

Studies of Neotropical Caddisflies,
XVIII: New Species of
Rhyacophilidae and Glossosomatidae
(Trichoptera)

OLIVER S. FLINT, JR

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY • NUMBER 169

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ABSTRACT

Flint, Oliver S., Jr. Studies of Neotropical Caddisflies, XVIII: New Species of Rhyacophilidae and Glossosomatidae (Trichoptera). *Smithsonian Contributions to Zoology*, number 169, 30 pages, 91 figures, 1974.—Forty-six new species and two new subspecies of Rhyacophilidae and Glossosomatidae are figured and described from South and Central America, Mexico, and Hispaniola. They are placed in the following genera: *Atopsyche* (10 species), *Australochorema* (1 species), *Rheochorema* (1 species), *Antoptila* (1 species), *Cariboptila* (3 species), *Culoptila* (3 species), *Mastigoptila* (1 species), *Mexitrichia* (8 species), *Mortoniella* (1 species), and *Protoptila* (17 species and 2 subspecies).

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Studies of Neotropical Caddisflies, XVIII: New Species of Rhyacophilidae and Glossosomatidae (Trichoptera)

Oliver S. Flint, Jr.

Introduction

During the past ten years many specimens of Neotropical caddisflies have been studied, most of which are in the collection of the National Museum of Natural History. Many others, however, have been submitted by other institutions for identification. Inevitably many undescribed species have been found in these materials. This paper is presented to provide names for these species so that this material may be disposed of properly, and to facilitate future identification of caddisflies in these two families.

Unless otherwise stated, the material is in the collection of the National Museum of Natural History, Smithsonian Institution, under the catalog numbers of the United States National Museum (USNM). Other collections are: University of California, Riverside, California (UCR); Naturhistorisches Museum, Vienna, Austria (Vienna).

The collections from Mexico and Central America made by the author in 1965–1967 were made possible by National Science Foundation grant GB-2616, and the collections from southern Chile and Argentina were supported by funds from the U.S. Antarctic Research Program. I am grateful to my coworkers at the National Museum of

Natural History and elsewhere for the many valuable collections that they have placed here.

Family RHYACOPHILIDAE

The Rhyacophilidae are composed of two very distinct subfamilies. The nominate subfamily is generally north temperate in distribution and is not known from the Neotropical Region, whereas the Hydrobiosinae, to which all the Neotropical genera belong, is primarily south temperate and tropical in distribution. The genus *Atopsyche* is widespread over most of the region, with the exception of the Chilean Subregion, where it is replaced by a swarm of genera. A few of these genera, however, penetrate into the area occupied by *Atopsyche*. See Flint (1963 and 1971) for keys to the Neotropical genera.

The larvae are all free-living, and apparently primarily predaceous. They live in fast-flowing, and generally, cool water, which limits their distribution to hilly or mountainous areas.

Genus *Atopsyche* Banks

This genus is known from the southwestern United States, Mexico and Central America, the Greater Antilles, and in South America south into the Province of Catamarca in Argentina. There

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are numerous species in the genus, 46 having been described previously to the 10 herein described. Few, however, are known from enough localities to give a clear indication of their overall geographic range.

The larvae are well known, those of a number of species having been described (Flint, 1963, 1971, etc.).

Atopsyche talamanca, new species

FIGURES 1-3

This species is a member of the *tripunctata* group and is very closely related to *A. cira* (Mosely). In *A. cira* the paracercus is simply trianguloid with basodorsal and apicoventral angles; in *A. talamanca* the basodorsal angle is developed into a long, rounded lobe, and the apicoventral angle is produced farther ventrad. The dorsal spur on the aedeagus is considerably longer in *A. talamanca* and borne from nearer midlength.

ADULT.—Known from pharate adults only; forewing length not precisely known but estimated at 10 mm. Color unknown. Male abdomen with anterolateral angles of second and third terga narrowly produced; anterolateral process of fifth sternum slightly longer than sternum; postero-mesal process of sixth and seventh sterna about two-thirds length of respective sterna. *Male genitalia*: Ninth segment broad laterally; tenth tergum typical. Paracercus with a large, rounded, erect lobe dorsally, with a pointed apicoventral lobe bearing a small point. Filicercus slender, elongate; cercus button shaped. Clasper with basal segment enlarged apicad, with a slender mesal process; apical segment broad basally, narrowed apically, dorsal margin slightly enrolled. Aedeagus with basal area large; apicolateral lobes thin and broad, each with a dorsal spine at midlength; with a central spine.

MATERIAL.—*Holotype*, pharate male: COSTA RICA, CARTAGO: Ojo de Agua, route 2, km 75, 30 June 1967, Flint and Ortiz, USNM Type 72716. *Paratype*: Same data, 1 ♂.

Atopsyche huenga, new species

FIGURES 4-5

Atopsyche calopta Ross, *A. hispida* Denning, and *A. huenga*, new species, form a very closely related

group of species hardly differing in shape of paracercus, filicercus, or aedeagus. From its congeners *A. huenga* may be easily recognized by the elongate apical segment of the clasper which, in ventral aspect, has its tip bidentate.

ADULT.—Length of forewing 7 mm. Color brown, bases of legs yellowish; forewing dark brown, with irregular tufts of brighter hairs. Male abdomen with anterolateral process of fifth sternum one and one-half times as long as sternum; apicomesal process of sixth sternum one and one-half times as long as sternum, that of seventh sternum as long as sternum. *Male genitalia*: Ninth segment narrow laterally; tenth tergum typical. Paracercus broad, inflated, rounded apically, with a small mid-dorsal reflexed point. Filicercus rodlike, but short, and tipped by a large seta; cercus buttonlike. Clasper with basal segment about twice as long as broad, constricted basally; apical segment broad, about as long as basal segment, in ventral aspect with tip bidentate. Aedeagus short, with a pair of curved dorsal spines and broad lateral plates; a curved internal spine.

MATERIAL.—*Holotype*, male: GUATEMALA, HUEHUETENANGO: 20 mi NW of Huehuetenango, 9-10 August 1967, O. S. Flint, Jr., USNM Type 72717. *Paratype*: Same data, 1 ♂. MEXICO, CHIAPAS: Dolores, route 190, km 1190, 8-9 July 1966, Flint and Ortiz, 1 ♂ metamorphotype.

Atopsyche caquetia, new species

FIGURES 6-8

This species is clearly a member of the *kingi* complex, but is easily distinguished from the other members of the complex by the narrow, upturned apex of the paracercus, the hooked ventral process of the aedeagus, and the seta-bearing process at the apex of the clasper.

ADULT.—Length of forewing 7 mm. Color brown, legs yellowish; forewing mostly brown, with flecks of darker and paler brown hair. Male abdomen with anterolateral angle of second tergum narrowly produced, angles of third and fourth terga produced and enlarged apically, third and fourth terga with an ovoid depression anterolaterally bearing many small setae; fifth sternum with anterolateral process hardly longer than broad; apicomesal process of sixth sternum about as long as

sternum, that of seventh sternum about two-thirds as long as sternum. *Male genitalia*: Ninth segment slightly enlarged laterally; tenth tergum with transverse ridges basally. Paracercus broad basally, tapering abruptly to a dorsally directed apical hook, with a dorsomesal pointed process. Filicercus very long, slightly enlarged apicad; cercus a small lobe. Clasper with basal segment distinctly enlarged apicad, with a large apicomesal pointed process; apical segment elongate, gently tapering, apex with a small reflexed lobe bearing a brush of enlarged setae. Aedeagus with a small rounded base; ventrally with a pair of hooklike processes; a pair of slender elongate dorsal processes bearing basolaterally a short spine and dorsoapically bidentate; with a long, slender internal spine.

MATERIAL.—*Holotype, male*: VENEZUELA, ARAGUA: Rancho Grande, 1100 m elev., 16–23 October 1966, S. S. and W. D. Duckworth, USNM Type 72718. *Paratype*: Same, but 4 March 1967, M. E. Irwin, 1 ♂ (UCR); same, but 25 June 1967, R. W. Poole, 1 ♂.

Atopsyche choronica, new species

FIGURES 9–11

The species appears to fit best into the *kingi* complex, although it differs from all other species in possessing only a single pair of sacs in the abdominal terga and in possessing a pair of dorsal rods on the aedeagus.

ADULT.—Length of forewing 6.5–7 mm. Color brown, legs yellowish; forewing brown, flecked with black and golden hairs. Male abdomen with anterolateral angle of second tergum narrowly produced, that of third tergum elongate and enlarged apically, third tergum with a large internal pouch anterolaterally; fifth sternum with a small knob dorsolaterally; sixth sternum with posteromesal process slightly longer than sternum, that of seventh sternum two-thirds length of sternum. *Male genitalia*: Ninth segment slightly enlarged laterally; tenth tergum typical. Paracercus rather short, with a basolateral shoulder, with a subapical point directed dorsolaterad and a dorsoapical point. Filicercus very long, slender, apex enlarged; cercus small, buttonlike. Clasper with basal segment long, curved, ventral margin expanded at midlength; apical segment slender, tip produced into a small

point. Aedeagus with base short, bearing a pair of slender, arched, and curved spines from dorsum; apex of lateral lobe produced into a sharp point, bearing a membranous process tipped by a sharp spine; with a slender pointed internal rod.

MATERIAL.—*Holotype, male*: VENEZUELA, ARAGUA: Choroní Pass, 1400 m elev., 20 January 1966, S. S. and W. D. Duckworth, USNM Type 72719. *Paratypes*: Same data, 6 ♂. Rancho Grande, 1100 m elev., 4 March 1967, M. E. Irwin, 1 ♂ (UCR).

Atopsyche weibezahni, new species

FIGURES 12–14

This species seems to be most closely related to *A. choronica*, new species, with which it agrees in possessing nonarticulated, dorsal processes from the aedeagus, and in the general structure of the aedeagus and claspers. There are considerable differences in the shapes of the various structures, however, especially that of the paracercus.

ADULT.—Length of forewing unknown, but probably about 7 mm. Color unknown. Third and fourth abdominal terga with anterolateral pouches; fifth sternum with anterolateral process about twice as long as broad, with a posteromesal process about half length of sternum; sixth sternum with posteromesal process slightly longer than sternum, that of seventh sternum about half length of sternum. *Male genitalia*: Ninth and tenth segments typical. Paracercus with a large, erect, middorsal, pointed, and somewhat irregular lobe, with ventral margin rolled laterad, and with an irregularly rounded apical lobe rolled lateral and dorsad. Filicercus long and slender; cercus buttonlike. Clasper with basal segment very long, dorsal margin slightly sinuate; apical segment fingerlike, directed posteromesad, with a row of mesal setae, dorsal margin slightly inrolled. Aedeagus with base large, rounded, bearing a single dorsomesal process, whose tip is slightly twisted; lateral lobe with a basolateral expansion, apex with a small dorsal spur and a ventral lobe bearing spicules mesally; with a slender internal spine.

MATERIAL.—*Holotype, pharate male*: VENEZUELA, MERIDA: Río Santo Domingo, outlet to Laguna de Mucubaji, 3550 m, 4 March 1966, F. H. Weibezahn, USNM Type 72720. *Paratype*: Same data, 1 ♂.

Atopsyche taina, new species

FIGURES 15-17

This species is clearly a member of the West Indian *batesi* group and probably closest to *A. cubana* Flint. From this and all other species of the group, it is easily recognized by the presence of two pairs of lateral spines on the aedeagus, the shape of the paracercus, and the shape of the apical segment of the clasper.

ADULT.—Length of forewing 6.5–8 mm. Color light brown, legs yellowish; forewing mostly brown, with irregular lighter and darker marks, with a triangular darker mark basally from the costa. Male abdomen with third and fourth terga impressed along anterior margin and bearing numerous short setae; fifth sternum with anterolateral process about twice length of sternum; apicomeral process of sixth sternum about length of sternum, that of seventh sternum about two-thirds length of sternum. *Male genitalia*: Ninth segment with posterolateral margin produced; tenth tergum typical. Paracercus with tip produced into a short, dorsally directed hook. Filicercus long and slender; cercus buttonlike. Clasper with basal segment slightly inflated at midlength, apex produced into a slender, dorsal lobe, slightly shorter than apical segment, which is a rather simple pointed lobe. Aedeagus with base large; bearing an articulated dorsal process; with 2 pairs of ventrally directed spines at midlength; divided apically, with tips slightly divergent; with a slender central spine.

MATERIAL.—*Holotype, male*: DOMINICAN REPUBLIC: Convento, 12 km S of Constanza, 6–13 June 1969, Flint and Gomez, USNM Type 72721. *Paratype*: 12.5 km S of Loma de Cabrera, 23 May 1973, M. and D. Davis, 1 ♂.

Atopsyche conventica, new species

FIGURES 18-20

This species is a distinctive member of the *batesi* group, close to *A. cubana* Flint. It differs most noticeably in the paracercus, with its very broad base and narrow, rounded apex, and in the trifold apex of the lateral lobes of the aedeagus.

ADULT.—Length of forewing 8 mm. Color dark brown, legs yellowish; forewing darker basally, but with a semicircular pale area in anal region, re-

mainder irregularly flecked with paler and darker marks. Male abdomen with third and fourth terga impressed along anterior margin and bearing numerous short setae; fifth sternum with anterolateral process almost twice as long as sternum; sixth sternum with posteromesal process as long as sternum, that of seventh sternum about one-third length of sternum. *Male genitalia*: Ninth segment broad laterally, with posterior margin expanded into a thin plate; tenth tergum typical. Paracercus broad basally, narrowed into an elongate hoodlike apex. Filicercus long and slender; cercus elongate, apex rounded. Clasper with basal segment widened apicad, with a small apicoventral lobe, and a long, hooked apicodorsal lobe; apical segment slightly longer than apicodorsal lobe, widened subapically, with a small, pointed lobe on mesal face. Aedeagus with base elongate, with an articulated dorsal rod; lateral lobes apically produced into 3 small lobes; with a central spine.

MATERIAL.—*Holotype, male*: DOMINICAN REPUBLIC: Convento, 12 km S of Constanza, 6–13 June 1968, Flint and Gomez, USNM Type 72722. *Paratype*: Same data, 1 ♂.

Atopsyche davisorum, new species

FIGURES 21-23

In spite of the lack of articulated dorsal process on the aedeagus, I believe that this species is closely related to *A. batesi* Banks. The similarities in shapes of the claspers and paracercus are quite striking in the two species. The presence of a filicercus in *A. davisorum* may indicate that this structure is broken off in the only known specimen of *A. batesi*. Additional differences are found in the shapes of the dorsal process of the basal segment of the clasper, the paracercus, and the lateral plate of the aedeagus.

ADULT.—Length of forewing 7 mm. Color light brown, legs yellowish; forewing mostly pale brown, with scattered dark spots, with a triangular dark mark basally from costa. Male abdomen with third and fourth terga impressed anteriorly and bearing numerous short setae, anterolateral angle of third tergum elongate and with a small, impressed setate pocket; anterolateral process of fifth sternum one and one-half times length of sternum; posteromesal process of sixth sternum barely longer than ster-

num, that of seventh sternum about one-third length of sternum. *Male genitalia*: Ninth and tenth segments typical. Paracercus short, tapering rapidly, with small points middorsally and apically, directed primarily laterad. Filicercus long, inflated apically; cercus buttonlike. Clasper with basal segment almost parallel sided, slightly curved, with a small apicodorsal lobe; apical segment almost quadrate. Aedeagus with base short, tapering to a rounded apex; lateral plates broad, apex strongly flared laterad; with a central spine.

MATERIAL.—*Holotype, male*: DOMINICAN REPUBLIC: 4 km SE of Rio Limpio, 760 m elev., 25 May 1973, M. and D. Davis, USNM Type 72723.

Atopsyche zernyi, new species

FIGURES 24-26

This species is closely related to *A. hamata* Ross. From the latter it differs in possessing a broader paracercus, bearing several spines dorsally at midlength, and in the structure of the apical part of the aedeagus, which bears only an apical and lateral spine.

ADULT.—Length of forewing 6.5 mm. Color brown, forewing irregularly marked with various shades of brown. Male abdomen with a pouch internally from posterolateral angle of second tergum and a similar pouch from anterolateral angle of third tergum; fifth sternum with anterolateral process about half length of sternum; posteromesal process of sixth sternum about as long as sternum, that of seventh sternum about half as long as sternum. *Male genitalia*: Ninth and tenth segments typical. Paracercus broad, upper margin deflected slightly laterad, bearing several reflexed points at midlength, apex narrowed, obliquely truncate. Filicercus long; cercus buttonlike. Clasper with basal segment elongate, parallel sided, about three and one-half times as long as broad, with a thin apicomesal process slightly shorter than apical segment. Aedeagus with basal portion rounded, elongate; with a midventral process articulating with clasper bases and a middorsal hood; with elongate lateral lobes, each ending in a membranous, upturned section, bearing apical and lateral spines; with a long, slender central spine.

MATERIAL.—*Holotype, male*: BRAZIL, SAO PAULO: Alto da Serra, 29-30 October 1927, Zerny (Vienna).

Atopsyche sanctipauli, new species

FIGURES 27-29

On the basis of the mesal position of the apical process of the basal clasper segment, this species should be placed in the *longipennis* group. In this group, the only species with a dorsal process on the aedeagus is the Mexican *A. japoda* Ross. *Atopsyche sanctipauli*, however, is immediately recognized by the forked lateral process of the aedeagus, the different shapes of the paracercus, and the apical parts of the claspers.

ADULT.—Length of forewing 7 mm. Color brown, legs yellowish; forewing brown, with indication of lighter and darker mottling. Male abdomen with internal pouches from anterolateral angles of third and fourth terga; fifth sternum with only a slight knob anterolaterally; posteromesal process of sixth sternum as long as sternum, that of seventh sternum two-thirds as long as sternum. *Male genitalia*: Ninth segment narrow laterally; tenth tergum typical. Paracercus developed into a basally directed dorsal crest, bearing a short, pointed, lateral process near base and another near apex, apical portion narrowly produced, tip upturned and bearing 3 small points. Filicercus lacking (broken off?); cercus a small, rounded lobe. Clasper with basal segment long, parallel-sided, bearing a small lobe from mesal face, apicoventral process thin, bilobed in ventromesal aspect; apical segment broad basally, apex thin, produced and curved so as to cover apicoventral process. Aedeagus with base short, bearing a nonarticulated dorsal process; lateral lobes thin, with a narrow dorsolateral flange, laterally with a thin, deeply bifurcate lobe, with a long, slender, central spine.

MATERIAL.—*Holotype, male*: BRAZIL, SAO PAULO: Alto da Serra, 29-30 October 1927, Zerny (Vienna).

Genus *Australochorema* Schmid

The species described below is only the second species to be discovered in the genus. The species are known only from within the Chilean Subregion.

The immature stages have not been described.

Australochorema brachytergum, new species

FIGURES 30-31

This, the second species described in *Australochorema*, is closely related to the type-species, *A. rectispina* Schmid. The short and deflexed lobes of the tenth tergum are the most conspicuous differences in *A. brachytergum*, but the clasper, with its ventral process, rounded apical lobe, and straight second segment, is also diagnostic.

ADULT.—Length of forewing 7 mm. Color dark brown, legs paler basally; forewing dark brown, with scattered white flecks, an oblique white mark from posterior margin at midlength especially conspicuous. Male abdomen with fifth sternum bearing a short, membranous process dorsolaterally; sixth sternum with posteromesal process half length of sternum, seventh sternum with a short, broad, naillike posteromesal lobe. *Male genitalia*: Ninth segment broadened laterally. Tenth tergum with anterior margin very oblique, apical lobes short and deflexed. Filicercus very long and slender, apices curved mesad; cercus short and slender. Clasper with basal segment elongate, apex rounded, in ventral aspect with mesal margin tapering from base, with a thumblike process; apical segment borne middorsally from mesal face, elongate, with a row of ventral points. Aedeagus tubular, with an apicoventral lip and a small internal sclerite.

MATERIAL.—*Holotype, male*: CHILE, CHILOE: Rió Butalcura, 21 October 1969, Flint and Barria, USNM Type 72724. *Paratype*: Same data, 1 ♂.

Genus *Rheochorema* Schmid

The species herein described brings to four the number of species placed in *Rheochorema*. All species are known exclusively from the Chilean Subregion.

The larva of *R. lobulifera* Flint was described by Flint (1967).

Rheochorema magellanica, new species

FIGURE 32

This species is clearly related to *R. tenuispina* Schmid but, in its development of the processes from the bases of the claspers, represents a more highly evolved condition. *Rheochorema magel-*

lanica may be distinguished by the shape of the apical segment of the clasper, the very long basal process of the clasper that is mostly covered by a dorsal extension of the aedeagus, which bears a very short apicomesal process, and in the shape of the basal area of the tenth tergum.

The larvae of this species agree, except for a more distinct color pattern on the head, with those of *R. lobulifera* Flint.

ADULT.—Length of forewing 13 mm. Color brown; forewings pale brown, with a few small golden flecks, anal area with an irregular whitish area bounded by fuscous. Abdomen without processes. *Male genitalia*: Ninth segment almost rectangular in lateral aspect. Tenth tergum with a complex, convoluted sclerotized region basolaterally, giving rise to a membranous lobe; dorsally with ventral surface sclerotized and striate. Cercus small and inconspicuous; filicercus long, clavate. Clasper two segmented: basal segment about twice as long as broad, with a basoventral process that is very long and slender, becoming dorsally channeled by flaps on the aedeagus and extending from apicodorsal section of the aedeagus, with a second basodorsal lobe articulating with basoventral process of aedeagus; apical segment with a triangular basal flap directed dorsomesally and a rodlike apical lobe. Aedeagus long, slender; with a dorsal, hooklike sclerite at midlength, with a long, dorsolateral flap and a shorter apicoventral flap, serving to form a groove to direct basoventral process of clasper, apex with ventromesal process short.

MATERIAL.—*Holotype, male*: ARGENTINA: Isla de los Estados, Puerto Cook, 16-19 May 1971, Flint and Hevel, USNM Type 72725. *Paratypes*: Same data, 1 ♂; same, but Puerto Basil Hall, 20-23 May 1971, 1 pharate ♂; same, but Bahia Blossom, 10 May 1971, 1 pharate ♂. CHILE, MAGALLANES: Isla Desolación, Puerto Churrucá, 5 October 1969, O. S. Flint, Jr., 1 pharate ♂.

Family GLOSSOSOMATIDAE

In the New World, two subfamilies of Glossosomatidae are found, the nominate and the Protoptilinae. The Glossosomatinae are found only as far south as the highlands of central Mexico, whereas the Protoptilinae are found over all the Americas as far north as southern Canada. The reader is referred to Flint (1963 and 1971) for

keys to the genera of Protoptilinae and to Ross (1956) for keys to the Glossosomatinae.

The larvae construct a case of small sand grains in the form of a turtle's shell. They appear to be primarily grazers on the periphyton on the rocks in flowing, cool water. Undoubtedly for this reason, they are commonest in the hilly and mountainous regions, although some are known from the center of the Amazon Basin.

Genus *Antoptila* Mosely

The species described below brings to three the species placed in *Antoptila*. All the species are known only from Brazil.

The immature stages are unknown.

Antoptila plaumanni, new species

FIGURES 33-34

This species is related to *A. brasiliana* Mosely, from which it differs in aspects of its venation and genitalia. The venation differs from that of *A. brasiliana* in that both R_{2+3} and R_{4+5} branch at r in the forewing, and there are small apical forks in M_{1+2} and Cu_1 in the hind wing. In venation, *A. plaumanni* thus agrees with the Chilean genus *Mastigoptila*; however, the two genera may still be held apart by the marked asymmetry in the aedeagal complex of *Mastigoptila*.

In genitalic characteristics *A. brasiliana* and *A. plaumanni* are very similar, the main differences being in the ventral aspects. In *A. brasiliana* the ninth sternum bears basally two pairs of slender, almost setalike processes, whereas *A. plaumanni* bears one pair of broader processes basally from the aedeagal complex.

ADULT.—Length of forewing 2.5-3 mm. Color of alcoholic specimen uniformly brown. Sixth sternum with a pointed mesal process. *Male genitalia*: Ninth segment oblique in lateral aspect, with anterior margin rounded. Tenth tergum apically truncate, lateral margin bearing a posteriorly directed spine and a small ventrolateral lobe. Aedeagal complex bearing basoventrally a pair of long, slender, slightly twisted processes; complex rather simple, with a narrow midregion beyond which it rapidly enlarges to a broad dorsal hood, bearing

a lateral, posteriorly directed tooth and ventrally a membranous lobe.

MATERIAL.—*Holotype, male*: BRAZIL, SANTA CATARINA: Nova Teutonia, February 1964, F. Plaumann, USNM Type 72726. *Paratypes*: Same, but January 1964, 7 ♂; same, but August 1963, 1 ♂; same, but September 1963, 1 ♂; same, but November, 1964, 7 ♂; same, but January 1963, 1 ♂.

Genus *Cariboptila* Flint

The species of this genus have been taken only on the Greater Antillean islands. Previously one species was known from Puerto Rico and one from Jamaica.

The immature stages of both the Puerto Rican and Jamaican species were described (Flint 1964, 1968).

Cariboptila aurulenta, new species

FIGURES 35-37

The structure of the genitalia of this species suggests a rather close relationship to the type-species, *Cariboptila orophila* Flint. It may be distinguished by the tenth tergite, with its elongate lobe, and the aedeagal complex, which is much shorter and with differently shaped apicomesal lobes.

ADULT.—Length of forewing 2.5-3 mm. Color brown; forewing with golden-brown hair in anal region, with an irregular white, transverse band at anastomosis and in small spots around apex; fore and hind wings with a fringe of long, golden hair in posteroapical area. Male with basal antennal segment long and slightly compressed; sixth sternum with a flattened, rounded, apicomesal process. *Male genitalia*: Ninth tergum in lateral aspect very narrow, with an arched dorsomesal lobe; with dorsolateral process very short and tipped by a large seta. Tenth tergite consisting of a fingerlike dorsolateral lobe, a rounded ventral lobe with several curved spines, a small seta-tipped dorsal process, and a thin mesal plate. Aedeagal complex with 2 pairs of dark internal spines; lateral plate with dorsolateral angle prolonged and tipped by a large seta, ventral margin cut away at midlength, and with apex truncate;

dorsomesally with a pale sclerite ending in a narrowly prolonged apex.

MATERIAL.—*Holotype, male*: DOMINICAN REPUBLIC: Convento, 12 km S of Constanza, 6–13 June 1969, Flint and Gomez, USNM Type 72727. *Paratypes*: Same data, 5 ♂ 6 ♀.

***Cariboptila hispaniolica*, new species**

FIGURES 38–40

This species is placed in *Cariboptila*, with which it agrees in venation, although the male genitalia are quite different from the previously known species. The large lateral lobe on the ninth tergum is distinctive, as are the shape and structure of the aedeagal complex.

ADULT.—Length of forewing 3.5 mm. Color brown; forewing brown, with an indication of white hairs along anastomosis and in spots along posterior margin apically. Sixth sternum with a broad, mesal, naillike lobe, whose apex is bilobate. *Male genitalia*: Ninth tergum nearly circular in outline in lateral aspect, posterior margin bearing laterally a large truncate lobe beneath tenth tergite; in posterior aspect with a mesal structure bearing a pair of slender curled processes and a pair of long ventral rods. Tenth tergite set into a deep pocket in posterior margin of ninth tergum, bearing several slender processes tipped by enlarged setae, and pointed and rounded lobes. Aedeagal complex with lateral plate apically upturned, with apicolateral margins expanded laterad, and bearing basolaterally a short lobe; internally with a pair of trilobate sclerites dorsally, laterally with a cluster of 3 short spines, and a pair of longer spines ventrally; with short basolateral lobes.

MATERIAL.—*Holotype, male*: DOMINICAN REPUBLIC: La Palma, 12 km E of El Rio, 2–13 June 1969, Flint and Gomez, USNM Type 72728. *Paratypes*: Río Camu, 19 km NE of Jarabacoa, 12 June 1969, Flint and Gomez, 1 ♂. Convento, 12 km S of Constanza, 6–13 June 1969, Flint and Gomez, 1 ♂.

***Cariboptila calcigena*, new species**

FIGURES 41–43

Although at first sight this species would appear to be a species of the genus *Glossosoma* (*Ripae-*

glossa), this is a case of remarkable convergence in two distinct subfamilies. The large lateral flap of the ninth segment expresses an extreme development of the condition foreshadowed in *C. hispaniolica*. The male genitalia of the two species are easily homologized, but differ greatly in the form of every part.

ADULT.—Length of forewing 3.5–4 mm. Color brown; forewings with some white hair at anastomosis, especially at posterior margin, and with small white flecks along apical margin. Sixth sternum with a thin naillike apicomesal lobe. *Male genitalia*: Ninth tergum very broad in lateral aspect, with posterior margin produced as a large rounded flap, with apicomesal face bearing a pad of fine hairs; with dorsolateral lobes long and rodlike. Tenth tergite in lateral aspect obscured by lobes of ninth tergum; in posterior aspect elongate, with enlarged setae and pointed and rounded lobes apically; a V-shaped sclerite, with enlarged setae mesally dorsad of tergites. Aedeagal complex ventrally with a pair of long rodlike structures projecting posteriad; internally with a pair of long spines whose tips are curved mesad beneath central tube; apicoventrally with a pair of slender, lightly sclerotized lobes; internally with a membranous tube, bearing many short dark spines; with basolateral winglike lobes, which loosely attach entire structure to venter of ninth tergum.

MATERIAL.—*Holotype, male*: DOMINICAN REPUBLIC: La Palma, 12 km E of El Rio, 2–13 June 1969, Flint and Gomez, USNM Type 72729. *Paratypes*: Same data, 23 ♂ 7 ♀.

Genus *Culoptila* Mosely

The genus was originally established for four Mexican species; since then three species have been described, one from Guatemala, and two from the southwestern United States.

The immature stages have not been described.

***Culoptila nahuatl*, new species**

FIGURES 44–45

This species is very closely related to *C. saltena* Mosely, but differs in lacking the pair of dorsal points from the tenth tergum, and in having a more bulbous outline to the aedeagus, which contains two long internal spines.

ADULTS.—Length of forewing 2.5 mm. Color brown; forewing brown, slightly paler along anastomosis. Sixth sternum of male with a compressed apicomesal knob. *Male genitalia*: Ninth tergum narrowed ventrad. Tenth tergum in lateral aspect with dorsal margin produced into a point, ventral arms rounded apically, each bearing 2 stout anterior setae; in posteroventral aspect with dorsal margin nearly straight, apex of ventral arms obliquely truncate. Venter of capsule slightly produced posteriad, in posteroventral aspect composed of a pair of trianguloid sclerites. Aedeagus a large internal sac, bearing 2 spines more than half filling sac, apicodorsal angle produced into a pointed hood, apicoventrally with a complex of structures.

MATERIAL.—*Holotype, male*: MEXICO, VERACRUZ: Fortin de las Flores, 24 July 1966, Flint and Ortiz, USNM Type 72731. *Paratypes*: Same, but 17 May 1964, Blanton et al., 32 ♂.

Culoptila tarascanica, new species

FIGURES 46-47

This species is most closely related to *C. saltena* Mosely, although the posterior lobes of the ninth sternum are suggestive of *C. amberia* Mosely. From *C. saltena*, *C. tarascanica* differs in the broader, longer posterior lobes of the ninth sternum, and in having much shorter internal rods in the aedeagus.

ADULT.—Length of forewing 3 mm. Color brown; forewing with a slight indication of a pale band at anastomosis. Sixth sternum of male with a compressed apicomesal lobe. *Male genitalia*: Ninth tergum narrowed ventrad. Tenth tergum in lateral aspect with dorsal margin produced into a point, ventral arms obliquely truncate, each bearing 2 anteriorly pointing setae; in posteroventral aspect with dorsal margin produced into a pair of small sublateral points, apex of ventral arms with tips darkened and slightly incurved. Venter of capsule produced into a large, rounded lobe in lateral aspect; in ventral aspect composed of a pair of obliquely truncate lobes. Aedeagus a large internal sac bearing 2 spines, no more than a third filling sac, one spine very lightly sclerotized, with apex bluntly hooked; apicodorsal angle produced into a pointed hood, apicoventrally with a complex of structures.

MATERIAL.—*Holotype, male*: MEXICO, MICHOA-

CAN: Carapan, route 15, km 431, 16 July 1966, Flint and Ortiz, USNM Type 72730. *Paratypes*: Same data, 2 ♂.

Culoptila costaricensis, new species

FIGURES 48-49

This species is very close to *C. amberia* Mosely, as evinced by the shape of the tenth tergum, broad apex of the aedeagus, and length of the aedeagal spines. It differs in the shape of the posterior processes from the venter of the genital capsule, which in *C. amberia* are long, broad, and slightly enlarged apicad, rather than short and narrow.

ADULT.—Length of forewing 3.5 mm. Color in alcohol dark brown. Sixth sternum of male with a compressed, apicomesal knob. *Male genitalia*: Ninth tergum narrowed ventrad. Tenth tergum in lateral aspect rather blunt apically, with ventral arms directed ventrad, tip obliquely truncate; in posteroventral aspect with dorsal margin nearly straight, inner tip of ventral arms pointed. Venter of capsule produced into a pair of short, narrow lobes, separated by a V-shaped incision in posteroventral aspect. Aedeagus a large internal sac with nearly parallel dorsal and ventral sides, with 2 long internal spines more than half filling sac; apicodorsal margin produced into a long, rather broad hood, in posteroventral aspect with a Y-shaped thickening; ventrally with a complex of structures.

MATERIAL.—*Holotype, male*: COSTA RICA, CARTAGO: Ojo de Agua, route 2, km 75, 20 July 1967, O. S. Flint, Jr., USNM Type 72732.

Genus *Mastigoptila* Flint

The following species differs considerably from the six previously described species of this genus. All known species are restricted to the Chilean Subregion.

The larvae and pupae have not been described.

Mastigoptila ecornuta, new species

FIGURES 50-51

This species differs in genitalic structure rather radically from the other known species of the genus, yet because the venation is identical and

the genitalia offer some similarities to the other species of the genus, I am not erecting a new genus for its reception. The lack of processes from the tenth tergum, and the presence of a pair of ventral arms, two internal spines, and a whip on the right side of the aedeagal complex, render the genitalia very distinctive.

ADULT.—Length of forewing 4 mm. Color fuscous; forewing fuscous, with a pale mark on posterior margin at midlength. Fifth sternum with small, lateral flaps connected across venter by a dark line; sixth sternum produced into a short posteromesal point. *Male genitalia*: Ninth segment narrow laterally; produced into a broadly triangular lobe ventromesally and bearing from its apex a terete process. Tenth tergum hoodlike, posterior margin irregular, without processes. Aedeagal complex ventrally with a pair of slightly curved arms, ending in a twisted tip; with a dorsomesal sclerotized cover; central tube bearing a pair of heavily sclerotized, curved spines apically, and on right side a rounded knob, which forms a channel for the whip that is born basomesally and curved to the right side of the central tube.

MATERIAL.—*Holotype, male*: CHILE, ARAUCO: Caramavida, 17–19 October 1969, Flint and Barria, USNM Type 72733.

Genus *Mexitrichia* Mosely

The following eight species bring to twenty-two the number of species described in *Mexitrichia*. Species are known throughout Mexico and Central America, Trinidad, western South America as far south as southern Peru, and in eastern South America in the hilly region of south Brazil and adjacent Argentina and Paraguay.

The immature stages were described by Flint (1963).

Mexitrichia rovira, new species

FIGURES 52–55

This species clearly belongs to the *leroda* group, and is probably most closely related to *M. leroda* Mosely. From this species, *M. rovira* differs in lacking all processes from the venter of the aedeagal complex, and in possessing a large spine internally in the aedeagus.

ADULT.—Length of forewing 2.5 mm. Color in alcohol brown. Sixth sternum with a short, compressed mesal process. *Male genitalia*: Ninth segment rounded anteriorly. Tenth tergum in lateral aspect produced into a darkened apical point, and a small ventrolateral lobe; in dorsal aspect with a broadly U-shaped apicommesal excision. Aedeagal complex with a dorsomesal process, whose tip is slender and upturned, and a pair of long, slender lateral appendages, which are widened subapically and end in a sharp point; central tube apicodorsally produced into a sharp point, with an internal, apical sclerite curled in lateral aspect; basoventrally with a pair of short, rodlike appendages and a small, thin, curved plate, whose apical margin is slightly bilobed in ventral aspect.

MATERIAL.—*Holotype, male*: PANAMA, CHIRIQUI: David, Rovira, 13 July 1964, A. Broce, USNM Type 72734.

Mexitrichia florica, new species

FIGURES 54–55

Mexitrichia florica is closely related to *M. rancura* Mosely, from which it differs in possessing lateral appendages that are much longer than the aedeagus, and in the shape of the central tube of the aedeagus, especially its lateral channel.

ADULT.—Length of forewing 3 mm. Color in alcohol brown; forewing with an indication of a pale band at anastomosis. Sixth sternum with a short, compressed mesal process. *Male genitalia*: Ninth segment rounded anteriorly. Tenth tergum in lateral aspect with a pointed apicodorsal process, a pointed and darkened lateral lobe, without a ventrolateral lobe; in dorsal aspect with a conical mesal process, and rounded lateral lobes. Aedeagal complex with a dorsomesal process that is straight and pointed apically, and a pair of very long, slender lateral appendages, whose ends are annulate; central tube with a large apical spine, and bearing laterally from dorsal margin a narrow, arched lobe and from lateral margin, an oblique, narrow, elongate plate, between which the lateral appendages ride; basoventrally with a pair of short, rodlike appendages, and a small, thin, curved plate, whose apical margin is deeply divided in ventral aspect.

MATERIAL.—*Holotype, male*: MEXICO, VERA-

CRUZ: Rio Tacolapan, route 180, km 551, 25–26 July 1966, Flint and Ortiz, USNM Type 72735. *Paratypes*: Same data, 1 ♂. Fortin de la Flores, 22 May 1965, Rabago, 1 ♂; same, but June 1964, F. S. Blanton, 1 ♂.

Mexitrichia simla, new species

FIGURES 56–57

Mexitrichia meralda Mosely is closely related to this species. *Mexitrichia simla*, however, may be distinguished by the shorter lateral appendages of the aedeagus and its central tube, which is channeled for the reception of these appendages.

ADULT.—Length of forewing 2.5–3 mm. Color in alcohol brown; forewing brown, with an indistinct pale line along anastomosis. Sixth sternum with a compressed apicomesal process. *Male genitalia*: Ninth segment with anterior margin obliquely rounded. Tenth tergum in lateral aspect with a darkened, pointed, lateral lobe and a narrow ventrolateral lobe; in dorsal aspect with a broad, shallow, almost rectangular mesal excision. Aedeagal complex with dorsomesal process straight and pointed apically, and a pair of long, twisted, lateral appendages shorter than length of complex; central tube with a slightly curved apical spine, and bearing a pair of dorsal lobes at mid-length with an oblique ridge laterally on tube; basoventrally with a pair of short, rodlike appendages and a ventral lobe consisting of rounded lateral lobes and a long thin apical appendage.

MATERIAL.—*Holotype, male*: TRINIDAD: Simla, 9–11 February 1966, S. S. and W. D. Duckworth, USNM Type 72736. *Paratypes*: Same data, 85 ♂.

Mexitrichia pacuara, new species

FIGURES 58–59

This species offers no clear relationships to any other known species in the genus. The saddlelike dorsomesal process, the presence of a pair of lateral spines, and a pair of short ventral processes from the aedeagus are distinctive.

ADULT.—Length of forewing 2 mm. Color in alcohol brown; forewing brown, with a transverse white band at anastomosis, a white spot on pos-

terior margin midway from band to base, and in spots around apex. Sixth sternum with a compressed, elongate, apicomesal process. *Male genitalia*: Ninth segment rounded anterolaterally. Tenth tergum in lateral aspect with apicolateral angle slightly prolonged, with thin pale apicoventral lobes; in dorsal aspect with a deep, V-shaped mesal excision. Aedeagal complex with a dorsomesal process that is sharply angled dorsad at mid-length and which bears on each side from the middle third a broad, thin, saddle-shaped plate, beneath which are two spines; central tube simple, lightly sclerotized; basoventrally with a pair of short, rodlike appendages, and a ventral plate which bears a pair of short apical spines.

MATERIAL.—*Holotype, male*: COSTA RICA, SAN JOSE: Río General, Pacuare (10 miles S of San Isidro), 1 July 1967, Flint, Ortiz and Spangler, USNM Type 72737. *Paratypes*: Same data, 78 ♂. COLOMBIA, VALLE: Río Raposo, January 1965, V. H. Lee, light trap, 45 ♂.

Mexitrichia macarenica, new species

FIGURES 60–61

This species closely approaches *M. aequalis* Flint in many characteristics, but is easily distinguished by the extra pair of lateral appendages and single pair of long, slender ventral processes from the aedeagus.

ADULT.—Length of forewing 1.5 mm. Completely cleared in alcohol. Sixth sternum with an elongate, pointed, compressed apicomesal process. *Male genitalia*: Ninth segment very oblique, anterior margin rounded. Tenth tergum in lateral aspect with apex produced into several small points, and with a ventrolateral lobe; in dorsal aspect with a narrow, U-shaped, rather deep mesal excision. Aedeagal complex with dorsomesal process upswept apically, and with a pair of slender lateral processes; central tube with a small internal spine, a long, slender lateral process arising from a rounded lateral lobe, basoventrally with a pair of short rodlike appendages, and a pair of slender processes ventrally.

MATERIAL.—*Holotype, male*: COLOMBIA, META: Refugio Macarena, 10 January 1966, C. J. Marinkelle, USNM Type 72738.

Mexitrichia catarinensis, new species

FIGURES 62-63

This species is closely related to *M. ormina* Mosely. In *M. ormina* the apex of the tenth tergum is rounded in lateral aspect, the middorsal process of the aedeagus lacks lateral flaps, and it has fewer lateral processes on the aedeagus.

ADULT.—Length of forewing 2 mm. Specimen completely cleared in alcohol. Sixth sternum with a pointed mesal process. *Male genitalia*: Ninth segment slightly oblique, anterior margin rounded. Tenth tergum in lateral aspect a broad, elongate lobe, pointed apicoventrally; in dorsal aspect with a broad, deep V-shaped excision. Aedeagal complex with a dorsomesal process sharply angled dorsad for apical third, and bearing a thin lateral, wing-like lobe at midlength; with 3 pairs of slender lateral processes, and a pair of short spines from midventer.

MATERIAL.—*Holotype, male*: BRAZIL, SANTA CATARINA: Nova Teutonia, January 1963, F. Plaumann, USNM Type 72739. *Paratypes*: Same, but October 1964, 2 ♂.

Mexitrichia leei, new species

FIGURES 64-65

This species appears to be closely related to *M. attenuata* Flint. *Mexitrichia leei* is distinguished, however, by possessing a thin basolateral lobe and only a single pair of lateral spines in the aedeagus.

ADULT.—Length of forewing 3.5 mm. Color in alcohol brown; forewing with a narrow, transverse white line at anastomosis; male fore and hind wing covered with flattened, scalelike hairs. *Male genitalia*: Ninth segment with anterolateral margin strongly produced and rounded; posterolateral margin strongly sclerotized and slightly flared. Tenth tergum in lateral aspect trianguloid in outline, with apex slightly produced, and with a midventral knoblike process; in dorsal aspect with apices truncate, with a lateral angulate shoulder and a deep U-shaped mesal excision. Aedeagal complex with apical half of dorsomesal process angled sharply dorsad, lateral process short, with apex angled laterad; central tube mostly membranous, with a pair of short sclerotized apicodorsal spines,

basoventrally with a pair of short rodlike appendages, with a thin, narrow lobe laterally, with apicoventral angle produced into a sharp spine.

MATERIAL.—*Holotype, male*: COLOMBIA, VALLE: Río Raposo, March 1965, V. H. Lee, light trap, USNM Type 72740. *Paratypes*: Same data, 10 ♂; same, but August 1965, 1 ♂; same, but April 1964, 3 ♂; same, but January 1968, 36 ♂.

Mexitrichia guairica, new species

FIGURES 66-67

This species is closely related to *M. unota* Mosely. It differs greatly in that the tenth tergum is inflated dorsally, that the ninth segment is concave dorsolaterally, as well as in the details of the aedeagal complex.

ADULT.—Length of forewing 2.5 mm. Specimen completely cleared in alcohol. Sixth sternum with a small, pointed, apicomeral process. *Male genitalia*: Ninth segment with dorsolateral margin slightly concave, expanded lateroventrally; posterolateral margin developed into a thin shelflike expansion. Tenth tergum greatly inflated dorsally, with a pair of blunt apicolateral processes, and a rounded ventrolateral lobe. Aedeagal complex with dorsomesal process curved dorsad at midlength; with lateral process slender, lightly sclerotized and twisted apically; central tube with a thin, erect basolateral lobe, whose apex is produced into a posteriorly directed spine, subapically bearing a short, curved lateral spine.

MATERIAL.—*Holotype, male*: PARAGUAY: Salto de Guaira, 4 December 1971, L. E. Peña G., USNM Type 72741.

Genus *Mortoniella* Ulmer

Although only four species have been described in *Mortoniella* previously, I expect that many more will be found as the Neotropics are explored more. Up to now all species have been found in the Andean area of western South America, with the Argentinian species herein described being the southernmost record.

The larva of *M. apiculata* Flint has been described (Flint 1963).

Mortoniella argentinica, new species

FIGURE 68

This is the first species of the genus *Mortoniella* to be recorded from Argentina. The species is very different from the other known species in the structure of the aedeagus. No other species has two pairs of basodorsal processes and the pair of arched ventrolateral processes.

ADULT.—Length of forewing 4 mm. Color fuscous; forewings fuscous, mostly denuded but possibly with a transverse white band at anastomosis. Sixth sternum of male abdomen with a pointed apicomesal process. *Male genitalia*: Ninth segment very broad laterally, with anterior margin rounded. Tenth tergum with a V-shaped dorsomesal excision, lateral lobe bearing an apicodorsal blackened point and a thin, ventrolateral lobe. Aedeagal complex with a slender, dorsomesal process angled dorsad for apical third, basodorsally with 2 pairs of slender, dark-tipped processes, dorsalmost twice length of ventral one; ventrolaterally with an arched process ending in a darkened tip, mesally with a pair of contiguous slender processes; centrally with a membranous region subtended by a lightly sclerotized mesal plate.

MATERIAL.—*Holotype, male*: ARGENTINA, CATAMARCA: N. Aconquija, 1–2 October 1968, L. E. Peña G., USNM Type 72742. *Paratypes*: Same data, 1 ♂ 1 ♀.

Genus *Protophila* Banks

The species herein described bring to over 50 the number of species placed in *Protophila* in the region under study, with over a dozen more species being known from the United States. With the exception of the Greater Antilles (a species is known from the Lesser Antilles) and the Chilean Subregion, species are known from throughout the New World from southern Canada to northern Argentina.

The immature stages of several species have been described (Ross 1944, Flint 1963). The larvae seem to be more tolerant of warmer and slower flowing waters than most of the others in the family, undoubtedly contributing greatly to the wide distribution of this genus.

Protophila orotina orotina, new species and new subspecies

FIGURE 69–70

This species is very close to *Protophila ixtala* Mosely, with which it is frequently found. It differs primarily in the apex of the ninth sternum, which is only shallowly bifid in *P. o. orotina*, whereas the posterolateral angles are greatly prolonged in *P. ixtala*. In addition, the apex of the tenth tergite bears a short point, the apex of the central tube of the aedeagus is prolonged, and the lateral aspect of the eighth sternum is slightly different in the two species.

ADULT.—Length of forewing 3 mm. Color in alcohol brown, with an indication of a pale transverse band at anastomosis. Sixth sternum with a compressed, apicomesal process. *Male genitalia*: Eighth sternum produced as a long, slender process, with a very slightly bifid apex. Ninth sternum produced for about half length of eighth sternum, with posterior margin broadly and shallowly emarginate. Tenth tergite composed of a rectangular basal section, with a slender elongate, decurved apical section ending in a small central point. Aedeagus with a large, mesal, basodorsal lobe, a pair of ventral rodlike appendages; with long, lateral appendages arising from membranous bases and ending in a long, slender, hooked spine; central tube slender, sharply angled at base of tenth tergites, apex spoonlike in dorsal aspect, with a small curved spine, and with ventromesal margin produced.

MATERIAL.—*Holotype, male*: COSTA RICA, PUNTARENAS: 9 miles NW of Esparta, 22 July 1965, P. J. Spangler, USNM Type 72743. *Paratypes*: Same data, 21 ♂. Río Seco, NW of Esparta, 23 July 1967, O. S. Flint, Jr., 11 ♂. GUANACASTE: Río Ahogados, 10 miles NW of Liberia, 25 July 1965, P. J. Spangler, 2 ♂. Las Canas, 13 July 1965, P. J. Spangler, 14 ♂. PANAMA, CHIRIQUI: Dolega, Río El Pueblo, 2000 ft elev., 27 June 1964, A. Broce, 1 ♂. David, Doleguita, 3 June 1964, A. Broce, 1 ♂.

Protophila orotina raposa, new subspecies

FIGURES 71–72

This and the nominate subspecies are extremely similar, differing only in the apex of the aedeagus.

The tip of the aedeagus in *P. o. raposa* is produced into flat, ventrolateral plates, with the consequence that in posterodorsal aspect the tip is emarginate rather than produced. In all other parts I am unable to find any consistent differences.

MATERIAL.—*Holotype, male:* COLOMBIA, VALLE: Río Raposo, May 1965, V. H. Lee, light trap, USNM 72744. *Paratypes:* Same, but August 1965, 3 ♂; same, but January 1965, 250 ♂; same, but January 1964, 1 ♂; same, but March 1965, 23 ♂.

***Protophila colombiensis*, new species**

FIGURE 73

This species seems to be related to *P. ixtala* Mosely. It is recognized by the bifid apex of the eighth sternum, the shorter apex and larger lateral spines of the aedeagus, and differently shaped tenth tergum.

ADULT.—Length of forewing 2 mm. Color brown in alcohol, with an indication of a pale transverse band along anastomosis. Sixth sternum with a compressed, apicomesal point. *Male genitalia:* Eighth sternum greatly prolonged into a narrow, apically bifid process. Ninth sternum prolonged, thin, apex shallowly bifid in ventral aspect. Tenth tergite with basal section slightly longer than broad; apical section elongate, parallel sided, slightly bowed, apex shallowly bilobed. Aedeagus with typical basal lobes, and midlength complex bearing an elongate pointed process; with lateral arm membranous basally, giving rise to a long, slightly curved apical spine; central tube narrow, arched, apex enlarged, scoop shaped.

MATERIAL.—*Holotype, male:* COLOMBIA, VALLE: Río Raposo, September 1965, V. H. Lee, light trap, USNM Type 72745. *Paratypes:* Same data, 1 ♂; same, but August 1965, 1 ♂; same, but July 1965, 1 ♂; same, but April 1964, 11 ♂; same, but March 1965, 13 ♂; same, but January 1964, 50 ♂; same, but January 1965, 12 ♂.

***Protophila talamanca*, new species**

FIGURE 74

This species clearly is related to *P. resolda* Mosely. It differs rather strikingly by the greatly

produced and forked posterolateral processes of the ninth sternum.

ADULT.—Length of forewing 3 mm. Color brown, forewing with an indication of a pale band along the anastomosis. Sixth sternum with a compressed apicomesal process. *Male genitalia:* Eighth sternum produced as a long, slender posteromesal lobe. Ninth sternum with posterolateral angles produced into long, slender, forked processes. Tenth tergite with a small basal section; apical section decumbent, rectangular, with a small posteroventral point. Aedeagus with usual basal and mesal processes and lobes; with lateral process bearing a long, twisted apical spine; central tube only slightly angled, enlarged apicad, with dorsal margin of apicolateral sclerite reflexed.

MATERIAL.—*Holotype, male:* COSTA RICA, CARTAGO: 3 miles W of Turrialba, 18–21 June 1967, Flint and Ortiz, USNM Type 72746.

***Protophila spirifera*, new species**

FIGURE 75

This species also seems to be related to *P. resolda* Mosely, although less closely so than the preceding. The apical spine of the lateral process of the aedeagus is very strongly twisted, and the apex of the central tube of the aedeagus is more slender and simpler in structure in *P. spirifera*.

ADULT.—Length of forewing 4 mm. Color dark brown; forewing dark brown, with golden hair along posterior margin and in spots around apex. Sixth sternum with a pointed mesal process. *Male genitalia:* Eighth sternum with posterior margin produced into a long, slender mesal process. Ninth sternum produced into a slender posteroventral lobe. Tenth tergite with an elongate, rectanguloid basal section; apical section elongate, apex rounded, with a sharp mesal tooth. Aedeagus with typical basal processes; with a lateral process arising from a basal membranous section, apical spine long, sharply twisted; central tube slender, evenly curved, apex slightly enlarged, with an internal spine.

MATERIAL.—*Holotype, male:* COSTA RICA, CARTAGO: Ojo de Agua, route 2, km 75, 20 July 1967, O. S. Flint, Jr., USNM Type 72747. *Paratypes:* Same data, 1 ♂; same, but 30 June 1967, 1 ♂.

Protoptila huava, new species

FIGURE 76

This species has no clear affinities within the genus, beyond the fact that it belongs to Mosely's group 1. The short eighth sternum, with its dorso-lateral appendage, is unique as is the shape of the tenth tergite.

ADULT.—Length of forewing 2 mm. Cleared and in alcohol, color light brown. Antenna with 4 basal segments typical, segments 5 and 6 enlarged and flattened, with small rounded setae on mesal face (broken off beyond segment 6). Sixth sternum with a pointed apicomesal process. *Male genitalia*: Eighth sternum produced as a broad, scoop-shaped lobe, with a small dorsolateral fingerlike process. Ninth sternum produced within eighth, and ending in a small mesal lobe. Tenth tergite with a small quadrangular basal section; apical section angulate, ending in a flattened bifid plate directed posteromesad. Aedeagus with typical basal and mesal lobes; with a lateral process ending in a long, slender, curled spine; central tube simple, arched, enlarged apicad, with a small internal spine subapically.

MATERIAL.—*Holotype, male*: MEXICO, OAXACA: Jaltepec, Isthmus of Tehuantepec, 21 May 1964, F. S. Blanton, USNM Types 72748. *Paratype*: Same data, 1 ♂.

Protoptila quicha, new species

FIGURE 77

The form of the aedeagus in this species is suggestive of that of *P. techila* Mosely, but the eighth and ninth sterna and tenth tergite are totally different in the two species.

ADULT.—Length of forewing 4.5 mm. Color brown; forewing whitish along anastomosis. Sixth sternum with a pointed, compressed posteromesal process. *Male genitalia*: Eighth sternum produced posteromesally, upcurved apically, with apex truncate. Ninth sternum ending in a pair of erect submesal points. Tenth tergite composed of an almost triangular basal section; apical section directed posteroventrally, apicolateral angle rounded, with a pointed apicodorsal process and a small pointed apicomesal tooth. Aedeagus with typical basal and midventral processes; with lateral appendages

arising from a membranous base, apical spine long and twisted; central tube scoop shaped apically, in dorsal aspect with lateral points subapically, and narrowly prolonged midventrally, with a small central tubule.

MATERIAL.—*Holotype, male*: GUATEMALA, CHIMALTENANGO: Tecpán Guatemala, 8 August 1967, O. S. Flint, Jr., USNM Type 72749.

Protoptila curiosa, new species

FIGURES 79–80

This extremely distinctive species seems at first sight to be unrelated to any other known species of the genus. Upon further analysis, however, it seems to be a rather aberrant member of the *dubitans* complex. It is immediately recognized by the shape of the ventrolateral lobe of the tenth tergum, which in *P. curiosa* is divided into a long dorsal arm and a thin, flat ventromesal plate.

ADULT.—Length of forewing 2.5–3 mm. Color in alcohol brown, an indication of a transverse pale band at anastomosis. Fifth sternum with an impressed line along posterior margin, ending in a rounded flap laterally. Sixth sternum with a compressed midventral point. *Male genitalia*: Eighth sternum broadly produced posteriorly, apex broadly and shallowly emarginate; eighth tergum produced posterolaterally as a rounded shoulderlike lobe. Ninth sternum not produced; tergum sclerotized and complex, consisting of dorsolateral lobes concave ventrolaterally. Tenth tergum borne from venter of ninth tergum, with dorsomesal section developed into a small point posteriorly; ventrolateral section strongly sclerotized, consisting of a long, terete, posteriorly directed arm that is bowed laterally, and a broad, flat plate directed posteroventrally. Aedeagal complex with usual basal lobes; midlength complex, consisting of stout lateral and ventromesal spines; with a long, slender lateral spine arising from a membranous base; central tube slender basally, slightly enlarged apically, dorsoapical surface concave with a small central spine.

MATERIAL.—*Holotype, male*: COLOMBIA, VALLE: Río Raposo, January 1965, V. H. Lee, light trap, USNM Type 72750. *Paratypes*: Same data, 96 ♂; same, but August 1965, 1 ♂.

Protoptila choluteca, new species

FIGURES 81-82

This species is closely related to *Protoptila cardela* Mosely. It differs most strikingly in that the posteroventral process of the tenth tergite barely reaches the apical lobe of aedeagus, whereas this process clearly surpasses the lobe in *P. cardela*. The apical margin of the ninth sternum in *P. choluteca* is bifid, and developed into small points rather than being a long, mesal, hooked process as in *P. cardela*. There are also minor differences in shape of most other sclerites in the two species.

ADULT.—Length of forewing 3 mm. Color brown in alcohol. Sixth sternum with a pointed, compressed mesal process. *Male genitalia*: Eighth sternum broadly produced posteriad, posterior margin with a broadly V-shaped excision; tergum with posterior margin straight, darkened, with a fringe of bristles. Ninth sternum almost completely covered by eighth, posteroventrally produced into 2 upright spines, in ventral aspect these spines are divaricate. Tenth tergite rectangular basally, with posteroventral angle produced into a long process. Aedeagus with a large, mesal basodorsal lobe, a pair of ventral rodlike appendages; midlength complex, consisting of a thin lateral lobe and a pair of erect mesal spines; giving rise to lateral processes appressed to central tube and ending in a ventrally directed point; central tube thin, ending in a curved central spine, and a ventral membranous lobe, lined with many short setae.

MATERIAL.—*Holotype, male*: HONDURAS, VALLE: Nacaome, 4 August 1967, O. S. Flint, Jr., USNM Type 72751. *Paratypes*: Same data, 29 ♂. 5 miles W of Jicaro Galan Junction, 9 July 1965, P. J. Spangler, 1 ♂; Pespire, 1 August 1967, O. S. Flint, Jr., 67 ♂. CHOLUTECA: 5 miles E of Choluteca, 28 July 1965, P. J. Spangler, 2 ♂.

Protoptila ignera, new species

FIGURE 78

This species is closely related to the Amazonian *Protoptila condylifera* Flint. It differs primarily in the shape of the tenth tergite, which in *P. ignera* has a longer dorsal margin and a more ventrally directed lobe, and in the apex of the aedeagus, whose dorsal spines are strongly twisted and whose central tube is greatly enlarged.

ADULT.—Length of forewing 3 mm. Color in alcohol uniform brown. Sixth sternum with a short, pointed, compressed apicomesal process. *Male genitalia*: Eighth sternum produced posteromesally, with apex bifid. Ninth sternum produced and slightly projecting above eighth sternum, tip in ventral aspect slightly bilobate. Tenth tergite with basal section elongate, roughly quadrate; apical section with dorsal margin nearly straight, with ventral lobe rounded apically and giving rise subapically to a small, mesally directed tooth. Aedeagus with typical basal lobes, and midlength complex; central tube small at base of tenth tergite, depressed and greatly expanded laterad just beyond tenth tergite, and giving rise to a pair of dorsal spines strongly convoluted basally, apex of central tube greatly enlarged, with a central spine.

MATERIAL.—*Holotype, male*: TRINIDAD: Simla, 9-11 February 1966, S. S. and W. D. Duckworth, USNM Type 72752.

Protoptila chontala, new species

FIGURE 83

This very distinctive new species appears to be most closely related to the Brazilian *P. condylifera* Flint. It differs rather strikingly, however, in the shape of the eighth sternum, which in *P. condylifera* is a long, slender mesal process divided apically. There are also smaller differences in all other parts of the genitalia.

ADULT.—Length of forewing 3.5 mm. Color unknown; cleared and in alcohol. Sixth sternum with a compressed apicomesal process. *Male genitalia*: Eighth sternum with a long, pointed posterolateral process, and a smaller, pointed ventrolateral lobe, posteromesally with deep, almost circular excision. Ninth sternum elongate, posterior margin broad, with a broadly V-shaped mesal emargination. Tenth tergite with an elongate, rectanguloid basal section; apical section decumbent, with a small, rounded ventrolateral lobe, and a small, pointed mesal lobe. Aedeagus with usual basal and mesal lobes and processes; central tube slightly angulate, bearing dorsally a pair of long, slender processes; apex membranous with a central spine.

MATERIAL.—*Holotype, male*: MEXICO, TABASCO: Río Puyacatengo, E of Teapa, 28-29 July 1966, Flint and Ortiz, USNM Type 72753.

Protoptila mixteca mixteca, new species
and new subspecies

FIGURE 85

This species seems to be somewhat distantly related to *P. huasteca* Flint, but is immediately recognized by the very different shape of the eighth sternum and aedeagus.

ADULT.—Length of forewing 3 mm. Color in alcohol pale brown; completely denuded. Sixth sternum with a pointed apicomesal process. *Male genitalia*: Eighth sternum with posteromesal margin produced into a fingerlike lobe. Ninth sternum produced within eighth sternum as a narrow lobe, with a mesal, ventral keel. Tenth tergite with posterodorsal angle of basal section considerably enlarged; apical section pendulous, ending in a small point, and with a small mesal point. Aedeagus with usual basal lobes, with a pair of midventral flared lobes; central tube giving rise apically to a pair of projecting dorsolateral spines, a pair of ventrolateral winglike lobes, and a mesoventral hook.

MATERIAL.—*Holotype, male*: MEXICO, OAXACA: Tamazulapan, 7–8 June 1967, Flint and Ortiz, USNM Type 72754.

Protoptila mixteca veracruzensis, new subspecies

FIGURE 86

This and the nominate subspecies are extremely similar, differing only in comparative aspects of the tenth tergite, aedeagus, and ninth sternum. The dorsomesal process from the base of the aedeagus in *P. m. mixteca* is expanded dorsally at both the anterior and posterior angles, whereas in *P. m. veracruzensis* the keel is broader and the posterior margin is concave below the apex. The shape of the tenth tergite is, however, the most distinctive characteristic. In *P. m. veracruzensis* the apical point is drawn out posteriad into an elongate, sinuous process.

MATERIAL.—*Holotype, male*: MEXICO, VERACRUZ: Fortin de las Flores, 17 May 1967, F. S. Blanton et al., USNM Type 72755. *Paratypes*: Same data, 4 ♂; same, but June 1964, 1 ♂.

Protoptila mayana, new species

FIGURE 84

This very distinctive species belongs to Mosely's section 2 and has no obvious close relatives. The bizarre, tripartite tenth tergite is extremely distinctive.

ADULT.—Length of forewing 2.5 mm. Color unknown; cleared and in alcohol. Sixth sternum with a compressed apicomesal process. *Male genitalia*: Eighth sternum slightly produced posteriad, apex very slightly bilobate. Ninth sternum with a small, ventrolateral lobe, bearing several small points apically. Tenth tergite with a small, basal rectangular section; apical section tripartite, an erect dorsal lobe, with apex pointed posteriad, a decumbent ventral lobe, and posterior lobe ending in a slender, curved process. Aedeagus with a large, mesal basodorsal lobe, a pair of ventral, rodlike appendages; midlength complex with a pair of appressed, upcurved, pointed lobes posteroventrally; central tube with small winglike lateral lobes, apex slightly enlarged, with a C-shaped central spine.

MATERIAL.—*Holotype, male*: BRITISH HONDURAS, CAYO: Blancaneaux Lodge, 3 July 1970, Y. Sedman, blacklight, USNM Type 72756. *Paratype*: TOLEDO: Columbia For. Sta., 2 August 1970, Y. Sedman, 1 ♂.

Protoptila burica, new species

FIGURE 88

Although not closely related, there is considerable similarity in the genitalia between this species and *P. cristata* Flint. There are differences throughout the genitalia in the two species, with the tenth tergite offering the most striking differences.

ADULT.—Length of forewing 3.5 mm. Completely cleared and in alcohol. Sixth sternum with a pointed mesal process. *Male genitalia*: Eighth sternum produced posteromesally, with apex produced into a sharp upright tooth on each side. Ninth sternum scooplike, produced into eighth sternum. Tenth tergite with basal section very short; apical section with apex produced into 3 spines, mesal one with apex bifid, with a long, curved, basodorsal process. Aedeagus with typical basal and mesal lobes; central tube simple, straight, apex with lateral plates and a central C-shaped spine.

MATERIAL.—*Holotype, male*: COSTA RICA, PUNTARENAS: 2.8 miles E of Golfito, 18–19 July 1967, O. S. Flint, Jr., USNM Type 72757. *Paratype*: Same data, 1 ♂.

Protoptila cana, new species

FIGURE 89

Beyond the fact that this species is to be placed in Mosely's group 2, no close relationships are apparent. The shape of the eighth sternum, tenth tergite, and apex of the aedeagus are all extremely distinctive.

ADULT.—Length of forewing 3–3.5 mm. Color in alcohol dark brown. Antenna with segments 15–19 broadened and darkened. Sixth sternum with a pointed mesal process. *Male genitalia*: Eighth sternum with a pair of short submesal processes from posterior margin, posterolateral angle produced into an elongate pointed process. Ninth sternum with posterior margin not produced. Tenth tergite with basal section nearly square; apical section with a rounded apicoventral lobe, and a pair of apical and mesal points. Aedeagus with usual basal and ventral processes; central tube short, apex with a heavily sclerotized, ventral scoop-like sclerite, and a more lightly sclerotized dorsal sclerite, with an apical C-shaped spine and several smaller spines.

MATERIAL.—*Holotype, male*: COSTA RICA, GUANACASTE: Río Corobici, Las Canas, 26 July 1967, O. S. Flint, Jr., USNM Type 72758. *Paratypes*: Same data, 2 ♂. PANAMA, CANAL ZONE: Pipeline Road, Río Agua Salud, 8–12 July 1967, Flint and Ortiz, 3 ♂.

Protoptila boruca, new species

FIGURE 91

This species does not offer any clear relationship to any previously described form, although it is clearly a *Protoptila*. The fusion and shape of the eighth and ninth sterna are unique, and the very straight aedeagus is most unusual.

ADULT.—Length of forewing 4 mm. Color in alcohol brown; forewing with an indication of a narrow transverse white band at anastomosis. Sixth sternum with a compressed apicomeral process. *Male genitalia*: Eighth sternum broadly produced

posteriad, with apex produced into a pair of short upturned lobes. Ninth sternum fused dorsolaterally to eighth sternum, with posterolateral corner produced into a pointed process. Tenth tergite with a small basal section; apical section elongate; roughly rectangular, with a small fingerlike, ventral lobe subapically. Aedeagus with mesal basodorsal lobe small, midlength complex typical; central tube straight, simple, ending in a membranous lobe with many small spines.

MATERIAL.—*Holotype, male*: COSTA RICA, SAN JOSE: Río General, Pacuare, 13 July 1967, Flint and Ortiz, USNM Type 72759.

Protoptila yurumanga, new species

FIGURE 90

This species appears to be most closely related to *P. boruca*, new species. From that species, *P. yurumanga* is to be recognized by the very long, slender dorsolateral process and two mesal spines on the eighth sternum, and the sinuate, pointed tenth tergite.

ADULT.—Length of forewing 3 mm. Color unknown; completely cleared. Sixth sternum with a small, compressed mesal process. *Male genitalia*: Eighth sternum with posterolateral angle produced into a long, slender process, mesally produced into 2 pairs of short, pointed lobes; tergum with posterior margin darkened. Ninth sternum not produced. Tenth tergite with basal section small; apical segment sinuous, with tip produced into a dorsally directed point. Aedeagus with typical basal lobes, midlength complex bearing a single pair of pointed lobes; central tube directed posteriad, tip membranous, with a dark, curved internal spine and a pair of long setiferous lobes dorsally.

MATERIAL.—*Holotype, male*: COLOMBIA, VALLE: Río Raposo, January 1965, V. H. Lee, light trap, USNM; Type 72760. *Paratype*: Same data, 1 ♂.

Protoptila guarani, new species

FIGURE 87

This is the first species of the *disticha* group to be found outside the Amazon Basin, and is probably closest to *P. ternatia* Flint. From that species,

P. guarani differs in possessing a differently shaped tenth tergite, and very differently structured apex to the aedeagus, especially the two long spines.

ADULT.—Length of forewing, 2.5 mm. Color in alcohol brown. Sixth sternum with a compressed central process about two-thirds length of sternum. *Male genitalia*: Eighth sternum broadly produced posteriad, tapering to a narrow apicomeral point. Ninth sternum not produced posteriad. Tenth tergite rectangularly enlarged apicoventrally, mesal

face with 2 bands of small, peglike setae ventrally. Aedeagus with typical basodorsal lobe and mid-length complex; lacking lateral appendages; apex of central tube enlarged, with a pair of long, slender spines ventrally, with an arched hoodlike sclerite dorsally, with dorsolateral angles produced into sharp points.

MATERIAL.—*Holotype, male*: PARAGUAY: Salto de Guaira, 4 December 1971, L. E. Peña G., USNM Type 72761. *Paratypes*: Same data, 9 ♂.

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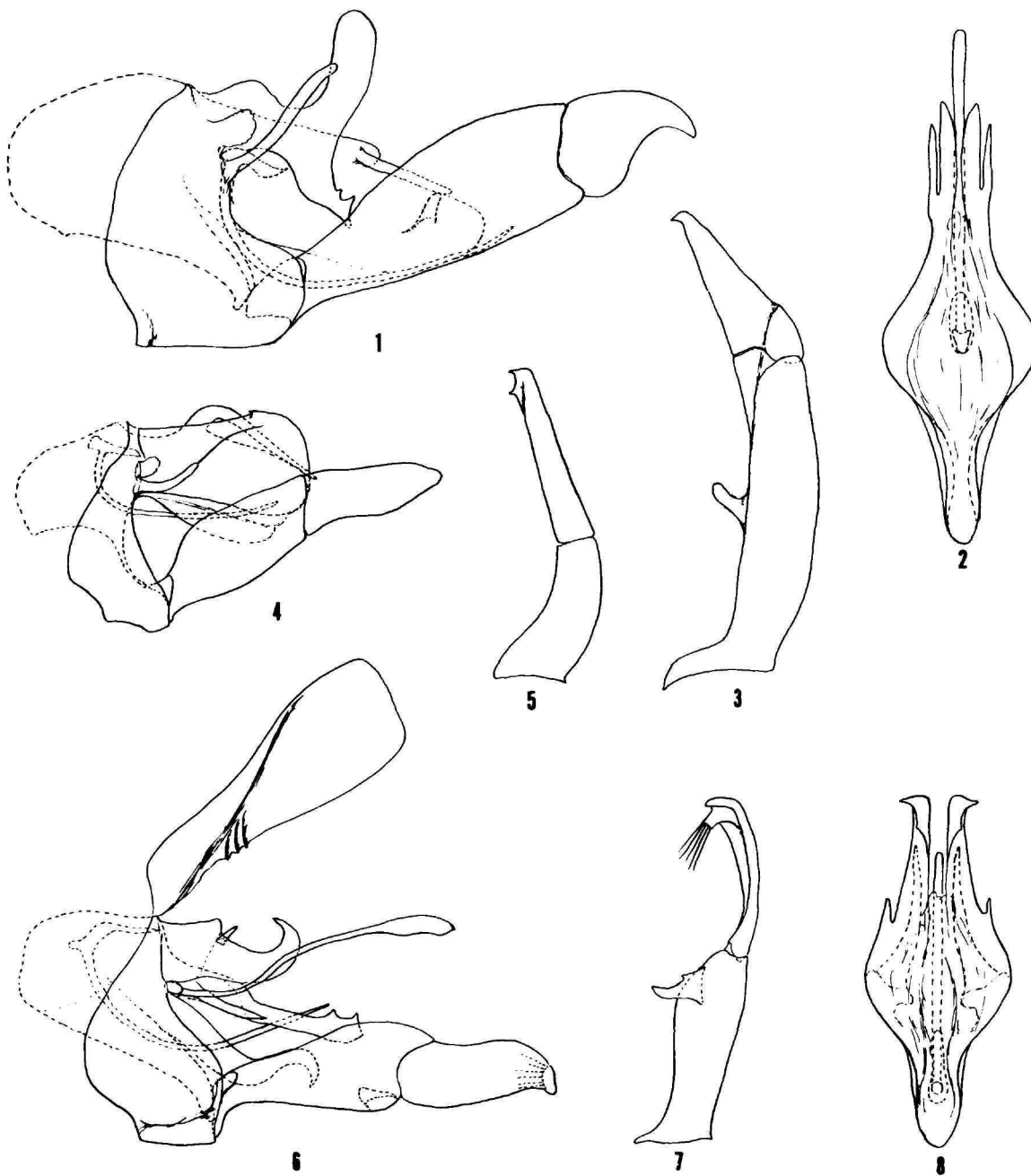
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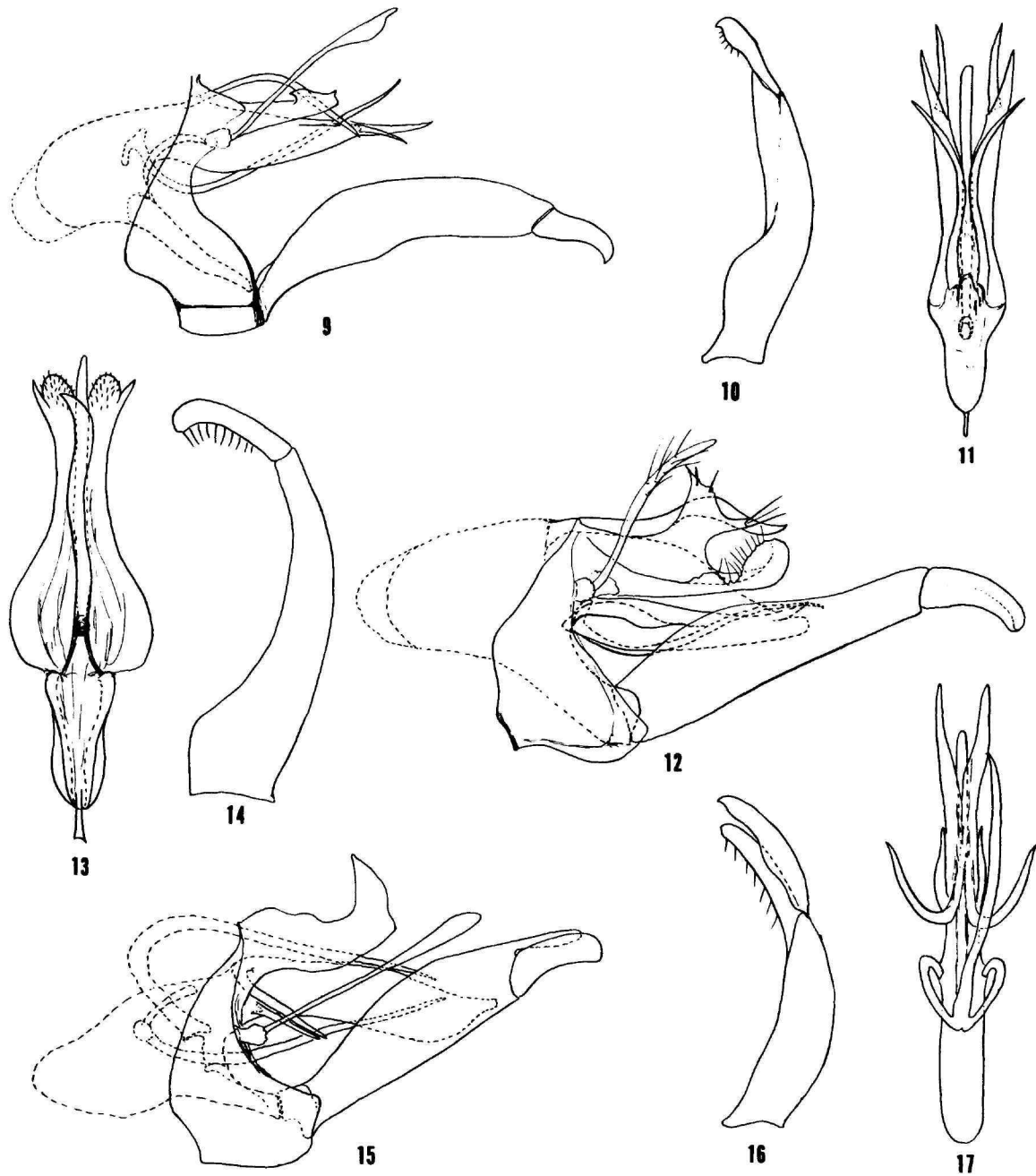
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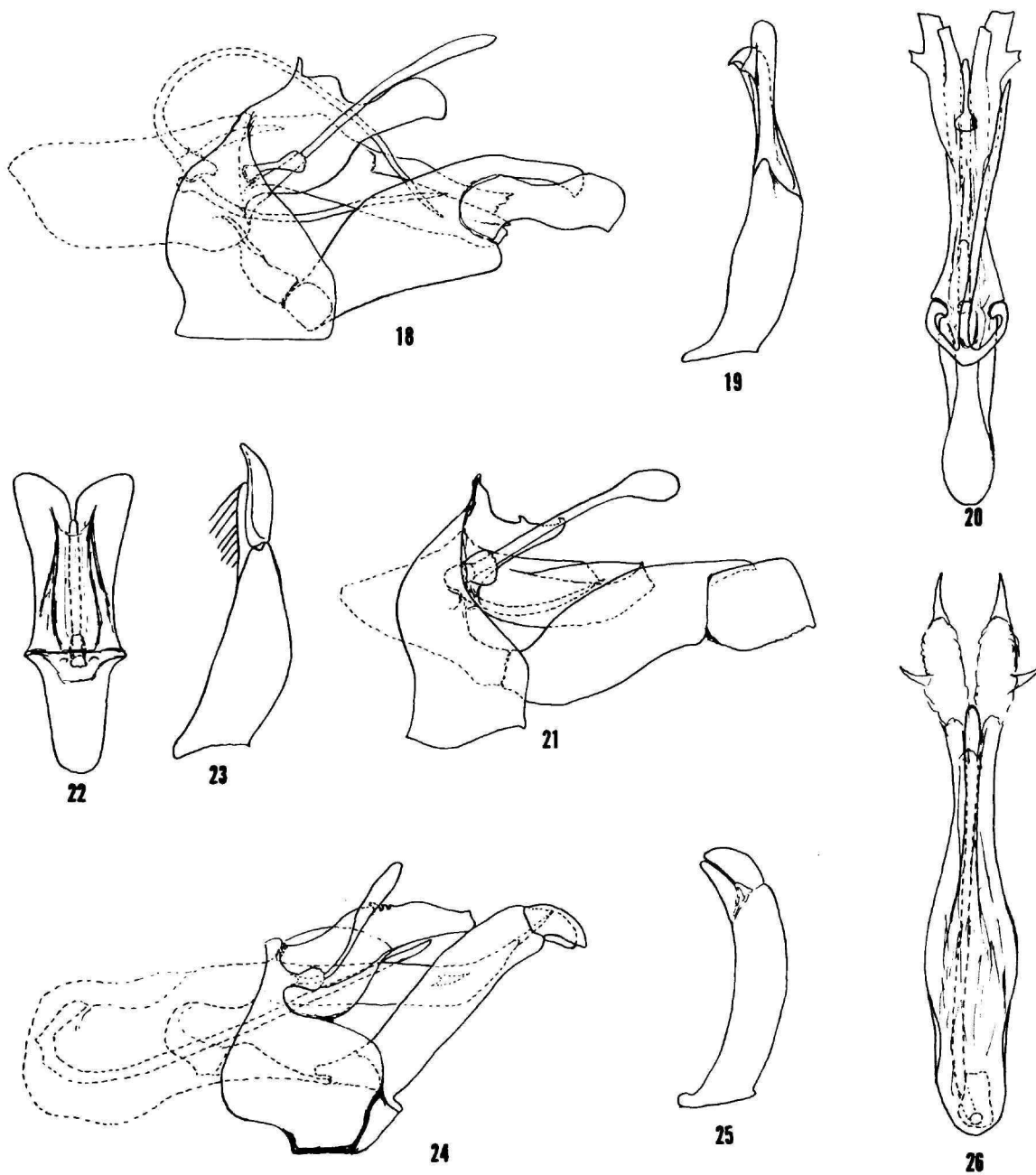
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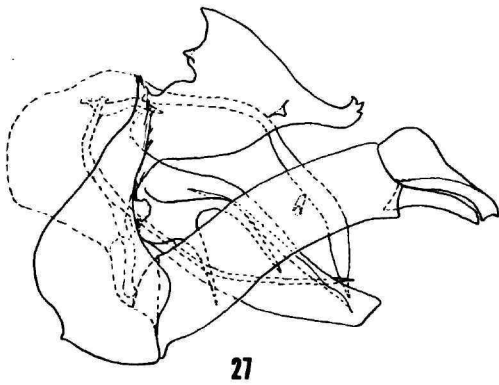
FIGURES 1-8.—Male genitalia. *Atopsyche talamanca*, new species: 1, lateral; 2, aedeagus, dorsal; 3, clasper, ventral. *A. huenga*, new species: 4, lateral; 5, clasper, ventral. *A. caquetia*, new species: 6, lateral; 7, clasper, ventral; 8, aedeagus, dorsal.



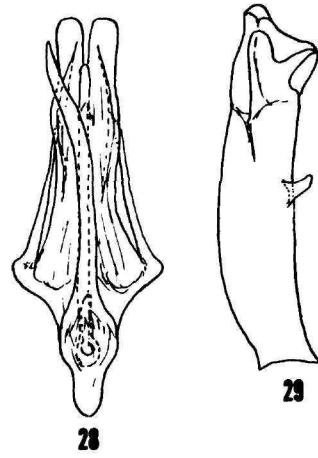
FIGURES 9-17.—Male genitalia. *Atopsyche choronica*, new species: 9, lateral; 10, clasper, ventral; 11, aedeagus, dorsal. *A. weibezaehni*, new species: 12, lateral; 13, aedeagus, dorsal; 14, clasper, ventral. *A. taina*, new species: 15, lateral; 16, clasper, ventral; 17, aedeagus, dorsal.



FIGURES 18-26.—Male genitalia. *Atopsyche conventica*, new species: 18, lateral; 19, clasper, ventral; 20, aedeagus, dorsal. *A. davisorum*, new species: 21, lateral; 22, aedeagus, dorsal; 23, clasper, ventral. *A. zernyi*, new species: 24, lateral; 25, clasper, ventral; 26, aedeagus, dorsal.



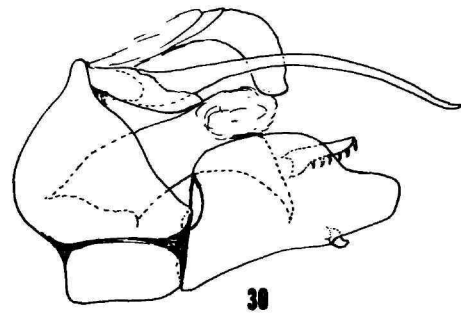
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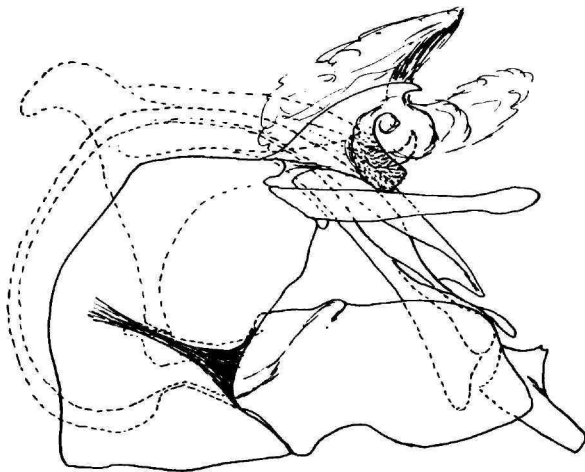
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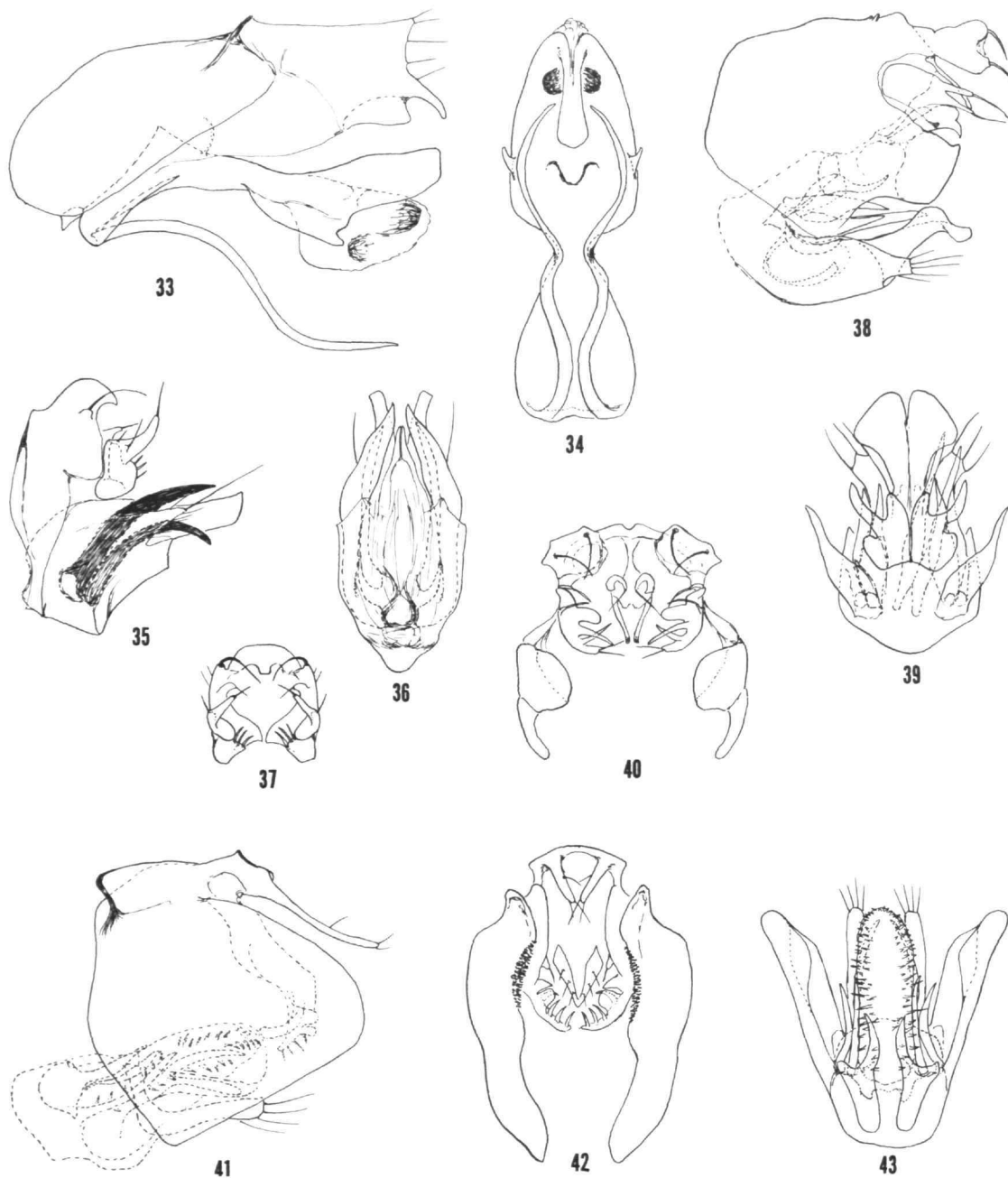


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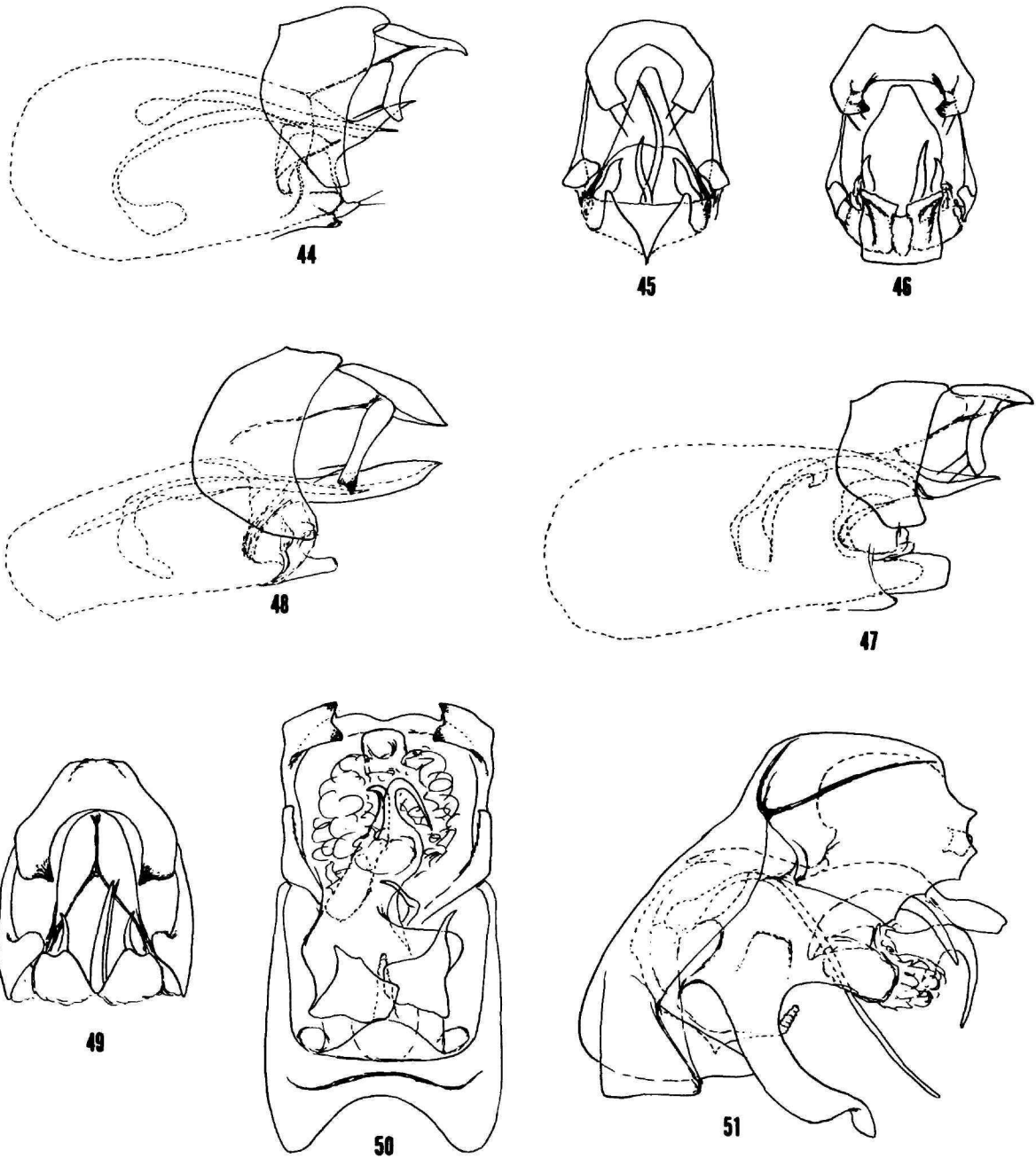


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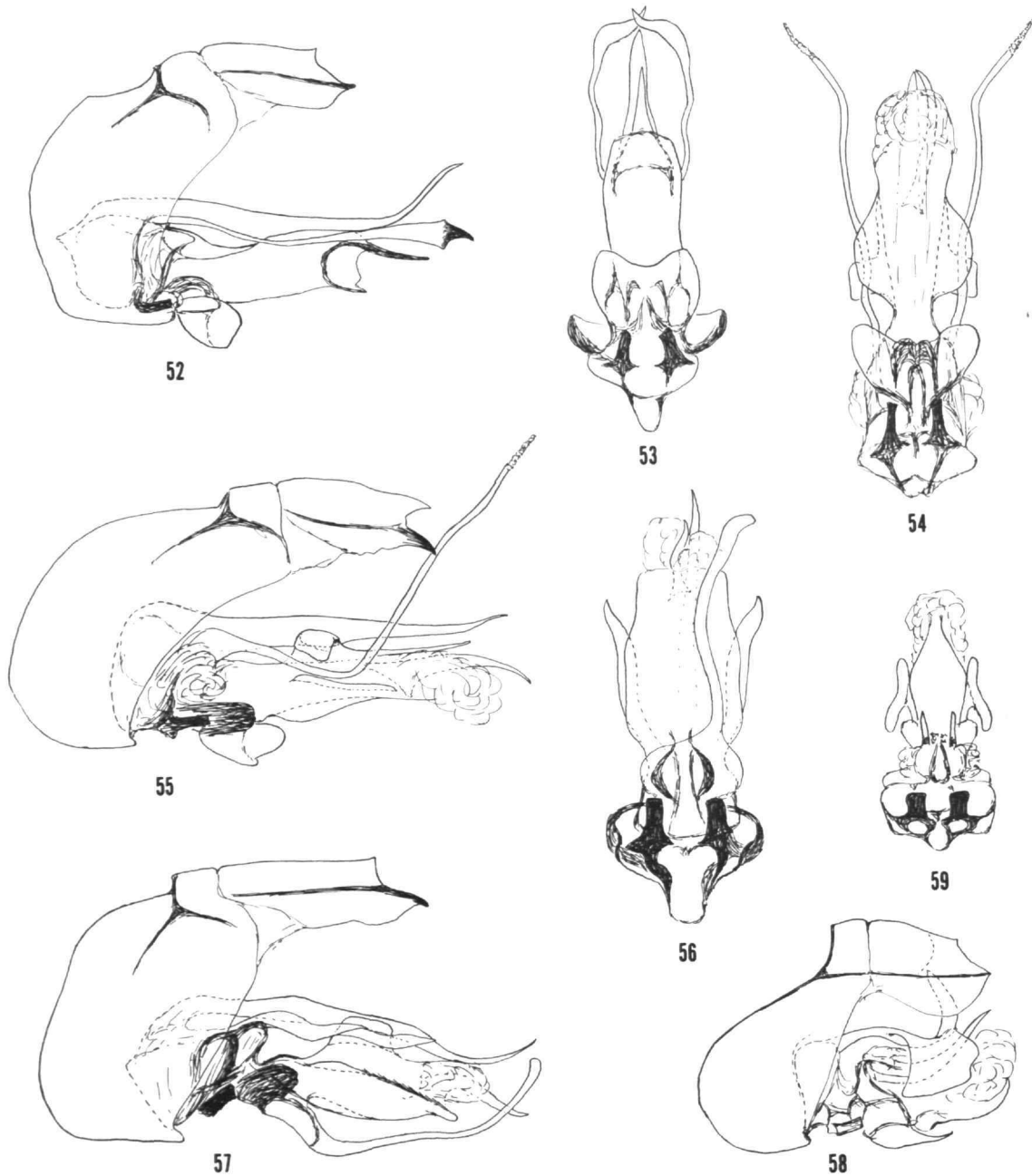
FIGURES 27-32.—Male genitalia. *Atopsyche sanctipauli*, new species: 27, lateral; 28, aedeagus, dorsal; 29, clasper, ventral. *Australochorema brachytergum*, new species: 30, lateral; 31, clasper, ventral. *Rheochorema magellanica*, new species: 32, lateral.



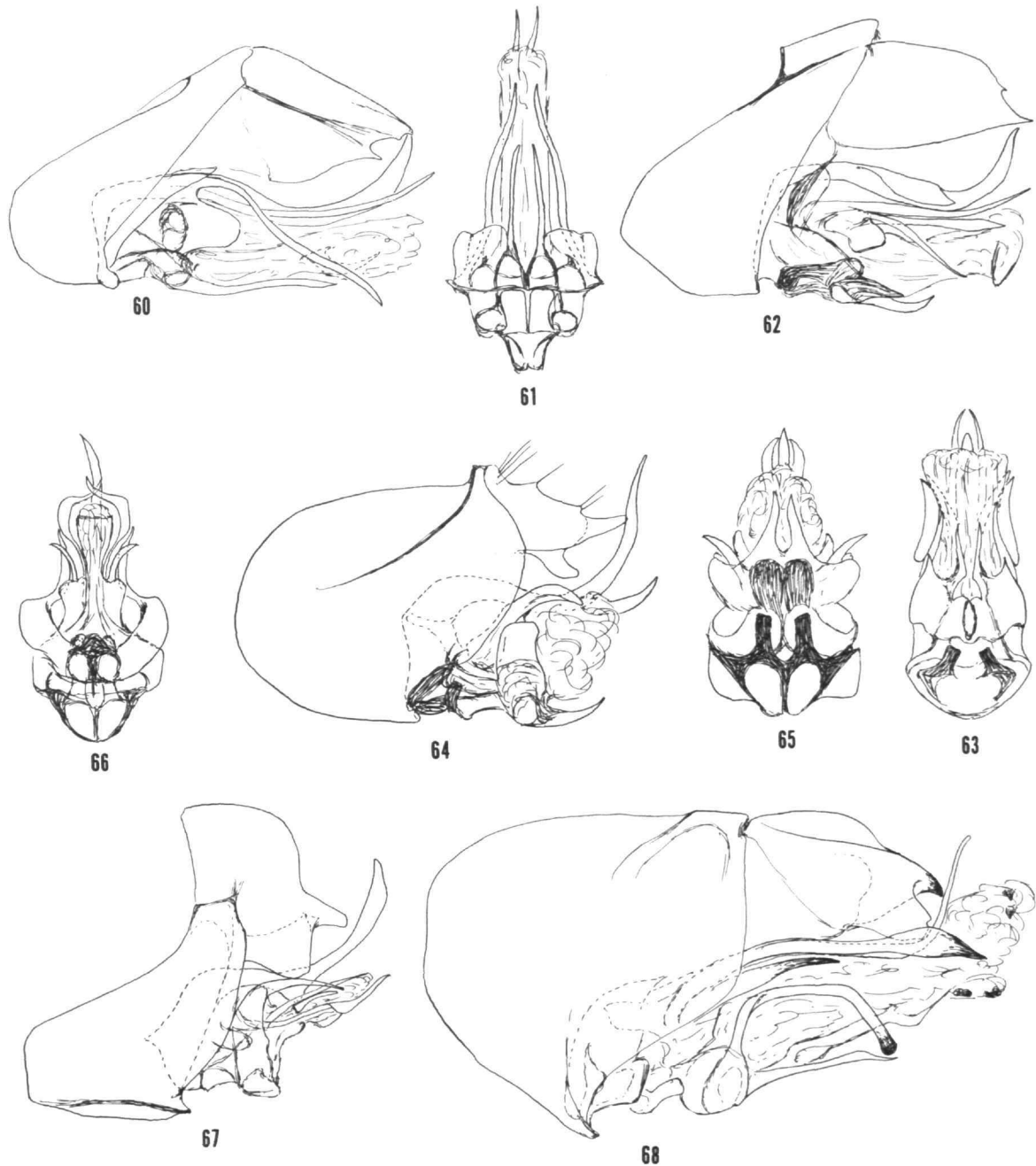
FIGURES 33-43.—Male genitalia. *Antoptila plaumanni*, new species: 33, lateral; 34, aedeagal complex, ventral. *Cariboptila aurulenta*, new species: 35, lateral; 36, aedeagal complex, dorsal; 37, ninth and tenth terga, posterior. *C. hispaniolica*, new species: 38, lateral; 39, aedeagal complex, dorsal; 40, ninth and tenth terga, posterior. *C. calcigena*, new species: 41, lateral; 42, ninth and tenth terga, posterior; 43, aedeagal complex, dorsal.



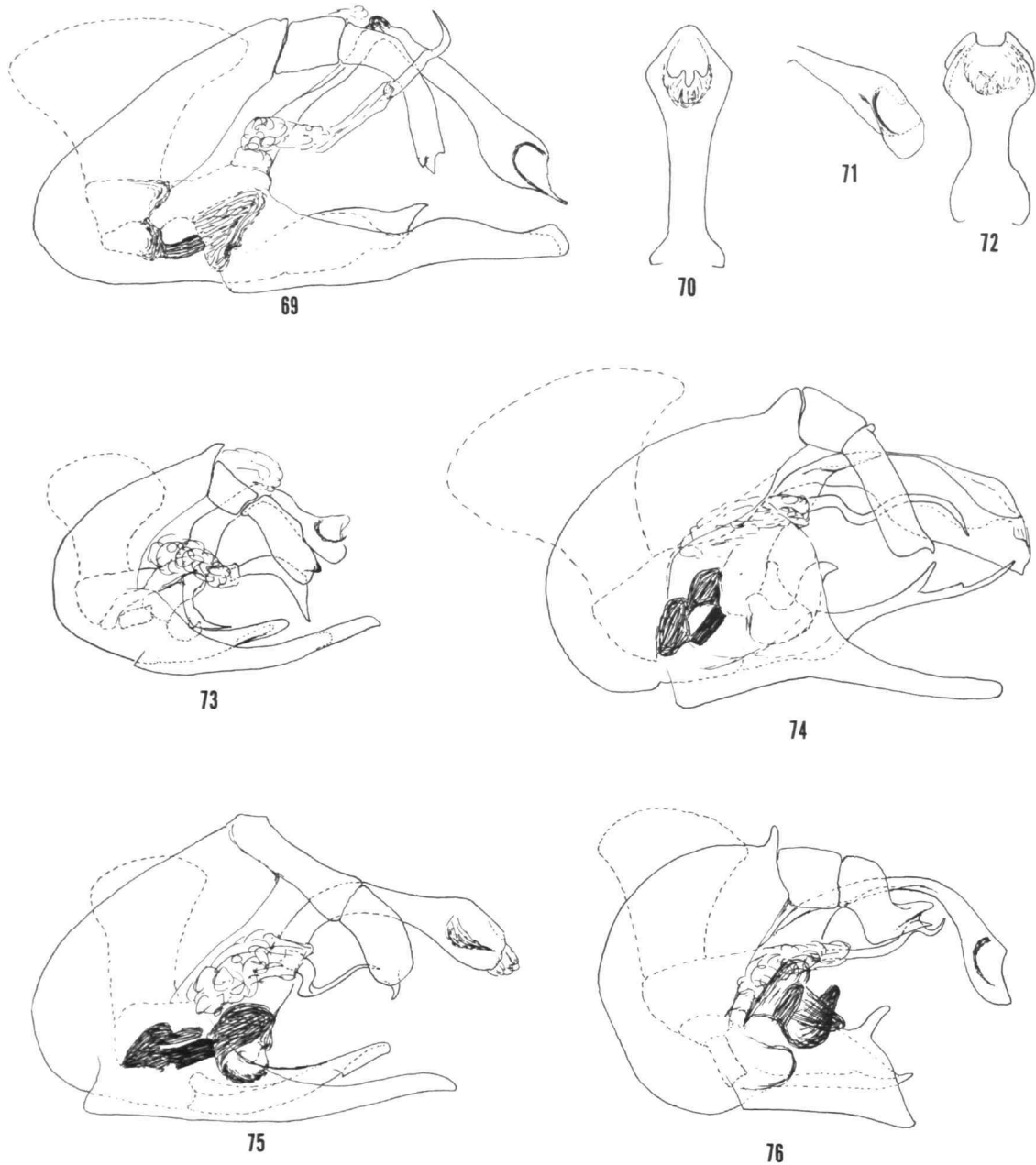
FIGURES 44-51.—Male genitalia. *Culoptila nahuatl*, new species: 44, lateral; 45, posteroventral. *C. tarascanica*, new species: 46, posteroventral; 47, lateral. *C. costaricensis*, new species: 48, lateral; 49, posteroventral. *Mastigoptila ecornuta*, new species: 50, posteroventral; 51, lateral.



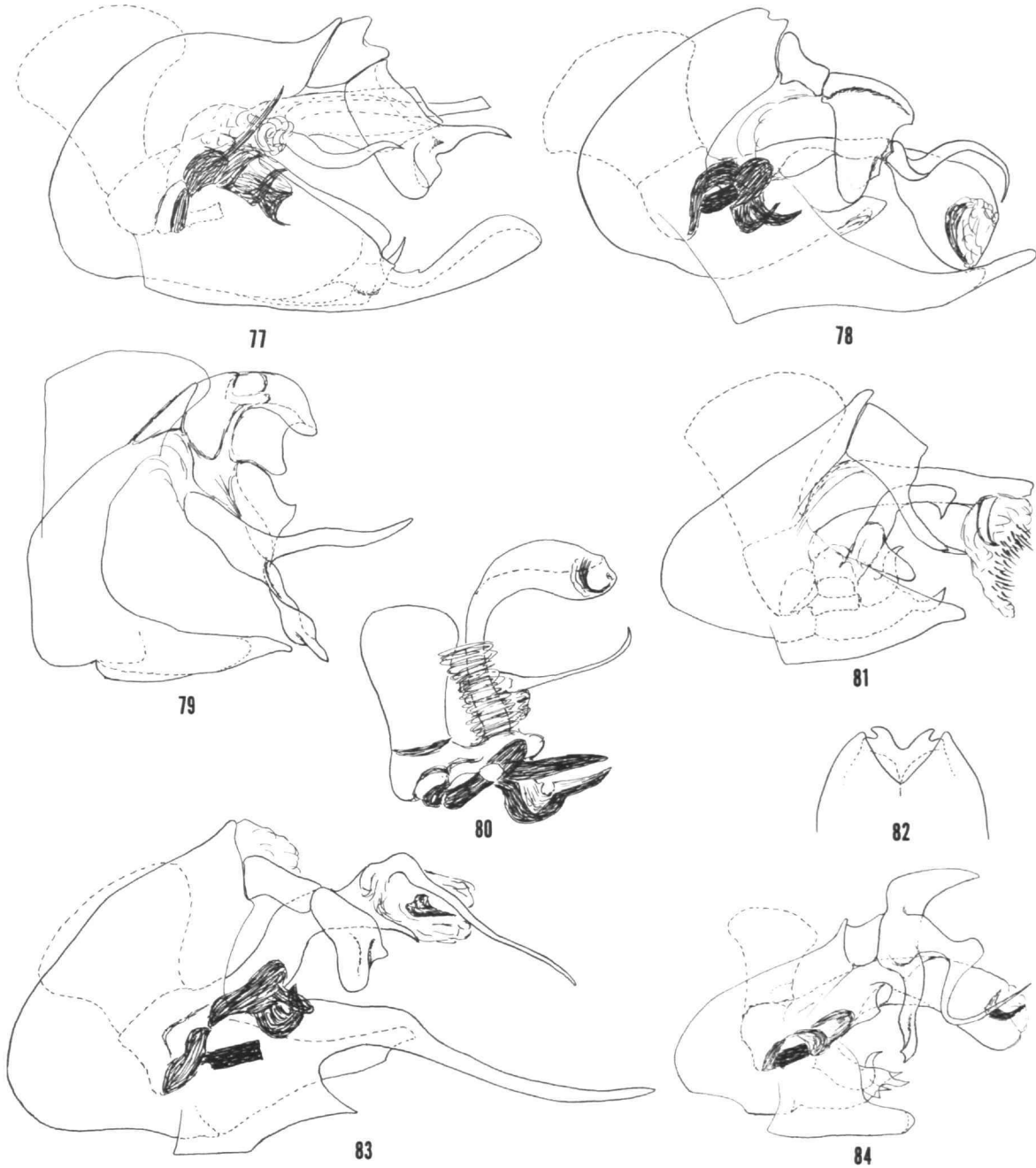
FIGURES 52-59.—Male genitalia. *Mexitrichia rovira*, new species: 52, lateral; 53, aedeagal complex, ventral. *M. florica*, new species: 54, aedeagal complex, ventral; 55, lateral. *M. simla*, new species: 56, aedeagal complex, ventral; 57, lateral. *M. pacuara*, new species: 58, lateral; 59, aedeagal complex, ventral.



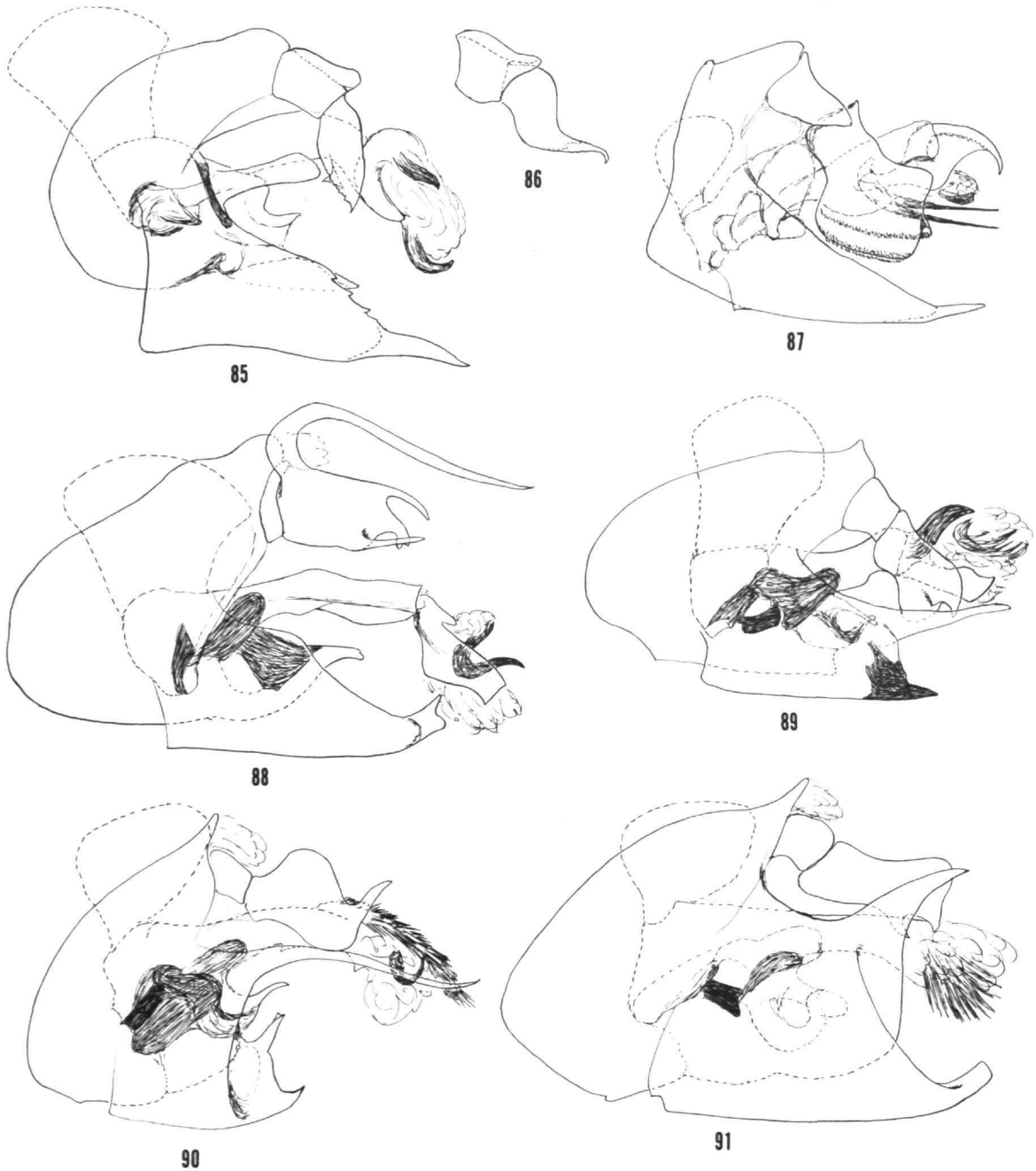
FIGURES 60-68.—Male genitalia. *Mexitrichia macarenica*, new species: 60, lateral; 61, aedeagal complex, ventral. *M. catarinensis*, new species: 62, lateral; 63, aedeagal complex, ventral. *M. leei*, new species: 64, lateral; 65, aedeagal complex, ventral. *M. guairica*, new species: 66, aedeagal complex, ventral; 67, lateral. *Mortoniella argentinica*, new species: 68, lateral.



FIGURES 69-76.—Male genitalia. *Protoptila o. orotina*, new species and subspecies: 69, lateral; 70, tip of aedeagus, dorsal. *P. o. raposa*, new subspecies: 71, tip of aedeagus, lateral; 72, tip of aedeagus, dorsal. *P. colombiensis*, new species: 73, lateral. *P. talamanca*, new species: 74, lateral. *P. spirifera*, new species: 75, lateral. *P. huava*, new species: 76, lateral.



FIGURES 77-84.—Male genitalia. *Protoptila quicha*, new species: 77, lateral. *P. ignera*, new species: 78, lateral. *P. curiosa*, new species: 79, eighth, ninth, and tenth segments, lateral; 80, aedeagal complex, lateral. *P. choluteca*, new species: 81, lateral; 82, tips of eighth and ninth segments, ventral. *P. chontala*, new species: 83, lateral. *P. mayana*, new species: 84, lateral.



FIGURES 85-91.—Male genitalia. *Protoptila m. mixteca*, new species and subspecies: 85, lateral. *P. m. veracruzensis*, new subspecies: 86, tenth tergite, lateral. *P. guarani*, new species: 87, lateral. *P. burica*, new species: 88, lateral. *P. cana*, new species: 89, lateral. *P. yurumanga*, new species: 90, lateral. *P. boruca*, new species: 91, lateral.

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