OLIVER S. FLINT, JR.

Studies of Neotropical Caddisflies, XIII: The Genus Ochrotrichia from Mexico and Central America (Trichoptera: Hydroptilidae)

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY NUMBER 118

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ABSTRACT

Flint, Oliver S., Jr. Studies of Neotropical Caddisflies, XIII: The Genus *Ochrotrichia* from Mexico and Central America (Trichoptera: Hydroptilidae). *Smithsonian Contributions to Zoology,* number 118, 28 pages, 78 figures, 1972.—The taxonomic history of the genus *Ochrotrichia* is reviewed, the genus characterized in the adult and larval stages, and its affinities discussed. The genus is composed of two subgenera, the nominate and *Metrichia* Ross, which are keyed and characterized, and their habitats discussed. The species of each subgenus occurring in Mexico and Central America are placed to species-group, keyed, described and figured, and their distributions plotted. The subgenus *Ochrotrichia* contains 20 species, including 13 described as new, and the subgenus *Metrichia* contains 9 species, of which 8 are described as new including one from southern Arizona.

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Introduction

The genus *Ochrotrichia* is exclusively New World in distribution. Species are known from the United States, throughout North and Central America, the West Indies, and in South America from Peru to central Chile. Undoubtedly species will be found in other parts of South America, although Mosely did not discover any species in southeastern Brazil (1939), nor have I found any undescribed species in small collections received from other parts of South America.

The first species, *tarsalis,* was described in the genus *Hydroptila* over one hundred years ago by Hagen (1861), but was not restudied nor correctly illustrated until Ross (1938a). Morton described and illustrated the second species in 1905 as *Ithytrichia confusa.* This species became the type by monotypy of Sibley's genus *Polytrichia* in 1926, which name is preoccupied by a genus of snails. *Ochrotrichia* with its type *insularis* was proposed by Mosely in 1934 for a Jamaican species. Mosely described three additional species from Mexico in 1937: *aldama, arranca,* and *tenanga.* The author described a single Mexican species, *cruces* (1967), and a series of West Indian species (1964, 1968a, 1968b, 1968c). Starting in 1938 with the careful study of the North American fauna, many species have been described from the United States.

Recent collections made in Mexico and Central America have revealed that the diversity of the fauna of these regions is, not surprisingly, at least as great as that of the United States. Many of the collections were made by the author during 1965, 1966, and 1967 on trips supported by grant GB–2616 from the National Science Foundation. Additional material collected by coworkers at the National Museum of Natural History and others have supplied many valuable specimens not duplicated by my collections. Yet, most of the species herein described are known from only one or two collections and very few individuals, which suggests that many more species are still to be discovered. However, it seems that at this time a review of the known regional species, with descriptions, and drawings of the new species, keys, and distributions will provide a useful foundation for future work on the genus. The present paper is designed to cover only those species found in Central America and Mexico.

I express my appreciation to Mr. Peter H. Ward, of the British Museum (Natural History) for arranging the loan of the types of *Ochrotrichia arranca* (Mosely), and *O. aldama* (Mosely).

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Genus *Ochrotrichia* Mosely

Polytrichia Sibley, 1926:102.—Betten 1934:153.—Mosely 1937:184.—Ross 1944:125 [Preoccupied].
Ochrotrichia Mosely 1934:162.—Ross 1944:125.—Denning 1956:255.—Flint 1964:58; 1968a:48; 1968c:59.
Metrichia Ross, 1938a:9; 1944:121.—Flint 1968a:48.

TYPE SPECIES.—*Ochrotrichia insularis* Mosely, 1934, by original designation.

ADULT.—Ocelli 3, antenna simple; basal segment enlarged and elongate, second segment shorter, third segment equidimensional, segments beyond usually slightly elongate. Maxillary palpus with two basal segments very short, third, fourth, and fifth each several times longer than broad. Labial palpus with basal segment very short, second and third segments each several times longer than broad. Head without modifications dorsally; posterior warts may be open beneath, but without special scent structures. Mesoscutellum with a transverse fracture; metascutellum roughly triangular in outline. Spurs 0,3,4 or 1,3,4. Forewing rather broad, not markedly acuminate, venation not markedly reduced.

LARVA.—Head simple. Labrum symmetrical, without processes. Mandibles stout, broadly trianguloid; left mandible with mesal brush. Metanotum with anterolateral angle enlarged. All pairs of legs comparatively short and stout, prothoracic leg shortest; tibiae enlarged apically, that of foreleg especially so and bearing specialized setae and plates. Abdomen rarely bearing small sclerites on some terga; middle segments enlarged and slightly compressed. Case usually of the compressed, purse type, rarely in the form of a turtle's shell.

On the basis of adult and larval morphology the genus seems to be quite clearly a member of the Hydroptilinae (sensu Nielsen, 1948). The closest relationship based on the adults would seem to be with the genus *Rhyacopsyche* in the New World and *Microptila* in the Old. The three are to be recognized by the structure of the male genitalia. The typical subgenus of *Ochrotrichia* may be recognized by the large, often extremely complex, exserted tenth tergum, and the aedeagus which is usually a simple tube, rarely with two apical rods or a convoluted process. In the subgenus *Metrichia,* whose genitalia are quite different, the tenth tergum is a simple, generally very small, membranous lobe, there is a heavily sclerotized dorsolateral process, and the aedeagus is very large, complex, and generally bears two (rarely one or none) heavily sclerotized hooks. In *Rhyacopsyche* the tenth tergum is reduced and mostly covered by large, dorsolateral lobes of the ninth segment, the aedeagus bears a process usually convoluted and a central tube usually with a slender spine. The genus *Microptila* known from Europe, Africa, and Asia, is most similar to *Metrichia,* but in general does not have the dorsolateral hooks, and the aedeagus bears a convoluted process but no hooks. In the species *Microptila indra* Schmid there are structures apparently similar to the dorsolateral hooks, and the convoluted process is short and broad, almost hooklike. On the basis of genital pattern then, one is tempted to recognize four genera, with *Metrichia* and *Microptila* almost merging.

If one looks at the larvae for generic characters a different situation is apparent. As indicated earlier (Flint 1968a, 1971) the larvae and cases of *Metrichia* and *Ochrotrichia* appear to be inseparable, but the larvae and cases of *Rhyacopsyche* are distinctive. Unfortunately the immature stages of *Microptila* are still undescribed.

Considering, then, the adult and larval morphology, I recognize the genus *Rhyacopsyche* as distinct, *Ochrotrichia* and *Metrichia* as subgenera, indistinguishable in the larval stage, but quite distinct in the adult. *Microptila* I hold separate, but recognize the possibility that it may ultimately be considered a third subgenus.

As indicated above, the genus *Ochrotrichia* is to be divided into subgenera. The typical subgenus lacks an apical spur on the foreleg, and in the male is lacking modifications of the abdomen, and possesses genitalia with a large, often extremely modified tenth tergum, no dorsolateral hooks, and a rather simple aedeagus. The subgenus *Metrichia* possesses an apical spur on the foreleg, often possesses internal sacs, setal brushes, or other modifications of the male abdomen, and the male genitalia have the tenth tergum reduced to a simple membranous lobe, a button-like cercus and dorsolateral hooks, and a very large, complex aedeagus usually with two large hooks.

Key to Subgenera of *Ochrotrichia*

1. Foreleg without an apical spur ..... ***Ochrotrichia***
   Foreleg with an apical spur ..... ***Metrichia***

Subgenus *Ochrotrichia* Mosely

The subgenus *Ochrotrichia* is found over all of temperate North America, Central America, and the West Indies. It contains the majority of the described species, and is especially well represented in the United States.

The subgenus may be divided into two major groups, one, the *xena* group, seems to be the simplest. It is characterized by a simple ninth segment in which the dorsal and lateral margins are generally continuous and the anterior margin is not produced, and the tenth tergum is a comparatively simple flap often bearing a few small spines. The aedeagus varies from a comparatively simple tube to one bearing various processes. To this group belongs *O. xena* (Ross), *O. unio* (Ross), *O. flagellata,* new species, *O. pectinata,* new species, and the West Indian species *O. brayi* Flint, *O. caligula* Flint, *O. gurneyi* Flint, *O. lobifera* Flint, *O. marica* Flint, *O. spinosissima* Flint, and *O. verda* Flint.

The other major group is composed of the remaining species. It is characterized by the ninth tergum which is depressed below the dorsal margin of the pleura and whose anterior margin is produced beyond the anterior margin of the pleura. The tenth tergum is more or less intimately fused with the ninth tergum and has become greatly modified, bearing many spines, processes, plates, etc. The aedeagus is a very simple, threadlike structure.

Considering only those species treated in this paper, this second major group may be divided into 6 groups. The species *O. aldama* (Mosely) is placed in its own group. It is characterized by having elongate, parallel-sided claspers with the black peglike setae mostly at the apex, and a rather simple, divided tenth tergum.

The second group, which I call the *tarsalis* group, is characterized by having a broad plate covering much of the dorsal part of the tenth tergum, and in having elongate, roughly parallel-sided claspers with many black peglike setae apically and ventrally. In this group I place *O. tarsalis* (Hagen), *O. stylata* (Ross), *O. caimita,* new species, and *O. pacifica,* new species.

The third group, the *arranca* group, has a middorsal process of the tenth tergum bearing a special enlarged black seta and a midapical process which is bifurcate. The claspers are more or less sigmoid in outline and bear from the ventral margin several very large black spines and the apex may bear a row of specialized hairs. This group contains *O. arranca* (Mosely), *O. moselyi,* new species, *O. pectinifera,* new species, and *O. tagala,* new species.

The *tenanga* group may be recognized by the numerous long processes of the tenth tergum, the elongate, parallel-sided claspers bearing a band of black peglike setae around the apex, along the ventral margin and onto the midbasal ridge. I place *O. tenanga* (Mosely), *O. felipe* Ross, *O. palitla,* new species, *O. escoba,* new species, and *O. filiforma,* new species, in this group.

The *cruces* group is closely related to the *tenanga* group, but may be recognized easily by the short and broadly triangular claspers. The tenth tergum bears a black-tipped middorsal process and an apical process overlaying a thin platelike lobe, in addition to various other spines. In addition to *O. cruces* Flint, the group contains several undescribed species in Arizona.

The last group may be called the *lometa* group, and contains many species especially in the more arid regions. The tenth tergum bears many processes, but the apical one is associated, often intimately, with a flat platelike lobe. The claspers are elongate, parallel-sided basally, but narrowing to a pointed apex which bears one (rarely none or a few) black peglike setae, and the ventral margin is usually produced at the end of the midbasal ridge which bears a small number of black peglike setae. This group contains *O. lometa* (Ross), *O. panamensis,* new species, *O. attenuata,* new species, provisionally *O. intermedia,* new species (which falls somewhat between this group and the *tenanga* group), and a large number of species from the southwestern United States.

The larvae of this subgenus inhabit the typical, compressed, purselike case of silk and sand, or rarely one flattened and shaped like a turtle's shell (Ross 1944:126). They are found in running water, usually small to moderate sized streams, often ones that dry up during the dry months. I have taken larvae of this subgenus in riffles of streams whose water is milky from silt and dissolved matter. The adults seem to be readily attracted to lights.

In the following discussions of the genitalia of both subgenera, when referring to the right or left sides, I am referring to the insect's right or left side. Thus the left side of the dorsal view is referred to as the right side in the text, and vice versa. The dorsal aspects of the genitalia only shows the left clasper

when the claspers are symmetrical, or nearly so. Both claspers are shown when there is a more marked asymmetry between the right and left claspers. The lateral aspects of the genitalia show the inner side of the left clasper and the right side of the ninth and tenth segments.

Key to Species of Subgenus *Ochrotrichia*

1. Ninth tergum not depressed, anterior margin continuous with lateral margins 2
   Ninth tergum depressed, anterior margin produced anteriad 4
2. Tenth tergum consisting of two long processes ..... ***O. (O.) aldama*** (Mosely)
   Tenth tergum consisting of a single broad flap, often bearing asymmetrical modifications . 3
3. Clasper with erect basal and elongate posteroventral arms ..***O. (O.) pectinata,*** new species
   Clasper short, slightly produced apicodorsally ..... ***O. (O.) flagellata,*** new species
4. Clasper elongate or broadly triangular, apex broadly rounded, mesal face with a band of black peglike setae apically, often along ventral margin, and onto midbasal ridge 5
   Clasper of various shapes, often sigmoid or with apex pointed, never more than a single apical black peglike seta, with a discrete small group of such setae near apex of midbasal ridge, or rarely lacking all such setae 15
5. Clasper rather short and broadly triangular (with a high dorsobasal shoulder) ***O. (O.) cruces*** Flint
   Clasper elongate, dorsal and ventral margins roughly parallel 6
6. Tenth tergum with a broad, dorsal lobe which bears several spines and processes at various points 7
   Tenth tergum without a broad dorsal lobe, but consisting of various numbers of spines and long processes often borne from a broader central region 10
7. Tenth tergum with a long process on left side ..... ***O. (O.) pacifica,*** new species
   Tenth tergum with long processes either mesally or on right side 8
8. Tenth tergum with longest process dorsomesally ..... ***O. (O.) caimita,*** new species
   Tenth tergum with longest processes beneath right side 9
9. Tenth tergum with a single straight basodorsal spine ..... ***O. (O.) stylata*** (Ross)
   Tenth tergum with a short, straight basodorsal spine, and beyond a spine hooked sharply to right ..... ***O. (O.) tarsalis*** (Hagen)
10. Tenth tergum with a pair of spines recurved around apex; clasper with only a few black peglike setae on midbasal ridge which are well separated from a small, apical group of such setae ..... ***O. (O.) intermedia,*** new species
    Tenth tergum without an apical pair of recurved spines; clasper with a row of short black peglike setae more or less continuously around apex, along ventral margin and onto midbasal ridge 11
11. Tenth tergum with 3 long processes on right side 12
    Tenth tergum with only 2 such processes 14
12. Tenth tergum lacking a short, basodorsal spur on left of midline ..***O. (O.) tenanga*** (Mosely)
    Tenth tergum with a short, basodorsal spur on left 13
13. Tenth tergum with a single, short, basodorsal spur on right of midline ..***O. (O.) felipe*** Ross
    Tenth tergum with 2 such spurs ..... ***O. (O.) palitla,*** new species
14. Tenth tergum with one long spine on left side ..... ***O. (O.) escoba,*** new species
    Tenth tergum without a long spine on left side ..... ***O. (O.) filiforma,*** new species
15. Clasper elongate, gradually narrowing to an apical point bearing a single black peglike seta or a blackened point 16
    Clasper sigmoid in outline, apex broader, without a single black peglike setae 17
16. Clasper ending in a blackened attenuate point ..... ***O. (O.) attenuata,*** new species
    Clasper ending in a rather pointed apex bearing a single black peglike seta ***O. (O.) panamensis,*** new species
17. Apex of clasper without any processes 18
    Apex of clasper bearing a ventromesal fingerlike process ..... ***O. (O.) tagala,*** new species
18. Tenth tergum without any long processes on right side 19
    Tenth tergum with two long processes on right side ..... ***O. (O.) pectinifera,*** new species
19. Clasper with a long, pointed ventral process ..... ***O. (O.) arranca*** (Mosely)
    Clasper with a short black ventral spine ..... ***O. (O.) moselyi,*** new species

Ochrotrichia (O.) flagellata, new species

FIGURES 7–9, 69

This species is probably most closely related to the Jamaican *O. caligula* Flint. From *O. caligula*, *O. flagellata* differs in lacking the apical excision of the tenth tergum, and in having the spiral process of the aedeagus borne at its apex.

ADULT.—Length of forewing, 2 mm. Color fuscous; antennae and legs paler. Male genitalia: Ninth segment tubular, tergum neither depressed nor produced anteriad. Tenth tergum a simple elongate lobe, in lateral aspect with tip angled dorsad. Clasper small, slightly angulate in lateral aspect, apex with a row of peglike setae along margin. Aedeagus with a slender apical tube arising from an enlarged basal tube, apex with a slender spiral process.

MATERIAL.—Holotype, male. PANAMA: CANAL ZONE: Barro Colorado Island, July 1967, malaise trap, W. W. Wirth. USNM Type 72033. Paratype: Same, but pipeline road, near Gamboa, July 1967, malaise trap, W. W. Wirth, 1♂.

Ochrotrichia (O.) pectinata, new species

FIGURES 10–11, 69

This very small species seems to be related to *O. lobifera* Flint (Jamaica) and *O. marica* Flint (Puerto Rico). From these it differs in possessing lateral spines on the tenth tergum and long, narrow, dorsal and apical lobes on the claspers.

ADULT.—Length of forewing, 2 mm. Color fuscous; forewing with white spots at apex and base, a transverse band at midlength, and spots on anterior and posterior margins midway between band and apex. Male genitalia: Ninth segment tubular, tergum neither depressed nor produced anteriad. Tenth tergum with a basal sclerite-spine on right side; apical section a rather simple hood with a cuplike invagination in right basal region produced into a ventrolateral point. Clasper with a high, narrow basodorsal lobe; with a row of black peglike setae continuously along dorsal margin. Aedeagus well-developed, simple, with a short apical tubule.

MATERIAL.—Holotype, male. MEXICO: VERACRUZ: Rio Jamapa, north of Coscomatepec, 23 July 1966, Flint & Ortiz. USNM Type 72034. Paratypes: Same data, 3♂.

Ochrotrichia (O.) aldama (Mosely), new combination

FIGURES 12–13, 69

Polytrichia aldama Mosely, 1937:185.—Fischer 1961:174.

The species is not clearly related to any other known species. There may be a distant relationship to *O. insularis* (Mosely) from Jamaica, as both have a two-parted tenth tergum and elongate claspers. However in *O. insularis* the right process of the tenth tergum is very narrow and the left process broad, and there are several small basal spines.

The following description and figures of *O. aldama* were prepared from slide mounts of the type (dorsal view) and a paratype (lateral view), and may, therefore, suffer from a slight amount of distortion.

ADULT.—Length of forewing, 2 mm. Color unknown. Male genitalia: Ninth tergum depressed and greatly produced anteriad. Tenth tergum divided longitudinally into right and left processes of approximately equal size, right process with a basomesal flap which partially overlies left process, tip directed dorsomesally, left process with tip directed ventrad. Clasper elongate, broad, with a small apicoventral lobe; with an apical band of black peglike setae. Aedeagus long and threadlike.

MATERIAL.—MEXICO: CHIAPAS: Esmeralda, 19 November 1931, A. Dampf, holotype ♂, 1♂ paratype.

Ochrotrichia (O.) stylata (Ross)

FIGURES 14, 70

Polytrichia stylata Ross, 1938b:120.—Fischer 1961: 176.
Ochrotrichia stylata (Ross).—Ross 1944:131.—Denning 1947a:171; 1947b:146.—Fischer 1971:298.

O. stylata is widely distributed in the western United States: Arizona, California, Colorado, Montana, Oklahoma, Oregon, South Dakota, Utah and Wyoming. It also has a fairly wide distribution in Central America.

This species is closely related to *O. tarsalis* (Hagen) from which it is easily distinguished by the structure of the tenth tergum, especially by the presence of only a single basodorsal spine in *O. stylata*.

ADULT.—Length of forewing, 2.5 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum

deeply depressed and produced anteriad. Tenth tergum with a single elongate, basodorsal spine to left of midline, and another short basoventral spine on left; a large, flat plate covering dorsum, beneath which lies a single spine barely protruding beyond plate, a longer spine beneath right side projecting considerably beyond plate and laying alongside a more membranous, slightly twisted process. Clasper long, narrow, apex rounded, with a row of black peglike setae around apex, along ventral margin and midbasal ridge. Aedeagus long and threadlike.

MATERIAL.—GUATEMALA: ESCUINTLA: Escuintla, Grutas de San Pedro Martir, 10 August 1965, P. J. Spangler, 1♂. MEXICO: SAN LUIS POTOSI: El Salto, 3 June 1967, O. S. Flint, Jr., 1♂; VERACRUZ: Fortin de las Flores, 17 May 1964, Blanton et al., 17♂; same, but 22 May 1965, Rabago, 1♂.

Ochrotrichia (O.) tarsalis (Hagen)

FIGURES 15, 71

Hydroptila tarsalis Hagen, 1861:275.
Polytrichia tarsalis (Hagen).—Ross 1938a:10.—Fischer 1961:176.
Ochrotrichia tarsalis (Hagen).—Ross 1944:130—Edwards and Arnold 1961:412.—Blickle 1962:154.—Fischer 1971: 298.

This species is very widely distributed in North America, being known from Florida, Illinois, Indiana, Missouri, New York, Oklahoma, Ontario, Texas, Virginia, and Wisconsin. This is the first record from Latin America.

The species is probably most closely related to *O. stylata* (Ross), from which it is easily distinguished by the hooked basal and the spiral apical processes of tenth tergum.

ADULT.—Length of forewing, 2 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum deeply depressed and produced anteriad. Tenth tergum with a short, heavy spine basally on left and a hooked spine just beyond; ventrally on left a short, laterally directed spine; beyond basal section a broad, flat, dorsal plate, which bears on right ventral surface a slender process with a twisted apical section ending in a dark point, apical twisted section covered by a flat lobate sclerite. Clasper long, slender, apex rounded; with a row of black peglike setae around apex and along ventral margin; midbasal ridge nearly vertical, that of right clasper bearing a blackened point ventrally; dorsal margin bearing a small mesal point, that of right clasper near midbasal ridge, that of left clasper apicad of ridge. Aedeagus slender, threadlike.

MATERIAL.—MEXICO: SAN LUIS POTOSI: El Salto, 3 June 1967, O. S. Flint, Jr., 1♂.

Ochrotrichia (O.) caimita, new species

FIGURES 16–17, 69

This species seems to be related to *O. stylata* and *O. tarsalis*, and to a lesser degree to the following species. From all, it may be easily recognized by the long and somewhat convoluted middorsal process and the pair of lateral spurs on the right of the tenth tergum.

ADULT.—Length of forewing, 2 mm. Completely cleared and in alcohol. Male genitalia: Ninth tergum depressed and moderately produced anteriad. Tenth tergum with a long middorsal process with a sinuate, darkened tip, partially enclosed in a lightly sclerotized, apical sac; basal region on right side with a pair of widely separated spurs, dorsalmost longest; apical sac with a more heavily sclerotized, saddle-shaped, ventral support. Claspers elongate, apex rounded, slightly asymmetrical in region of midbasal ridge, with a row of black peglike setae around apex, along ventral margin and midbasal ridge. Aedeagus slender, threadlike.

MATERIAL.—Holotype, male. PANAMA: CHIRIQUI: Rio Caimito, 10 miles (16 km) northwest of David, 4 July 1967, Paul J. Spangler. USNM Type 72035. Paratype: Same, but David, Doleguita, 3 June 1964, A. Broce, 1♂.

Ochrotrichia (O.) pacifica, new species

FIGURES 18–19, 72

This species does not seem to be closely related to any other known species, although there may be a distant relationship to the preceding species. It may be immediately recognized by the long process on the left side and heavy apical hook of the right side of the tenth tergum.

ADULT.—Length of forewing, 2.5 mm. Color brown; antenna and head hairs cream-colored; forewing fuscous anteriorly, progressively paler posteroapically, posteroapical fringe cream-colored with indistinctly paler spots. Male genitalia: Ninth tergum

strongly depressed and produced anteriad. Tenth tergum with a long pointed process on left side with several small dorsal points and with tip curved ventrad; right side with a broader lobe ending in an apicolateral spine; right apical sclerite a heavy hook angled mesad. Clasper elongate, apex rounded; black peglike setae clustered around apex and a few along midbasal ridge. Aedeagus long and threadlike.

MATERIAL.—Holotype, male. PANAMA: CHIRIQUI: Rio Caimito, 10 miles (16 km) northwest of David, 4 July 1967, Paul J. Spangler. USNM Type 72036. Paratypes: MEXICO: CHIAPAS: Puento Arroyo Viejo, route 200 km 141 (near Mapastepec), 9 June 1967, Flint & Ortiz, 1♂. COSTA RICA: GUANACASTE: Rio Corobici, Las Canas, 26 July 1967, O. S. Flint, Jr., 1♂.

Ochrotrichia (O.) arranca (Mosely), new combination

FIGURES 20–23, 72

Polytrichia arranca, Mosely, 1937:185.—Fischer 1961:175.

This species and the following, *O. moselyi,* new species, are very closely related. *O. arranca* may be recognized by the very long ventral process of the clasper and the presence of two black dorsal setae on the tenth tergum.

The holotype is mounted on a slide in balsam and thus can not be viewed laterally, and for this reason Mosely's original lateral aspect figures are repeated here. However new dorsal and ventral views were prepared from the type and illustrate the peculiarities of the species.

ADULT.—Length of forewing, 3 mm. Color, unknown. Male genitalia: Ninth tergum depressed, barely expanded anteriad. Tenth tergum with a long, curved, dorsal process bearing dorsally two large black setae; left side with an apically forked process; ventrally with a scooplike lobe, appearing to end in a spine on right (rather than a rounded lobe, but unclear). Clasper with an elongate fingerlike dorsal lobe, with an elongate, pointed and apically-darkened, ventral lobe, between lobes with 3 short black spines differently placed on right and left claspers. Aedeagus threadlike.

MATERIAL.—MEXICO: CHIAPAS: Barranca Honda, 24 February 1931, A Dampf, holotype ♂.

Ochrotrichia (O.) moselyi, new species

FIGURES 24–27, 72

As mentioned above, this and the preceding species are very closely related. *O. moselyi* may be recognized by the lack of the elongate, pointed lobe ventrally on the claspers, and in possessing only a single dark dorsal seta on the tenth tergum. However, the remaining structures of the tenth tergum and claspers appear to be identical in the two species.

ADULT.—Length of forewing, 2 mm. Color fuscous, antennae and head with white hairs; forewing with a transverse white band at midlength, white spots on anterior and posterior margins at ¾ length, and at tip. Male genitalia: Ninth tergum depressed, slightly expanded anteriad. Tenth tergum with a long, curved, dorsal process bearing basally a large black seta; left side with an apically forked process; ventrally with a scooplike lobe. Clasper with an elongate, fingerlike, dorsal lobe, midventrally with 3 heavily sclerotized spines differently placed on right and left claspers, basal portion considerably widened. Aedeagus long, threadlike.

MATERIAL.—Holotype, male. MEXICO: VERACRUZ: Rio Tacolapan, route 180, km 551, 25-28 July 1966, Flint & Ortiz. USNM Type 72037. Paratypes: Same data, 1♂. GUATEMALA: SUCHITEPEQUEZ: Finca Moca, 12 June 1966, Flint & Ortiz, 1♂.

Ochrotrichia (O.) pectinifera, new species

FIGURES 28–30, 72

This species is clearly related to the preceding species, from which it is easily distinguished by the structure of the tenth tergum. The two long, free processes on the right side and the dorsoventrally divided middorsal process of the tenth tergum are diagnostic.

ADULT.—Length of forewing, 2.5 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum depressed and produced anteriad. Tenth tergum with basal middorsal process widened apicad, and bearing subapically an enlarged, black seta; beneath this arises a slender, slightly sinuate, pointed process, attaining apex; apex with a decurved hook, and on right side with an even more decurved and slender hook; right side with a long, slender process almost attaining apex and another process curving under

tergum; with a broad ventral scooplike structure. Claspers asymmetrical, both with 4 heavy black spines from apex of enlarged basal section; left clasper with most distal of these spines considerably removed from others, with apex enlarged ventrally and bearing a row of elongate black spines, right clasper with 4 spines more closely grouped, with apex not enlarged, but with very small black setae. Aedeagus long and threadlike.

MATERIAL.—Holotype, male. MEXICO: VERACRUZ: Fortin de las Flores, 22 May 1965, Rabago. USNM Type 72038. Paratypes: Same data, 3♂.

Ochrotrichia (O.) tagala, new species

FIGURES 31–32, 74

Although the structure of the tenth tergum and claspers indicate a relationship with the preceding species, *O. tagala* is quite distinctive. The ventromesal process from the apex of the clasper and the apical lobes of the tenth tergum are unique.

ADULT.—Length of forewing, 2.8 mm. Color fuscous; head and antennae with some pale hairs; forewing with a transverse white band at midlength, with white spots on anterior and posterior borders at ¾ length and with a white spot at apex. Male genitalia: Ninth tergum depressed and greatly expanded anteriad. Tenth tergum with a slender middorsal process curved to right and bearing near base a dark dorsal spine; left side near midlength with a short, broad, curved process; ventrally with a broad scoop-shaped lobe curved to left and bearing an appressed spine on its dorsal margin and a shorter spine basoventrally; apex centrally with a forked process whose apex is directed laterad, and a membranous lobe on right. Clasper narrow, tip slightly enlarged with a darkened ventral spur directed mesad, with a row of slender spines along apex; ventral margin sinuate beyond midlength, with a small process bearing several black peglike setae mesally. Aedeagus slender, threadlike.

MATERIAL.—Holotype, male. GUATEMALA: HUEHUETENANGO: 20 miles (32 km) northwest of Huehuetenango, 9–10 August 1967, O. S. Flint, Jr. USNM Type 72039. Paratype: NICARAGUA: MATAGALPA: 5.3 miles (8.5 km) east of Matagalpa, 30 July 1967, O. S. Flint, Jr., 1♂.

Ochrotrichia (O.) tenanga (Mosely)

FIGURES 33–35, 73

Polytrichia tenanga Mosely, 1937:185.—Fischer 1961:176.
Ochrotrichia tenanga (Mosely).—Ross 1944:275.—Fischer 1971:298.

This species, *O. felipe* Ross and *O. palitla*, new species, form a closely related complex within which differences are mostly confined to the basal processes of the tenth tergum. *O. tenanga* may be recognized by the lack of any basal process on the left side of the tenth tergum, and by having a single long process on the right side.

ADULT.—Length of forewing, 2 mm. Color brown; forewing darker anteriorly, paler posteriorly, with some indistinct pale marks, posteroapical fringe pale. Male genitalia: Ninth tergum strongly depressed and produced anteriad. Tenth tergum with a middorsal spur overlaying a black-tipped spine which barely surpasses spur (in a male from Fortin de las Flores, this spine is greatly elongated, Figure 35); right side with a long slender ventrolateral spine, barely surpassing all other processes, dorsolaterally with a slender, black-tipped spine nearly as long and with a rather membranous process between them; left side terminating in a heavy hook, angled to right and a more slender rounded plate. Clasper long, slender, apex rounded; with a row of black peglike setae around apex, along ventral margin and on midbasal ridge. Aedeagus short, tubular.

MATERIAL.—MEXICO: VERACRUZ: Rio Tacolapan, route 180 km 551, 25–26 July 1966, Flint & Ortiz, 8♂; Fortin de las Flores, 22 May 1965, Rabago, 2♂. TABASCO: Rio Puyacatengo, east of Teapa, 28–29 July 1966, Flint & Ortiz, 11♂. GUATEMALA: ESCUINTLA: Escuintla, Grutas de San Pedro Martir, 10 August 1965, P. J. Spangler, 2♂. HONDURAS: COMAYAGUA: Rio Humuya, northwest of Comayagua, 3 August 1967, O. S. Flint, Jr., 2♂. COSTA RICA: GUANACASTE: Rio Ahogados, 10 miles (16 km) northwest of Liberia, 25 July 1965, P. J. Spangler, 1♂; Las Canas, 13 July 1965, P. J. Spangler, 4♂, PANAMA: CHIRIQUI: Rio El Pueblo, Dolega, 2000 feet (600 m), 27 June 1964, A. Broce, 23♂; Rovira, David, 2200 feet (660 m), 13 July 1964, A. Broce, 3♂; Doleguita, David, 3 June 1964, A. Broce, 11♂. CANAL ZONE: Rio Agua Salud, near Gamboa, July 1967, W. W. Wirth, 1♂; Pipeline

Road, near Gamboa, July 1967, W. W. Wirth, 1♂. (Described from Mexico, Chiapas, Saltenango de la Paz.)

Ochrotrichia (O.) felipe Ross

FIGURES 36, 74

Ochrotrichia felipe Ross, 1944:275.—Fischer 1971:297.

This species is very close to *O. palitla,* new species. It may be distinguished by the lack of the lateralmost spur on the right side at the base of the tenth tergum. In addition there are many other small differences in the proportions of the processes of the tenth tergum; for instance, the basal spur of the middorsal process is stouter and more dorsad in position and the hook to the left of the midline is longer and more gently decurved in *O. felipe.*

ADULT.—Length of forewing, 2 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum deeply depressed and produced anteriad. Tenth tergum with a long, dark-tipped middorsal process giving rise to a slender basodorsal spur on left side, and a single basal spur on right side; hook to left of midline extending beyond middorsal process and gradually decurved in lateral aspect; right side with three long processes, one arising basally and extending ventrally, second arising at midlength ending in a darkened point, third process semimembranous, arising subapically and shortest. Clasper elongate, narrow, apex rounded; apex, ventral margin, and midbasal ridge with many short black peglike setae. Aedeagus long and threadlike.

MATERIAL.—MEXICO: SAN LUIS POTOSI: El Salto, 3 June 1967, O. S. Flint, Jr., 1♂. (Described from U.S.A., Texas, San Felipe Spring, Del Rio.)

Ochrotrichia (O.) palitla, new species

FIGURES 37–38, 74

This species is closest to the preceding species, *O. felipe* Ross, with which it agrees in possessing a short basal spur on the left side of the tenth tergum. However, it differs in possessing two short spurs on the right side, rather than the one as in *O. felipe.*

ADULT.—Length of forewing, 2.5 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum deeply depressed and produced anteriad. Tenth tergum with a long, dark-tipped, middorsal process giving rise to a very slender basolateral spur on the left side, and with two short basal spurs on the right side; hook on left of midline extending only slightly beyond middorsal process, sharply decurved in lateral aspect; right side with three long processes, one arising basally and extending ventrally, second arising from an enlarged base at midlength and ending in a small darkened hook, third semimembranous, arising subapically and shortest. Clasper elongate, narrow, with rounded apex; apex, ventral margin, and midbasal ridge with many black peglike setae. Aedeagus long and threadlike.

MATERIAL.—Holotype, male. MEXICO: SAN LUIS POTOSI: Palitla, 5 June 1966, O. S. Flint, Jr. USNM Type 72040. Paratypes: Same data, 6♂.

Ochrotrichia (O.) filiforma, new species

FIGURES 39–40, 75

O. filiforma, new species, is probably most closely related to the following species, but may be easily recognized by the extremely elongate genital parts, especially the processes of the tenth tergum.

ADULT.—Length of forewing, 2.5 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum strongly depressed and produced anteriad. Tenth tergum with a slender middorsal spur; a black-tipped middorsal spine, slightly longer than spur; apically with left lobe scoop-shaped, produced ventrad, right lobe elongate, overlaying right process; with a very long, slightly sinuate process on right (probably displaced from normal position in type), second long process on right twisted underneath right lobe and arising from an ovate structure. Clasper very long, slender, apex rounded; apex and ventral margin with black peglike setae; midbasal ridge obsolete. Aedeagus long and threadlike.

MATERIAL.—Holotype, male. COSTA RICA: CARTAGO: Chitaria, 19 June 1967, Flint & Ortiz. USNM Type 72041.

Ochrotrichia (O.) escoba, new species

FIGURES 41–42, 74

The relationship of this species is clearly with the *tenanga* group, but it is not a member of the complex

composed of the first three species of the group. It may be recognized by possessing two long processes on the right side of the tenth tergum, and a short process basodorsally on the mesal face of the clasper.

ADULT.—Length of forewing, 2 mm. Color pale brown; forewing darker along frontal margin. Male genitalia: Ninth tergum deeply depressed and produced anteriad. Tenth tergum with a long middorsal process widened at midlength; dark-tipped middorsal spur short, tip angled to left; a long, dark-tipped, dorsal spine on right side, slightly surpassing long lateral spine which bears a small basolateral spur; left side terminating in a slender hook of same length as right lateral spine; a complex central lobe. Clasper long, slender, apex rounded; with a short basodorsal process on mesal face, ending in a cluster of dark spines; black peglike setae on both dorsal, ventral, and apical margins. Aedeagus short, tubular.

MATERIAL.—Holotype, male. GUATEMALA: IZABAL: Las Escobas, near Matias de Galvez, 14–16 August 1965, Flint & Ortiz. USNM Type 72042. Paratypes: Same, but 14–15 August 1965, P. J. Spangler, 1 ♂; Same, but 26–27 June 1966, Flint & Ortiz, 2 ♂.

Ochrotrichia (O.) cruces, Flint

FIGURES 43–44, 75

Ochrotrichia cruces Flint, 1967:12.

The collecting of additional species of *Ochrotrichia* in Arizona has resulted in the discovery of species quite closely related to *O. cruces*. From these undescribed species, *O. cruces* differs mainly in the proportionate lengths of the various processes of the tenth tergum.

ADULT.—Length of forewing, 3.5 mm. Color fuscous; forewings mostly denuded, but appearing to have some white markings. Male genitalia: Ninth tergum depressed and produced anteriad. Tenth tergum with a short apical process whose tip is hooked ventrad, and with a lightly sclerotized plate ventrad; a short black-tipped, upcurved spine middorsally, and a very short spur on right side at same level; with a broad thin plate basolaterally on right side; basal section with a long, pointed, process curving to right side apically, and surpassing black-tipped spine. Clasper broadly triangular, apex rounded; with a band of black peglike setae apically, and on midbasal ridge. Aedeagus slender, threadlike.

MATERIAL.—MEXICO: MEXICO: Las Cruces National Park, La Marquesa, 3000 m elevation, 5–9 July 1965, Flint & Ortiz, holotype ♂.

Ochrotrichia (O.) intermedia, new species

FIGURES 45–46, 75

In certain respects this species is intermediate between the *tenanga* group of species and those that follow, although probably closest to the following ones. With the *tenanga* group, *O. intermedia* shares the rounded apex of the clasper which bears a number of black peglike setae. However, the tenth tergum is much more similar in structure to the *lometa* group, as is the shape of the ventral margin of the claspers and its midbasal ridge.

ADULT.—Length of forewing 3 mm. Color in alcohol, pale brown. Male genitalia: Ninth tergum deeply depressed and produced anteriad. Tenth tergum with two middorsal spines, one basal, other arising near midlength and extending nearly to apex; right side with a basal spur; apex with two decurved hooks, one on right side very long and recurved under venter. Clasper elongate, tapering to a rounded apex; apex with a cluster of black peglike setae, two more such setae near apex of midbasal ridge, third seta near base of ridge, that of left clasper much more basad than that of right clasper. Aedeagus long and threadlike.

MATERIAL.—Holotype, male. GUATEMALA: CHIMALTENANGO: Tecpan Guatemala, 8 August 1967, O. S. Flint, Jr. USNM Type 72043.

Ochrotrichia (O.) panamensis, new species

FIGURES 47–48, 75

This is a rather distinctive new species of the *lometa* group. The short middorsal process with its upright black apical seta and the very broad and angled spur on the right side of the tenth tergum are unique.

ADULT.—Length of forewing, 3.5 mm. Color in alcohol, dark brown; forewing with a transverse pale band at midlength. Male genitalia: Ninth tergum deeply depressed and produced anteriad. Tenth tergum with a short basal, middorsal process which bears apically an enlarged, upright black seta; an

elongate basal spur on right dorsally; apical process with tip pointed and angled to right, with a lightly sclerotized circular flap on right; right side with a lateral spur arising from a broad base and angled beneath tergum. Clasper elongate, tapering to a pointed apex with a black peglike seta; midventral lobe small; midbasal ridge apically with a small cluster of black peglike setae. Aedeagus long and threadlike.

MATERIAL.—Holotype, male. PANAMA: CHIRIQUI: Rovira, David, 2200 feet (660 m), 13 July 1964, A. Broce. USNM Type 72044. Paratypes: Same data, 23♂; Rio Chiriqui Viejo, El Volcan, 5280 feet (1584 m), 22 July 1964, A. Broce, 38♂.

Ochrotrichia (O.) attenuata, new species

FIGURES 49–50, 73

Although a member of the *lometa* group, *O. attenuata,* new species, is easily recognized by the slender, pointed apex of the claspers. The structure of the tenth tergum, although quite similar to that of *O. dactylophora* Flint, is distinctive also in the shapes, lengths, and numbers of spines.

ADULT.—Length of forewing, 2.8 mm. Color fuscous; head with some whitish hairs, forewing with a transverse white band at midlength, several small white spots apicad, and with apex white. Male genitalia: Ninth tergum depressed and greatly expanded anteriad. Tenth tergum with two black-tipped spines basally, longest one with tip sharply upturned; right side with two short spurs and one long one ventrally whose tip almost reaches the apex; apical process inflated basally, tip decurved, subapically with a lightly sclerotized circular plate on right. Clasper elongate, tip produced into an attenuate, darkened point; with an elongate cluster of black peglike setae mesally at midlength. Aedeagus very long, threadlike.

MATERIAL.—Holotype, male. GUATEMALA: HUEHUETENANGO: 20 miles (32 km) northwest of Huehuetenango, 9–10 August 1967, O. S. Flint, Jr. USNM Type 72045. Paratypes: Same data, 2♂.

Subgenus *Metrichia* Ross

Species of the subgenus *Metrichia* have been found from the southwestern part of the United States, throughout Central America and the West Indies, and again from Peru, northwest Argentina, and central Chile. The greatest diversity so far found has been in Central America and the West Indies.

I recognize five groups for the species treated in this paper. The *nigritta* group is characterized by the presence of internal sacs arising between the fifth and sixth segments. The aedeagus bears two large hooks at nearly the midlength of the apical section. In addition to *O. (M.) nigritta* (Banks), the group contains *O. (M.) arizonensis,* new species, and *O. (M.) biungulata,* new species.

The second group is much like the former in the structure of the aedeagus, but the smaller internal pouches apparently arise between the fourth and fifth segments, there are dorsolateral hair brushes on the fifth and sixth segments, and the seventh tergum is modified. This group, the *penicillata* group, contains *O. (M.) penicillata,* new species, and *O. (M.) trigonella,* new species.

The *campana* group contains in addition to *O. (M.) continentalis,* new species, and *O. (M.) quadrata,* new species, the species *O. (M.) campana* Flint and *O. (M.) similis* Flint from Dominica. The pouches are borne between the sixth and seventh terga in these species, the two aedeagal hooks are subapical, and usually the tenth tergum is elongate.

The *exclamationis* group bears pouches between the fourth and fifth terga, and also dorsolateral hair brushes on some segments. The aedeagus bears but a single elongate spine. In addition to the Dominican *O. (M.) exclamationis* Flint, the group contains *O. (M.) lemniscata,* new species.

The species *O. (M.) aberrans,* new species, is placed in its own group. There are no modifications of the abdomen, and the aedeagus ends in a bulbous lobe bearing two spines and a freely extending tubule.

The larvae inhabit compressed, purselike cases of silk and organic matter. The species of the subgenus seem to be closely associated with springs, seeps, waterfalls, and similar habitats, rather than larger, slowly flowing streams as is typical of the nominate subgenus. The adults are rarely taken at light, and when they are I expect it is the result of their having been disturbed. They are more frequently taken by sweeping vegetation at or near the water's edge.

Key to Species of Subgenus *Metrichia*

1. Aedeagus with spines borne at apex of central tube, central tubule extending freely from apex of tube ..... *O. (M.) aberrans*, new species
   Aedeagus with spines borne before apex of central tube, central tubule not extending beyond apex of tube 2
2. Aedeagus with a single, long, ribbonlike spine ..... *O. (M.) lemniscata*, new species
   Aedeagus with a pair of spines 3
3. Abdomen with a pair of pouches arising between sixth and seventh segments 4
   Pouches arising either between fourth and fifth or fifth and sixth segments 5
4. Clasper small and quadrate, posterior margin with a row of short black setae *O. (M.) quadrata*, new species
   Clasper elongate, posterior margin tricuspate in lateral aspect *O. (M.) continentalis*, new species
5. Abdomen bearing tufts of hairs and with seventh tergum modified 6
   Abdomen without hair tufts and with seventh tergum unmodified 7
6. Spines of the aedeagus arising at the same level ..... *O. (M.) trigonella*, new species
   Spines of the aedeagus arising from different levels of the central tube *O. (M.) penicillata*, new species
7. Aedeagus with an external spur arising from neck and with hooks overlaying each other *O. (M.) biungulata*, new species
   Aedeagus without a spur, and with spines opposing each other 8
8. Spines of aedeagus arising at the same level, without an intervening knob *O. (M.) arizonensis*, new species
   Spines of aedeagus arising at different levels, with an intervening knob *O. (M.) nigritta* (Banks)

Ochrotrichia (M.) nigritta (Banks)

FIGURES 6, 51–52, 76

Orthotrichia nigritta Banks, 1907a:163; 1907b:50.—Betten 1934:153.—Milne 1936:76.
Metrichia nigritta (Banks).—Ross 1938a:9; 1944:121.—Fischer 1961:83; 1971:227.—Edwards and Arnold 1961: 411.

This, the type species of *Metrichia,* has a wide distribution from the southwestern United States to El Salvador. It is rather constant in the structure of the male genitalia, although the more southern examples have proportionately shorter claspers.

It is closely related to *O. (M.) arizonensis,* new species, from which it may be distinguished by the presence of a dark knob between the shorter, more hooked spines of aedeagus, the longer narrower claspers, and the elongate pouches in the abdomen.

ADULT.—Length of forewing, 2.5–3 mm. Color black. Male abdomen with a pair of reticulate pouches, about twice as long as broad between fifth and sixth segments. Male genitalia: Ninth segment barely twice as long as high in lateral aspect, with posterior margin strongly angulate. Cercus ovate. Dorsolateral hook broad, angled ventrad apically, with an elongate basolateral scale. Clasper in lateral aspect elongate, with an apical point. Aedeagus with two large hooked spines and between them a broad black knob, all arising near midlength of apical trough and tubule.

MATERIAL.—U.S.A.: TEXAS: spring, Landa Park, New Braunfels, 21 April 1960, O. S. Flint, Jr., many ♂♂. MEXICO: SAN LUIS POTOSI: El Salto, 8 May 1964, Blanton, et al., 7♂. VERACRUZ: Fortin de las Flores, 22 May 1965, Rabago, 2♂2♀; same, but June 1964, Blanton, 1♂. MICHOACAN: San Lorenzo, route 15, km 206, 14–15 July 1966, Flint & Ortiz. 3♂1♀. EL SALVADOR: LA LIBERTAD: Los Chorros, near Santa Tecla, 5 July 1966, Flint & Ortiz, 2♂.

Ochrotrichia (M.) arizonensis, new species

FIGURES 53–54, 76

This species is clearly related to *O. (M.) nigritta,* but may be distinguished by many details of the male genitalia. Most notable are the shorter, broader claspers, the longer hooks of the aedeagus which arise close together without an intervening knob, and the presence of a pair of small rounded sacs in the sixth segment.

ADULT.—Length of forewing, 2.5 mm. Almost completely denuded, color now grey. Male abdomen with a pair of rounded sacs lying within sixth segment, but apparently arising between fifth and sixth segments. Male genitalia: Ninth segment about one and one-half times as long as high in lateral aspect, ventral half of posterior margin very oblique. Cercus elongate. Dorsolateral hook only slightly decurved, basolateral scale small. Clasper in lateral aspect slightly longer than high, apex produced into a sharp point. Aedeagus with two, large, slightly curved spines arising at the same level at about half the length of the internal tubule.

MATERIAL.—Holotype, male. U.S.A.: ARIZONA: Santa Cruz Co., Sycamore Canyon, Atascosa Mts., 14 June 1968, Flint & Menke. USNM Type 72046.

Ochrotrichia (M.) biungulata, new species

FIGURES 55–56, 76

This species appears to be related to the two preceding, but differs rather strongly in the structure of the aedeagus. The paired hooks lying one over the other and the stout spur arising from the base of the internal tubule of the aedeagus are distinctive.

ADULT.—Length of forewing, 1.5 mm. Color, uniformly fuscous. Male abdomen with a pair of large, elongate, bootshaped sacs lying within fifth segment, opening between fifth and sixth. Male genitalia: Ninth segment less than one and one-half times as long as high in lateral aspect, posterior margin angulate. Cercus elongate. Dorsolateral hook distinctly decurved, basolateral scale very small. Clasper slightly longer than high in lateral aspect, apex evenly rounded, with several small black points on ventromesal margin. Aedeagus with two stout black hooks arising contiguously, and lying one over the other, at about a third of distance from base to apex of internal tubule; with a lateral spur extending from base of internal tubule to origin of hooks.

MATERIAL.—Holotype, male. PANAMA: PANAMA: Cerro Campana, July 1967, W. W. Wirth. USNM Type 72047. Paratype: Same data, 1 ♂.

Ochrotrichia (M.) penicillata, new species

FIGURES 57–58, 77

This and the following species, *O. (M.) trigonella,* new species, appear to be related, not only by the structure of the genitalia, but also by the complexity of the abdominal modifications. *O. penicillata* may be recognized by the hooks of the aedeagus whose bases are well separated, the shorter, broader claspers, and the different ornamentation of the abdominal terga.

ADULT.—Length of forewing, 1.5 mm. Color in alcohol, dark brown. Male abdomen with a pair of large, round internal sacs filled with dark scales in the fifth segment, fifth and sixth segments bearing large, dorsolateral hair brushes, fifth tergum with a small dorsolateral flap bearing a small pencil of long, curved, decumbent hairs; seventh tergum small and rectangular (possibly bearing specialized setae). Male genitalia: Ninth segment about twice as long as high in lateral aspect, posterior margin slightly oblique. Cercus elongate. Dorsolateral hook sharply decurved, basolateral scale well-developed. Clasper barely longer than high, apex produced into a small, blunt tooth. Aedeagus with two well-developed, curved spines, origins well separated, apical trough broad and well-sclerotized.

MATERIAL.—Holotype, male. GUATEMALA: ESCUINTLA: Grutas de San Pedro Martir, 10 August 1965. P. J. Spangler. USNM Type 72048.

Ochrotrichia (M.) trigonella, new species

FIGURES 59–60, 77

Most closely related to the preceding species, *O. (M.) trigonella,* new species, is easily recognized by the large spines of the aedeagus whose bases are approximate, the elongate claspers, and the modifications of the abdominal terga.

ADULT.—Length of forewing, 2 mm. Color in alcohol, dark brown. Male abdomen with a pair of small, round pouches between fourth and fifth terga; with large brushes of hairs dorsolaterally on fifth and sixth segments, seventh tergum developed as a triangulоid mesal sclerite surrounded by specialized setae, eighth tergum heavily sclerotized and bearing a tuft of long setae. Male genitalia: Ninth segment almost twice as long as high in lateral aspect, with posterior margin nearly vertical. Cercus elongate. Dorsolateral hook rather short and decurved apically, basolateral scale short but broad. Clasper slightly elongate, apex developed into a point. Aedeagus with a pair of large, curved spines arising at the same level well beyond the origin of the internal tubule.

MATERIAL.—Holotype, male. MEXICO: VERACRUZ: Fortin de las Flores, 22 May 1965, Rabago. USNM Type 72049. Paratypes: HONDURAS: COMAYAGUA: Rancho Chiquito, southeast of Flores, 2–3 August 1967, O. S. Flint, Jr., 1♂ 1♀.

Ochrotrichia (M.) continentalis, new species

FIGURES 61–62, 77

This species appears to be quite closely related to the species *O.* (*M.*) *campana* Flint and *O.* (*M.*) *similis* Flint, both known from Dominica. All possess sacs between the sixth and seventh terga, reduced aedeagal spines born subapically, claspers with excavate posterior margins, and elongate dorsolateral hooks and tenth tergum. From both, *continentalis* may be distinguished by the very dissimilar aedeagal spines, and the tricuspate posterior margin of the claspers.

ADULT.—Length of forewing, 2 mm. Color uniformly fuscous. Male abdomen with a pair of pouches opening between sixth and seventh terga; eight tergum well-sclerotized. Male genitalia: Ninth segment more than three times as long as high in lateral aspect, with posterior margin slightly oblique. Cercus small and upright. Tenth tergum forming an elongate, well-sclerotized lobe. Dorsolateral hook elongate, apex slightly curved ventromesad. Clasper longer than high, posterior margin slightly oblique, with 3 small teeth. Aedeagus with two well-developed spines, one much longer and more slender than other, origins approximate, and arising well beyond origin of internal tubule which is extremely long.

MATERIAL.—Holotype, male. PANAMA: CANAL ZONE: Barro Colorado Island, July 1967, malaise trap, W. W. Wirth. USNM Type 72050.

Ochrotrichia (M.) quadrata, new species

FIGURES 63–64, 78

Although abundantly distinct, this species is related to the preceding, as is shown by the sacs between the sixth and seventh terga and the small hooks on the aedeagus. However, the small, quadrate claspers with an apical band of peglike setae, and the lateral rodlike process of the aedeagus are distinctive.

ADULT.—Length of forewing, 2 mm. Color grey; forewing with diffuse bands of silvery hairs. Male abdomen with a pair of large, complex pouches arising between sixth and seventh terga. Male genitalia: Ninth segment almost twice as long as high in lateral aspect, posterior margin nearly vertical. Cercus rounded. Dorsolateral hook long, slender, and almost straight, basolateral scale very small. Clasper equilateral in lateral aspect, posterior margin truncate and bearing a band of short black setae. Aedeagus with two small hooks arising at the same level about ¾ distance from base to apex of internal tubule, with a separated rod basad of hooks.

MATERIAL.—Holotype, male. MEXICO: VERACRUZ: Rio Jamapa, north of Coscomatepec, 23 July 1966, Flint & Ortiz. USNM Type 72051.

Ochrotrichia (M.) lemniscata, new species

FIGURES 65–66, 78

On the basis of the single ribbonlike spine of the aedeagus and pouches in the fourth abdominal segment, this species would appear to be related to the Dominican *O.* (*M.*) *exclamationis* Flint. It is very different in the shape of the claspers, dorsolateral hook, and pouches of the abdominal segments.

ADULT.—Length of forewing, 1.5 mm. Color in alcohol, dark brown. Male abdomen with a pair of small round pouches between fourth and fifth terga; large brushes of hair borne laterally on fifth and sixth segments (at least). Male genitalia: Ninth segment over three times as long as high in lateral aspect, posterior margin slightly oblique. Cercus ovate. Dorsolateral hook evenly bowed ventrad, with a distinct basolateral scale. Clasper rounded, slightly elongate, with a small apicoventral notch. Aedeagus with apical trough and internal tubule very long and slender, with a lateral spine as long as apical trough and subparallel to it.

MATERIAL.—Holotype, male. PANAMA: CHIRIQUI: David, Rovira, 2200 feet (660 m), 13 July 1964, A. Broce. USNM Type 72052. Paratypes: Same data, 7♂, 1♀.

Ochrotrichia (M.) aberrans, new species

FIGURES 67–68, 78

Although this species is a typical member of *Metrichia* on the basis of the structure of the ninth segment, dorsolateral hooks, and claspers, the aedeagus and unmodified abdomen are very different,

making the species easily recognizable.

ADULT.—Length of forewing, 1.5 mm. Color in alcohol, brown. Male abdomen without obvious modifications. Male genitalia: Ninth segment almost twice as long as high in lateral aspect, posterior margin moderately angled. Cercus small and membranous. Dorsolateral hook narrow and decurved, basolateral scale well developed. Clasper broad, dorsal margin arched, posteroventral margin straight. Aedeagus with a bulbous apex bearing two unequal spines, internal tubule extending freely from apex.

MATERIAL.—Holotype, male. MEXICO: VERACRUZ: Fortin de las Flores, June 1964, F. S. Blanton. USNM Type 72053.

Check List of the Neotropical Species of *Ochrotrichia*

The following check list contains the names and distributions of the species of the genus *Ochrotrichia* described or recorded from the Americas south of the United States, including the Antilles, together with references to their original descriptions. The locality listed in italics is the type locality for the species.

Ochrotrichia, subgenus *Ochrotrichia*

aldama (Mosely), 1937:185. *Mexico*
arranca (Mosely), 1937:185. *Mexico*
attenuata, new species. *Guatemala*
brayi Flint, 1968c:61. *Dominica*
caimita, new species. *Panama*
caligula Flint, 1968a:49. *Jamaica*
cruces Flint, 1967:12. *Mexico*
escoba, new species. *Guatemala*
felipe Ross, 1944:275. *Texas,* Mexico
filiforma, new species. *Costa Rica*
flagellata, new species. *Panama*
gurneyi Flint, 1964:60. *Puerto Rico*
insularis Mosely, 1934:163. *Jamaica*
intermedia, new species. *Guatemala*
lobifera Flint, 1968a:50. *Jamaica*
marica Flint, 1964:60. *Puerto Rico*
moselyi, new species. *Mexico,* Guatemala
pacifica, new species. *Panama,* Mexico, Costa Rica
palitla, new species. *Mexico*
panamensis, new species. *Panama*
pectinata, new species. *Mexico*
pectinifera, new species. *Mexico*
ponta Flint, 1968c:61. *Dominica*
spinosissima Flint, 1964:58. *Puerto Rico,* Dominica
stylata (Ross), 1938b:120. *Wyoming,* western United States, Mexico, Guatemala
tagala, new species. *Guatemala,* Nicaragua
tarsalis (Hagen), 1861:275. *Canada,* eastern United States, Mexico
tenanga (Mosely), 1937:185. *Mexico,* Guatemala, Honduras, Costa Rica, Panama
verda Flint, 1968b:153. *Puerto Rico*

Ochrotrichia, subgenus *Metrichia*

aberrans, new species. *Mexico*
argentinica Schmid, 1958:195. *Argentina,* Chile, Peru
arizonensis, new species. *Arizona*
biungulata, new species. *Panama*
campana Flint, 1968c:62. *Dominica*
continentalis, new species. *Panama*
exclamationis Flint, 1968c:64. *Dominica*
juana Flint, 1964:60. *Puerto Rico*
lemniscata, new species. *Panama*
neotropicalis Schmid, 1958:195. *Argentina,* Peru
nigritta (Banks), 1907a:163. *Texas,* Mexico, El Salvador
penicillata, new species. *Guatemala*
quadrata, new species. *Mexico*
similis Flint, 1968c:62. *Dominica,* Guadeloupe
trigonella, new species. *Mexico,* Honduras
yalla Flint, 1968a:50. *Jamaica*

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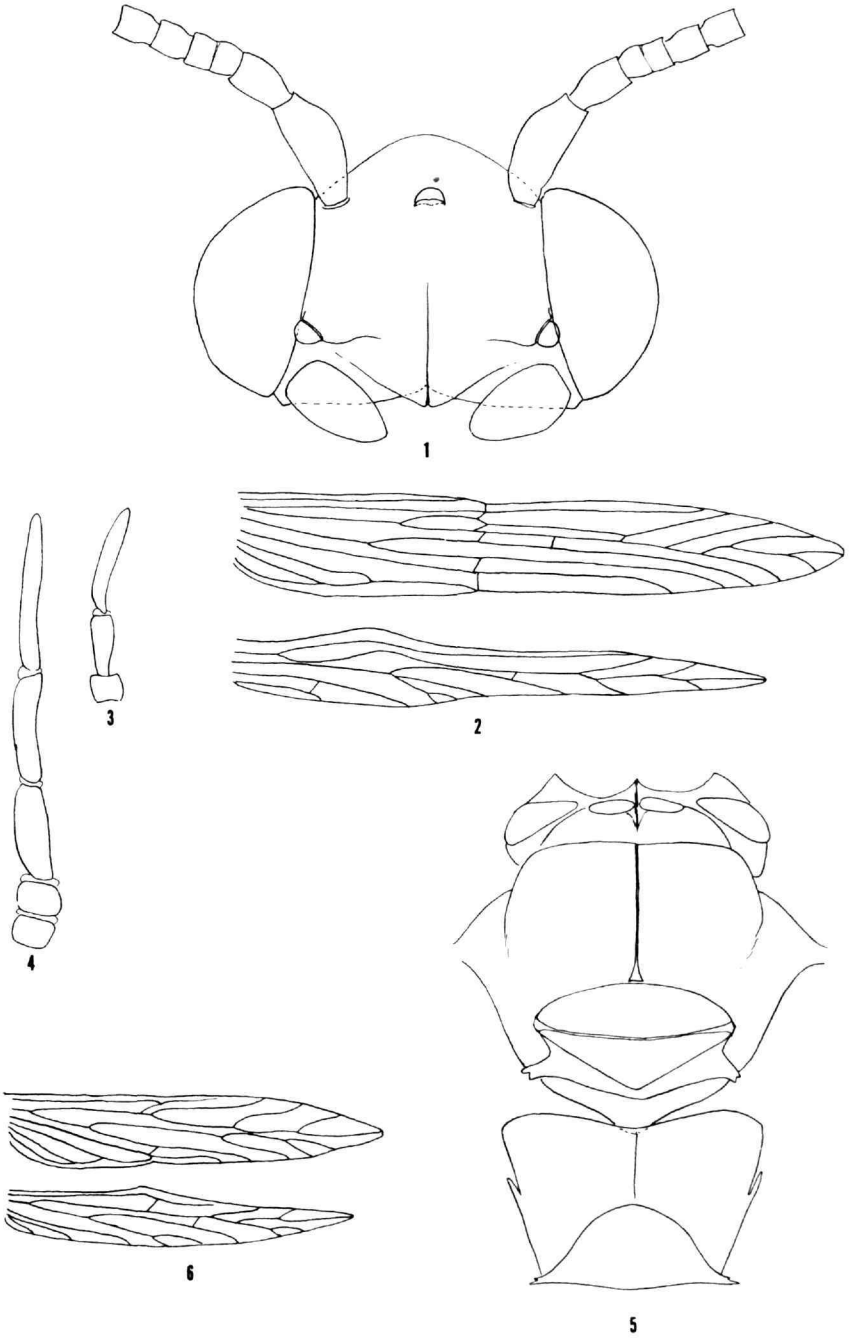


FIGURES 1–6.—*Ochrotrichia (O.) insularis* Mosely: 1, head, dorsal; 2, wings, after Mosely 1934; 3, labial palpus; 4, maxillary palpus; 5, thorax, dorsal.—*O. (M.) nigritta* (Banks): 6, wings, after Ross 1938a.

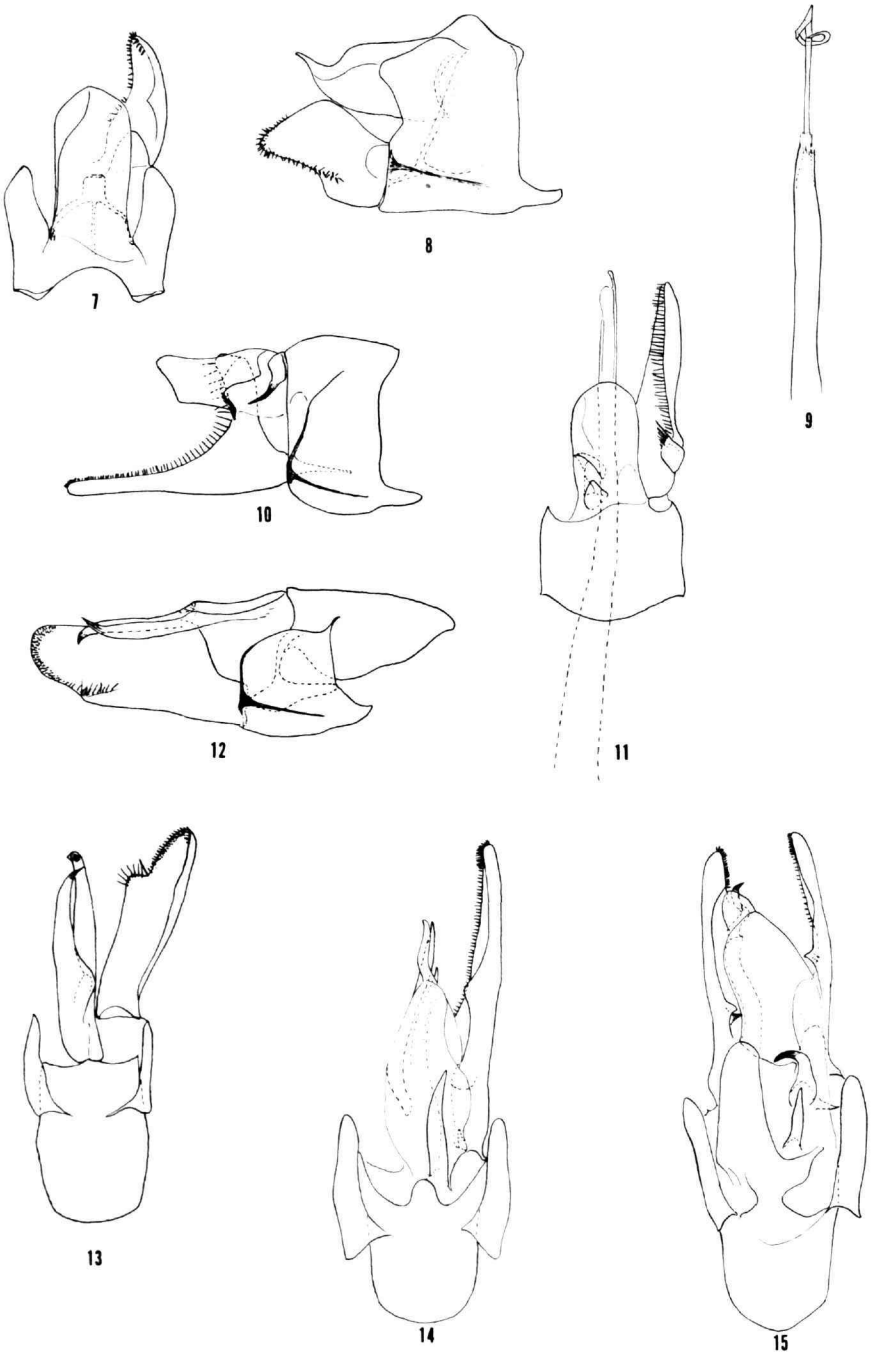
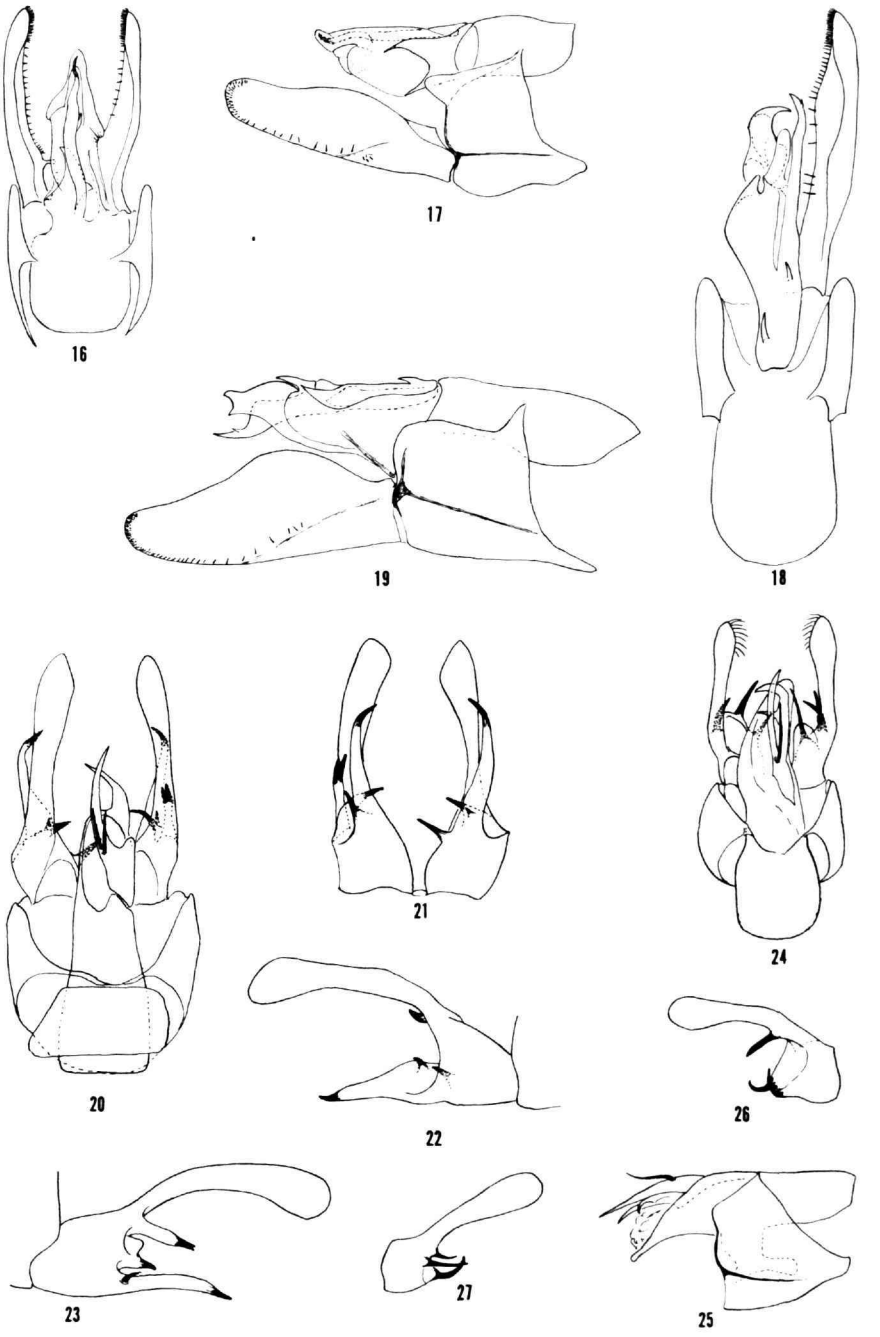
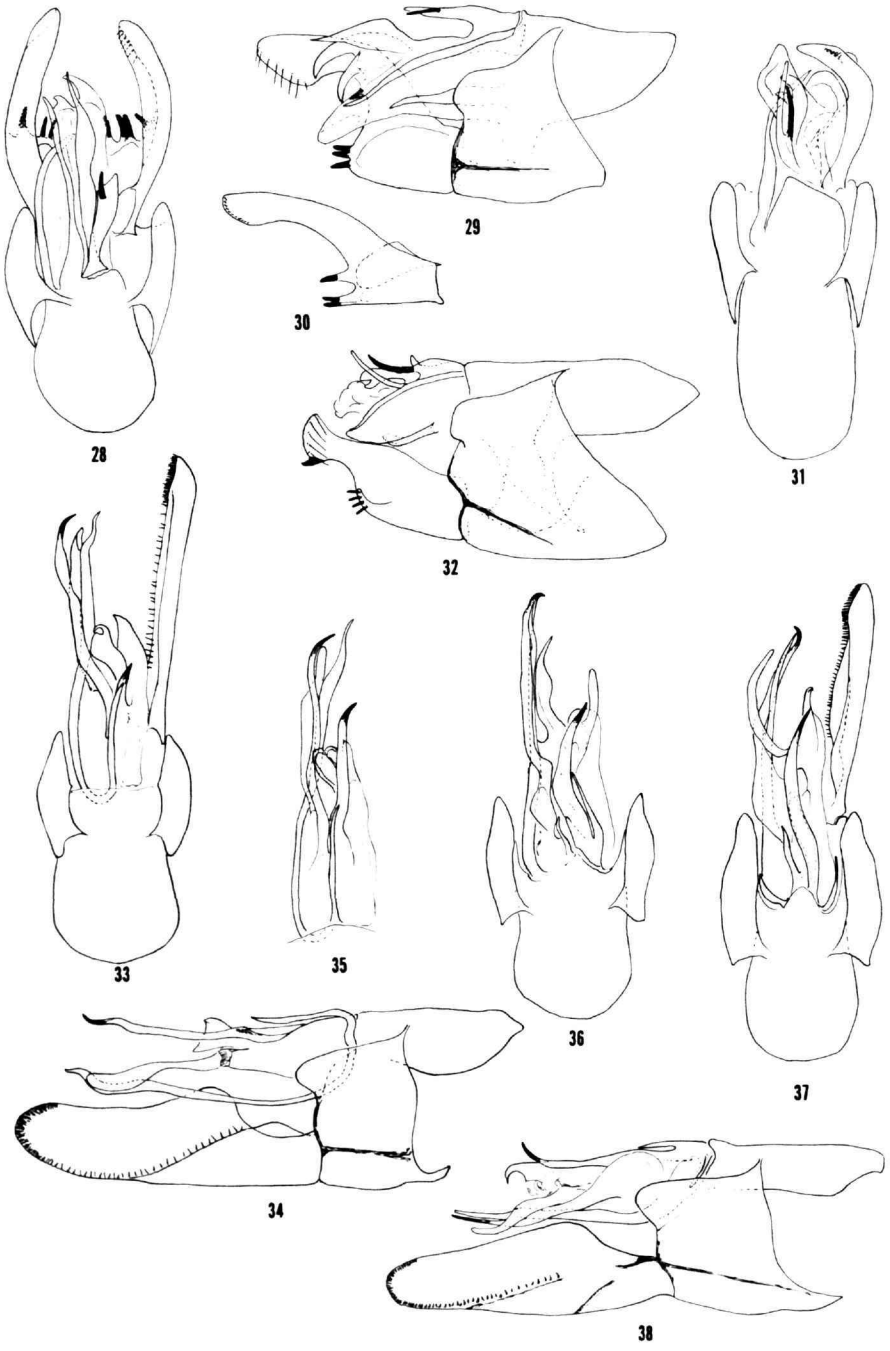


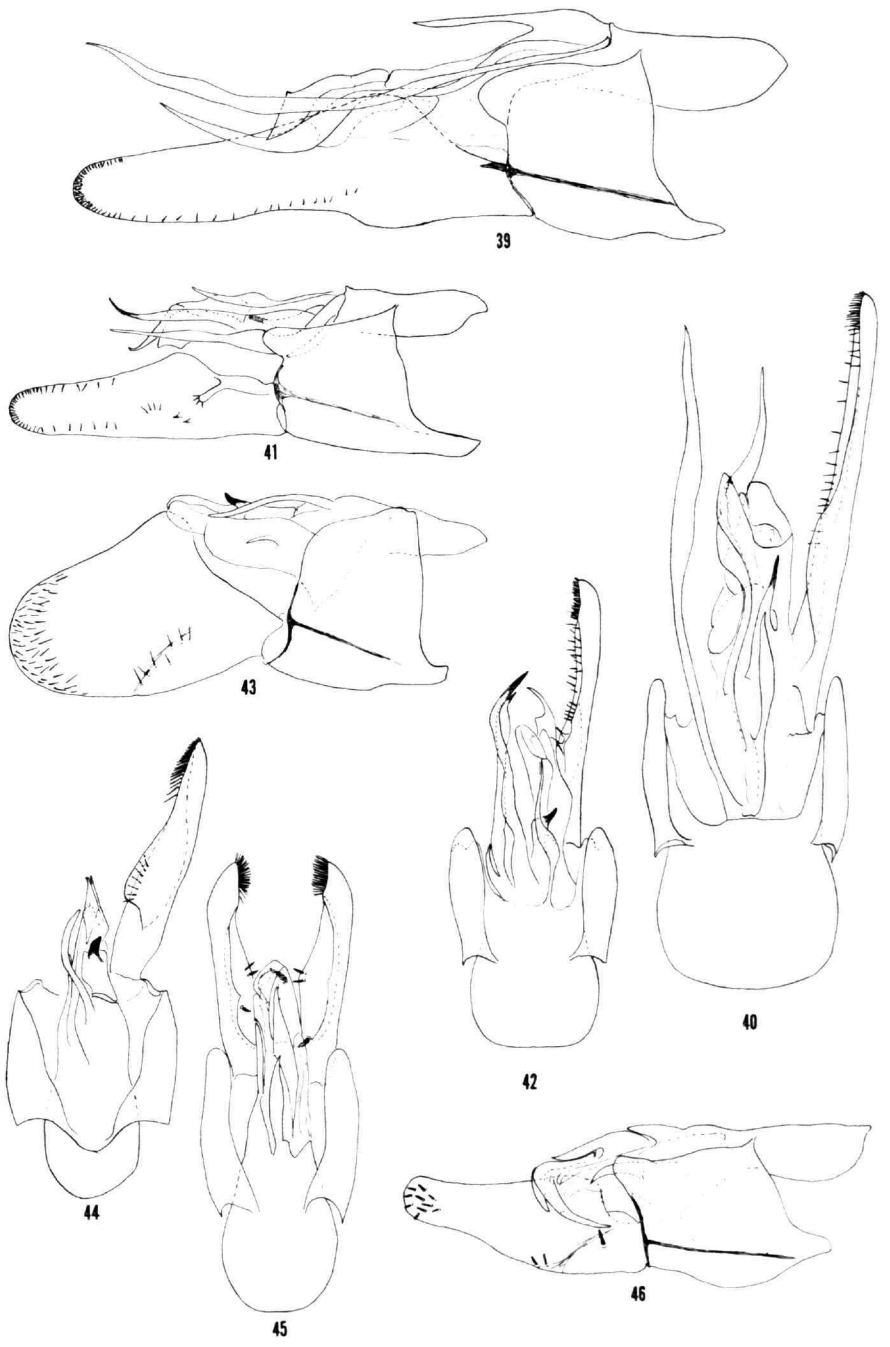
FIGURE 7–15.—*Ochrotrichia (O.) flagellata,* new species: 7, genitalia, dorsal; 8, genitalia, lateral; 9, aedeagus.—*O. (O.) pectinata,* new species: 10, genitalia, lateral; 11, genitalia, dorsal.—*O. (O.) aldama* (Mosely): 12, genitalia, lateral; 13, genitalia, dorsal.—*O. (O.) stylata* (Ross): 14, genitalia, dorsal.—*O. (O.) tarsalis* (Hagen): 15, genitalia, dorsal.



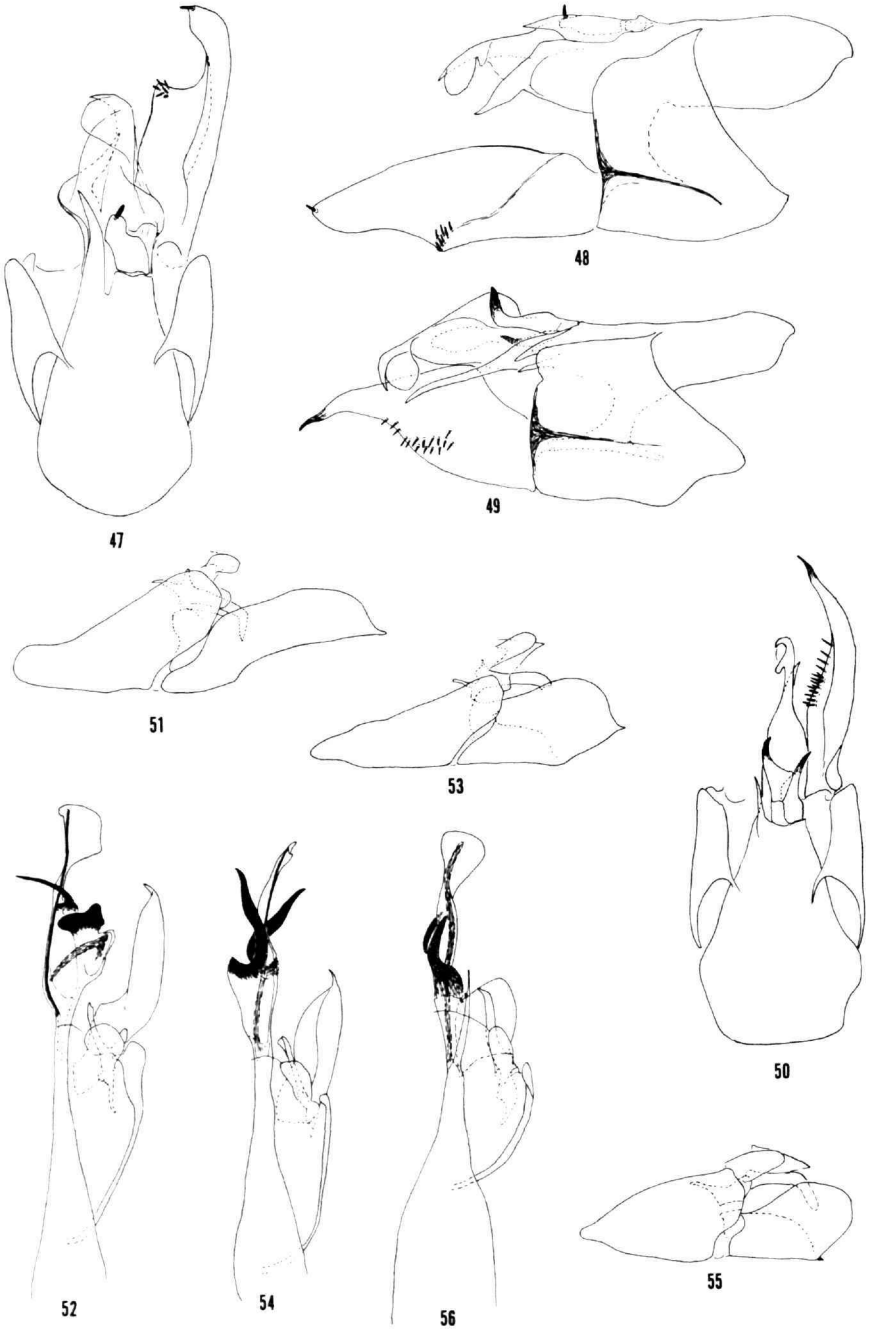
FIGURES 16–27.—*Ochrotrichia (O.) caimita,* new species: 16, genitalia, dorsal; 17, genitalia, lateral.—*O. (O.) pacifica,* new species: 18, genitalia, dorsal; 19, genitalia, lateral.—*O. (O.) arranca* (Mosely): 20, genitalia, dorsal; 21, claspers, ventral; 22, right clasper, outer side, after Mosely 1937; 23, left clasper, outer side, after Mosely 1937.—*O. (O.) moselyi,* new species: 24, genitalia, dorsal; 25, genitalia, lateral, without claspers; 26, right clasper, outer side; 27, left clasper, outer side.



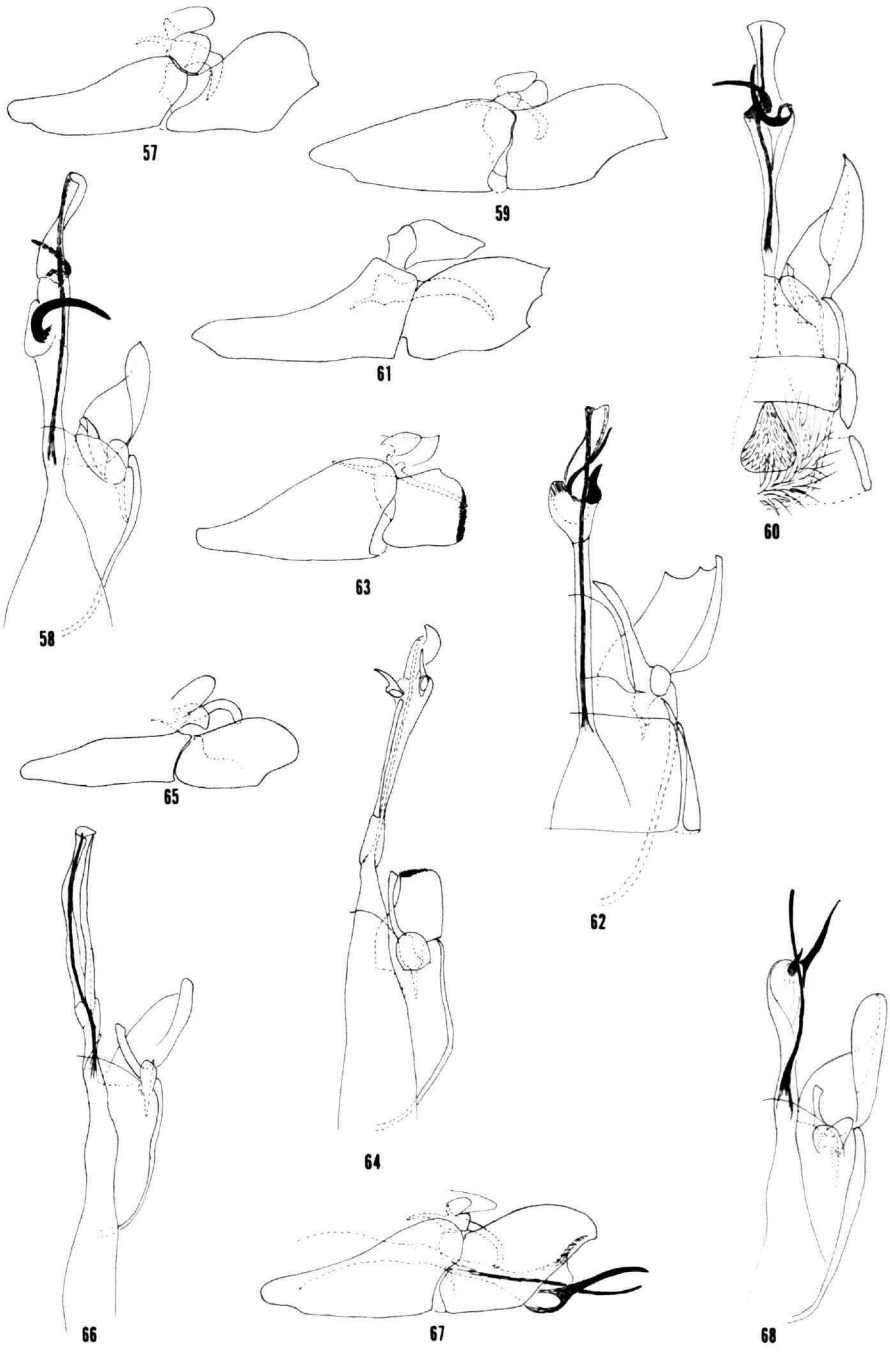
FIGURES 28–38.—*Ochrotrichia (O.) pectinifera,* new species: 28, genitalia, dorsal; 29, genitalia, lateral; 30, right clasper, outer side.—*O. (O.) tagala,* new species: 31, genitalia, dorsal; 32, genitalia, lateral.—*O. (O.) tenanga* (Mosely): 33, genitalia, dorsal; 34, genitalia, lateral; 35, tenth tergum of male from Fortin de las Flores.—*O. (O.) felipe* Ross: 36, ninth and tenth terga, dorsal.—*O. (O.) palitla,* new species: 37, genitalia, dorsal; 38, genitalia, lateral.



FIGURES 39–46.—*Ochrotrichia (O.) filiforma*, new species: 39, genitalia, lateral; 40, genitalia, dorsal.—*O. (O.) escoba*, new species: 41, genitalia, lateral; 42, genitalia, dorsal.—*O. (O.) cruces* Flint: 43, genitalia, lateral; 44, genitalia, dorsal.—*O. (O.) intermedia*, new species: 45, genitalia, dorsal; 46, genitalia, lateral.



FIGURES 47–56.—*Ochrotrichia (O.) panamensis,* new species: 47, genitalia, dorsal; 48, genitalia, lateral.—*O. (O.) attenuata,* new species: 49, genitalia, lateral; 50, genitalia, dorsal.—*O. (M.) nigritta* (Banks): 51, genitalia, lateral; 52, genitalia, dorsal.—*O. (M.) arizonensis,* new species: 53, genitalia, lateral; 54, genitalia, dorsal.—*O (M.) biungulata,* new species: 55, genitalia, lateral; 56, genitalia, dorsal.



FIGURES 57–68.—*Ochrotrichia (M.) penicillata,* new species: 57, genitalia, lateral; 58, genitalia, dorsal.—*O. (M.) trigonella,* new species: 59, genitalia, lateral; 60, genitalia, dorsal.—*O. (M.) continentalis,* new species: 61, genitalia, lateral; 62, genitalia, dorsal.—*O. (M.) quadrata,* new species: 63, genitalia, lateral; 64, genitalia, dorsal.—*O. (M.) lemniscata,* new species: 65, genitalia, lateral; 66, genitalia, dorsal.—*O. (M.) aberrans,* new species: 67, genitalia, lateral; 68, genitalia, dorsal.

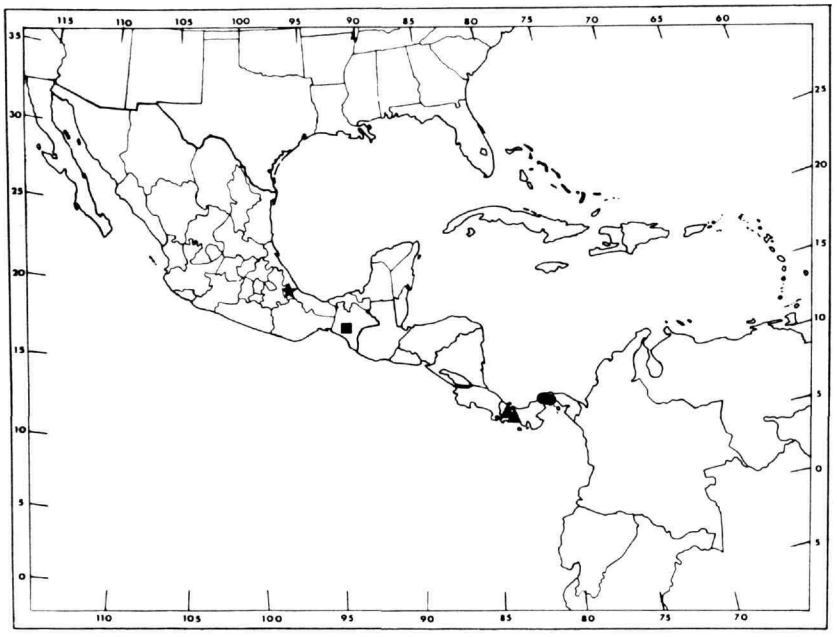


FIGURE 69.—Distribution of *Ochrotrichia (O.) flagellata, new species,* ●; *O. (O.) pectinata,* new species, ★; *O. (O.) caimita,* new species, ▲; *O. (O.) aldama* (Mosely), ■.

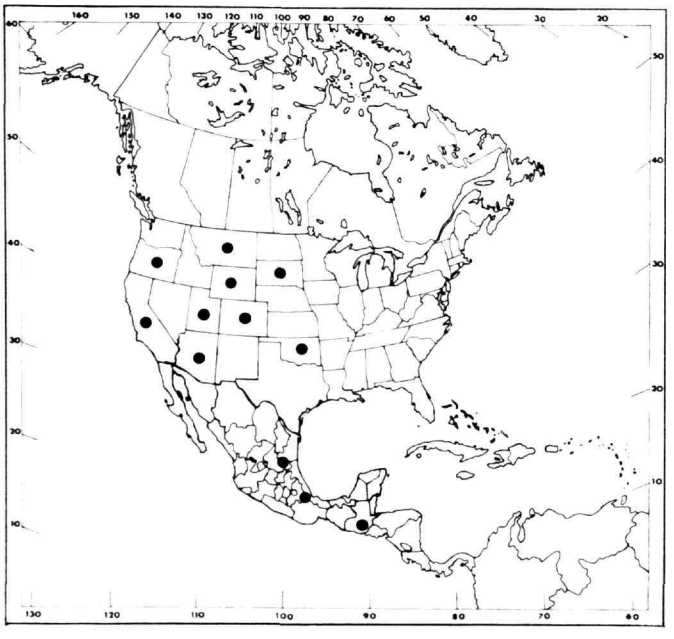


FIGURE 70.—Distribution of *Ochrotrichia (O.) stylata* (Ross), ●.

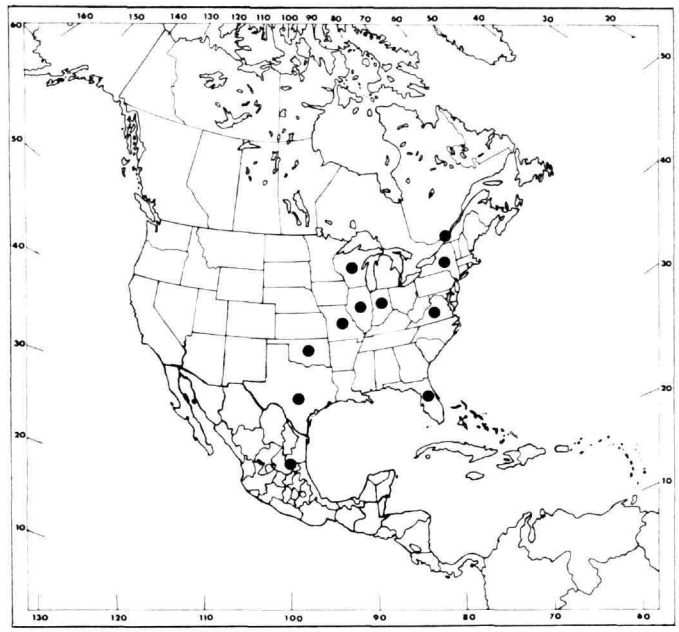


FIGURE 71.—Distribution of *Ochrotrichia (O.) tarsalis* (Hagen), ●.

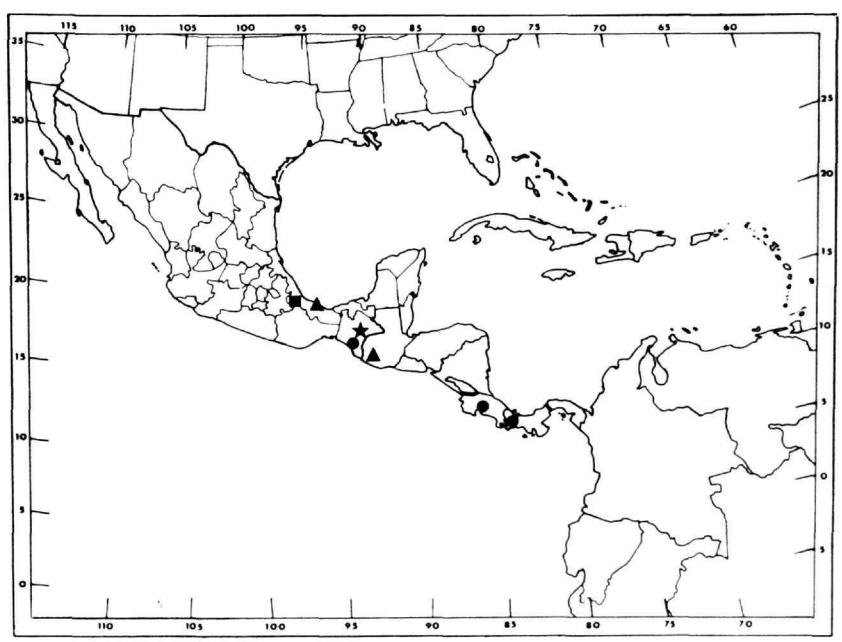


FIGURE 72.—Distribution of *Ochrotrichia (O.) pacifica,* new species, ●; *O. (O.) arranca* (Mosely), ★; *O. (O.) moselyi,* new species, ▲; *O. (O.) pectinifera,* new species, ■.

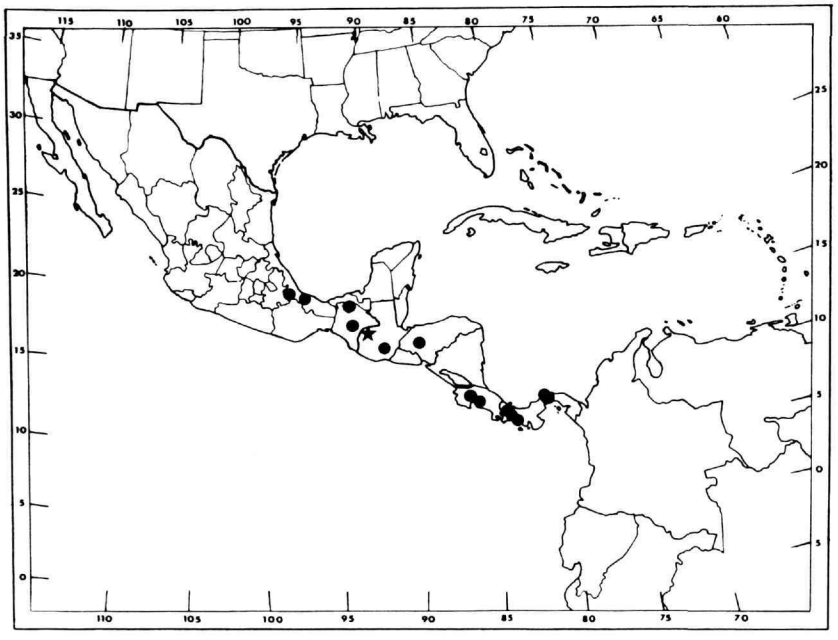


FIGURE 73.—Distribution of *Ochrotrichia (O.) tenanga* (Mosely), ●; *O. (O.) attenuata*, new species, ★.

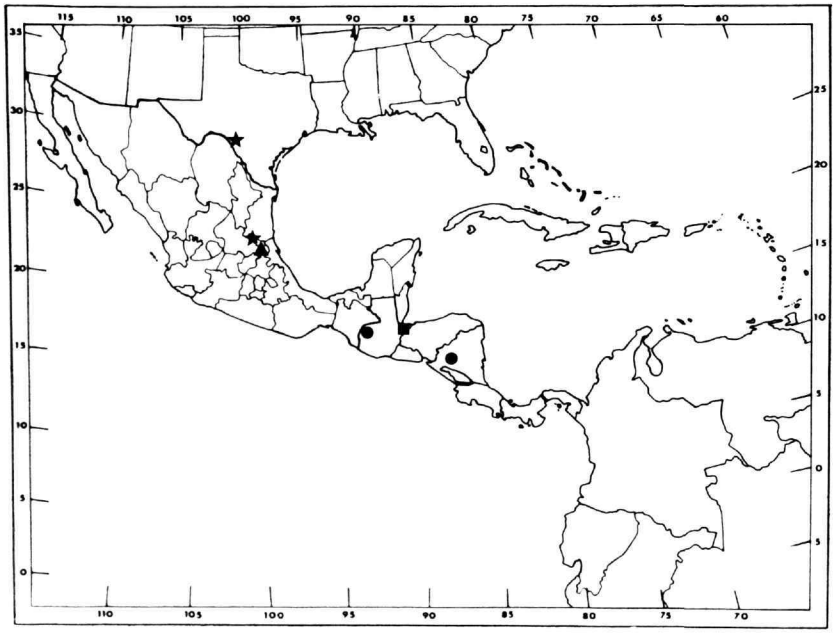


FIGURE 74.—Distribution of *Ochrotrichia (O.) tagala*, new species, ●; *O. (O.) felipe* Ross, ★; *O. (O.) palitla*, new species, ▲; *O. (O.) escoba*, new species, ■.

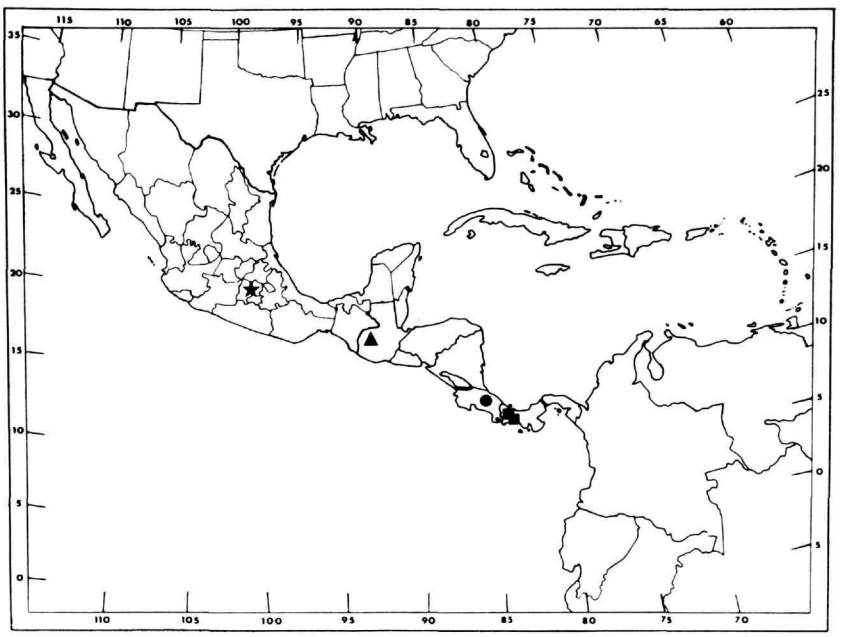


FIGURE 75.—Distribution of *Ochrotrichia (O.) filiforma,* new species, ●; *O. (O.) cruces* Flint, ★; *O. (O.) intermedia,* new species, ▲; *O. (O.) panamensis,* new species, ■.

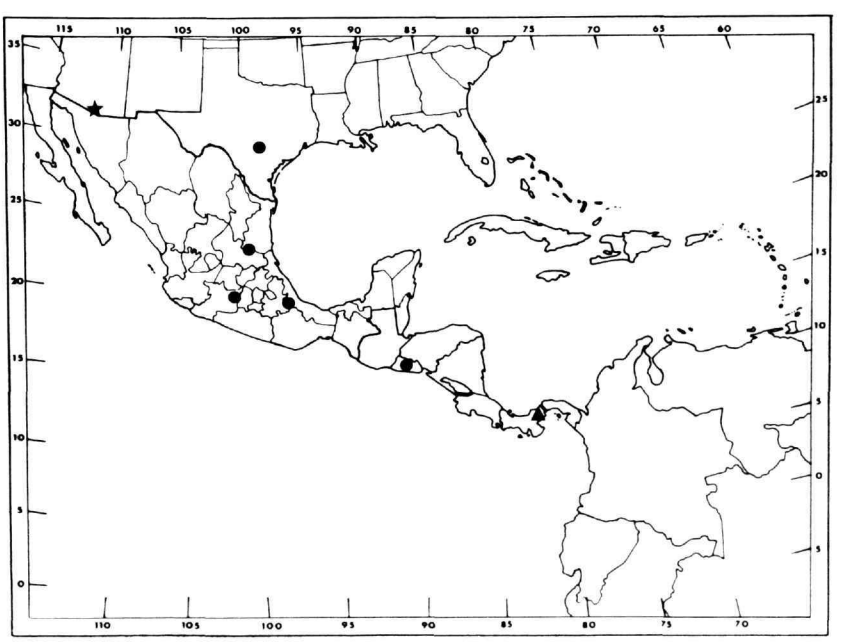


FIGURE 76.—Distribution of *Ochrotrichia (M.) nigritta* (Banks), ●; *O. (M.) arizonensis,* new species, ★; *O. (M.) biungulata,* new species, ▲.

FIGURE 77—Distribution of *Ochrotrichia (M.) penicillata*, new species, ●; *O. (M.) continentalis*, new species, ★; *O. (M.) trigonella*, new species, ▲.

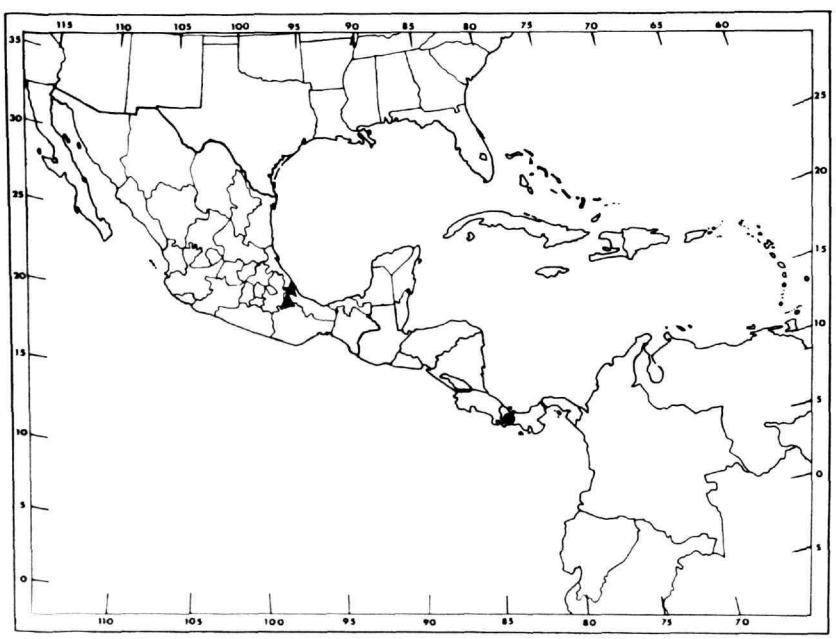


FIGURE 78.—Distribution of *Ochrotrichia (M.) lemniscata*, new species, ●; *O. (M.) quadrata*, new species, ★; *O. (M.) aberrans*, new species, ▲.

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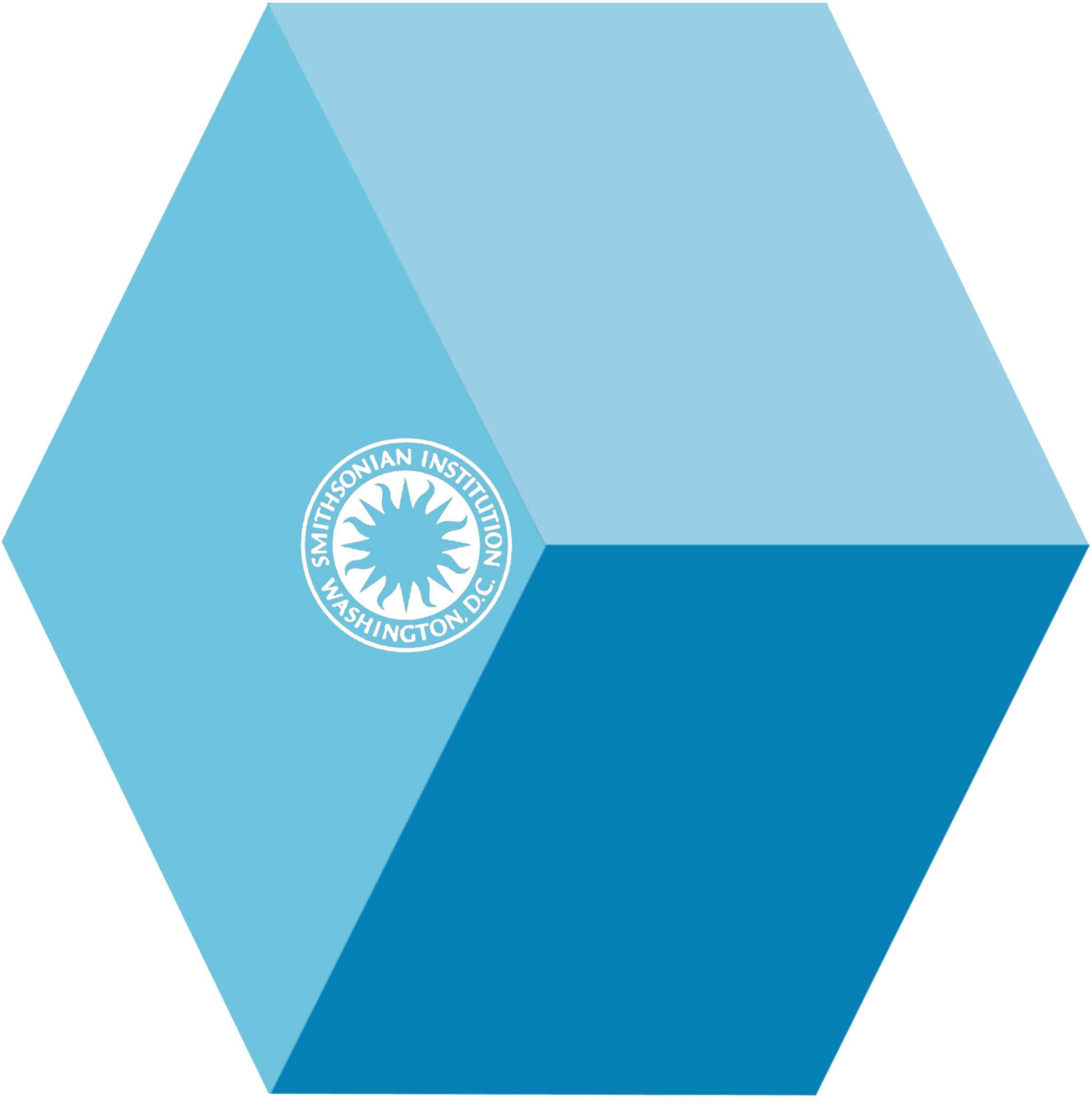
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