotype, male, Goroka, foot of Mount Otto, altitude 2,000 meters, June 25, 1955 (*Gressitt*). Allotopotype, female.

The most similar regional species include *Gonomyia* (*Lipophleps*) *acus* Alexander, *G. (L.) basicuspis* Alexander and *G. (L.) subacus* sp. nov., all differing evidently in the structure of the male hypopygium, particularly the dististyles and phallosome.

GONOMYIA (LIPOPHLEPS) SUBACUS sp. nov.

Plate 2, fig. 27; Plate 4, fig. 53.

General coloration of thoracic dorsum black, gray pruinose, scutellum whitened; rostrum and antennæ black throughout; legs dark brown; wings tinged with brown, basal section of vein R_5 long, transverse, Sc_1 ending opposite origin of R_s ; male hypopygium with the dististyles terminal, the outer a long slender spine, its base not dilated; inner style at base with a low setiferous cushion.

Male.—Length, about 3.5 millimeters; wing, 3.8.

Rostrum and palpi black. Antennæ black throughout; flagellar segments elongate, with very long verticils in the male. Head dark brown, sparsely pruinose.

Pronotum brownish black, narrowly whitened above; pretergites very restrictedly whitened. Mesonotal præscutum and scutum black, the former brownish gray pruinose, the latter clearer gray; pseudosutural foveæ black; scutellum whitened, dark brown medially at base; postnotum dark brown, sparsely pruinose. Pleura black, sparsely pruinose, with a grayish longitudinal stripe extending from behind the fore coxæ almost to the abdomen. Halteres with stem dirty white, knob darkened basally, apex obscure yellow. Legs with coxæ dark brown to brownish black; remainder of legs uniformly dark brown. Wings (Plate 2, fig. 27) tinged with brown, base and costal border whitened; stigma vaguely indicated, pale brown; veins brown. Venation: Sc_1 ending opposite origin of R_s , Sc_2 slightly removed; basal section of R_5 long, transverse; branches of R_s divergent; $m-cu$ shortly before the fork of M .

Abdomen, including hypopygium, dark brown. Male hypopygium (Plate 4, fig. 53) with the dististyles, *d*, terminal, the outer style a long spine, very gradually narrowed to a needle-like point, the base not dilated as in *acus*; inner style bearing a low setiferous cushion on outer surface near base. Phallosome, *p*, including a massive decurved darkened central structure and divergent apophyses, each of the latter terminating in a long

spines, with smaller closely appressed spinules along the outer margin; ædeagus small, the tip recurved.

Habitat.—Northeast New Guinea.

Holotype, male, Nondugl, Ahl Valley, July 8, 1955 (*Gressitt*).

Although generally similar to *Gonomyia* (*Lipophleps*) *acus* Alexander, the present fly is quite distinct in the details of structure of the male hypopygium, particularly the dististyles and phallosome.

GONOMYIA (LIPOPHLEPS) SUBÆGINA sp. nov. Plate 2, fig. 28; Plate 4, fig. 54.

Allied to *ægina*; general coloration of mesonotum dark brown, scutellum yellow; rostrum clear light yellow; antennæ of male black throughout, flagellar segments elongate, with long outspreading black setæ; pleura dark brown, with a conspicuous yellow longitudinal stripe; legs dark brown; wings tinged with brown; Sc long, Sc_1 ending at near two-fifths the length of the long R_s ; male hypopygium with the outer apical lobe relatively short and slender; outer dististyle short, nearly straight, the blackened apical spine about one-fourth as long as the base; inner style terminating in a single fasciculate bristle; phallosome a depressed-flattened central plate, the apex relatively slender.

Male.—Length, about 4 millimeters; wing, 4.2.

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

Rostrum clear light yellow; palpi black. Antennæ of male black throughout; flagellar segments elongate, with abundant long erect black setæ that exceed the segments in length and are only a little shorter than the longest verticils. Head above chiefly yellow on the central part, more pruinose adjoining the eye.

Pronotum and pretergites light yellow. Mesonotal præscutum and scutal lobes dark brown, the median region of scutum and the scutellum light yellow, the two latter areas separated by a narrow darkening at posterior end of scutum; postnotum black, mediotergite grayish on sides. Pleura dark brown, with a broad conspicuous pale yellow longitudinal stripe extending from the propleura to the base of abdomen, passing beneath the halteres, the dorsopleural region somewhat lighter brown. Halteres darkened, the base of stem and apex of knob restrictedly obscure yellow. Legs with coxæ light brown basally, paling to yellow outwardly; trochanters dusky; remainder of legs uniformly dark brown. Wings (Plate 2, fig. 28) tinged with brown, prearcular and costal regions slightly more yellowed;

stigmal region vaguely darkened; veins light brown. Venation: Sc long, Sc₁ ending at near two-fifths the long Rs, Sc₂ slightly removed; basal section of R₅ relatively short, the branches of Rs thus not widely separated at origin; m-cu shortly before fork of M.

Abdomen dark brown, hypopygium more brownish yellow. Male hypopygium (Plate 4, fig. 54) generally as in *xgina*, differing in all details. Basistyle, *b*, with outer apical lobe relatively short and slender. Outer dististyle, *d*, short, nearly straight, the black apical spine about one-fourth as long as the enlarged base; inner style relatively slender, terminating in a single powerful fasciculate seta, with other setæ on style, one outer one of unusual length, more than one-half the length of the style. In *xgina* all parts of the dististyles more elongate. Phallosome, *p*, a depressed-flattened central plate, its apex relatively slender; two unequal spines or apophyses, the longest sinuous, pale at tip.

Habitat.—Northeast New Guinea.

Holotype, male, Nondugl, Ahl Valley, July 8, 1955 (*Gressitt*). Allotopotype, female.

Although the present fly is evidently allied to *Gonomyia* (*Lipophleps*) *xgina* Alexander in the venation and general conformation of the male hypopygium it differs in all details of structure of the latter.

STYRINGOMYIA ELANOPINAX FESTIVA subsp. nov.

Plate 5, fig. 55.

Very similar to typical *melanopinax* Alexander, differing chiefly in the structure of the male hypopygium, particularly the dististyles.

Male.—Length, about 6.8 to 7 millimeters; wing, 4 to 4.5.

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

Rostrum obscure yellow; palpi darker. Antennæ with scape black beneath, obscure yellow on dorsal half; pedicel black, flagellum yellowish white. Head yellow, the occiput with two brownish spots.

Pronotum yellow, sides of scutum brownish black. Mesonotal præscutum black on anterior half, pruinose on the humeri, obscure yellow or brownish yellow behind, the usual interspaces indicated by narrow lines; scutum yellow, each lobe with a U-shaped dark brown border, interrupted in front; scutellum black, with a small central yellow spot; postnotum black, sparsely pruinose; vestiture black, erect. Pleura and anterior end of

pleurotergite reddish yellow. Halteres pale yellow. Legs with coxæ and trochanters yellow; femora yellow, conspicuously patterned with brownish black, including incomplete rings at near midlength and before tip, extreme apex darkened; middle femora with strong black setæ near tip, those of the posterior femora longer but paler; tibiæ yellow, with a narrow incomplete ring before midlength, the tips broadly black; tarsi yellow, the tips of the segments narrowly darkened, terminal segment black. Wings yellow with a restricted brown pattern, including areas over r-m, outer end of cell 1st M_2 , posterior end of m-cu, and at outer end of vein 2nd A; very faint marginal markings at ends of veins, not involving the membrane; remaining veins yellow. Coastal fringe of male relatively long and delicate. Venation: Anterior branch of Rs oblique; cell 1st M_2 relatively short, widened outwardly; cell 2nd M_2 sessile; m-cu at near midlength of cell 1st M_2 ; vein 2nd A weakly angulated and slightly spurred before tip.

Abdomen yellow; tergites restrictedly patterned with brown, including a pair of transverse marginal lines on each segment, more extensive on sixth segment; segment seven with two suboval central areas; outer segments yellow. Male hypopygium (Plate 5, fig. 55) with the tergite, *t*, not trilobed, as in *papuana*, appearing as an oval cushion, narrowed outwardly, the outer vestiture long and conspicuous; body of tergite behind the cushion with a pair of elongate setæ; sternite, *s*, broad, the relatively small outer setæ separated from one another by a distance slightly less than their own length. Basistyle, *b*, with a single modified spinelike seta from a long basal tubercle. Dististyle, *d*, about as figured, the lower blackened blade bifid at tip. Phallosome including a long slender blackened rod.

Habitat.—Northeast New Guinea.

Holotype, male, Busu, Lae area, September 15, 1955 (*Gressitt*). Allotopotype, female, pinned with type. Paratopotypes, males and females, with the types.

STYRINGOMYIA PLATYSTYLA sp. nov.

Plate 2, fig. 29; Plate 5, fig. 56.

General coloration yellow; mesonotum with scattered small brown spots, including six areas each on the præscutum and scutum; femora and tibiæ yellow, restrictedly patterned with brown; wings yellow, the veins extensively darkened; abdomen yellow, intermediate tergites with tips and a central darkening brown; male hypopygium with the sternite broad; basistyle with a single modified outer bristle; dististyle very broad, in-

cluding its outer arm, provided with very abundant brownish black spinelike setæ.

Male.—Length, about 7.5 millimeters; wing, 5.5.

Female.—Length, about 5.5 millimeters; wing, 5.

Rostrum and palpi yellow. Antennæ light yellow. Head yellow, setæ yellow, proclinate.

Pronotum obscure yellow, setæ black, erect. Mesonotum reddish yellow, clearer yellow laterally, with small subequal brownish black spots, including six on disk of præscutum, three on margins of each scutal lobe, and two on margin of scutellum; mediotergite with more extensive brown areas, narrowly separated on the midline; disk of scutellum with a pair of long divergent black bristles; pleurotergite reddish yellow, its posterior end darkened. Pleura reddish yellow. Halteres yellow. Legs with all coxæ and trochanters light yellow; femora yellow, with a small darkened spot on dorsal surface at near two-thirds the length; tibiæ yellow, with a vague pale brown ring at near one-third the length; tarsi yellow, last segment abruptly blackened; legs with abundant long pale setæ; femora with strong black erect bristles near tip. Wings (Plate 2, fig. 29) yellow, the base and costal region more saturated; a relatively extensive brown pattern that is virtually restricted to the veins, not involving the adjoining membrane; the chief darkened areas include the anterior branch of R_s , basal section of R_5 r-m, m-cu, outer end of cell 1st M_2 , ends of all outer veins, most extensive on 2nd A where about the outer two-thirds is included; remaining veins yellow. Venation: Anterior branch of R_s oblique; cell 1st M_2 elongate, exceeding any of the veins beyond it; m-cu shortly before midlength of cell 1st M_2 ; vein 2nd A bent at a right angle into the margin.

Abdomen yellow, intermediate tergites conspicuously patterned with dark brown, including narrow posterior borders and a smaller isolated spot at near midlength of the segment; hypopygium pale. Male hypopygium (Plate 5, fig. 56) with the tergite, *t*, narrowed outwardly into a broad lobe, its apex further narrowed, on sides before the narrowed part with strong setæ, those elsewhere on lobe somewhat smaller. Sternite, *s*, very broad, including a subquadrate central cushion and glabrous subtending blades, the latter with obtuse tips. Basistyle, *b*, with a single strong modified bristle, subapical in position, from a small basal lobe, all other setæ smaller. Dististyle, *d*, very broad, including the outer arm which terminates in the

usual elongate subterminal bristle; spinelike setæ very numerous on both arms, arranged generally as shown in the figure. Phallosome, *p*, consisting of paired blackened pendant lobes.

Habitat.—Netherlands New Guinea (Wisselmeren area).

Holotype, male, Okaitadi, altitude 1,760 meters, August 7, 1955 (*Gressitt*). Allotopotype, female.

The most similar regional species is *Styringomyia spinicaudata* Alexander which has somewhat similar spinelike setæ on the dististyle of the hypopygium but with these quite different in distribution. The present fly is entirely distinct in the structure of the tergite, sternite and dististyle.

STYRINGOMYIA SCALARIS sp. nov.

Plate 2, fig. 30; Plate 5, fig. 57.

Size large (wing 6 millimeters or more); general coloration yellow, restrictedly patterned with brown; abdomen conspicuously crossbanded with yellow and brown; legs yellow, femora and tibiæ unpatterned; wings yellow, restrictedly patterned with brown; vein 2nd A long, curved gently to the margin; male hypopygium with the sternite very broad, its apex nearly truncate, without modified setæ; basistyle with apical lobe stout, at tip with several strong setæ, the innermost slightly larger than the others; dististyle very simple.

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

Female.—Length, about 6.5 millimeters; wing, 6.

Rostrum yellow; palpi yellowish brown. Antennæ with scape and pedicel brownish yellow, flagellum somewhat paler yellow. Head yellow; vertical setæ relatively weak and inconspicuous.

Pronotum yellow, narrowly margined laterally with darker. Mesonotal præscutum and scutum reddish yellow, surface faintly pollinose; præscutal pattern barely indicated; a circular black spot on suture just mesad of wing base; scutellum yellow, weakly patterned with brown on either side; a pair of erect discal scutellar bristles; parascutella more or less darkened; mediotergite reddish brown, patterned on either side with dark brown. Pleura yellow. Halteres with stem yellow, knob weakly darkened. Legs with coxæ and trochanters yellow; remainder of legs light yellow, extreme tip of femur and last tarsal segment blackened. Wings (Plate 2, fig. 30) strongly suffused with yellow; a restricted dark pattern, including a cloud on anterior cord, involving r-m and basal section of R_5 ; m-cu and outer end of cell 1st M_2 darkened; veins light yellow, darkened in the patterned areas. Venation: Cell 2nd M_2 barely to more broadly sessile; vein 2nd A long, curved gently to margin.

Abdominal tergites conspicuously crossbanded, central part and extreme base yellowed, the apex and subbasal part of each broadly dark brown, producing a ladderlike appearance; sternites yellow or with the banded pattern less evident; genitalia of both sexes yellow. Male hypopygium (Plate 5, fig. 57) with the tergite, *t*, broad, narrowed outwardly, terminating in a small truncated lobe. Sternite, *s*, unusually broad, apex nearly truncate, the margin with abundant blackened setulæ but without modified setæ, as common in the genus. Basistyle, *b*, with apical lobe stout, with several setæ of approximately equal length, the innermost a little stouter, at base of lobe with a concentration of strong black setæ, with a further basal group on mesal face. Dististyle, *d*, very simple, without an outer arm, as common in the genus; along inner margin with a row of blackened peglike spines, with subobtuse tips; apex of style farther produced into a circular dusky blade, in center of which is a single powerful bristle. Phallosome, *p*, about as illustrated, including a strongly curved central structure, with a pair of stout decurved blackened points; other blackened parts, as shown.

Habitat.—Northeast New Guinea.

Holotype, male, Mount Wilhelm, altitude 2,700 meters, July 4, 1955 (*Gressitt*). Allotopotype, female, pinned with type. Paratopotypes, 1 male, 1 female; paratype, 1 male, Mount Otto, altitude 2,100 to 2,600 meters, June 22, 1955 (*Gressitt*).

This primitive member of the genus has no close regional ally, being most similar to the Australian *Styringomyia bipunctata* Edwards. It is readily told from other species in New Guinea by the unpatterned femora and cross-banded abdomen. The male hypopygium is particularly characteristic, especially in the very broad unmodified sternite and the small simple dististyle.

TOXORHINA (CERATOCHEILUS) GRESSITTI sp. nov. Plate 2, fig. 31; Plate 5, fig. 58.

General coloration of thorax light fulvous, pleura with a broad brownish black longitudinal stripe; rostrum longer than the wing; halteres pale yellow; legs brown; wings pale yellow, with a heavy reticulated brown pattern; anterior branch of *Rs* nearly transverse, cell *M*₂ open by atrophy of *m*, vein *M*₃ strongly arcuated; male hypopygium with two dististyles, both with a small lateral tooth on lower margin; arms of ædeagus relatively long.

Male.—Length, excluding rostrum, about 6.5 millimeters; wing, 5.8; rostrum, about 8.

Rostrum very long, about one-fourth longer than the wing, brownish black throughout. Antennæ black, scape, pedicel and fusion segment of flagellum more intensely so. Head gray; anterior vertex narrow, about one-half the diameter of scape.

Cervical region and pronotum black. Mesonotal præscutum light fulvous, the margins paling to light yellow; posterior sclerites of notum chiefly fulvous, central region of scutum and postnotum more yellowed. Pleura pale yellow, with a broad brownish black longitudinal stripe, extending from the sides of the pronotum over the dorsal pleurites to the base of the abdomen passing just beneath the halteres. Halteres pale yellow. Legs with all coxæ and trochanters pale yellow; remainder of legs brown. Wings (Plate 2, fig. 31) pale yellow, the prearcular and costal fields more saturated; an extensive variegated or tessellated light brown pattern that is subequal in amount to the ground, including sparse marks in all cells, more extensive in cell R, origin of Rs and over the anterior branch of Rs; posterior marginal areas extensive and more or less confluent; cell M with a series of about five small spots; veins pale, darker in the patterned areas. Macrotrichia on veins of outer half of wing, including Rs, R₅ and distal section of M₁₊₂; only one or two on M₃; none on anterior branch of Rs or the remainder of M. Venation: Sc₁ ending just beyond origin of Rs; anterior branch of Rs nearly transverse, straight, basal section of R₅ about one-half as long; cell M₂ open by atrophy of m; M₃ strongly arcuated, narrowing cell M₂ at near two-thirds its length; m-cu shortly before fork of M.

Abdomen yellow, the eighth and ninth segments extensively infuscated but more or less patterned with yellow. Male hypopygium (Plate 5, fig. 58) with the central region of tergite produced, the margin strongly convex; setæ strong. Basistyle, *b*, with abundant long setæ on mesal face, some of the more basal ones very long. Dististyles, *d*, two, outer style a small sclerotized structure, broad at base, narrowed into a straight spine, with a small decurved spur on lower margin at base of spine; inner style much larger, flattened, with a strong lower marginal tooth, apex obtuse. Phallosome with gonapophyses narrowed strongly into subacute points. Arms of ædeagus, *a*, relatively long, divergent.

Habitat.—Netherlands New Guinea (Wisselmeren area).

Holotype, male, Itouda, altitude 1,500 meters, August 14, 1955 (*Gressitt*).

This very distinct fly is named in honor of the collector of this outstanding series of crane-flies, Dr. J. Linsley Gressitt. It is quite distinct from the other regional members of the subgenus having conspicuously variegated wings in the small size, arrangement of the wing pattern, and in the structure of the male hypopygium. Such regional species include *Toxorhina* (*Ceratocheilus*) *imperatrix* Alexander, *T. (C.) nymphea* Alexander and *T. (C.) toxopæna* Alexander.

TOXORHINA (CERATOCHEILUS) HOOGSTRAALI Alexander. Plate 2, fig. 32.

Toxorhina (*Ceratocheilus*) *hoogstraali* ALEXANDER, Ann. Mag. Nat. Hist. (11) 14 (1947) 279-280.

The type was from Hollandia, Netherlands New Guinea, collected by Dr. Harry Hoogstraal.

Northeast New Guinea: Korip, July 12, 1955 (*Gressitt*).

Female.—Length, excluding rostrum, about 9 millimeters; wing, 6.3; rostrum, about 10.

The present fly agrees well with the type except in the very long rostrum which, with the accession of more material, may be found to indicate a new race.

Wings (Plate 2, fig. 32) tinged with brown, slightly clouded with darker brown especially in the outer radial field, including seams over R_s and its anterior branch, and the broad outer margin of cell R_3 . Macrotrichia on veins R_s , R_5 , M_{1+2} , M_3 , with single or fewer setæ on anterior branch of R_s , $r-m$ and M_4 . Venation: $m-cu$ about its own length beyond the fork of M or at near one-third the length of M_{3+4} .

TOXORHINA (CERATOCHEILUS) INFUSCULA sp. nov. Plate 2, fig. 33; Plate 5, fig. 59.

Mesonotum buffy brown, pleura with a broad black dorsal stripe; wings infuscated, especially over the veins; veins R_{1+2} and R_3 widely separated at margin, Sc short; male hypopygium with the outer dististyle broad basally, the distal third suddenly narrowed into a small cultriform beak; gonapophyses dusky, long-triangular in outline, tips narrowly obtuse; arms of ædeagus relatively long and slender, tips obliquely truncated.

Male.—Length, excluding rostrum, about 6.5 to 6.8 millimeters; wing, 5 to 5.4; rostrum, about 8.

Rostrum black, long and slender, exceeding in length the body or wing. Antennæ black (outer end of flagellum broken). Head dark gray; anterior vertex narrow, about equal in width to from two to two and one-half rows of ommatidia.

Cervical region and pronotum black. Mesonotum almost uniformly light brown to buffy brown, unpatterned. Pleura

with more than the dorsal half occupied by a broad black longitudinal stripe that reaches the abdomen, including also the dorsopleural region; ventral pleura abruptly light yellow. Halteres with stem yellow, knob weakly darkened. Legs with coxæ and trochanters pale yellow; remainder of legs dark brown, appearing even darker from the abundant vestiture; outer tarsal segments a little paler. Wings (Plate 2, fig. 33) with the ground infuscated, more heavily so over the cord, anterior branch of Rs and along vein Cu; centers of cells, especially of the disk, slightly brighter. Macrotrichia on Rs, its posterior branch, M_{1+2} and M_3 , lacking on anterior branch of Rs, M_{3+4} and M_4 . Venation: Sc relatively short, Sc_1 ending just beyond origin of Rs; anterior branch of the latter subtransverse, straight; distance on margin between R_{1+2} and R_3 extensive, about two-thirds the length of the later; cell M_3 small; M_{3+4} about three times M_4 ; m-cu about one-third its length before fork of M, subequal to distal section of Cu_1 .

Abdomen black, including the hypopygium. Male hypopygium (Plate 5, fig. 59) with posterior border of tergite narrowed outwardly, the apex truncated. Basistyle, *b*, with normal darkened setæ on outer face, the mesal surface with longer yellow strongly twisted bristles to present a roughened appearance; outer mesal angle of style produced into a low blackened lobe. Outer dististyle, *d*, broad on basal two-thirds, the apex suddenly narrowed into a small cultriform beak; inner style large, the margin with small setuliferous tubercle. Gonapophysis darkened, long-triangular in outline, tip narrowly obtuse. Ædeagus, *a*, with the arms relatively long and slender, the tips obliquely truncate.

Habitat.—Northeast New Guinea.

Holotype, male, Karap, July 20, 1955 (*Gressitt*). Paratype, male, Korip, July 12, 1955 (*Gressitt*).

The most similar described regional species is *Toxorhina* (*Ceratocheilus*) *kokodæ* Alexander which differs in coloration, venation, and especially in the structure of the male hypopygium, particularly of the outer dististyle.

TOXORHINA (CERATOCHEILUS) TRICHOPYGA sp. nov.

Plate 2, fig. 34; Plate 5, fig. 60.

Size medium (wing of male about 5.5 millimeters); rostrum shorter than the wing; mesonotum chiefly light gray, præscutum with three confluent dark brown stripes; pleura dark brown with a gray longitudinal stripe; halteres yellow; legs light

brown; wings weakly tinged with brown, unpatterned; anterior branch of Rs oblique, gently sinuous; male hypopygium with the tergite terminating in a pair of small blackened lobes; outer face of basistyle with unusually long coarse bristles; inner dististyle large, of distinctive conformation; arms of ædeagus long.

Male.—Length, excluding rostrum, about 5.5 millimeters; wing, 5.4; rostrum, about 4.5.

Rostrum elongate but shorter than the body or wing, brownish black. Antennæ broken beyond the base of scape. Head gray, the narrow anterior vertex with a central blackened vitta.

Cervical region and pronotum brownish black. Mesonotal præscutum light gray, the anterior margin more buffy, disk with three confluent dark brown stripes, scutal lobes similarly darkened; remainder of notum light gray. Pleura dark brown, sparsely pruinose, with a broad gray stripe crossing the dorsal sternopleurite, extending backward to the base of abdomen, involving the ventral pteropleurite and metapleura. Halteres yellow. Legs with fore and middle coxæ more or less darkened basally, the posterior pair and the trochanters obscure yellow; remainder of legs light brown (terminal tarsal segments broken). Wings (Plate 2, fig. 34) very weakly tinged with brown, cell R_2 clearer; veins light brown. Strong macrotricha on Rs, both sections of R_5 M_{1+2} and M_3 more numerous and crowded outwardly. Venation: Sc_1 ending nearly opposite one-third the length of Rs, anterior branch of the latter oblique, gently sinuous; vein R_5 terminating close to wing tip; cell M_2 open; $m-cu$ shortly before fork of M.

Abdominal tergites bicolored, the posterior borders of the individual segments brown, the broad bases obscure yellow, on the outer segments becoming more uniformly infuscated; ninth segment, especially the tergite, pale. Male hypopygium (Plate 5, fig. 60) with the posterior border of tergite, *t*, subtruncate, with a pair of blackened lobes that are separated by a narrow V-shaped notch; immediately cephalad of these on disk of tergite with a compact group of about twenty long setæ. Basistyle, *b*, short and compact, the outer face of distal half with several unusually long and powerful bristles, these longer than the dististyle, the more basal ones smaller. Two dististyles, *d*, the outer a sinuous spine from an enlarged base; inner style distinctive, as illustrated, including two flattened blades, the longest dilated on outer half, the apex truncated; lower blade

with delicate apical setæ, the outer margin with a small lobule. *Ædeagus*, *a*, with the arms long and slender.

Habitat.—Netherlands New Guinea (Wisselmeren Area).

Holotype, male Enagotadi, altitude 1,875 meters, July 31, 1955 (*Gressitt*).

Among the described regional members of the subgenus having unpatterned wings and with the anterior branch of *Rs* oblique, the present fly is closest to *Toxorhina* (*Geratocheilus*) *fumipennis* Alexander, differing in details of coloration, venation and, especially, the structure of the male hypopygium.

TOXORHINA (TOXORHINA) PROTRUSA sp. nov. Plate 2, fig. 36; Plate 5, fig. 61.

General coloration gray, the præscutum with three conspicuous dark brown stripes; rostrum shorter than wing or remainder of body; knobs of halteres dark brown; legs black, femoral bases pale; wings subhyaline, yellowed at extreme base; *Sc* short, vein *R*₅ unusually arched and deflected strongly caudad, ending beyond the wing tip, *m-cu* before fork of *M*; male hypopygium with the tergal plate blackened, posterior margin with two low lobes; mesal face of basistyle at apex produced into a lobe; inner dististyle with lateral lobe stout; arms of *ædeagus* stout, very short, darkened.

Male.—Length, excluding rostrum, about 6 millimeters; wing, 6.8; rostrum, about 5.

Rostrum black, shorter than wing or remainder of body. Antennæ black throughout. Head clear light gray, without cornicular developments; anterior vertex relatively broad, a little less than the diameter of scape or subequal to four rows of ommatidia.

Cervical region and pronotum brown, pruinose. Mesonotal præscutum dull gray with three conspicuous dark brown stripes, the broad median one not reaching the suture behind; posterior sclerites of notum clear gray, the scutal lobes conspicuously dark brown. Pleura, including the dorsopleural region, dark gray. Halteres with stem pale, knob dark brown. Legs with coxæ darkened, pruinose; trochanters chiefly pale; remainder of legs black, the femoral bases pale. Wings (Plate 2, fig. 36) subhyaline, the base, including the veins, yellowed, remaining veins dark brown. Macrotrichia on *Rs*, *R*₅, *M*₁₊₂ and *M*₃. Venation: *Sc* short, *Sc*₁ long, ending immediately before origin of *Rs*; vein *R*₅ unusually arched beyond origin, deflected strongly caudad, ending beyond the wing tip, cell *R*₂ thus very extensive;

M_{3+4} and M_4 subequal; $m-cu$ shortly before fork of M , about two-thirds the distal section of Cu_1 .

Abdomen brownish black, hypopygium slightly paler. Male hypopygium (Plate 5, fig. 61) with the tergal plate small, blackened, the posterior margin produced into two rounded lobes that are separated by a very shallow emargination. Basistyle, b , with strong smooth setæ on mesal face, arranged more or less in longitudinal rows; apex of mesal face with a strong lobe that narrows outwardly into a point. Outer dististyle, d , with proximal half dilated, the sinuous outer part slender, its tip acute; inner style elongate, the lobe on outer margin stout. Phallosome with gonapophysis small, pale, subcultrate, tip obtuse; ædeagus, a , darkened, the arms stout and very short, lying parallel to one another.

Habitat.—Northeast New Guinea.

Holotype, male, Nondugl, Ahl Valley, July 8, 1955 (*Gressitt*).

Generally similar to species such as *Toxorhina* (*Toxorhina*) *trilineata* Alexander, differing especially in the venation of the outer radial field of the wing. The male of *trilineata* is not known to me.

TOXORHINA (TOXORHINA) PULVINARIA Alexander. Plate 2, fig. 35; Plate 5, fig. 62.

Toxorhina (*Toxorhina*) *pulvinaria* ALEXANDER, Ann. Mag. Nat. Hist. (12) 3 (1950) 958-959.

The types were from Hollandia, Netherlands New Guinea, taken in April by Hoogstraal and from Kokoda, Papua, captured in July and August by Miss Cheesman.

Northeast New Guinea: Korip, July 12, 1955 (*Gressitt*).

The wing venation is shown (Plate 2, fig. 35). Male hypopygium (Plate 5, fig. 62) with the mesal face of basistyle, b , near outer end with a concentration of setæ that are microscopically branched. Outer dististyle, d , with the apical point long and nearly straight; lateral tooth of inner dististyle slightly recurved. Gonapophysis appearing as a pale subcultrate blade. Arms of ædeagus, a , short, parallel to one another.

ILLUSTRATIONS

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

PLATE 1

- FIG. 1. *Stibadocera luteipennis* sp.nov.; venation.
2. *Limonia* (*Limonia*) *perissoptera* sp.nov.; venation.
3. *Limonia* (*Libnotes*) *alternimacula* sp.nov.; venation.
4. *Limonia* (*Libnotes*) *grammoneura* sp.nov.; venation.
5. *Limonia* (*Libnotes*) *philemon* sp.nov.; venation.
6. *Limonia* (*Libnotes*) *rufula* sp.nov.; venation.
7. *Limonia* (*Libnotes*) *viridicolor* sp.nov.; venation.
8. *Limonia* (*Dapanoptera*) *gressittiana* sp.nov.; venation.
9. *Helius* (*Helius*) *gorokanus* sp.nov.; venation.
10. *Helius* (*Rhampholimnobia*) *bigeminatus* sp.nov.; venation.
11. *Helius* (*Rhampholimnobia*) *subreticulatus* sp.nov.; venation.
12. *Epiphragma* (*Epiphragma*) *risoria* sp.nov.; venation.
13. *Austrolimnophila* (*Austrolimnophila*) *croceipennis* sp.nov.; venation.
14. *Austrolimnophila* (*Austrolimnophila*) *eucharis* sp.nov.; venation.
15. *Austrolimnophila* (*Austrolimnophila*) *multitergata* sp.nov.; venation.
16. *Austrolimnophila* (*Austrolimnophila*) *nebrias* sp.nov.; venation.
17. *Paralimnophila* (*Papuaphila*) *delecta* sp.nov.; venation.
18. *Paralimnophila* (*Papuaphila*) *holoxantha* sp.nov.; venation.

PLATE 2

- FIG. 19. *Paralimnophila* (*Papuaphila*) *perdiffusa* sp.nov.; venation.
20. *Gynoplistia* (*Gynoplistia*) *jocosa* sp.nov.; venation.
21. *Gonomyia* (*Lipophleps*) *auchetes* sp.nov.; venation.
22. *Gonomyia* (*Lipophleps*) *bicircularis* sp.nov.; venation.
23. *Gonomyia* (*Lipophleps*) *dispar* sp.nov.; venation.
24. *Gonomyia* (*Lipophleps*) *pleurostriata* Alexander; venation.
25. *Gonomyia* (*Lipophleps*) *melanostyla* sp.nov.; venation.
26. *Gonomyia* (*Lipophleps*) *reclinata* sp.nov.; venation.
27. *Gonomyia* (*Lipophleps*) *subacus* sp.nov.; venation.
28. *Gonomyia* (*Lipophleps*) *subægina* sp.nov.; venation.
29. *Styrgomyia* *platystyla* sp.nov.; venation.
30. *Styrgomyia* *scalaris* sp.nov.; venation.
31. *Toxorhina* (*Ceratocheilus*) *gressitti* sp.nov.; venation.
32. *Toxorhina* (*Ceratocheilus*) *hoogstraali* Alexander; venation.
33. *Toxorhina* (*Ceratocheilus*) *infuscula* sp.nov.; venation.
34. *Toxorhina* (*Ceratocheilus*) *trichopyga* sp.nov.; venation.
35. *Toxorhina* (*Toxorhina*) *pulvinaria* Alexander; venation.
36. *Toxorhina* (*Toxorhina*) *protrusa* sp.nov.; venation.

PLATE 3

- FIG. 37. *Limonia (Libnotes) viridicolor* sp.nov.; male hypopygium.
38. *Epiphragma (Epiphragma) risoria* sp.nov.; male hypopygium.
39, 40. *Austrolimnophila (Austrolimnophila) eucharis* sp.nov.; male hypopygium.
41, 42. *Austrolimnophila (Austrolimnophila) multitergata* sp.nov.; male hypopygium.
43, 44. *Austrolimnophila (Austrolimnophila) nebrias* sp.nov.; male hypopygium.
45. *Paralimnophila (Papuaphila) delecta* sp.nov.; male hypopygium.
46. *Gynoplistia (Gynoplistia) jocosa* sp.nov.; male hypopygium.

PLATE 4

- FIG. 47. *Gonomyia (Lipophleps) auchetes* sp.nov.; male hypopygium.
48. *Gonomyia (Lipophleps) bicircularis* sp.nov.; male hypopygium.
49. *Gonomyia (Lipophleps) dispar* sp.nov.; male hypopygium.
50. *Gonomyia (Lipophleps) melanostyla* sp.nov.; male hypopygium.
51. *Gonomyia (Lipophleps) pleurostriata* Alexander; male hypopygium.
52. *Gonomyia (Lipophleps) reclinata* sp.nov.; male hypopygium.
53. *Gonomyia (Lipophleps) subacus* sp.nov.; male hypopygium.
54. *Gonomyia (Lipophleps) subægina* sp.nov.; male hypopygium.

PLATE 5

- FIG. 55. *Styryngomyia melanopinax festiva* subsp.nov.; male hypopygium.
56. *Styryngomyia platystyla* sp.nov.; male hypopygium.
57. *Styryngomyia scalaris* sp.nov.; male hypopygium.
58. *Toxorhina (Ceratocheilus) gressitti* sp.nov.; male hypopygium.
59. *Toxorhina (Ceratocheilus) infuscula* sp.nov.; male hypopygium.
60. *Toxorhina (Ceratocheilus) trichopyga* sp.nov.; male hypopygium.
61. *Toxorhina (Toxorhina) protrusa* sp.nov.; male hypopygium.
62. *Toxorhina (Toxorhina) pulvinaria* Alexander; male hypopygium.

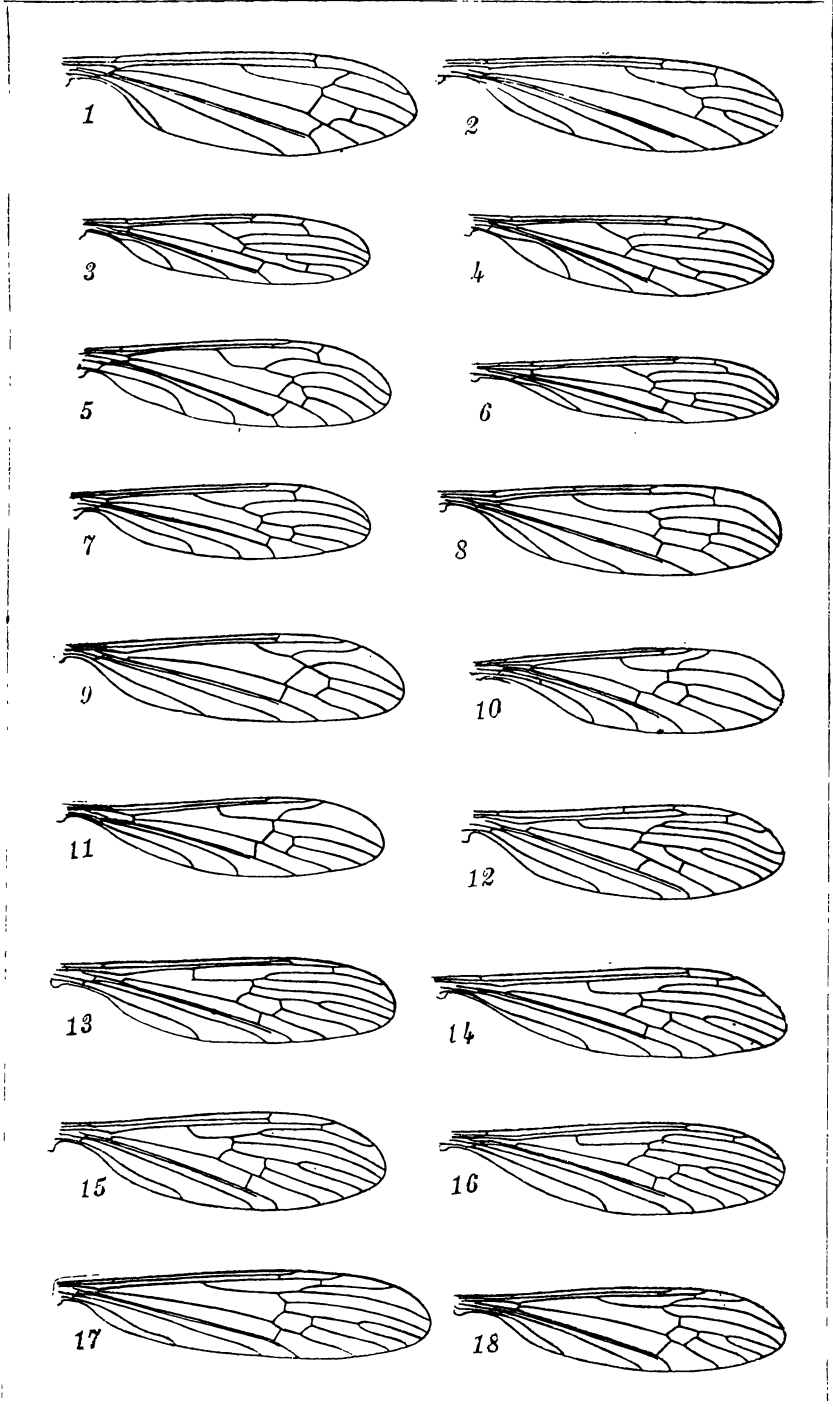


PLATE 1.

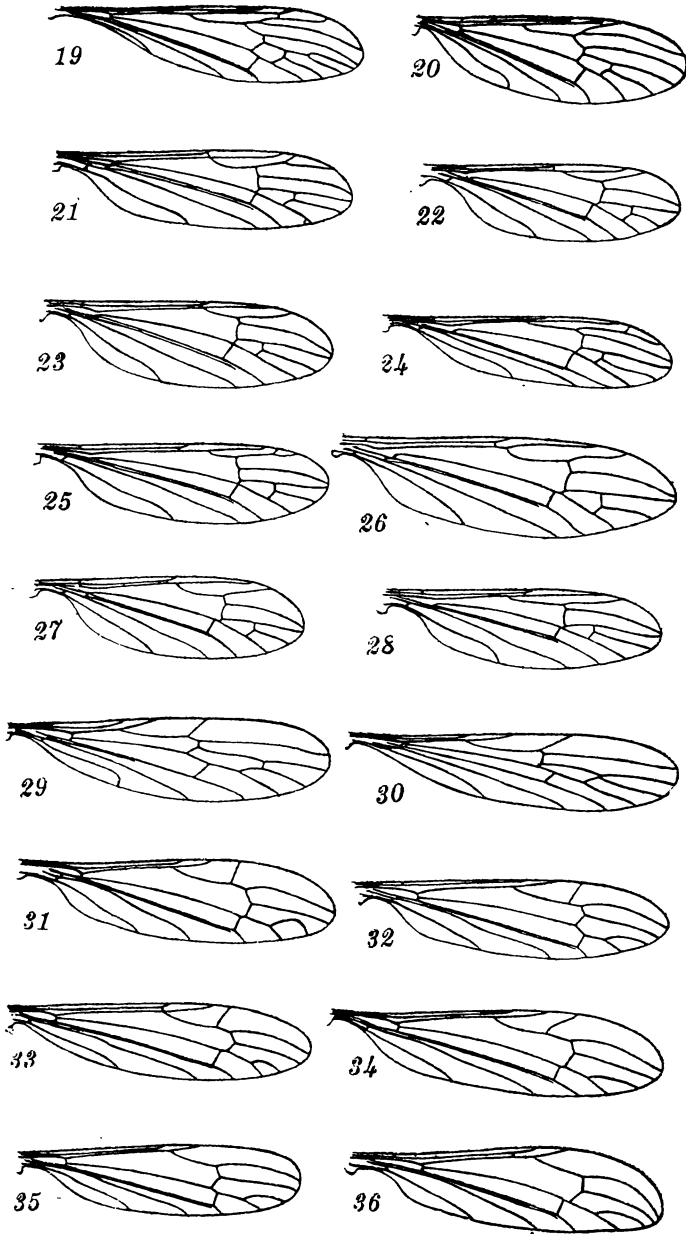


PLATE 2.

