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Notes on the Tropical American Species of Tipulidae (Diptera). V. The Specialized Hexatomini: Limnophila, Shannonomyia, Gynoplistia, Hexatoma, Atarba, Elephantomyia, and Allies.

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(With 36 figures)

In part IV under this general title I discussed the so-called primitive Hexatomine crane-flies, including those genera having the arculus broken, and by their organization and other factors indicating that they were the more generalized members of the tribe. The accompanying treatment considers the remaining genera, at least two of which, *Atarba* and *Elephantomyia,* are so aberrant, that their assignment to their present position must be considered somewhat provisional.

The following subtribes, genera and subgenera fall within the limits of the present report.

Subtribes	Genera	Subgenera
Limnophilaria (continued from Part IV)	*Ctenolimnophila* Alex.:	*Ctenolimnophila* Alex.
		Campbellomyia Alex.
		Abitagua Alexander
	Mesolimnophila Alex.	
	Limnophila Macquart:	*Limnophila* Macquart
		Araucolimnophila Alex.
		Roraimomyia Alex.
	Shannonomyia Alex.	
	Pilaria Sintenis	
	Gynoplistia Westwood:	*Gynoplistia* Westw.
		Dirhipis Enderlein
		Paralimnophila Alex.
Hexatomaria	*Hexatoma* Latreille:	*Eriocera* Macquart
		Cladolipes Loew
Atarbaria	*Atarba* Osten Sacken:	*Atarba* Osten Sacken
		Ischnothrix Bigot
Elephantomyaria	*Elephantomyia* O. Sack.:	*Elephantomyia* O. Sack.
		Elephantomyina Alex.

Ctenolimnophila Alexander

Ctenolimnophila Alexander; Proc. Acad. Nat. Sci. Philadelphia 1921: 61; 1921; (type *bivena* Alexander).

Subgenus *Campbellomyia* Alexander

Gnophomyia (Campbellomyia) Alexander; Ann. Mag. Nat. Hist., (9) 16: 70-71; 1925; (type *alpina* Alexander).

Subgenus *Abitagua* Alexander

Ctenolimnophila (Abitagua) Alexander; Ann. Ent. Soc. America, 37: 315; 1944 (type *longifusa* Alexander).

Small to medium sized flies having the general appearance of the Eriopterine genus *Gnophomyia.* Antennae in typical subgenus short in both sexes, 16-segmented; flagellar segments oval,

decreasing in size outwardly; verticils distinct, especially on the outer segments. In *Abitagua* antennae 15-segmented, the basal five flagellar segments united into a fusion-segment. Vertex broad, anterior vertex with a small tubercle. Praescutum narrowed anteriorly, produced slightly cephalad over the pronotum; meron reduced, the middle and hind coxae approximated. Legs with the tibial spurs distinct in the local species; claws long and simple; tarsi variable in length, in cases long and normal, as in the subgenus *Abitagua,* where the basitarsus is approximately two-thirds the tibia and the entire tarsus is subequal in length to the tibia. In the other subgenera and species, the tarsi are much shorter, in species such as *fuscoanalis* the entire tarsus being less than one-fifth the length of the tibia. In the subgenus *Campbellomyia,* as it occurs in New Zealand where it is well represented, the tibial spurs may be present and long, at least on the posterior legs, in *pallipes* Alexander; reduced to small hairy spurs, in the subgenotype *alpina;* lacking in the other species.

Wings (Figs. 1-4) with *Sc* moderately long, Sc_1 ending approximately opposite the fork of *Rs,* Sc_2 near its tip; *Rs* three-branched; R_{2-3-4} short to very short, less than R_{2-3} (as in *bivena,* Fig. 1; *decisa, paulistae,* and others); or longer (*severa,* Fig. 2) where it slightly exceeds R_{2-3}; very long in *neolimnophiloides* (Fig. 3) and *longifusa* (Fig. 4) where it is subequal in length to the entire anterior branch of *Rs;* R_2 usually present (Figs. 1, 2), subequal to R_{1-2}; lacking in *neolimnophiloides* and *Abitagua* (Figs. 3, 4). Media three-branched, cell M_1 lacking; cell *1st* M_2 short-rectangular to elongate; in *Ctenolimnophila,* s. s., irregular in outline (Fig. 1), with *m* much shorter than the basal section of M_3; *m-cu* variable, from near the base of cell *1st* M_2 to nearly opposite midlength (as in *Abitagua,* Fig. 4). In the typical subgenus with a supernumerary crossvein in cell R_3 (*decisa, fuscoanalis)* or with two such veins (*bivena,* Fig. 1), in cells R_3 and R_4; anterior arculus usually preserved, broken in some species (as *Abitagua,* Fig. 4).

Male hypopygium (as typified by *bivena*) with the outer dististyle heavily sclerotized, the outer margin with a series of long spines on outer half, the general appearance thus much as in *Atarba.* Interbases appearing as small curved blades, the tips pale and setuliferous. Phallosome small, consisting of more elongate flattened blades, their tips divergent. In *severa,* the interbases are long and conspicuous, the tips with long setae; elements of the phallosome more reduced. The highly aberrant

Abitagua has the hypopygium more complex though conforming in its general features; interbases lacking; gonapophyses appearing as powerful clubs that terminate in strong spinous points. It may be noted that in the original description of this subgenus, the position of the two dististyles of the unique type seem to have been twisted and reversed on the microscope slide and what was considered as being the inner style seems more properly the outer one, thus better conforming to the nature of the two dististyles found elsewhere in the genus.

The distinctions between *Ctenolimnophila* and *Campbellomyia* are weak and depend chiefly on the presence or absence of supernumerary crossveins in the wing. As indicated above, the general appearance of those species that have lost the tibial spurs is much as in *Gnophomyia* and the first described New Zealand species were referred to that genus with a question. The presence of tibial spurs in various species and, especially, the structure of the male hypopygium, indicate that the group has nothing to do with *Gnophomyia* and seems best placed with the Hexatomini. As regards *Abitagua* (Ann. Ent. Soc. America, 37: 315; 1944), it was indicated in the original descriptions that the group was aberrant and might well be found to represent a valid genus. I place it with the present genus chiefly because of the homologies of wing venation with *Ctenolimnophila neolimnophiloides* which seems unquestionably to belong to this genus but with fuller knowledge may prove to fall with the present fly.

Besides the species listed below, six further species of *Campbellomyia* are found in New Zealand where they inhabit mountainous areas in both islands. Nothing is known of the immature stages.

List of Species

Ctenolimnophila

bivena Alexander. — Amazonian Brazil, Peru.
decisa Alexander. — British Guiana.
fuscoanalis Alexander. — Surinam, eastern Brazil.

Campbellomyia

neolimnophiloides Alexander. — Southeastern Brazil.
paulistae Alexander. — Southeastern Brazil.
severa Alexander. — Ecuador.

Abitagua

longifusa Alexander. — Ecuador.

The wing venation of *bivena* (Fig. 1), *neolimnophiloides* (Fig. 3), *severa* (Fig. 2) and *longifusa* (Fig. 4) are shown.

Mesolimnophila Alexander

Polymoria Philippi; Verh. zool. bot. Ges. Wien, 15: 608; 1865; preoccupied; (type *lutea* Philippi).
Mesolimnophila Alexander; Dipt. Patagonia & S. Chile, 1: 129-130, pl. 3, fig. 67 (wing); 1929; (type *lutea* Philippi).
Polypraesidia Miller; Proc. Roy. Ent. Soc. London, B, Taxonomy, 72; 1945; (type *lutea* Philippi).

Rostrum moderately elongate, approximately as long as remainder of head, the length from two to four times the diameter; palpi 4-segmented, placed near apex of rostrum. Antennae 16-segmented; scape elongate, pedicel subpyriform; flagellar segments long-oval, decreasing in size outwardly, verticils longer than the segments. Head narrowed posteriorly. Pronotum massive. Mesonotal praescutum without tuberculate pits; pseudosutural foveae virtually lacking, appearing as delicate hook-shaped impressions on extreme lateral margin of sclerite. Legs clothed with very conspicuous erect setae; tibial spurs long and conspicuous; claws long and slender, smooth. Wings with cell *C* broad; vein *Sc* of moderate length, both Sc_1 and Sc_2 about opposite the fork of *Rs,* the latter long, arcuated or angulated and short-spurred at origin; R_{2-3-4} subequal to basal section of R_5; R_{1-2} about one-half longer than R_2; inner ends of cells R_4, R_5 and *1st* M_2 in transverse *(lutea)* to very oblique alignment *(hirsutipes),* in the latter case with cell *1st* M_2 lying furthest proximad; cell M_1 subequal to or longer than its petiole; *m-cu* at or near midlength of cell *1st* M_2; vein *2nd A* long, sinuous; anterior arculus preserved. Macrotrichia relatively sparse, on veins proximad of cord chiefly confined to the distal ends or lacking. Male hypopygium with the median area of ninth tergite produced and with a deep U-shaped notch. Basistyles long; interbases small, each terminating in two acute spines. Outer dististyle long and slender, terminating in a single gently curved black spine; outer margin on distal half to two-thirds with conspicuous appressed spines, the basal half to third setiferous. Inner dististyle less than one-half the length of the outer, fleshy. Aedeagus long.

The venation of the genotype, *lutea,* is shown (Fig. 5). The rostrum and male hypopygium of *hirsutipes* have been figured earlier (Dipt. Patagonia & S. Chile, 1, figs. 203, 204; 1929). As was indicated in the paper cited, it is possible that further studies will show that the genus falls in the Pseudolimnophilaria. Nothing is known of the immature stages of either of the known species.

List of Species

lutea (Philippi). — South Chile.
hirsutipes Alexander. — South Chile.

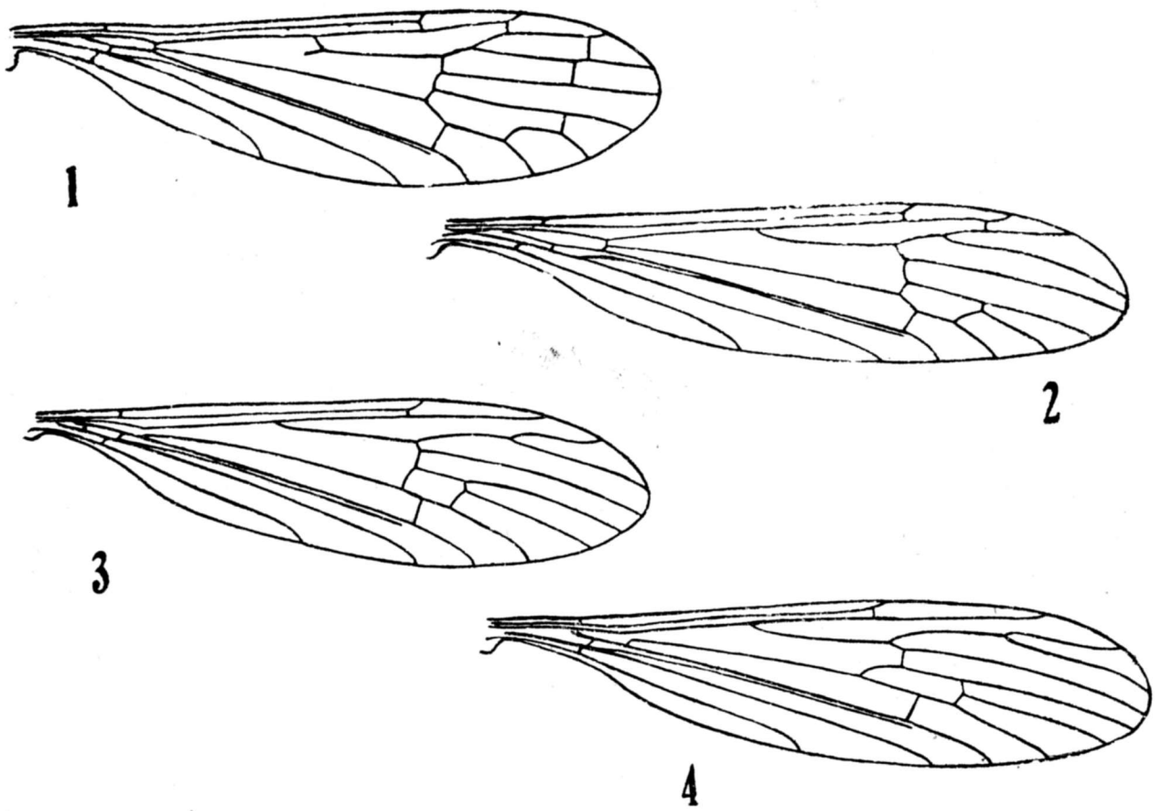

Fig. 1. *Ctenolimnophila (Ctenolimnophila) bivena* Alexander; venation. — Fig. 2. *Ctenolimnophila (Campbellomyia) severa* Alexander; venation. — Fig. 3. *Ctenolimnophila (Campbellomyia) neolimnophiloides* Alexander; venation. — Fig. 4. *Ctenolimnophila (Abitagua) longifusa* Alexander.

Limnophila Macquart

Limnophila Macquart; Suites à Buffon, 1: 95; 1834; (type *pictipennis* Meigen).
Limnomya Rondani; Prodromus Dipterologiae Italicae, 4 (Corrigenda): 11; 1861; (type *pictipennis* Meigen).
Poecilostola Schiner; Wien. Entomol. Monatschr., 7: 222; 1863; (type *pictipennis* Meigen).

Subgenus *Araucolimnophila* Alexander

Limnophila (Araucolimnophila) Alexander; Rev. Chilena Nat. Hist., 43: 177; 1939; (type *wolffhügeli* Alexander).

Subgenus *Roraimomyia* Alexander

Limnophila (Roraimomyia) Alexander; Ann. Ent. Soc. America, 28: 323; 1935; (type *permonstrata* Alexander).

The vast genus *Limnophila*, as still constituted, includes a heterogeneous group of forms that require much more study and critical comparisons, not only of the adults but very especially of the immature stages. Rather numerous subgenera have been proposed and recognized but there still remain in most of the faunal areas of the World aberrant and poorly understood species whose position in subgenera still remains uncertain. The various statements made below center about the subgenotype, with comparisons of species that certainly appear to be consubgeneric.

Head in the subgenotype narrowed behind. Antennae 16-segmented, commonly short in both sexes; long and filiform in various regional species, as *filiformis, pergracilis,* and others. Pronotum large and massive, the sides not produced cephalad; suture between the scutum and scutellum relatively inconspicuous. Tuberculate pits and pseudosutural foveae relatively large and conspicuous. Legs with tibial spurs present (in local species); claws usually simple, very strongly spined in *ctenonycha.* Wings with cell M_1 usually present, lacking in certain subgenera and individual species; in *bullockiana,* venation of the outer medial field pectinate by the atrophy of basal section of vein M_3; *m-cu* well beyond the fork of *M,* often at or close to midlength of cell *1st* M_2; anterior arculus preserved (Fig. 6). Trichia of wing cells usually lacking, present in a few species, as *sparsissima;* stigma glabrous; squamae without setae. Abdominal tergites with transverse impressed lines in the subgenotype, this condition much as in *Epiphragma* and *Pseudolimnophila,* as discussed under Part IV of this series of Notes, these lines vague or lacking in many species. Male hypopygium with the outer face of the outer dististyle hairy in subgenotype, glabrous in certain extralimital subgenera. Aedeagus and gonapophyses variously modified in different subgenera and well marked species groups. A common type in Tropical America shows the aedeagus stout and broad-based, with the penis strongly twisted or convoluted within.

The members of the *undulata* group, including *guttulatissima* (Fig. 6) seem most closely to approach the characters of the subgenotype, *pictipennis.*

The genus *Limnophila* is Cosmopolitan, being unusually well represented in the Holarctic Region, with individual subgenera and well-marked groups becoming dominant in other faunal areas.

The immature stages of many species are now known, all being found in wet earth in marshy or boggy areas, along streams, and in similar moist situations.

List of Species

abstrusa Alexander. — Chile, Patagonia.
angustilineata Alexander. — Paraguay.
araucania Alexander. — Chile.
armigera Alexander. — Chile.
bullockiana Alexander. — Chile.
charon Alexander. — Southeastern Brazil.
?*chilensis* (Blanchard). — Chile.
?*cinerea* (Philippi). — Chile.
ctenonycha Alexander. — South Chile.
?*decasbila* (Wiedemann). — Brazil.

dictyoptera Alexander. — Costa Rica, Panama, Venezuela.
expressa Alexander. — Southeastern Brazil.
eutheta Alexander. — Chile.
feriata Alexander. — South Chile.
filiformis Alexander. — South Chile.
?*flavicauda* (Bigot). — Tierra del Fuego.
guttulatissima Alexander. — Costa Rica.
hoffmanniana Alexander. — Southeastern Brazil.
humidicola Alexander. — South Chile, Patagonia.
inculta Alexander. — South Chile, Patagonia.
kaieturana Alexander. — British Guiana, Venezuela.
kertészi Alexander. — Southeastern Brazil.
leucostigma Alexander. — Southeastern Brazil.
litigiosa Alexander. — Chile.
lloydi Alexander. — Colombia.
madida Alexander. — Mexico.
melica Alexander. — Chile.
nemorivaga Alexander. — South Chile.
oiticicai, sp. n. — Southeastern Brazil.
(*pallens* Philippi, see *Aphrophila,* Part II).
pergracilis Alexander. — Ecuador.
procella Alexander. — Peru.
pullipes Alexander. — Southeastern Brazil.
roraima Alexander. — Venezuela.
roraimicola Alexander. — Venezuela.
rubecula Alexander. — Peru.
schadei Alexander. — Paraguay.
seclusa Alexander. — Chile.
sparsissima Alexander. — South Chile.
spinulosa Alexander. — Ecuador, Peru.
?*tenella* (Philippi). — Chile.
therasiae Alexander. — Southeastern Brazil.
undulata (Bellardi). — Mexico.

Besides the various species whose strict generic position is questioned above, I would call attention also to *charon,* which may be found to fall in the Pseudolimnophilaria.

Subgenus *Araucolimnophila* Alexander

Characters as in typical *Limnophila* but with a strong supernumerary crossvein in cell *C,* immediately above the origin of *Rs;* cell R_3 very short-petiolate; cell M_1 shorter than its petiole; *m-cu* beyond two-thirds the length of cell *1st* M_2; no supernumerary veins or folds behind the Anal veins, as is common in the more generalized Hexatomini; anterior arculus preserved. (Fig. 7). Antennae 16-segmented; basal four flagellar segments tumid, especially the first; succeeding segments cylindrical, with long coarse verticils that exceed the segments in length. No tuberculate pits; pseudosutural foveae large. The type and only known species is *Limnophila (Araucolimnophila) wolffhügeli* Alexander, of South Chile (Fig. 7).

Subgenus *Roraimomyia* Alexander

Characters as in typical *Limnophila* but with the wings and halteres entirely lacking. Correlated with this apterous condition, the following modifications of thoracic structure are found. — mesonotum flattened, the limits of the individual sclerites scarcely indicated; pleura restricted by this dorsoventral depression. The type and only known species is *Limnophila (Roraimomyia) permonstrata* Alexander, still known only from the summit of Mount Roraima, Venezuela. It may be emphasized that this is the only crane-fly known that has lost the halteres. Despite this striking character, the structure of the male hypopygium shows clearly that the group falls in the present genus or, possibly, in the allied *Shannonomyia.*

The following notes on the occurrence of this curious fly were made by the collector, the late Dr. John G. Myers, on Roraima, altitude 8,500 feet, November 20, 1932. "Running very actively over the ground in the lower places, especially sandy spots near the lagoons. Not uncommon but patchy in distribution".

Limnophila oiticicai, sp. n.

Size small (wing, male, 7 mm.); mesonotum gray, the praescutum with a conspicuous dark brown central stripe, the sublateral ones much less distinct; wings hubhyaline with an unusually pale brown pattern that is chiefly restricted to the cells beyond the cord, including a band immediately before the wing tip; R_{2-3-4} about twice as long as the basal section of R_5; male hypopygium with the ninth tergite notched medially; outer dististyle heavily blackened, very unequally bifid at apex, the outer angle a straight powerful spine, directed outward, the lower angle a low, broadly flattened lobe.

Male. — Length, about 6.5 mm.; wing, 7 mm.; antenna, about 1.1 mm.

Rostrum black, sparsely pruinose; palpi black. Antennae short; scape brown, remainder of organ black; flagellar segments suboval, with a dense erect white pubescence; basal segments more produced on ventral face, the longest verticils on the outer face. Head dark gray; anterior vertex relatively narrow.

Pronotum gray. Mesonotal praescutum gray with a narrow but conspicuous dark brown median stripe that narrows to a point behind, the sublateral stripes less distinct; humeral region of praescutum restrictedly yellowed; posterior sclerites of notum

chiefly brownish gray. Pleura dark gray, including the dorsopleural region. Halteres pale, knob infuscated. Legs with the coxae brownish gray; trochanters obscure brownish yellow; femora brownish black, setae relatively inconspicuous; remainder

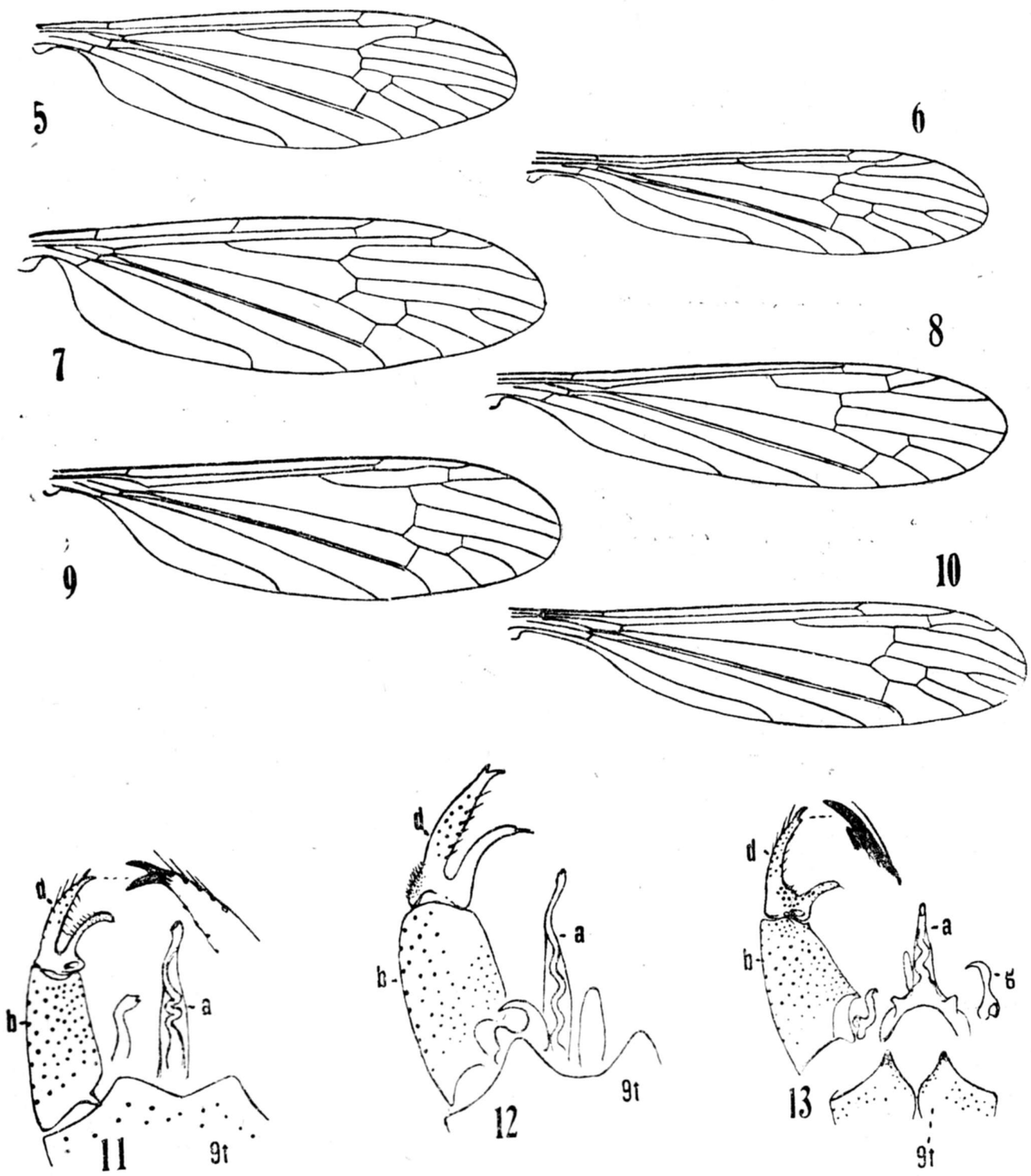

Fig. 5. *Mesolimnophila lutea* (Philippi); venation. — Fig. 6. *Limnophila (Limnophila) guttulatissima* Alexander; venation. — Fig. 7. *Limnophila (Araucolimnophila) wolffhügeli* Alexander; venation. — Fig. 8. *Shannonomyia cingara,* sp. n.; venation. — Fig. 9. *Shannonomyia umbra,* sp. n.; venation. — Fig. 10. *Pilaria rubella* Alexander; venation. — Fig. 11. *Shannonomyia cingara,* sp. n.; male hypopygium. — Fig. 12. *Shannonomyia longiradialis* Alexander; male hypopygium. — Fig. 13. *Shannonomyia umbra,* sp. n.; male hypopygium. — (Symbols: *a,* aedeagus; *b,* basistyle; *d,* dististyle; *g,* gonapophysis; *t,* tergite).

of leg black. Wings subhyaline, with an unusually pale brown pattern that is chiefly restricted to the cells beyond the cord; very pale clouds at origin of *Rs,* tip of *2nd A* and at midlength of leg black. Wings subhyaline, with an unusually pale brown end of cell *1st* M_2; a pale and inconspicuous band before wing

tip, beyond which is a vaguely paler area; stigma pale, darker at either end; veins brown. Venation: Sc_1 ending just beyond the level of fork of *Rs*, Sc_2 longer, near its tip; R_{1-2} more than twice R_2; R_{2-3-4} about twice the basal section of R_5; cell M_1 about three-fifths as long as its petiole; *m-cu* nearly its own length beyond the fork of *M*.

Abdomen black, the intermediate sternites a trifle more reddened. Male hypopygium with the region of the ninth tergite deeply notched, the lobes broad, their apices slightly emarginate, more produced adjoining the notch. Outer dististyle appearing as a strong blackened rod, very unequally bifid at tip, the outer angle a straight powerful spine, the lower angle a broadly flattened lobe; lower surface of style with numerous coarse erect setae. Inner dististyle shorter, the outer two-thirds a cylindrical lobe.

Habitat: Southeastern Brazil.

Holotype, ♂, Terezopolis, Rio de Janeiro, January 1, 1947 (J. Oiticica Filho).

I am pleased to name this fly for the collector, Mr. J. Oiticica Filho. Among the regional species, most similar to *Limnophila expressa* Alexander, which is larger, with distinct venation and body coloration and with the structure of the male hypopygium quite different.

Shannonomyia Alexander

Shannonomyia Alexander; Dipt. Patagonia & S. Chile, 1: 142-143, figs. 73-75, 212; 1929; (type *lenta* Osten Sacken).

Rostrum short. Antennae 16-segmented, short or of moderate length, more rarely elongate; scape elongate; verticils relatively short. Vertex broad. Pseudosutural foveae very small; tuberculate pits lacking. Tibial spurs present. Wings fully developed except in *minutipennis*. Venation (Figs. 8, 9): *Sc* short to very short, Sc_1 ending opposite or before the fork of *Rs*, Sc_2 close to or slightly removed from its tip; *Rs* usually short, strongly arcuated to angulated at origin; R_{2-3-4} long to very long, R_{3-4} usually lacking, R_2 thus arising close to end of R_{2-3-4}; in some species (including *brevinervis, nacrea, triangularis*) vein R_{3-4} is present with cell R_3 correspondingly shortened, *Gonomyia*-like; vein R_2 generally subequal to R_{1-2}; inner ends of cells R_4, R_5 and *1st* M_2 in transverse alignment; cell M_1 lacking; cell *1st* M_2 usually closed in such cases long to very long, often irregular in outline by inequalities of *m* and basal section of M_3; in cases cell M_2 open by the atrophy of *m* (as in *œnigmatica, nacrea, orophila, triangularis,* and others); *m-cu* beneath cell *1st* M_2, in some, as

ænigmatica, antarctica and *triangularis,* closer to the fork of *M;* anterior arculus preserved. Wing cells usually glabrous, rarely with macrotrichia in outer cells. Male hypopygium with basistyles (Figs. 11-13) relatively long and slender. Dististyles two, broadly interconnected at base; outer style slender, narrowed to apex which is usually bifid; outer surface of style with long coarse setae. Aedeagus of moderate length to elongate. Ovipositor with elongate sclerotized valves.

In addition to the relatively numerous species in the local fauna, as listed below, two further species, including the genotype, occur in the Nearctic Region. To the present date the generic diagnosis includes only those forms having cell M_1 lacking and it is probable that certain species at present placed in the genus *Limnophila* having cell M_1 preserved may likewise be better placed in *Shannonomyia.* In such an event, some of the included members may be Australasian in distribution.

The immature stages are found in wet earth at margins of streams and ponds.

List of Species

adumbrata Alexander. — Mexico.
ænigmatica Alexander. — South Chile.
antarctica (Walker). — Straits of Magellan.
araguae Alexander. — Venezuela.
argenticeps Alexander. — Ecuador.
atroapicalis Alexander. — Panama.
austrolathraea Alexander. — Ecuador, Bolivia.
barilochensis Alexander. — South Chile, Patagonia.
batesi Alexander. — Hispaniola: Haiti.
bogotensis Alexander. — Colombia.
brevicula Alexander. — Cuba.
brevinervis Alexander. — South Chile.
bruneriana bruneriana Alexander. — Cuba.
bruneriana forticornis Alexander. — Cuba.
cacoxena cacoxena Alexander. — Patagonia.
cacoxena mendica Alexander. — Patagonia.
caesia Alexander. — Southeastern Brazil.
cerbereana Alexander. — Ecuador.
?*cineracea* (Philippi). — Chile.
cingara, sp. n. — Peru.
dampfi Alexander. — Mexico.
erubescens Alexander. — Southeastern Brazil.
gracilior Alexander. — Southeastern Brazil.
haitensis Alexander. — Hispaniola; Haiti.
hoffmani Alexander. — Puerto Rico.
ignava Alexander. — Peru.
jaffueli Alexander. — Chile.
justa Alexander. — Southeastern Brazil.
lathraea (Alexander). — Colombia.
lenitatis Alexander. — Mexico.

lentina Alexander. — Mexico.
lentoides Alexander. — Guatemala.
leonardi Alexander. — Puerto Rico.
longiradialis Alexander. — South Chile.
mesophragma Alexander. — Cuba.
mesophragmoides Alexander. — Cuba.
minutipennis Alexander. — Patagonia.
moctezuma Alexander. — Mexico.
myersiana Alexander. — Jamaica.
nacrea (Alexander). — Jamaica.
olssoni (Alexander). — Panama.
orophila (Alexander). — Colombia.
ovaliformis Alexander. — Mexico.
paraguayensis Alexander. — Paraguay.
penumbrosa Alexander. — Chile.
phaeostigma Alexander. — Peru.
phragmophora Alexander. — Cuba.
protuberans Alexander. — Mexico.
roraimensis Alexander. — Venezuela.
scaramuzzai Alexander. — Cuba.
septempunctata Alexander. — Hispaniola: Dominican Republic.
sopora Alexander. — Peru.
sparsipuncta Alexander. — Ecuador.
?*stigmatica* (Philippi). — Chile.
triangularis Alexander. — Puerto Rico.
umbra, sp. n. — Peru.
?*venosa* (Philippi). — Chile.
?*verecunda* (Philippi). — Chile.
vocator Alexander. — Ecuador.
zernyana Alexander. — Southeastern Brazil.

Shannonomyia longiradialis Alexander

Shannonomyia longiradialis Alexander; Journ. N. Y. Ent. Soc., 37: 96-97; 1929.

The unique type was from Ancud, Chiloë Island, South Chile, collected April 2-7, 1920, by J. Chester Bradley. The male hypopygium of the type is illustrated (Fig. 12). The homology of the elongate-oval plate at the base of the aedeagus remains in question.

Shannonomyia cingara, sp. n.

Mesonotum medium brown, the praescutum darker medially; antennae relatively long, if bent backward extending nearly to the wing root; femora brown, the outer segments of the legs deepening to black; wings yellow, restrictedly patterned with brown; *Sc* long, Sc_1 ending beyond the level of the fork of *Rs*; *m-cu* at or beyond midlength of cell *1st* M_2; abdomen black, the base of the hypopygium brownish yellow; male hypopygium with

the tergal lobes very low; outer dististyle bidentate at apex, the axial spine being the lower or more ventral in position.

Male. — Length, about 5.5-6 mm.; wing, 5.8-6.2 mm.; antenna, about 1.6-1.8 mm.

Rostrum brownish black; palpi black. Antennae (male) relatively long, as shown by the measurments, if bent backward extending nearly to the wing root, black throughout; flagellar segments elongate-cylindrical, with long sparse verticils and abundant erect shorter setae over the entire segment. Head brown, more grayish in front; posterior vertex with a capillary blackened median vitta.

Pronotum brownish gray. Mesonotum chiefly medium brown, the praescutum with a darker brown median stripe, the lateral stripes lacking; centers of scutal lobes darkened; scutellum brownish yellow; mediotergite light gray. Pleura and pleurotergite brownish gray. Halteres obscure yellow. Legs with coxae brownish yellow, more or less pruinose; trochanters yellow; femora brown, somewhat brightened basally; tibiae brownish black; tarsi black. Wings (Fig. 8) yellow, the prearcular and costal fields clearer yellow; a restricted brown pattern, including the stigma and seams at origin of *Rs,* along cord and outer end of cell *1st* M_2; veins brown, yellow in the brightened areas. Venation: *Sc* long, Sc_1 ending just beyond the level of fork of *Rs,* Sc_2 at its tip and beyond this level; R_2 subequal to R_{1-2}, just beyond the base of cell R_3; inner ends of cells R_4, R_5 and *1st* M_2 in transverse alignment; *r-m* strongly arcuated; *m-cu* usually lying far distad, at near three-fourths the length of cell *1st* M_2 or approximately its own length or less before the fork of M_{3-4}, in cases, closer to midlength of the cell; cell *1st* M_2 nearly as long as the distal section of vein M_{1-2}. One paratype has cell M_2 of one wing only open by the atrophy of the basal section of M_3.

Abdomen black; ninth tergite of male brownish yellow, basistyles darkened. Male hypopygium (Fig. 11) with the tergal lobes, *9t,* very low, the median area shallowly emarginate. Outer dististyle, *d,* slender, bidentate at tip, the axial spine ventral in position, the second spine on outer margin; style with conspicuous erect setae on ventral surface, those of distal half of outer surface more appressed. Aedeagus, *a,* elongate, convoluted inside the sheath.

Habitat: Peru.

Holotype, ♂, Sariapampa, Huanuco, altitude 3,600 meters,

in fog forest, May 2, 1946 (Woytkowski). Paratopotypes, 2 ♂♂, May 7, 1946 (Woytkowski).

The present fly is generally similar to species such as *Shannonomyia cacoxena* Alexander, being readily distinguished by the moderately lengthened antennae, more heavily patterned wings, and the details of structure of the male hypopygium.

Shannonomyia umbra, sp. n.

Size relatively large (wing, male, over 8 mm.); mesonotal praescutum with three black stripes; posterior sclerites of notum gray, the scutellum with a capillary black vitta; femora obscure yellow, the tips passing into brownish black; wings with a brownish tinge, restrictedly patterned with brown; R_{2-3} approximately one-half vein R_2; *m-cu* at near two-fifths the length of cell *1st* M_2; male hypopygium with the tergal lobes unusually slender; outer dististyle very unequally bidentate at tip, the lower spine subapical and much reduced.

Male. — Length, about 7.5 mm.; wing, 8.2 mm.; antenna, about 1.7 mm.

Rostrum and palpi black, the former slightly pruinose. Antennae short, black throughout; flagellar segments long-oval, subequal in length to the verticils. Head black, gray pruinose, the orbits narrowly lighter gray; a capillary black vitta on the posterior vertex, narrowed behind.

Pronotum gray pruinose. Mesonotal praescutum with the interspaces brown, the lateral and humeral borders clearer gray; three black stripes, the median one deeper in color, subnitidous; scutal lobes with subnitidous blackened centers; posterior sclerites of notum gray with a capillary black median vitta extending from midlength of the scutum over the scutellum, widened behind. Pleura and pleurotergite black, heavily gray pruinose. Halteres with stem yellow, knob large, weakly infuscated. Legs with coxae black, sparsely pruinose; trochanters obscure brownish yellow; femora obscure yellow, the tips passing into brownish black; tibiae yellowish brown, the tips darker; tarsi passing into black. Wings (Fig. 9) with a brownish tinge, the prearcular and costal fields more yellowed; stigma oval, brown; very restricted and inconspicuous brown seams at origin of *Rs*, over cord and more evident along vein *Cu* in cell *M;* veins brown, yellow in the brightened fields. Venation: Sc_1 ending about opposite three-fourths the length of *Rs*, Sc_2 a short distance from its tip; R_{2-3} approximately one-half R_2; inner ends of cells R_4, R_5 and *1st* M_2

in transverse alignment; cell *1st* M_2 about equal in length to the distal section of M_3; *m-cu* at near two-fifths the length of cell *1st* M_2 or about its own length beyond the fork of *M*.

Abdomen, including hypopygium, black. Male hypopygium (Fig. 13) with the lobes of the tergite, *9t*, unusually slender, subacute at tips. Outer dististyle, *d*, a simple setiferous rod, narrowed to a strong blackened spine, with a small subterminal denticle on lower margin; setae over most of the surface, those of the outer face long, appressed. Inner dististyle a shorter cultriform blade, the two styles separated by pale membrane provided with abundant setae. Structures interpreted as being gonapophyses, *g*, appear as small sinuous blades, the tips as curved acute spines. Aedeagus, *a*, with the penis weakly sinuous or convoluted within the sheath.

Habitat: Peru.

Holotype, ♂, Carpish, Huanuco, altitude 2,800 meters, in dwarf rain forest, October 19, 1946 (Woytkowski).

The present fly superficially resembles species such as *Shannonomyia barilochensis* Alexander and *S. cacoxena* Alexander, of Patagonia and South Chile, differing in the details of coloration of the body and wings and in the venation and structure of the male hypopygium.

Pilaria Sintenis

Pilaria Sintenis; Sitzgber. Naturf. Ges. Dorpat, 8: 398; 1888; (type *pilicornis* Zetterstedt = *meridiana* Staeger).
Limnophila (Eulimnophila) Alexander; Cornell Univ. Agr. Expt. Sta. Mem. 25: 917; 1919; (type *tenuipes* Say).

Head broad, not narrowed behind. Pronotum small. Tuberculate pits small but evident; pseudosutural foveae large. Antennae 16-segmented, short to elongate in the males of a few species, including the subgenotype; flagellar verticils of unusual length, much longer than the segments except in those species having the organ elongate, in these latter species with additional erect setae scattered over their length. Legs with tibial spurs long and conspicuous. Wings (Fig. 10) with *Sc* relatively short, Sc_1 ending opposite or before the fork of the long *Rs;* R_{2-3-4} elongate, in longitudinal alignment with R_4; R_2 at or close to fork of R_{2-3-4}, R_{2-3} thus short or lacking; inner ends of cells R_4, R_5 and *1st* M_2 in approximate transverse alignment; cell M_1 present or lacking, present in the local species; *m-cu* approximately opposite midlength of cell *1st* M_2, in cases some distance beyond this point; anterior arculus preserved. Squama with setae; stigma with macrotrichia, these lacking in the wing cells. Abdominal

tergites without transverse impressed areas. Male hypopygium with two dististyles, the outer one bearing delicate setulae on outer face near base; style terminating in an acute spine, with microscopic spinulae on lower margin back from this point.

The genus *Pilaria* is essentially Holarctic in its distribution, with a few species in the Oriental Region. The local species are *Pilaria rubella* Alexander (Fig. 10) and *P. tenuipes* (Say), both from Mexico.

The immature stages of several of the Holarctic species are known. These live in the ooze and semisuspended silt at the margins of water, particularly ponds and bogs; in cases the larvae are found in the thin silt layers accumulating between sodden and partly decayed leaves in such places.

Species of the closely related genus *Ulomorpha* Osten Sacken may occur in northern Mexico since representatives are known from southern California. Species of this genus have most of the characters described for *Pilaria* but have the wing cells provided with abundant macrotrichia and with cell R_3 of wings sessile or very short-petiolate.

Gynoplistia Westwood

Gynoplistia Westwood; London & Edinburgh Phil. Mag., 6: 280; 1835; (type *vilis* Walker, as *nervosa* Westwood).
Anoplistes Westwood; Zool. Journ., 5, no. 20: 447; 1835; (type *vilis* Walker; as *nervosa* Westwood).
Variegata Bigot; Ann. Soc. Ent. France, (3) 2: 456; 1854; (type *bella* Walker, as *gynoplistioides* Bigot).
Variptera Bigot; Ann. Soc. Ent. France, (3) 2: 471; 1854; (type *bella* Walker, as *gynoplistioides* Bigot).
Ctedonia Philippi; Verh. zool.-bot. Ges. Wien., 15: 602; 1865; (type *bicolor* Philippi).
Cloniophora Schiner; Verh. zool.-bot. Ges. Wien, 16: 932; 1866; (type *subfasciata* Walker).
Caenarthria Thomson; Eugenies Resa, Diptera, p. 445, pl. 9, fig. 1; 1869; (type *viridis* Westwood).
Scepasma Enderlein; Zool. Anzeig., 49: 60; 1917; (type *bipunctatum* Philippi).

Subgenus *Dirhips* Enderlein

Dirhips Enderlein; Zool. Anzeig., 49: 58; 1917; (type *riedeliana* Enderlein).

Subgenus *Paralimnophila* Alexander

Limnophila (Paralimnophila) Alexander; Ann. Mag. Nat. Hist., (9) 8: 559-560; 1921; (type *leucophaeta* Skuse).

One of the dominant protean genera of Tipulidae, greatly developed in the Australasian Region, with fewer representatives in the Neotropics, virtually all in the Chilean Subregion.

Five apparently valid subgenera are recognized, the three named above occurring in the local fauna. Besides these, two others briefly discussed below are restricted to the Australasian fauna.

Gynoplistia Westwood. Antennae of male sex branched, in

cases with short inconspicuous branches, in others these long and graceful, producing a flabellate appearance; antennae of females less strongly branched than in the males and not necessarily in a proportional degree, some of the males with longest branches having unusually short ones in the females; the minimum of branching in the females is a slight serration. The antennal segments in the typical subgenus as now considered range between 13 and 24, in the local fauna between 16 and 24. Venation: R_{2-3-4} short to very short, in the latter case with cell R_3 subsessile; cell M_1 present in all local species, lacking in numerous species in Australia, New Guinea and Celebes; anterior arculus preserved. In various species with a strong vein or fold in cell *1st A*, arising near the base of vein *2nd A* and extending for more than one-half the length of the cell (as in *bicolor*, Fig. 14). Male hypopygium exceedingly diverse in structure in the various species, not showing a single monotonous basic plan, as in *Paralimnophila*.

About 14 species of the typical subgenus are found in the Chilean subregion. In the Australasian Region more than 250 other species are found in Australia, New Zealand, New Caledonia, New Guinea and Celebes, reaching their western limit at Wallace's Line. In the great biologically unstable area lying between Wallace's Line and Weber's Line, commonly called "Wallacea", relatively few species are found but in New Guinea a host of forms occur, most of which have been discovered only recently. The greatest proportion of the described species occur in eastern Australia, Tasmania and New Zealand. The species found in Chile are entirely consubgeneric with the Australasian forms and the group must have attained its present distribution via the former Antarctic continent. In my opinion, this single genus provides an almost unbreakable link in the long chain of evidence supporting a belief in a former Antarctic land connection.

Dirhipis Enderlein. Large but relatively plain colored species, most conspicuous by the unusually long flagellar branches in the male sex. All known species are Chilean. As is shown by the accompanying list, various names have been proposed but most of the so-called species remain poorly known. Antennae (male) 21-23-segmented, commonly with 12 branched segments, the two basal branches lying in a plane different from those that follow; branches very long, exceeding one-half the length of the entire flagellum; branches with abundant long erect setae. Males fully winged; females, where known, with rudimentary wings.

Paralimnophila Alexander. In the local fauna about 10 species have been defined, with about 35 further described forms in Australia and Tasmania, two in New Zealand, and a few further species in New Caledonia and New Guinea. It is only in the Australian fauna that species with branched antennal segments occur, all others, including the local forms, having the segments entirely simple, much as in the genus *Limnophila*. The number of antennal segments range from 14 to 25, in the local fauna between 14 and 16. In the Australian fauna some species (as *flavipes* Alexander, *harrisoni* Alexander, *remulsa* Alexander, and others) have the flagellar branches so elongated, as to resemble species of the subgenus *Cerozodia* Westwood, where the maximum of pectination of the antennae, as at present known, is found. In certain of these species having long-branched antennae, all but the last segment is so branched, with all branches lying in a single plane. I had suspected that the subgenotype of *Cerozodia* (*interrupta* Westwood, of the Swan River District, West Australia) might prove to be a *Paralimnophila* since some of the species of the latter subgenus, as listed above, have even longer branches. I am greatly indebted to Professor G. D. Hale Carpenter and Mr. B. M. Hobby, of the Hope Department of Entomology, University Museum, Oxford University, for a photograph of the unique type specimen of *interrupta*. This shows that our interpretation of the subgenus *Cerozodia* is correct. In addition to the type, there are five further species, all from New Zealand.

The American species of *Paralimnophila*, as listed below, are found chiefly in the Chilean Subregion, with one species occurring in southeastern Brazil. Both sexes of the local forms, as known, are full-winged with the exception of *perreducta* where the wings of the female are greatly reduced in size. Venation (Fig. 15) with cell R_3 short-petiolate to subsessile; cell M_1 present in all local species, lacking in certain Australasian forms; *m-cu* lying unusually far basad, close to or just beyond the fork of *M*. The male hypopygium shows a surprising uniformity in basic structure throughout the range of forms as now known. Ninth tergite large, narrowed outwardly, the apex truncate or virtually so. Dististyles two, terminal in position, the outer style a simple glabrous rod or blade, its outer apical angle extended into a terminal spine, the corresponding lower angle evenly rounded. Inner dististyle fleshy, setiferous. Aedeagus and gonapophyses relatively small and inconspicuous. Certain of the Chilean species have the legs

handsomely and conspicuously banded with black and yellow; in *pallitarsis,* the legs are black with the tarsi conspicuously pale.

Besides the three subgenera in the local fauna and *Cerozodia,* above mentioned, there remains the subgenus *Xenolimnophila* Alexander, with three described species in southeastern Australia

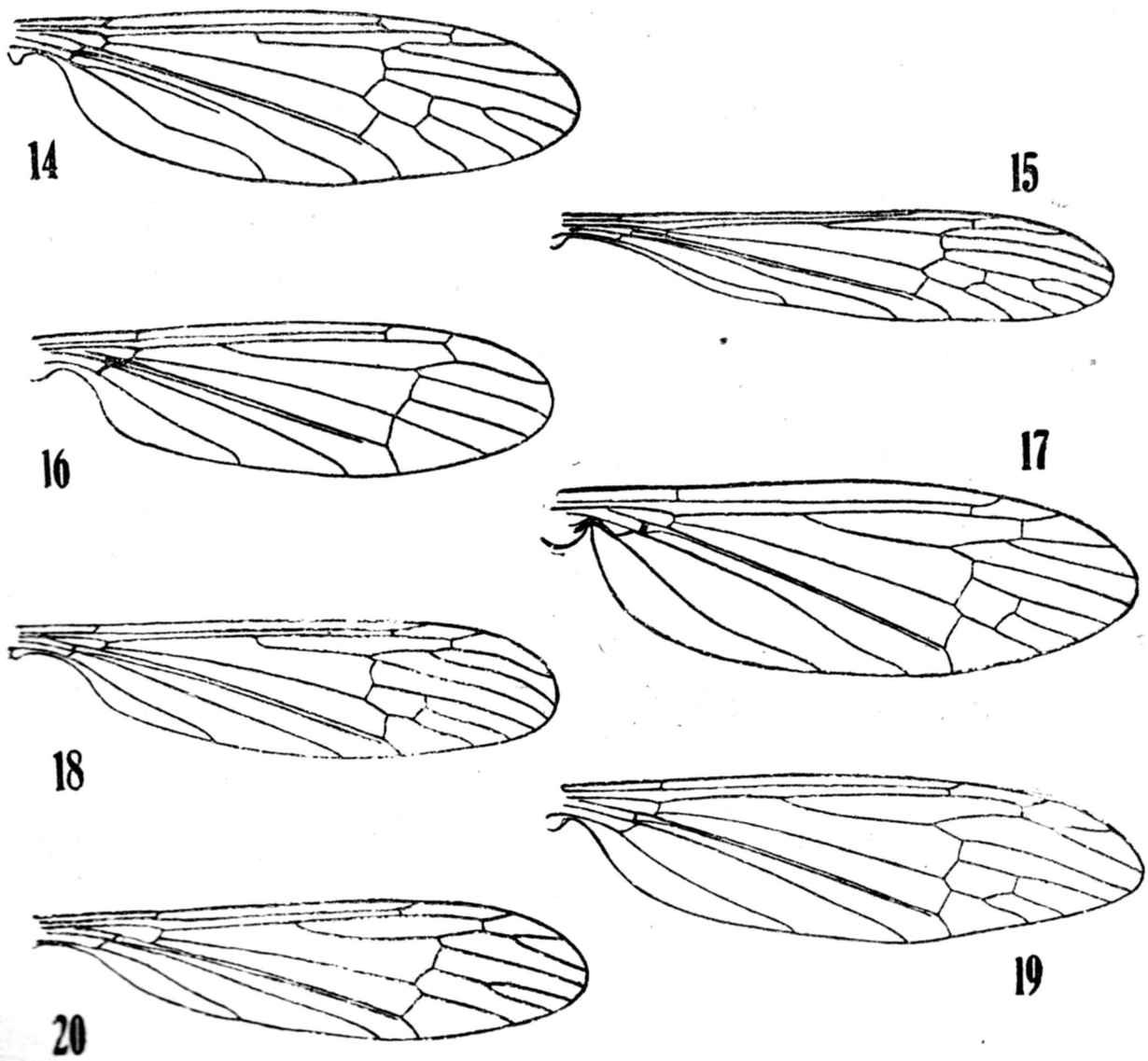

Fig. 14. *Gynoplistia (Gynoplistia) bicolor* (Philippi); venation. — Fig. 15. *Gynoplistia (Paralimnophila) pirioni* Alexander; venation. — Fig. 16. *Hexatoma (Cladolipes) cisatlantica* Alexander; venation. — Fig. 17. *Hexatoma (Eriocera) ogloblini* Alexander; venation. — Fig. 18. *Hexatoma (Eriocera) cubensis* Alexander; venation. — Fig. 19. *Hexatoma (Eriocera) breviuscula* Alexander; venation. — Fig. 20. *Hexatoma (Eriocera) patens* Alexander; venation.

and Tasmania. In this single small group, species are found with fully developed wings to one with the wings greatly reduced in both sexes. The basic plan of structure of the male hypopygium is distinctive.

The immature stages of only a few species of *Gynoplistia* have been made known. These include only Australian forms, as *bella* Walker, and *vilis* Walker, where the larvae have been found in damp earth, just beneath the surface.

List of Species

Gynoplistia

biarmata Alexander. — Chile.
bicolor (Philippi). — South Chile.
bipunctata (Philippi). — South Chile.
elnorae Alexander. — South Chile.
flavipennis (Philippi). — South Chile.
(*fusca* Jaennicke, see *Dirhipis,* below).
gilvipennis Alexander. — South Chile.
hylonympha Alexander. — South Chile.
leucopeza leucopeza Alexander. — South Chile.
leucopeza postica Alexander. — South Chile.
manicata Alexander. — South Chile.
pictipennis (Philippi). — South Chile.
(*riedeliana* Enderlein, see *Dirhipis,* below).
(*striatipennis* Alexander, see *Dirhipis,* below).
tristillata Alexander. — South Chile.
variata Alexander. — South Chile.
variicalcarata Alexander. — South Chile.
varipes Alexander. — South Chile.

Dirhipis

fusca Jaennicke. — Chile.
riedeliana (Enderlein). — South Chile.
striatipennis Alexander. — South Chile.

Paralimnophila

conspersa (Enderlein). — Southeastern Brazil.
infestiva Alexander. — South Chile.
irrorata (Philippi). — South Chile.
pachyspila Alexander. — South Chile.
pallitarsis Alexander. — Chile.
perirrorata Alexander. — Chile.
perreducta Alexander. — Chile.
pirioni Alexander. — Chile.
rara Alexander. — South Chile.
stygipes Alexander. — South Chile.
subfuscata (Alexander). — Northern Argentina.

Hexatoma Latreille

Hexatoma Latreille; Gen. Crust. et Ins., 4: 260; 1809; (type *nigra* Latreille).
Nematocera Meigen; Syst Beschr., 1: 209; 1818; (type *bicolor* Meigen).
Anisomera Wiedemann, in Meigen; Syst. Beschr., 1: 210; 1818; (type *obscura* Wiedemann).
Peronecera Curtis; British Entomol., p. 589; 1836; (type *fuscipennis* Curtis).
Trimacromera Enderlein; Tierwelt Mitteleur., 6, Teil 3, Lief 2: xvi; 1936; (type *nubeculosa* Burmeister).

Subgenus *Eriocera* Macquart

Caloptera Guérin; Voyage Monde Coquille, Zool., Ins. (plates), tab. 20, fig. 2; 1829; (type *fasciata* Guérin).
Evanioptera Guérin; Voyage Monde Coquille, Zool., Ins. (text), 2, pt. 2: 287; 1838; (re-naming of last as being preoccupied).
Eriocera Macquart; Dipt. exot., 1, pt. 1: 74; 1838; (type *nigra* Wiedemann).
Pterocosmus Walker; List Diptera British Mus., 1: 78; 1848; (type *hilpa* Walker).
Allarithmia Loew; Bernstein und Bernsteinfauna, pp. 36, 38; 1850; (type *palpata* Loew).
Oligomera Doleschall; Natuurk. Tijdschr. Nederl. Indie, 14: 387; 1857; (type *acrostacta* Wiedemann, as *javensis* Doleschall).
Physecrania Bigot; Ann. Soc. Ent. France, (3) 7: 123; 1859; (type *obscura* Bigot).

Arrhenica Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 242; 1859; (type *spinosa* Osten Sacken).
Penthoptera Schiner; Wien. Entomol. Monatschr., 7: 220; 1863; (type *chirothecata* Scopoli).
Androclosma Enderlein; Zool. Jahrb., Syst., 32: 34; 1912; (type *verticalis* Wiedemann).

Subgenus *Cladolipes* Loew

Cladolipes Loew; Zeitschr. für ges. Naturwiss., 26: 424; 1865; (type *simplex* Loew).

There are apparently only four valid subgenera, two of which, *Eriocera* and *Cladolipes,* are in the local fauna and are detailed below. Of the others, the typical subgenus *Hexatoma* is Holarctic and chiefly Palaearctic in distribution. *Euhexatoma* Alexander is Oriental, at the present time including a single species.

Subgenus *Eriocera* Macquart

One of the most widely distributed and dominant of all crane-fly groups, being especially numerous in species in the Neotropical and Oriental Regions, as discussed.

The earliest name to be applied to members of this subgenus appears to be *Caloptera* Guérin, where the name was given on a plate of figures but without further characters. In 1835, Westwood, having seen this plate, identified one of his new species as falling here and described it as *Caloptera nepalensis.* In 1838, the text of the Voyage of the *Coquille* was published and Guérin had changed the name *Caloptera* to *Evanioptera,* under the belief and misconception that his name *Caloptera* had been previously used elsewhere. In the meantime the commonly accepted name, *Eriocera* had been proposed earlier in the same year by Macquart. No one has attempted to validate the name *Caloptera* as based on the above discussed prior mentions.

In the local fauna, *Eriocera* includes a host of medium to large sized species, often with handsomely banded wings and bright contrasted body colors, providing an unusually conspicuous element in the Neotropical fauna.

Antennae in the Neotropical species short to very long (as in *antennata, macrocera,* and others), commonly with seven or eight segments in the male, eight to eleven in the female; segments cylindrical, in those species with elongate antennae very long-cylindrical; vestiture of the flagellar segments various, in the species with lengthened antennae frequently but not always with small spinous setae on the more basal flagellar segments, these serving as an aid in emergence from the pupa and termed

emergence setae. Anterior vertex often with a greatly enlarged or variously modified tubercle, usually largest in those species having the longest antennae, Tibial spurs present. Various species in the so-called *"Penthoptera"* group, including various local species, have the legs blackened, the tarsi snowy white. Wings (Figs. 17-20) with the venation varying greatly in the different groups of species; Sc_2 usually near the tip of Sc_1; in some local species (as *interlineata*) with Sc_2 longer and much stronger than the weak transverse Sc_1. Some species (as *acunai*) with cell R_3 very deep, its petiole (R_{2-3-4}) correspondingly shortened, only about one-fourth the length of the cell, so vein R_{2-3} is much longer than R_{2-3-4}. In other species, (as *aglaia*) R_{2-3-4} is long, with R_2 at or close to its fork so vein R_{2-3} is very short to lacking; in still other species (Fig. 19) R_2 lies far before cell R_3 so that an element R_{3-4} is present (as in *beebeana, breviuscula, cabralensis, patens* and several others in various degrees). Cell M_1 lacking in all Neotropical species, preserved in numerous species in the Holarctic and Oriental Regions; in *patens* (Fig. 20), cell M_2 open by the atrophy of the basal section of vein M_3; *m-cu* variable in position, often at the fork of *M,* in cases (as *acunai*) lying far distad, near the outer end of cell *1st* M_2; *m-cu* usually longer than the distal section of Cu_1, in cases the latter the longer element; anterior arculus preserved. Supernumerary crossveins sometimes present (in *acunai* in cell R_4, in *beebeana* in cell R_5); in the related subgenus *Euhexatoma* with three strong supernumerary crossveins in outer radial field (cells R_3, R_4 and R_5). Wings often unpatterned though variously darkened; in other rather numerous species in the local fauna with a conspicuous brown and yellow crossbanded pattern; in a few local species (as *cramptoni* and *multiguttata*) the wings are abundantly spotted and dotted with brown. Male hypopygium with the two dististyles terminal in position, the outer style glabrous, narrowed apically into a long curved spine. Aedeagus and gonapophyses usually short and relatively inconspicuous. Female with valves long and sclerotized in local species; in some extralimital forms, and in the subgenus *Hexatoma,* with the valves short and fleshy.

Eriocera is very well represented in the Eastern Palaearctic, Nearctic, Oriental and Neotropical Regions; somewhat fewer forms occur in the Ethiopian Region, with still fewer species to virtually lacking in the Western Palaearctic (Europe), where it is replaced by the typical subgenus *Hexatoma.* East of Wallace's Line, a very few species occur in Celebes, New Guinea and

eastern Australia. In Tropical America, most species seem to be tropical and subtropical in distribution with relatively few forms at the higher levels. Several unusually interesting species occur in the various islands of the Greater Antilles. No species has been found in the Chilean subregion, corresponding to its non-occurrence in New Zealand and Tasmania and great scarcity in southern Australia.

The larvae of several species of *Eriocera* have been discovered, these being virtually to entirely aquatic, going to the stream margins to pupate. The majority of the species prefer sandy or gravelly stream beds but some species inhabit the more liquid organic silt in swampy areas. The larvae of this group are strictly carnivorous and from their large size are well able to prey upon large and active types of animal life in their environment.

Cladolipes Loew. Antennae of both sexes of the local species 7-segmented. Legs with the tibial spurs long and conspicuous; claws simple. Wings (Fig. 16) with only nine veins reaching the margin, these being Sc_1, R_{1-2}, R_4, R_5, M_{1-2}, M_3, Cu_1, *1st A* and *2nd A;* only two branches of *Rs,* both strong; outer medial veins weak and tending to become evanescent. Veins beyond cord unusually glabrous, found only on the distal section of vein R_5.

There are only two species, the subgenotype in southeastern Europe and a local species, *Hexatoma (Cladolipes) cisatlantica* Alexander, in southeastern Brazil. As to whether a problem in geographical distribution is presented by this interesting case must remain for future studies to decide. The venation in the genus *Hexatoma* is very plastic, particularly as regards the medial field, and it seems entirely possible to me that the two species, with virtually identical venation, might have evolved independently to produce approximately the same end result. If such is not the case, we have a problem in distribution that is unusually difficult of solution.

List of Species

Cladolipes

cisatlantica Alexander. — Southeastern Brazil.

Eriocera

acunai (Alexander). — Cuba.
aetherea (Alexander). — Hispaniola: Dominican Republic.
aglaia Alexander. — Ecuador.
amazonicola (Alexander). — Amazonian Brazil.

andicola (Alexander). — Northwestern Argentina.
antennata (Alexander). — Colombia.
argentina (Alexander). — Northwestern Argentina.
atrosignata Alexander. — Peru.
aurantionota Alexander. — Mexico.
batesi (Alexander). — Amazonian Brazil.
beebeana Alexander. — Venezuela.
bequaertiana Alexander. — Colombia.
bifurcata Alexander. — Venezuela.
bituberculata (Macquart). — Brazil (auct., Osten Sacken, 1869).
braconides (Enderlein). — Colombia.
breviuscula (Alexander). — Peru.
bruneri (Alexander). — Cuba.
brunneipes (Williston). — Mexico.
cabralensis Alexander. — Southeastern Brazil.
caminaria (Wiedemann). — Brazil.
candidipes (Alexander). — Venezuela.
captiosa Alexander. — Ecuador.
carrerai Alexander. — Southeastern Brazil.
chrysoptera (Walker). — Southeastern Brazil.
chrysopteroides (Alexander). — Brazil.
columbiana Alexander. — Costa Rica, Colombia.
conjuncta (Alexander). — Guatemala.
cornigera (Alexander). — Bolivia.
cramptoni (Alexander). — Jamaica.
cubensis (Alexander). — Cuba.
(*dimidiata* Alexander, see *semirufa*)
domingensis (Alexander). — Hispaniola: Dominican Republic.
erythraea (Osten Sacken). — Guatemala, Costa Rica.
(*erythrocephala* Fabricius, see *longistyla*).
exquisita (Alexander). — Costa Rica.
fasciata Guérin. — Brazil.
(*fasciata* Williston, see *willistoni*).
ferax Alexander. — Southeastern Brazil.
flammeinota (Alexander). — Southeastern Brazil.
flammeipennis Alexander. — Southeastern Brazil.
flaviceps (Wiedemann). — Brazil.
flavida (Williston). — Mexico.
(*fuliginosa* Schiner, see *schineri*).
gomesiana Alexander. — Southeastern Brazil.
goyazensis Alexander. — Central Brazil.
gracilis (Osten Sacken). — Mexico.
haemorrhoa (Osten Sacken). — Mexico.
interlineata Alexander. — Mexico, Costa Rica, Panama.
intermedia (Alexander). — Panama.
jocularis, sp. n. — Southeastern Brazil.
juliana Alexander. — Cuba.
jurata Alexander. — Southeastern Brazil.
kaieturensis (Alexander). — British Guiana, northern Brazil.
laddeyi Alexander. — Ecuador.
laticostata Alexander. — Southeastern Brazil.
lessepsi (Osten Sacken). — Panama.
longipennis (Alexander). — Venezuela.
longistyla Alexander. — British Guiana.
lopesi Alexander. — Central Brazil.
macquarti Enderlein. — Colombia.

macrocera (Alexander). — Amazonian Brazil.
magistra Alexander. — Ecuador.
magnifica (Alexander). — Guatemala.
manabiana Alexander. — Ecuador.
melanacra (Wiedemann). — Brazil.
melanolitha Alexander. — Mexico, Guatemala.
melina (Alexander). — Paraguay.
mesoxantha (Osten Sacken). — Mexico.
multiguttula Alexander. — Hispaniola: Dominican Republic.
myrtea (Alexander). — Brazil.
neosaga Alexander. — Venezuela.
(*nigra* Macquart, see *macquarti*).
nigra (Wiedemann). — Southeastern Brazil.
nigrochalybea (Alexander). — Southeastern Brazil.
obsoleta (Williston). — Honduras.
ogloblini Alexander. — Northeastern Argentina.
ohausiana (Enderlein). — Peru.
ornaticornis Alexander. — Cuba.
pallidipes (Alexander). — Mexico.
patens Alexander. — Ecuador.
perdecora (Alexander). — Peru.
perenensis (Alexander). — Peru.
perexigua Alexander. — Peru.
perlaeta (Alexander). — Colombia, southeastern Brazil.
perpulchra (Alexander). — Northern Brazil.
perrara Alexander. — Southeastern Brazil.
peruviana (Alexander). — Peru.
perversa Alexander. — Ecuador.
piatrix Alexander. — Ecuador.
plaumanni plaumanni Alexander. — Southeastern Brazil.
plaumanni lataurata Alexander. — Southeastern Brazil.
plumbeicolor Alexander. — Ecuador.
plumbeinota Alexander. — Mexico.
pretiosa (Osten Sacken). — Mexico.
propinquua Alexander. — Southeastern Brazil.
pulchripes (Alexander). — Bolivia.
reverentia Alexander. — Southeastern Brazil.
roraimella Alexander. — Venezuela.
ruficornis (Macquart). — Brazil.
rupununi Alexander. — British Guiana.
saga Alexander. — Venezuela.
santae-martae (Alexander). — Colombia.
schineri Alexander. — Venezuela.
semirufa Alexander. — Venezuela.
speciosa (Alexander). — British Guiana.
stolida Alexander. — Panama.
subgracilis Alexander. — Mexico.
sublima (Alexander). — Southeastern Brazil.
subsaga Alexander. — Peru.
substolida Alexander. — Mexico.
taenioptera (Wiedemann). — Brazil.
tenebrosa (Walker). — "South America".
tholopa (Alexander). — Southeastern Brazil.
townsendi (Alexander). — Mexico.
tranquilla (Alexander). — Southeastern Brazil.

trialbosignata Alexander. — Peru.
trifasciata (Röder). — Puerto Rico.
variegata Alexander. — Southeastern Brazil.
venavitta Alexander. — Southeastern Brazil.
virgulativentris (Enderlein). — Colombia.
vittanervis Alexander. — Southeastern Brazil.
williamsoni (Alexander). — Peru.
willistoni Alexander. — Mexico.
zonata (Osten Sacken). — Mexico.

Hexatoma (Eriocera) jocularis, sp. n.

Size medium (wing, female, 12.5 mm.); mesonotum gray, the praescutum with three entire dark brown stripes; scutellum obscure brownish yellow; antennae (male) 8-segmented, the basal five segments yellow, the outer three brownish black; halteres with stem yellow, knob dark brown; fore femora yellow with the outer third darkened; posterior femora yellow with two dark brown rings; wings yellow, variegated with brown, the cells beyond the cord uniformly brown; abdomen with segments one, five and six uniformly black, intermediate segments yellow, the second with its caudal and lateral borders black, the third and fourth with the posterior margins black; outer abdominal segments orange; valves of ovipositor elongate.

Male. — Length, about 14 mm.; wing, 12.5 mm.; antenna, about 3.1 mm.

Rostrum orange yellow; mouthparts dark brown; palpi with the basal two segments obscure yellow, the outer ones blackened. Antennae (male) 8-segmented; basal five segments yellow, the terminal three abruptly brownish black; flagellar segments cylindrical, the first approximately twice as long as the second and stouter. Head light orange; vertical tubercle unusually large and tumid, pruinose in front; on the declivitous anterior portion behind the antennae with a short linear impression, the summit entire.

Prothorax dark brown, sparsely pruinose. Mesonotal praescutum with the restricted ground gray, with three entire dark brown stripes, the median one broad; anterior part of praescutal interspaces more blackened, interconnecting the stripes; scutum with centers of lobes dark brown, the lateral portions blackened, median area gray pruinose; scutellum obscure brownish yellow, the cephalic and lateral portions more blackened; postnotum dark brown. Pleura chiefly dark brown, with a broad but vague more brownish yellow stripe on the sternopleurite and ventral pteropleurite. Halteres with stem light yellow, its outer

end and the knob dark brown. Legs with the coxae brownish black, very sparsely pruinose; trochanters obscure yellow; fore femora obscure yellow, with about the outer third infuscated; middle femora yellow, the tips more narrowly but abruptly dark brown, involving about the outer fifth; posterior femora yellow, the tip dark brown, with a further somewhat broader ring at near midlength, the latter more extensive than the enclosed yellow annulus; tibiae obscure yellow, the genua narrowly darkened, the tips a little more extensively so; tarsi dark brown, the outer segments black. Wings with the ground color of cells basad of cord light yellow, conspicuously variegated with medium brown, the two colors subequal in extent; cell *C,* excepting its outer end, uniformly dark brown; cell *Sc* brownish yellow; anterior prearcular field yellow, confluent with extensive areas in cells *R* and *M* and again over most of cell *1st A;* basad of cord the brown appears especially as broad seams over more than the basal half of *Rs,* outer third of *M,* over all of *Cu* and adjacent membrane to *m-cu,* confluent with a darkening in the outer fourth of cell *1st A* adjoining the vein; cell *2nd A* uniformly darkened; cells beyond cord, excepting the pale bases of *1st* M_2 and M_4, uniformly brown; stigma darker brown than the ground, relatively small, lying basad of vein R_2; veins brownish yellow, abruptly clear yellow in the brightened areas. Veins beyond cord without macrotrichia. Venation: Sc_1 ending just beyond fork of *Rs,* Sc_2 near its tip; *Rs* more than twice R_{2-3-4}; R_2 just beyond the fork of R_{2-3-4}, shorter than R_{1-2}; cell *1st* M_2 pentagonal, the first and second sections of M_{1-2} and second section of M_{3-4} subequal, the other elements enclosing the cell shorter; *m-cu* about one-third to one-fourth its length beyond the fork of *M.*

Abdomen with basal tergite black; tergite two yellow, broadly bordered laterally and caudally with black; tergites three and four yellow with the posterior margin broadly black; segments five and six uniformly black; outer tergites, including the genital shield, fiery orange; basal sternite black, two to four yellow, five and six black, the remainder orange. Valves of ovipositor broken in the type but evidently elongate.

Habitat: Southeastern Brazil.

Holotype, ♂, Rio de Janeiro, Km 47, December 28, 1945 (Wygodzinsky).

Most similar in its general appearance to species such as *Hexatoma* (*Eriocera*) *fasciata* (Guérin), *H.* (*E.*) *melanacra* (Wiedemann), *H.* (*E.*) *myrtea* (Alexander), *H.* (*E.*) *tranquilla* (Alexander), and others, differing conspicuously in all details of coloration of the body, legs and wings.

Atarba Osten Sacken

Atarba Osten Sacken; Mon. Dipt. N. Amer., 4: 127; 1869; (type *picticornis* Osten Sacken).

Subgenus *Ischnothrix* Bigot

?*Lachnocera* Philippi; Verh. zool.-bot. Ges. Wien, 15: 615-616, pl. 23, fig. 5; 1865; (type *delicatula* Philippi).
Ischnothrix Bigot; Miss. Sci. Cap Horn, Zool. 6: 7-8, pl. 2, fig. 1; 1888; (type *aetherea* Bigot).
Oromyia Alexander; Journ. N. Y. Ent. Soc., 21: 203-204, pl. 2, fig. 7, pl. 3, figs. 7-9; 1913; (type *lloydi* Alexander).
Orolimnophila Alexander; Ent. News, 32: 178; 1921; (re-naming of last).

A large and diverse group of small to medium-sized Tipulidae, most numerous in species in the American Tropics. Body glabrous and usually highly polished. Most of the species are yellow, unvariegated except for a subterminal dark abdominal ring in the male. A few of the local species of *Atarba* have the mesonotum patterned with black while one *(anthracina)* is uniformly polished black. Two of the three recognized subgenera, *Atarba* and *Ischnothrix,* are found in the local fauna and since the separating characters are found chiefly in the wing venation, the two groups are discussed herewith as a unit.

Antennae of the males usually of medium length, approximately one-third to one-half the length of the body or wing, longest in *tenuissima* where it is fully three times as long as the wing, shortest in *brevissima* where it is less than one-fourth the length of the wing. In species with moderately lengthened male antennae, the flagellar vestiture differs strikingly in different species or groups of species. Commonly three different types of setae are found on a single segment, including a short dense erect pubescence which in some species becomes longer and more conspicuous; in species such as *aperta, bifilosa, dasycera, hirticornis* and others, the segments are clothed with numerous unusually long setae that are scattered over the whole surface, interspersed with other setae of moderate length and abundant microscopic setulae; besides the setae, the stronger verticils occur, these commonly of moderate length, in some species (as *unilateralis*) with a single verticil on each segment, unilaterally distributed and of unusual length. In *nodulosa* the flagellar segments have a strong basal enlargement to produce a nodulose appearance. Many species have the antennal flagellum bicolored, in cases with the base of each segment yellow, the apex darkened, in still other species with this pattern reversed.

Middle and hind coxae widely separated by the unusually large meron. Legs with the tibial spurs present (subgenera *Atarba* and *Ischnothrix*) or lacking *(Atarbodes);* claws (male) simple or, in cases, with a basal tooth. Wings (Figs. 21-26) with vein

and cell R_3 preserved in *Ischnothrix* (Figs. 21-23), lacking in *Atarba* (Figs. 24-26) and *Atarbodes,* the loss being interpreted as having been brought about by atrophy, with vein R_3 lost. In *Ischnothrix,* vein R_3 may be long or shorter and more oblique

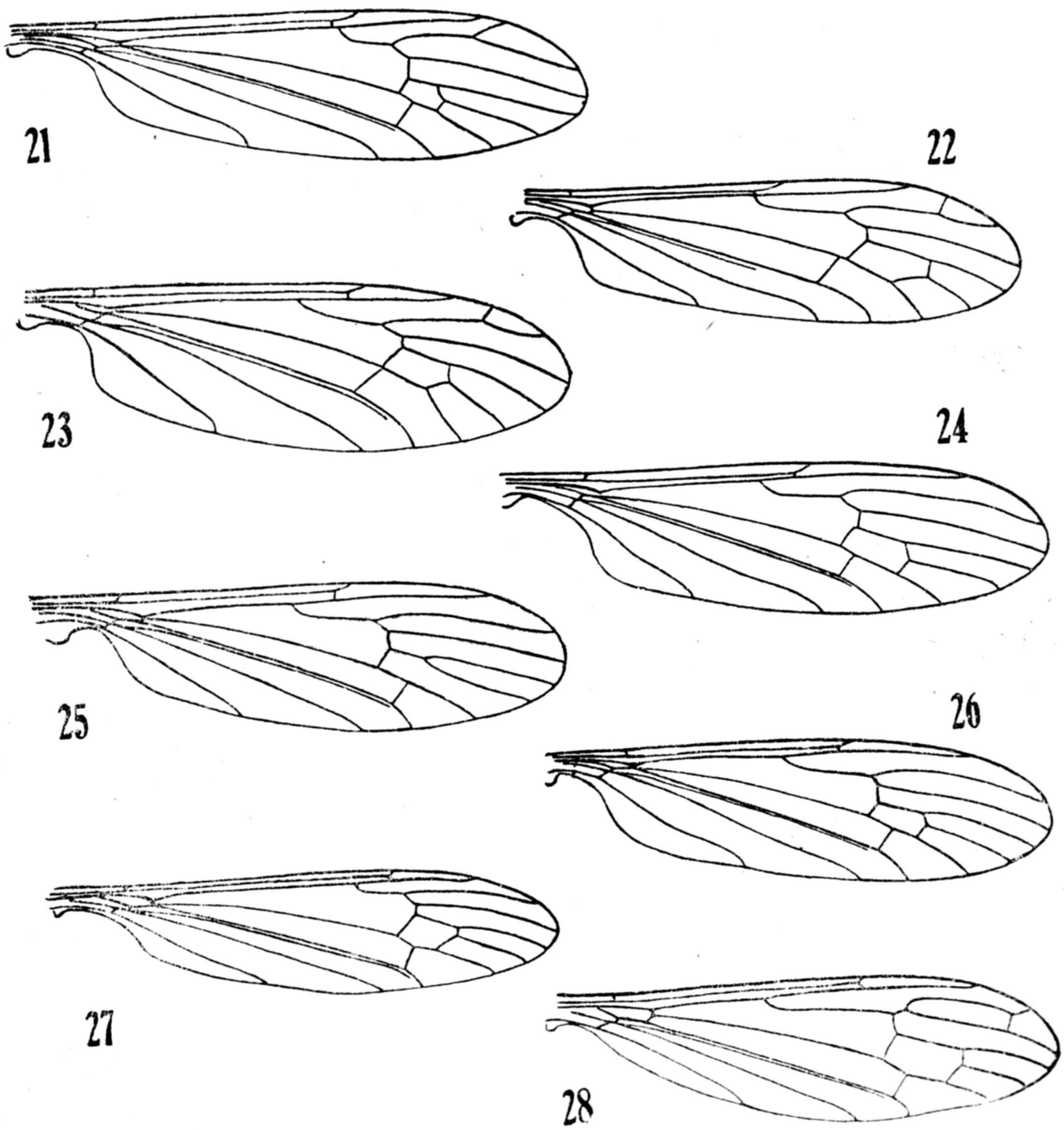

Fig. 21. *Atarba (Ischnothrix) voracis,* sp. n.; venation. — Fig. 22. *Atarba (Ischnothrix) berthae,* sp. n.; venation. — Fig. 23. *Atarba (Ischnothrix) tenuissima* Alexander; venation. — Fig. 24. *Atarba (Atarba) dasycera,* sp. n.; venation. — Fig. 25. *Atarba (Atarba) aperta* Alexander; venation. — Fig. 26. *Atarba (Atarba) bifilosa* Alexander; venation. — Fig. 27. *Elephantomyia (Elephantomyia) alticola* Alexander; venation. — Fig. 28. *Elephantomyia (Elephantomyina) supernumeraria* Alexander; venation.

in position, in the more specialized forms short and erect. *Sc* usually ends opposite or close to the origin of *Rs*; in several species the vein is longer, ending opposite or beyond midlength of *Rs,* the latter vein of moderate length, in cases short, as in *brevisector* where it is only a little longer than the basal section of R_5. Cell *1st* M_2 generally closed, varying in shape from sub-

quadrate to rectangular; wnen open, as in *aperta* (Fig. 25), *patens* and others, with the basal section of M_3 atrophied.

Male hypopygium (Figs. 29-35) with a uniform basic plan but with most of the component parts showing an unusual diversity in structure, providing excellent specific characters. Caudal margin of ninth sternite in virtually all species bearing a median plate, the outer lateral angles of which are produced into spinous points, short and spurlike in many *Atarba,* long and slender in various species of *Ischnothrix.* In some species of the latter subgenus the caudal margin of the eighth sternite bears a comparable but smaller median lobe. Basistyle almost invariably with a small lobe or tubercle on mesal face near apex. Two dististyles, terminal in position; outer style heavily blackened, terminating in an acute spine, the outer margin back from this point with a series or row of spinous points, the more basal ones smaller; inner style appearing as a simple gently curved rod. Gonapophyses, *g,* varying in form, often appearing as shortened smooth blades or lobes, in other species provided with abundant spinous points. Aedeagus, *a,* very diverse in structure in the different species or groups, in several (as *bifilosa, bifurcula, dinematophora, laddeyana, punctiscuta,* and others) deeply to profoundly bifurcate. In the forms having the organ simple, some (as *cincticornis, religiosa*) have it very long, narrowed outwardly; in still other species the aedeagus is long but stout, more or less expanded or dilated at apex, this condition reaching its maximum in species such as *cucullata* and *megaphallus.* The smallest aedeagus in the local fauna as now known is in *microphallus.*

The center of distribution for both *Atarba* and *Ischnothrix* is in Tropical America where there are a host of species, the described ones being listed here with. Most of these species are Tropical or Subtropical but rather numerous forms of *Ischnothrix* occur throughout the Chilean subregion. Northward, only two species, both in *Atarba,* reach the United States, including the genotype, *picticornis,* common and widely distributed in the eastern United States as far north as New York and New Hampshire. Elsewhere in the world various species of *Ischnothrix* occur in Australia and New Zealand. Two peculiar species of *Atarba* are found in New Zealand. The rather numerous species of the Old World subgenus *Atarbodes* Alexander center in eastern Asia, from western China and Japan southward into the Oriental fauna, with a few further species in the eastern and southern Ethiopian region.

Professor J. Speed Rogers has reared the type species, *picticornis,* from wet sodden logs and branches in an advanced stage of decay, the larvae feeding on the softened wet wood fibres. Pupation takes place within a silk-lined cocoon composed of wooden fibres, located near the surface of the rotten wood.

The affinities of the Atarbaria remain very puzzling and questionable. Earlier (Dipt. Patagonia and South Chile, 1: 167; 1929) I had discussed the problem in some detail as understood at that time and little new evidence on phylogeny has been forthcoming in the intervening years. The early assignment to the tribe Hexatomini, followed with considerable question in the present report, was based on the general morphology of the adult flies. The very large meron raises a doubt as to the correctness of such an assignment. The discovery of the immature stages by Rogers led the latter to place the group in the tribe Limoniini, in the vicinity of *Dicranoptycha.* The venation, presence of tibial spurs and the basic plan of the male hypopygium all differ from the characters of the genus *Limonia,* type of the tribe Limoniini, and the assignment of *Atarba* to this tribe must be questioned. However, the relationships with *Dicranoptycha,* as noted by Rogers, seem highly probable and would indicate that this latter genus has been incorrectly placed in the Limoniini. The resemblance of certain Chilean species of *Ischnothrix* to members of *Rhabdomastix* has been noted in earlier papers by the writer and this resemblance is so striking that some degree of relationship between the two groups seems indicated. The latter genus has been considered earlier in this series of Notes (Part III, Rev. de Entomologia, 18: 318-320; 1947) under the tribe Eriopterini, where it seems correctly assigned. It will be seen from this discussion that the true position in tribes of several of our most familiar Tipulid genera remains in question and their assignment to their present places is based chiefly on the gross morphology of the adult flies.

The genus *Lachnocera* Philippi, placed at least tentatively in the synonymy of *Ischnothrix* in the present paper, has been discussed by the writer in the report on Chilean Tipulidae, cited above. Philippi described and figured the type of this genus, *delicatula* Philippi, as having the antennal pedicel elongate. Edwards (Dipt. Patagonia and South Chile, 1: 167, footnote; 1929) stated that an elongate pedicel was unknown otherwise in the Nematocerous Diptera but it may be noted that the Tipulid genus *Chionea* Dalman has this segment longer and even more

conspicuous than was indicated by Philippi for *Lachnocera*. In case the fly is re-discovered and its identity settled as falling in the present group, *Lachnocera* will be the oldest name available.

List of Species

Ischnothrix

aetherea Bigot. — Tierra del Fuego.
argentinicola (Alexander). — Argentina.
berthae, sp. n. — Southeastern Brazil.
brevisector Alexander. — Venezuela.
capitella Alexander. — Peru.
?delicatula (Philippi). — South Chile.
digitifera Alexander. — Peru.
fidelis Alexander. — South Chile.
geminata Alexander. — Peru.
helenae, sp. n. — Peru.
ignithorax Alexander. — South Chile.
integriloba Alexander. — Peru.
lloydi (Alexander). — Colombia.
mesocera Alexander. — Patagonia, South Chile.
obtusiloba Alexander. — Peru.
patens Alexander. — Panama.
picturata (Alexander). — South Chile.
scutellata (Alexander). — South Chile.
seticornis Alexander. — Southeastern Brazil.
supplicata Alexander. — Peru.
tenuissima (Alexander). — Patagonia, South Chile.
voracis, sp. n. — Peru.

Atarba

almeidai Alexander. — Southeastern Brazil.
amabilis Alexander. — Mexico.
angustipennis Alexander. — Cuba, Mexico.
anthracina Alexander. — Southeastern Brazil.
aperta aperta Alexander. — Mexico.
aperta subaperta Alexander. — Panama.
apicispinosa Alexander. — Panama.
bifilosa, sp. n. — Costa Rica.
bifurcula Alexander. — Southeastern Brazil.
boliviana Alexander. — Bolivia.
brevicornis Alexander. — Paraguay.
brevissima Alexander. — Southeastern Brazil.
brunneicornis Alexander. — Colombia.
bulbifera Alexander. — Peru.
cincticornis Alexander. — British Guiana, Ecuador.
circe Alexander. — Ecuador.
columbiana Alexander. — Colombia.
cucullata Alexander. — Ecuador.
dasycera, sp. n. — Peru.
diacantha Alexander. — Ecuador.
dinematophora Alexander. — Peru.
fiebrigi Alexander. — Paraguay.
forticornis Alexander. — Venezuela.
fuscoapicalis Alexander. — Southeastern Brazil.

heteracantha Alexander. — Peru.
hirticornis Alexander. — Peru.
idonea Alexander. — Ecuador.
incisurata Alexander. — Southeastern Brazil.
laddeyana Alexander. — Ecuador.
longitergata Alexander. Southeastern Brazil.
macracantha Alexander. — Peru.
megaphallus Alexander. — Amazonian Brazil.
melanomera Alexander. — Peru.
merita Alexander. — Southeastern Brazil.
mexicana Alexander. — Mexico.
microphallus Alexander. — Ecuador.
multiarmata multiarmata Alexander. — Peru.
multiarmata tarmae Alexander. — Peru.
nodulosa Alexander. — Ecuador.
pallidapex Alexander. — Peru.
perincisa, sp. n. — Peru.
(*pleuralis* Williston, see *Gonomyia-Paralipophleps*, Part II).
procericornis Alexander. — Ecuador.
(*puella* Williston, see *Gonomyia-Lipophleps*, Part II).
punctiscuta Alexander. — Southeastern Brazil, Paraguay.
religiosa Alexander. — Mexico.
restricta Alexander. — Peru.
scabrosa Alexander. — Peru.
scutata Alexander. — Mexico.
stigmosa Alexander. — Bolivia.
tatei Alexander. — Ecuador.
tetracantha Alexander. — Ecuador.
tuberculifera tuberculifera Alexander. — Peru.
tuberculifera edax, subsp. n. — Peru.
tungurahuensis Alexander. — Ecuador.
unilateralis Alexander. — Venezuela.
varicornis Alexander. — Peru.
variispina Alexander. — Southeastern Brazil.

Atarba (Ischnothrix) berthae, sp. n.

Mesonotum brown, the praescutum more reddish brown; antennae (male) short, approximately one-half the body, the flagellar segments bicolored; pleura dark brown, striped with yellow; knobs of halteres darkened; femora yellow, with a nearly terminal black ring; wings pale yellow, restrictedly patterned with brown; vein R_3 suberect; cell *1st* M_2 unusually large, subequal in length to the distal section of vein M_{1-2}; abdominal segments bicolored.

Male. — Length, about 5-5.5 mm.; wing, 6.4-6.8 mm.; antenna, about 2.5-2.7 mm.

Rostrum light brown; palpi black. Antennae (male) moderately long, approximately one-half the length of the body; scape and pedical obscure yellow; succeeding segments brownish black, the incisures yellow, including the apex and narrower base

of each segment; longest verticils shorter than the segments; in addition to the verticils, the segments with a dense erect white pubescence. Head reddish brown.

Pronotum reduced, concealed beneath the somewhat projecting praescutum. Mesonotal praescutum reddish brown, dark brown medially behind, the lateral borders narrowly darkened; posterior sclerites of notum dark brown, sparsely pruinose; scutellum obscure yellow. Pleura conspicuously patterned with black or dark brown and yellow, the dark color occupying the dorsal sclerites from the fore coxae to beneath the wing root, more extensive behind, the ventral darkening deep brown, sparsely pruinose, the two dark stripes separated by a broad yellow longitudinal area extending from the apical half of the fore coxa across the dorsal sternopleurite, becoming wider and more diffuse on the mesepimeron. Halteres with stem pale, knob infuscated. Legs with coxae yellow, the fore pair pale brown on basal half; trochanters yellow; femora yellow, with a nearly terminal black ring, the actual apex narrowly yellow; tibiae and tarsi yellow, the outer three segments of the latter black. Wings (Fig. 22) pale yellow, restrictedly but distinctly patterned with brown, as follows: Arculus; Sc_2 and origin of *Rs;* cord and outer end of cell *1st* M_2; marginal seams at ends of all longitudinal veins except Sc_1, best-indicated by a deepening in coloration of the veins; a further cloud at midlength of vein *Cu,* chiefly in cell *M;* veins yellow, darkened in the patterned areas. Venation: Sc_1 ending about opposite one-fourth the length of *Rs,* Sc_2 opposite this origin; vein R_3 short and straight, suberect; petiole of cell R_3 nearly twice vein R_4; cell *1st* M_2 unusually large, subrectangular, subequal in length to the distal section of vein M_{1-2}; *m-cu* shortly before the fork of *M;* vein *2nd A* nearly straight.

Abdominal segments bicolored, dark brown, the basal rings and narrower apex of the individual segments pale yellow, the latter areas more widened on their central portions; subterminal segments blackened to form a ring; hypopygium light yellow. Male hypopygium (Fig. 31) with the appendage of the ninth sternite, *9s,* produced into two pale horns that are directed laterad and slightly caudad; central region of the appendage more membranous, provided with long conspicuous pale setae. Outer dististyle, *d,* relatively slender, the outer margin with about seven appressed spines, with two or three further weak spinulae more basad. Inner dististyle a slender, slightly longer darkened rod.

Gonapophysis, *g*, with the margins entirely smooth. Aedeagus, *a*, unusually broad, curved and slightly widened at near midlength, the apex subtruncate.

Habitat: Southeastern Brazil.

Holotype, ♂, Boracea, São Paulo, altitude 900 meters, July 22, 1947 (Lauro Travassos Filho and Rabello). Paratopotype, 1 ♂.

This entirely distinct fly is named for Mrs. Betty Travassos, wife of Lauro Travassos Filho, through whose diligent collecting we owe much of our knowledge of the São Paulo Tipulidae. The only other regional member of the subgenus is *Atarba* (*Ischnothrix*) *seticornis* Alexander, an entirely different fly with plain wings and elongate antennae in the male. In its general appearance, the present fly more resembles species of the subgenus *Atarba* but is a true *Ischnothrix*.

Atarba (Ischnothrix) helenae, sp. n.

Head and abdomen black, the entire thorax orange yellow, unpatterned; antennae of moderate length, approximately one-half the length of the body or wing, the flagellum black; wings yellow with a heavy brown pattern; male hypopygium with the appendage of the ninth sternite conspicuous, consisting of a median transverse plate, each outer lateral angle extended into a slender straight spine.

Male. — Length, about 6 mm.; wing, 6.2 mm.; antenna, about 3 mm.

Rostrum dark brown; palpi black. Antennae (male) moderately long, approximately one-half the length of the body or wing; scape dark brown, pedicel light brown, flagellum black; flagellar segments cylindrical, gradually decreasing in length and thickness outwardly; verticils very small, about one-third the length of the segment; pubescence short but abundant. Head black, the surface sparsely pruinose, more heavily so behind the antennae; anterior vertex broad, exceeding three times the diameter of the scape.

Entire thorax orange yellow, unpatterned, the praescutum and scutum more polished. Halteres brownish black, the base of stem restrictedly yellow. Legs with the coxae and trochanters yellow; remainder of legs black, the bases of the fore femora yellow, involving about the proximal fifth; tibial spurs present. Wings with the restricted ground yellow, the prearcular field brighter yellow; a heavy brown pattern, including cells *C* and *Sc;* broad seams at origin of *Rs,* cord, outer end of cell *1st* M_2 and along vein *Cu;* cells beyond cord, especially near wing tip, even more extensively darkened, the bases of the outer radial

cells and center of cell *1st* M_2 restrictedly pale; basad of cord, the ground color extensive, the darkenings appearing chiefly as broad outer margins to the cells; veins brown, yellow in the prearcular field. Venation: Sc_1 ending about opposite two-fifths *Rs*, Sc_2 a short distance from its tip; R_{2-3-4} long, nearly twice vein R_4; vein R_3 suberect, gently arcuated; cell *1st* M_2 large, longer than the distal section of vein M_3; *m-cu* at near one-third the length of cell *1st* M_2; cell *2nd A* relatively broad.

Abdomen, including hypopygium, black, the basal sternite obscure brownish yellow. Male hypopygium (Fig. 29) with the appendage of the ninth sternite, *9s*, conspicuous, consisting of a median transverse plate, each outer lateral angle extended into a slender straight spine; caudal border of the appendage gently sinuous or submarginate; each outer lateral angle of the sternite with two or three long strong setae; submedian part, in front of the appendage, with a pale median strip, with decussate setae across this midline. Appendage of eighth sternite, *8s*, a small triangular lobe. Basistyle, *b*, with the lobe on mesal face unusually narrowed at apex, with one or two long bristles at tip. Outer dististyle, *d*, slender; outer margin back from the terminal spine with about four major spines and two or three further more basal denticles. Inner dististyle a little longer, appearing as a narrow, gently curved, dark-colored rod. Gonapophysis, *g*, appearing as a low glabrous lobe. Aedeagus, *a*, short, dilated and flaring at apex.

Habitat: Peru.

Holotype, ♂, Pillao, Huanuco, altitude 2,700 meters, in fog forest, February 25, 1946 (Woytkowski).

Dedicated to the memory of my sister, Ellen Elizabeth Alexander, who was born exactly sixty years earlier than the date of capture of this fly. The fly is unusually distinct and readily separated from all other regional species. The only forms with conspicuously patterned wings are the Chilean *Atarba* (*Ischnothrix*) *aetherea* (Bigot), *A.* (*I.*) *picturata* (Alexander), and *A.* (*I.*) *tenuissima* (Alexander), which differ in all details of coloration, the greatly lengthened male antennae, and in the structure of the male hypopygium.

Atarba (Ischnothrix) voracis, sp. n.

General coloration of praescutum and scutum yellowish brown, the posterior sclerites and the pleura dark brown; antennae subequal in length to the body or wing, the segments with long outspreading verticils; vein R_3 oblique; male hypopygium with the median appendage of the eighth sternite a stout median lobe, its

apex membranous, convexly rounded; ninth sternite with two slender divergent spines; basistyle with a low cushion on mesal face near the proximal end.

Male. — Length, about 6.5 mm.; wing, 7 mm.; antenna, about 6.7-6.8 mm.

Rostrum brownish testaceous; palpi darker brown. Antennae (male) elongate, approximately equal in length to either the body or wing; scape and pedicel yellow, flagellum dark brown, the first segment a little brightened basally; flagellar segments elongate-cylindrical, with long outspreading verticils over the entire length, the longest at midlength of organ fully three-fifths the length of the segment; more scattered subappressed shorter setae, unilaterally distributed, together with a dense erect delicate pubescence of about equal length. Head dark brown, gray pruinose, front and occiput more obscure yellow.

Mesonotal praescutum and scutum chiefly yellowish brown, the former somewhat darker medially; posterior sclerites of notum dark brown. Pleura and pleurotergite dark brown, the ventral pleurites paler. Halteres with stem obscure yellow, knob dark brown. Legs with coxae testaceous yellow, the fore pair darker; trochanters obscure yellow; remainder of legs brown; tibial spurs hairy on proximal half. Wings (Fig. 21) with a weak brownish tinge, the oval sigma slightly darker brown; veins brown. Macrotrichia of veins of moderate length. Venation: Sc_1 ending about opposite one-third to one-fourth the length of *Rs,* the latter slightly angulated at origin; R_{2-3-4} long, gently arcuated; vein R_3 oblique, at margin separated from R_{1-2} by a distance about equal to two-thirds its own length; cell *1st* M_2 closed, rectangular; *m* subequal in length to basal section of M_3; *m-cu* at near one-third the length of the cell.

Abdominal tergites brown; sternites bicolored, the incisures yellow, including the narrow bases and broader apices of the segments, the broad intervening area dark brown; subterminal segments uniformly blackened; hypopygium yellow. Male hypopygium (Fig. 30) with the appendage of the ninth sternite, *9s,* appearing as two slender divergent spines, the basal union very short, on either side with a cushion bearing several strong setae. Eighth sternite, *8s,* with a stout median lobe, the basal three-fourths nearly parallel-sided and weakly sclerotized, the apex pale, membranous, convexly rounded. Basistyle, *b,* with the usual slender lobule on mesal face before apex and with a low densely hairy lobe on mesal face near cephalic end. Outer dististyle,

d, a gently curved blackened rod, the outer margin of apical half with about a dozen appressed black spines, the lower surface with two or three similar ones. Inner dististyle approximately as long, shaped like a narrow boomerang, the surface with scattered punctures. Phallosome, *p,* entirely pale.

Habitat: Peru.

Holotype, ♂, Chinchao, Huanuco, altitude 2,500 meters, on wooded hills, November 4, 1946 (George Woytkowski). Paratopotypes, ♂♂.

Among similar regional forms, the present fly is closest to *Atarba* (*Ischnothrix*) *integriloba* Alexander, differing in the details of structure of the male hypopygium, as the lobe of the eighth sternite.

Atarba (Atarba) bifilosa, sp. n.

General coloration of thorax medium brown, unpatterned; antennae (male) brown, very long, considerably exceeding in length either the body or wing; legs brownish yellow; wings with a weak brownish tinge, unpatterned; *Sc* long, Sc_1 ending about opposite two-thirds to three-fourths the length of *Rs;* cell *1st* M_2 closed; abdominal segments bicolored, brown basally, the outer half yellow; eighth segment uniformly blackened; male hypopygium with the gonapophyses smooth, without spines; aedeagus elongate, deeply bifid.

Male. — Length, about 5.5-5.8 mm.; wing, 5.2-5.7 mm.; antenna, about 7.5 mm.

Rostrum testaceous; palpi dark brown. Antennae (male) very long, considerably exceeding in length either the body or wing, brown; flagellar segments elongate-cylindrical with very long erect delicate setae, on the first flagellar segment exceeding one-third the length of the segment, on the sixth segment almost as long as the segment itself. Head brown; anterior vertex narrow, subequal in diameter to the scape.

Thoracic dorsum medium brown, unpatterned; pleura somewhat more yellowed. Halteres with stem testaceous, knob weakly infuscated. Legs with the coxae and trochanters yellow; remainder of legs brownish yellow to yellow, the outer tarsal segments a trifle darker; tibial spurs conspicuous. Wings (Fig. 26) with a weak brownish tinge, the prearcular and costal fields slightly more yellowed; veins pale brown, more brownish yellow in the brighter areas. Venation: *Sc* long, Sc_1 ending about opposite two-thirds to three-fourths *Rs,* Sc_2 near its tip; branches of *Rs* virtually parallel to one another for their entire lengths; *m-cu*

at near midlength of cell *1st* M_2 or more than its own length beyond the fork of *M*.

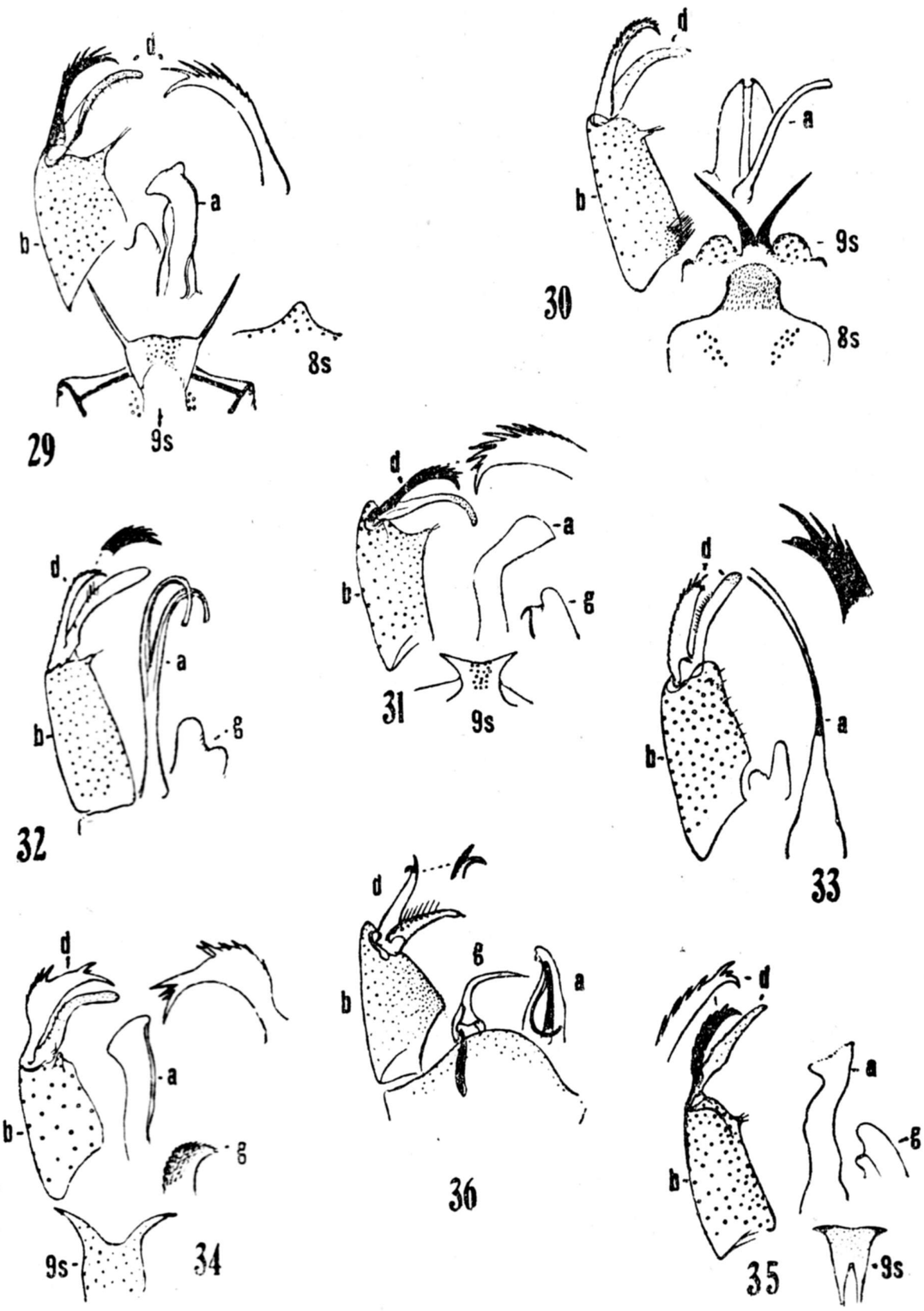

Fig. 29. *Atarba (Ischnothrix) helenae,* sp. n.; male hypopygium. — Fig. 30. *Atarba (Ischnothrix) voracis,* sp. n.; male hypopygium. — Fig. 31. *Atarba (Ischnothrix) berthae,* sp. n.; male hypopygium. — Fig. 32. *Atarba (Atarba) bifilosa* Alexander; male hypopygium. — Fig. 33. *Atarba (Atarba) dasycera,* sp. n.; male hypopygium. — Fig. 34. *Atarba (Atarba) perincisa,* sp. n.; male hypopygium. — Fig. 35. *Atarba (Atarba) tuberculifera edax,* subsp. n.; male hypopygium. — Fig. 36. *Elephantomyia (Elephantomyia) primogenia,* sp. n.; male hypopygium. — (Symbols: *a,* aedeagus; *b,* basistyle; *d,* dististyle; *g,* gonapophysis; *s,* sternite).

Abdominal segments bicolored, brown basally with the outer half yellow; eighth segment uniformly brownish black to form a narrow ring; hypopygium yellow. Male hypopygium (Fig. 32) with the outer dististyle, *d,* having about six or seven long

appressed spines on outer margin before the somewhat stouter apical one, the more basal spines much smaller and finally obsolete. Inner dististyle longer, appearing as a pale paddle-like structure, on outer margin just before midlength with about five strong setae. Aedeagus, *a*, elongate, deeply bifid, as illustrated. Gonapophyses, *g*, entirely smooth, without spines, the apex obtuse. I am unable to detect an appendage on the ninth sternite in the single microscope slide available.

Habitat: Costa Rica.

Holotype, ♂, La Suiza de Turrialba, July (Pablo Schild); Alexander Collection, through kindness of A. L. Melander.

Among the described species of the genus having vein *Sc* long and the aedeagus deeply bifid, the present fly comes closest to *Atarba* (*Atarba*) *laddeyana* Alexander, a quite different fly. All other species having *Sc* long have the structure of the male hypopygium, particularly the aedeagus, entirely different.

Atarba (Atarba) dasycera, sp. n.

General coloration of mesonotum brown; antennae (male) elongate, subequal to the body or wing, the flagellar segments with abundant very long outspreading setae; femora obscure yellow, the tips weakly darkened; wings with a strong brown suffusion; *Sc* long, Sc_1 ending about opposite midlength of *Rs;* male hypopygium with the outer dististyle relatively broad, before apex on outer face with four or five strong black spines; aedeagus profoundly forked into two elongate blackened arms.

Male. — Length, about 5 mm.; wing, 5.5 mm.; antenna, about 5 mm.

Rostrum and palpi brown. Antennae (male) elongate, subequal to the body, brown, the incisures of the more proximal flagellar segments a trifle darker; flagellar segments elongate-cylindrical, with very long erect setae scattered over the length, on the intermediate segments the longest of these only a little shorter than the segment itself, others about three-fourths this length. Head brown.

Mesonotum chiefly dark brown, the median region of scutum and sublateral areas on praescutum vaguely brownish yellow. Pleura infuscated dorsally, becoming paler below, the ventral areas and sternites pale yellow. Halteres with stem dusky, knob dark brown. Legs with the coxae and trochanters testaceous yellow; a single leg (hind) remains; femora obscure yellow, the tips weakly

darkened; tibiae yellow, the tips even more narrowly infuscated; tarsi obscure yellow, the outer segment darkened; tibial spurs distinct. Wings (Fig. 24) with a strong brown suffusion, the prearcular and narrow costal region slightly darker; a narrow and vague darkening over the anterior cord, best-indicated by a deepening in the color of the veins, the remaining veins brown. Venation: *Sc* long, Sc_1 ending about opposite midlength of *Rs*, Sc_2 a short distance from its tip; branches of *Rs* parallel to one another throughout their length, cell R_2 at margin thus much more extensive than cell R_4; *m-cu* at near one-third the length of cell *1st* M_2.

Abdomen dark brown, the incisures even darker, brownish black; hypopygium brownish black. Male hypopygium (Fig. 33) with the appendage of the ninth sternite, *9s*, if normally present, not evident in the microscope slide. Basistyle, *b*, without a well-developed lobe on the mesal face near apex, as common in the genus, this replaced by a low setiferous tubercle. Outer dististyle, *d*, relatively broad, with appressed spines down virtually the entire outer face but only the outer four or five of these blackened and conspicuous, the outer spines larger; terminal spine shorter than the subapical one. Inner dististyle longer than the outer style, a nearly straight to slightly curved blade, its apex obtuse; outer margin of proximal half with a row of about a dozen conspicuous setae. Aedeagus, *a*, single on less than the basal half, thence dividing into two long slender blackened rods or arms. Gonapophyses appearing as simple smooth elongate blades.

Habitat: Peru.

Holotype, ♂, Previsto, Upper Ucayali River, Loreto, altitude 900 meters, September 11, 1947 (Schunke).

This very distinct fly is closest perhaps to *Atarba* (*Atarba*) *bifilosa*, sp. n., in the long *Sc* and profoundly bifid aedeagus of the male. It differs in all details of structure of the antennae and male hypopygium. In its antenna, the present fly most resembles *A.* (*A.*) *hirticornis* Alexander, which has *Sc* short and the aedeagus simple.

Atarba (Atarba) perincisa, sp. n.

Allied to *multiarmata;* pronotum and praescutum light brownish yellow, the scutum and scutellum more chestnut; postnotum and dorsal pleurites brownish black; antennae (male) elongate, flagellum dark brown; legs yellow, the tips of the fore femora weakly darkened; wings with a weak brownish tinge,

restrictedly patterned with darker brown; a broad subhyaline band before cord; Sc_1 ending about opposite one-third the length of *Rs;* male hypopygium with the caudal margin of the sternal appendage emarginate; outer dististyle broadest at near midlength, the outer margin at this point with a concentration of spines; beyond this point the style is narrowed, terminating in fewer points; gonapophyses with abundant spinous points.

Male. — Length, about 5 mm.; wing, 5.5 mm.; antenna, about 4 mm.

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

Rostrum yellow; palpi yellow, the long conspicuous terminal segment brownish black. Antennae (male) elongate, nearly two-thirds as long as wing; scape and pedicel yellow, flagellum dark brown; flagellar segments elongate-cylindrical, clothed with an abundant erect white pubescence; verticils solitary on each segment, on the intermediate ones approximately one-third as long as the segment. Antennae of female shorter. Head dark brown.

Pronotum and praescutum light brownish yellow, the scutum and scutellum somewhat more chestnut; postnotum and dorsal pteropleurite brownish black, the remaining pleurites more uniformly yellow. Halteres with stem yellow, knob infuscated. Legs with all coxae and trochanters yellow; remainder of legs yellow, the tips of the fore femora weakly darkened. Wings with a weak brownish tinge, the prearcular and costal regions clearer yellow; stigma oval, brown, the region of the cord paler brown; a broad subhyaline band before cord; a poststigmal pale area; veins pale brown, darker in the more patterned areas, pale in the brightened portions. Venation: Sc_1 ending about opposite one-third *Rs,* Sc_2 near its tip; *m-cu* nearly one-half its length beyond the fork of *M,* at near one-third the length of cell *1st* M_2.

Abdomen (male) bicolored; basal segments dark brown; succeeding segments yellow basally, more extensively dark brown on posterior portion, the amount of dark color increasing on the outer segments to form a more uniform subterminal ring; hypopygium yellow. Male hypopygium (Fig. 34) with the appendage of the ninth sternite, *9s,* elongate, entirely pale, the outer apical angles produced into strong horns; caudal margin with a U-shaped emargination. Outer dististyle, *d,* broadest at near midlength, at this point on outer margin with a concentration of six or seven blackened spines, the largest ones more distad; beyond this point the style narrows, terminating in a long slender

curved spine, with three or four smaller spines immediately before this point. Inner dististyle relatively narrow, weakly darkened, at near midlength bent virtually at a right angle, the apex obtuse; surface of style with numerous small setae. Aedeagus, *a,* dilated and moderately flaring at apex. Gonapophyses, *g,* with abundant spinous points.

Habitat: Peru.

Holotype, ♂, Chanchamayo, Junin, altitude 1,400 meters, April 28, 1941 (Schunke). Allotopotype, ♀, pinned with type.

The most similar species is *Atarba* (*Atarba*) *multiarmata* Alexander, which differs in the coloration of the body and wings and in the structure of the male hypopygium, including the sternal appendage and outer dististyle.

Atarba (Atarba) tuberculifera edax, subsp. n.

Male. — Length, about 7.5 mm.; wing, 8.2 mm:; antenna, about 3 mm.

Female. — Length, about 7-8 mm.; wing, 8-9 mm.

Close to typical *tuberculifera* Alexander, differing especially in the details of structure of the male hypopygium. In the type and allotype the dark femoral rings are broad and nearly terminal in position; in the larger female paratype, these rings are narrower, subequal to or a trifle wider than the pale tips. In all specimens the dark rings of the posterior femora are a trifle narrower than those of the other legs.

Male hypopygium (Fig. 35) with the appendage of the ninth sternite, *9s,* divided anteriorly, widened at posterior end, the outer lateral angles extended into stout darkened horns; posterior margin of appendage between the horns very gently emarginate; surface with very numerous pale setae. Outer dististyle, *d,* very narrow, blackened throughout, the outer margin with spines on the outer two-thirds or more, the more basal ones small, the succeeding six or seven strong but appressed; terminal spine small, the subterminal one much smaller than the antepenultimate; no spines or serrulations on lower face of style. Inner dististyle broad-based, gradually narrowed outwardly, the tip obtuse; surface of style with relatively numerous scattered setae. Aedeagus, *a,* stout, dilated and flaring at apex, without the tubercle on margin found in the typical form. Gonapophyses, *g,* unequally bilobed, the principal lobe or blade pale, the margins entirely smooth, obtuse.

Habitat: Peru.

Holotype, ♂, Sariapampa, Huanuco, altitude 3,600 meters, in fog forest, May 12, 1946 (Woytkowski). Allotopotype, ♀, pinned with type. Paratopotype, 1 ♀, May 10, 1946 (Woytkowski).

Elephantomyia Osten Sacken

Toxorhina Loew; Bernstein und Bernsteinfauna, p. 36; 1850; (nomen nudum).
Toxorhina Loew; Linnaea Ent., 5: 400 (in part); 1851.
Elephantomyia Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 220; 1859; (type *westwoodi* Osten Sacken, as *canadensis* Westwood, in error).

Subgenus *Elephantomyina* Alexander

Elephantomyia (Elephantomyina) Alexander; Ann. Mag. Nat. Hist., (11) 1: 349; 1938; (type *supernumeraria* Alexander).

Medium sized flies, distinguished chiefly by the greatly lengthened rostrum. Three subgenera, two of which are in the local fauna, are commonly recognized.

Entire front of head drawn out into a slender rostrum, commonly as long as or longer than the entire body, in some, as the southwestern Nearctic *curtirostris* Alexander, short, only about two-fifths the length of the body or wing; palpi reduced, placed at apex of rostrum. Antennae commonly 15-segmented, the basal two flagellar segments united into a fusion-segment; succeeding segments cylindrical, with unusually long verticils that may be fully three times the length of the segments. Head with eyes large to very large, especially in the males, the anterior vertex correspondingly narrowed.

Tibial spurs commonly present, lacking in some species of the typical subgenus and in the subgenus *Elephantomyodes;* vestiture of legs of normal setae, not bifid as in the superficially similar *Toxorhina* (see Part III of this series of Notes). Wings (Figs. 27, 28) with vein R_2 lacking; three branches of R, interpreted as being R_{1-2}, R_4 and R_5; the two latter veins commonly elongated, extending generally parallel to one another; *r-m* connecting with R_5 or (*Elephantomyina,* Fig. 28) with *Rs* before the fork. Cell *1st* M_2 large, subquadrate to rectangular in outline, with *m-cu* some distance beyond the fork of M; cell *2nd A* normally broad, very narrow in *luteiannulata* and others; anterior arculus preserved. In the subgenus *Elephantomyina* with a supernumerary crossvein in cell R_3 (Fig. 28).

Male hypopygium (Fig. 36) with the dististyles terminal, commonly with the outer style slender, glabrous, bifid at tip, in

cases shorter and stouter; in *tigriventris* the outer style with numerous spinulae on outer third, somewhat suggesting the condition found in the genus *Atarba*. Penis commonly greatly elongated into a hairlike coiled penefilum, sometimes very long (as in *angustissima, tenuissima,* and others); in other species, as *primitiva,* aedeagus short and simple, with little extension of the penis. Gonapophyses lying far laterad, more or less in the position normally occupied by the interbases when the latter are present, appearing as flattened, inwardly directed blades. Ovipositor with elongate valves.

Elephantomyia is widely distributed throughout the major regions of the World, including Europe and New Zealand, being especially numerous in species in the Neotropics and Ethiopian Region. The Antarctic fauna includes species in New Zealand, Tasmania and Chile. The antiquity of the genus is shown by its occurrence in the Baltic Amber. *Elephantomyina* is still known only from the subgenotype. The Old World subgenus *Elephantomyodes* Alexander, distinguished by peculiarities of venation, in addition to the loss of the tibial spurs, is essentially Oriental but with numerous species in the Australasian fauna as far east as New Guinea.

The immature stages occur in the wet decaying wood of various species of hardwood trees.

As was indicated under the discussion of the genus *Toxorhina* in an earlier part under this series of Notes (III. Rev. de Entomologia, 18: 356-357; 1947), considerable confusion in the use of the names *Aporosa* Macquart, *Toxorhina* Loew, and *Elephantomyia* is found in the early literature. As it pertains to *Elephantomyia,* the situation is as follows: In the 1850 paper by Loew, cited in the synonymy, the author mentioned but did not describe in any manner three species of flies. The succeeding year these naked names were validated but were included with a fuller discussion of a fly now called *Toxorhina fragilis* which is held to be the true type of the genus. The three Amber species in these papers were recognized as belonging to a distinct genus to which Osten Sacken gave the name *Elephantomyia* and it is in this latter sense that the name is used in the present paper.

As previously indicated the affinities of the Elephantomyaria remain much in doubt and the assignment to the higher Hexatomini may be held in question. Some species of *Helius* St. Fargeau have the rostrum lengthened and thus approach the condition found

in the short-beaked members of the present genus. Furthermore there are decided points of resemblance in the male hypopygia of the two groups and these genera may be more closely allied than is at present recognized. The only other genus in the local fauna having the rostrum greatly lengthened and homologous in structure with that of the present group is *Toxorhina* Loew.

List of Species

Elephantomyina

supernumeraria Alexander. — Ecuador, Peru.

Elephantomyia

alticola Alexander. — Mexico.
angustissima Alexander. — Mexico.
arcuaria Alexander. — Panama.
banksi Alexander. — Panama.
boliviensis Alexander. — Bolivia.
brunneipennis Alexander. — Ecuador.
chionopoda Alexander. — Peru.
chiriquiana Alexander. — Panama.
clitellaria Alexander. — Chile.
fumipes Alexander. — Mexico.
humilis Alexander. — Colombia.
juquiensis Alexander. — Southeastern Brazil.
(*longirostris* Williston, see *willistoni*).
luteiannulata luteiannulata Alexander. — Mexico.
luteiannulata chiriquiensis Alexander. — Panama.
pictiventris Alexander. — Ecuador, Peru.
primitiva Alexander. — Ecuador.
primogenia, sp. n. — Southeastern Brazil.
setulistyla Alexander. — Ecuador.
subhumilis Alexander. — Ecuador.
tarsalba Alexander. — Surinam.
tenuissima Alexander. — Peru.
tigriventris Alexander. — Ecuador.
westwoodi antillarum Alexander. — Cuba.
willistoni Alexander. — Lesser Antilles: St. Vincent.

Elephantomyia (Elephantomyia) primogenia, sp. n.

General coloration of mesonotum light brown, the praescutum with three slightly darker stripes; thoracic pleura obscure yellow, virtually unpatterned; femora brown, the tibiae and tarsi darker brown; tibial spurs distinct; wings with a brownish gray tinge; stigma oval, pale brown; narrow and inconspicuous seams over cord and outer end of cell *1st* M_2; branches of *Rs* diverging very gradually to the margin; male hypopygium with the outer dististyle

blackened, divided at apex into two spines; aedeagus stout, the penefilum unusually short and stout.

Male. — Length, excluding rostrum, about 8 mm.; wing, 8.5 mm.; rostrum, about 6 mm.

Female. — Length, excluding rostrum, about 11 mm.; wing, 9.5 mm.

Rostrum elongate, dark brown. Antennae brownish black, the scape sligtly pruinose; outer flagellar segments broken. Head brownish gray; anterior vertex (male) narrow, a little less than the diameter of scape; head of the only available female lacking with exception of outer half of rostrum.

Pronotum and posterior sclerites of mesonotum light brown, the praescutum more reddish brown with three slightly darker brown stripes, the median one broader and more distinct, especially on anterior half. Pleura and pleurotergite obscure yellow or brownish yellow, virtually unpatterned; dorsopleural region and a small elevated area before the wing root slightly darker brown. Halteres pale, the knob a very little darker. Legs with the fore and middle coxae weakly infuscated, the posterior pair light yellow; femora brown, tibiae and tarsi darker brown; tibial spurs, at least on hind legs, long and distinct. Wings with a brownish gray tinge, the prearcular field a trifle paler; stigma oval, pale brown; narrow and inconspicuous pale brown seams over cord and outer end of cell *1st* M_2; a similar wash at base of cell *Cu,* continued outward along vein *Cu*; veins light brown. Venation: Sc_1 ending just before level of fork of *Rs,* Sc_2 near its tip; branches of *Rs* diverging very gradually, cell R_2 at margin a little more extensive than cell R_3; cell *1st* M_2 subrectangular, about equal in length to the distal section of vein M_3; *m-cu* at near two-thirds the length of cell *1st* M_2; cell *2nd A* moderately broad.

Abdomen chiefly dark brown, the lateral and posterior margins of the tergites paler brown, more unicolorous brown in female; subterminal segments brownish black, forming a ring; hypopygium with styli light yellow. Male hypopygium (Fig. 36) with the dististyles, *d,* slightly subterminal in position; outer style a little shorter and more slender than the inner one, divided at apex into two spines, the axial one a little less curved; inner style with long conspicuous pale setae along outer margin. Gonapophyses appearing as strongly curved rods or blades, the

tips produced into slender pale points. Aedeagus, *a,* stout, the penefilum unusually short and stout, when compared with most other species.

Habitat: Southeastern Brazil.

Holotype, ♂, Theresopolis (Terezopolis), Rio de Janeiro, altitude 1,000 meters, October 1942 (Lauro Travassos Filho). Allotopotype, ♀.

From other regional species having the aedeagus and penefilum of the male hypopygium relatively unmodified, including *Elephantomyia* (*Elephantomyia*) *primitiva* Alexander and *E.* (*E.*) *tigriventris* Alexander, the present fly differs conspicuously in the size, coloration, and details of structure of the male hypopygium.