

# American Museum Novitates

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PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY  
CENTRAL PARK WEST AT 79TH STREET, NEW YORK 24, N.Y.

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NUMBER 2135

MAY 7, 1963

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## Systematic Studies in the Tribe Neominthoini (Diptera, Tachinidae)

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### INTRODUCTION

The present systematic study of a portion of the tribe Neominthoini includes five genera. These are *Eupelecothea* Townsend, *Pelecothea* Townsend, two new genera, and the genus *Cryptocladocera* Bezzi which is newly transferred from the tribe Frontinini. The genera studied are restricted to those Neominthoini in which the female postabdomen terminates in an ax-like sternotheca (fig. 38). They are all of Neotropical distribution with the exception of one species in each of the genera *Pelecothea* and *Eupelecothea* which occur in the eastern and central Nearctic.

In these preliminary studies I have provided redescriptions and descriptions of the available taxa. For each species, the male postabdomen is described and illustrated for the first time. When we have a more complete knowledge of the morphology of the postabdomen of other groups in the family, meaningful phylogenies and classifications can be proposed.

The antenna in the parasitic family Tachinidae consists of three segments plus an arista. The first two segments are usually shorter and smaller than the third segment. Rarely the third antennal segment may be conspicuously modified in that the sensory surface may be increased by ramification or splitting. When so modified the antenna is called fissicorn.

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FIG. 1. Distribution of South American species of the genera *Adercomyia*, *Cerotachina*, *Cryptoclادocera*, and *Pelecotheca*.

Of the approximately 3000 described species of New World Tachinidae, for which probably 1000 genera have been proposed, the fissicorn condition occurs in only 18 species in 10 genera. This antennal modification is usually restricted to the male sex. Only in the Brazilian genus *Talarocera* Williston does the female also have a split third antennal segment which is, however, far less developed than in the male. Bezzi in 1923 presented a discussion and key to the then known fissicorn Tachinidae. The tribe Neominthoini contains two fissicorn genera. These are *Cryptocladocera* Bezzi, reported until the present time only from Surinam, and a new genus, *Cerotachina*, herein described, from the state of Santa Catarina, Brazil. The genus *Cryptocladocera* has well-developed rami, the outer rami attaining at least one-third of the length of the third antennal segment (fig. 2). In contrast, the rami in the new genus *Cerotachina* are short and not longer than one-tenth of the length of the third antennal segment (fig. 17).

The tribe Neominthoini as defined by C. H. T. Townsend (1936b, p. 101) included eight genera. Seven of these (*Asilidotachina* Townsend, *Eupelecothea* Townsend, *Euthelaira* Townsend, *Iteuthelaira* Townsend, *Neomintho* Brauer and Bergenstamm, *Pelecothea* Townsend, and *Thelairochaetona* Townsend) are American. The eighth genus (*Gynandromyia* Bezzi) is known only from the Seychelles Islands. Whether it was correctly referred to this tribe or not requires further investigation.

#### ACKNOWLEDGMENTS

This study was undertaken while I was the recipient of a Research Fellowship for one year at the American Museum of Natural History. I wish to acknowledge my thanks to the authorities of this institution and to Dr. Jerome G. Rozen, Jr., for the encouragement and the facilities to undertake research; to Prof. H. J. Reinhard and Mr. Curtis W. Sabrosky for their comments as to the relationship of the new fissicorn genus herein described; to Mrs. Frieda Abernathy (figs. 15–17), Mr. Thomas W. Hayden (figs. 35–37), Miss Marjorie Statham (figs. 1–3, 7–12, 26–29), and Mr. Kakuzo Yamazaki (figs. 18, 19) for their drawings; to Dr. Stanley W. Weitzman for the photographs used as figures 13 and 14; and to Miss Marjorie Statham for the development and printing of the negatives of photographs taken by me.

Specimens have been studied from or deposited in the collections of the American Museum of Natural History (A.M.N.H.), the California Academy of Sciences (C.A.S.), United States National Museum (U.S.N.M.), Prof. H. J. Reinhard (H.J.R.), and my personal collection (P.H.A.).

## BIOLOGY

The host relationships for the entire tribe Neominthoini remain unknown. Although Middleton (1921, p. 757) and Benjamin (1955, p. 20) have recorded the species *macra* van der Wulp (Middleton under the generic name *Neopales* and Benjamin under the generic name *Pelecotheca*) as a parasite of *Neodiprion lecontei* (Fitch), the red-headed pine sawfly, the first reference is apparently based on a misidentification, and the second reference bases its quotation and authority on the first misidentification. In later unpublished notes Aldrich considered the Middleton specimens to belong to *Phorocera* (in the sense of his and Webber's 1924 revision) and not *Pelecotheca*.

Townsend's statement (1936b, p. 103) that the "females evidently deposit uncubated eggs directly on the host" is probably in error when applied to all members of this tribe. Fully developed larvae have been found attached to the sternothecae of females of both of the two new genera herein described, and probably this reproductive habit will be similar in all those forms possessing an ax-like sternotheca.

## SYSTEMATICS

## TRIBE NEOMINTHOINI TOWNSEND

Neominthoini TOWNSEND, 1931, Rev. de Ent., vol. 1, p. 461 [placed in family "Salmaciidae (Tachinidae Auctt. s. str. pp)"]; 1936, Manual of myiology, pt. 3, p. 34; 1936, *op. cit.*, pt. 4, pp. 101-104 (in 1936 references placed in family Exoristidae).

The tribe Neominthoini was first partially characterized in couplets 54 and 61 in Townsend's key (1936a, p. 34) to the 23 tribes of the "family Exoristidae." Subsequently (1936b, pp. 101-104) he gave a tribal description and a key to included genera. It is not redescribed here. As noted in the Introduction, the present study is restricted to those genera in which the female postabdomen terminates in an ax-like sternotheca (except for *Cryptocladocera*, of which the female is unknown).

It is not possible at this time to present a key to genera applicable to both sexes. The very broad face in the female of *Pelecotheca panamensis* probably indicates that the male of this species has fissicorn antennae. Townsend, however, in describing *Pelecotheca paulensis* on the basis of the male, has included in the genus a form with non-fissicorn antennae. Possibly the genus *Pelecotheca* (type species *panamensis*) is more closely allied to the genus *Cryptocladocera* (type species *prodigiosa*) than as now treated, and the new species I have included in *Cryptocladocera* may belong to an allied genus. The solution to these and other problems will be more readily answered when adequate study samples of the species become available.



KEY TO GENERA (MALES)

- 1. Abdomen with median discals present . . . . . *Eupelecotheca* Townsend
- Abdomen with median discals absent . . . . . 2
- 2. Antennae fissicorn . . . . . 3
- Antennae non-fissicorn . . . . . 4
- 3. Rami of third antennal segment short, not longer than one-tenth of length of segment . . . . . *Cerotachina*, new genus
- Rami of third antennal segment elongate, with some rami at least one-third of length of segment . . . . . *Cryptocladocera* Bezzi
- 4. Thorax with two preacrostichal bristles, removed from suture . . . . .
- . . . . . *Adercomyia*, new genus
- Thorax with three preacrostichal bristles; the third pair may be weak . . . . .
- . . . . . *Pelecotheca* Townsend

GENUS *CRYPTOCLADOCERA* BEZZI

*Cryptocladocera* BEZZI, 1923, Proc. Linnean Soc. New South Wales, vol. 48, pt. 4, pp. 652–655. TOWNSEND, 1927, Rev. Mus. Paulista, vol. 15, p. 235 (in key); 1936, Manual of myiology, pt. 6, p. 168 (in key to tribe Frontinini); 1940, *op. cit.*, pt. 10, pp. 319–320 (generic diagnosis). CURRAN, 1934, The families and genera of North American Diptera, p. 443 (key only).

TYPE SPECIES: *Cryptocladocera prodigiosa* Bezzi, by original designation.

The genus *Cryptocladocera* was characterized by Bezzi as follows: “Head as broad as the thorax; in front view it is about as broad as high; in lateral view it is much narrowed below, the lower border of the head being very short. Occiput very little convex, with a row of short bristles at eye border, with short bristly hairs above and with dense soft hairs below. Frons of the male moderately broad, only a little narrower than one eye; its sides are about parallel; in lateral view it is prominent on the distal half, but is rounded; it has a row of strong bristles, directed forwardly and descending with three bristles a little below the root of arista; the parafrontalia have two rows of rather strong but short setulae (about 8–10 each row), which may be considered as orbital bristles; vertical bristles long and strong, directed behind; ocellar bristles long, but thin, directed outwardly. Face broadened below, distinctly retreating, forming a broad and deep cavity, in which is enclosed the finely elaborate third antennal joint. Facial ridges completely ciliated with 10–11 strong bristles which are extended to the root of the arista and are curved downwards. Parafacialia narrow and becoming narrower below; they are quite bare. Eyes narrow, their vertical diameter being twice longer than the horizontal one; they are clothed with rather long but not dense hairs. Antennae inserted considerably above the middle of the eyes; basal joints short and not prominent, bristly, with one more long bristle; third joint (fig. 5) feathered,

with the central stem very thin and bearing 12 branches on each side, some of which are bifid at the end and all are finely pubescent; in lateral view only the extreme tips of the external branches are visible on the sides of the facial cavity. The arista is inserted at the extreme base of the stem of the third antennal joint; it is a little longer than the whole antenna, is incrassate in less than the basal half, has no distinct basal joint and is bare. Mouth border not at all prominent, with the long and decussate vibrissae placed exactly at its level. Peristomialia about as broad as long, about one-eighth of the vertical diameter of eye; they are bare, without bristles on middle, but with 2-3 bristles at lower border below the vibrissae. Mouth opening narrow and transverse; palpi normal, filiform, bristly, a little shorter than the proboscis; this latter normal, rather short and thick, with broad terminal flaps.

"Thoracic chaetotaxy: 2+3 dorsocentral; 3+3 acrostichal; 1+2 intra-alar; 3 sternopleural, placed in equilateral triangle; 6-7 hypopleural. Scutellum with two pairs of strong lateral, the terminal one stronger and longer; apical pair long and decussate, directed behind; one pair of very small and short discal.

"Abdomen cylindro-conical, not broader than the thorax, with 4 visible segments, all of about the same length; no discal macrochaetae on the middle segments. All the sternites concealed. Genitalia enclosed, but rather developed.

"Legs normal, with hind tibiae not ciliated; claws and pulvilli of front pair not elongate.

"Wings short, without costal bristle; costa very shortly spinulose, with some longer bristles at extreme base. First longitudinal vein ending before the middle of the wing; second straight, ending a little beyond middle distance between ends of first and third vein; third vein ending before the tip of the wing, curved below before the end, with 3 bristles at extreme base above and with 2-3 more small below. Bend of fourth vein rounded but narrow, not appendiculate; first posterior cell ending before the tip of wing and narrowly open; small cross-vein placed on the middle of the discoidal cell. Hind cross-vein oblique, long, rather S-shaped and nearer the bend than to the small cross-vein. Sixth vein long but not reaching hind border. Axillary lobe prominent; alula rounded. Lower calyptrae four times longer than the upper ones, bare on disc."

SOURCE OF NAME: The name is adapted from three Greek words, *krypto* (hide, conceal), *klados* (branch), and *keras* (horn); perhaps in allusion to the fact that the branched antennae were but slightly visible to Bezzi when the head was viewed in lateral view. The fissicorn antennae are certainly, however, a very visible and conspicuous part of the fly.

KEY TO MALES OF *Cryptocladocera* BEZZI (Figs. 7-12)

- 1. Rami of third antennal segment approximately of equal length; dorsocentrals 2 + 3 (Surinam) . . . . . *prodigiosa* Bezzi  
Rami of third antennal segment of unequal length, the inner rami shorter than outer rami; dorsocentrals 3 + 3 . . . . . 2
- 2. Apical portion of phallosome in profile broad, one-half as wide as long (fig. 10) (Ecuador) . . . . . *pichilinguensis*, new species  
Apical portion of phallosome in profile narrower, width less than one-half of length (Panama) . . . . . 3
- 3. Inner forceps in profile with apical third slender, nearly parallel-sided, outer forceps weakly angulate apically (fig. 8) . . . . . *bezzii*, new species  
Inner forceps in profile with apical third broader, not parallel-sided, outer forceps rounded apically (fig. 12) . . . . . *mojingensis*, new species

DISCUSSION: The three new species possess three presutural dorsocentrals, not two, as reported by Bezzi in the description of the type species. Whether the original description is in error, or a further difference between the species must be considered remains to be studied. Also, the preacrosticals are reported as numbering three in the type species, but it should be noted that the posterior pair are either weakly developed or lacking in the three new species. Bezzi, in his description, does not discuss the length of the antennal rami, but the figure accompanying the description shows the inner and outer rami of equal length. Townsend (1940, p. 319) states, "rami of both sides of equal length . . . ," but this is probably reported from the Bezzi illustration rather than from an examination of the type specimen. The new species differ conspicuously from the genotypic species *prodigiosa* Bezzi with respect to ramal length, the inner rami being subequal to the outer rami in the new species. Among themselves, the only certain means at this time that I can propose for their separation are characters of the postabdomen. If the postabdomen in these sibling species had not been dissected and cleared in KOH for study, they would have all been considered to represent but one species. Such a situation is certainly far from unique; an increasing number of species complexes in the Arthropoda are being separated on the basis of the genitalia. As has been stated by Dobzhansky (1951, p. 270), "It is possible that in some groups of organisms the external morphology has reached so high an adaptive level that changes are discriminated against by natural selection."

*Cryptocladocera prodigiosa* Bezzi

Figure 1

*Cryptocladocera prodigiosa* BEZZI, 1923, Proc. Linnean Soc. New South Wales,

vol. 48, pt. 4, pp. 655–656, figs. 5, 7 (description of new species on basis of one male from Surinam). TOWNSEND, 1928, Jour. New York Ent. Soc., vol. 36, no. 1, p. 84 (comments on rarity of species; disagrees with Bezzi on concept of arisal plumosity and “feathering the third antennal joint”); 1936, Manual of myiology, pt. 4, p. 168 (cited as type species); 1940, *op. cit.*, pt. 10, p. 319 (cited as type species).

DIAGNOSIS: A medium-sized (length, 9 mm.) species, the males of which can be readily separated from others of the genus by the fact that the inner and outer rami of the third antennal segment are of equal length; in the other three species the inner rami are shorter.

MALE (HOLOTYPE): The species *prodigiosa*, which is known only from the holotype specimen, was described by Bezzi as follows:

“♂. Length of body 9 mm.; of a wing 7 mm.

“Head (fig. 7) entirely black, but densely clothed with whitish dust. Frontal strip as broad as one of the parafrontalia, brownish-black. Parafrontalia white shining; peristomalia with reddish-brown spot. Basal joints of the antennae dark yellowish; third joint pale yellowish, both on stem and on branches; its delicate pubescence whitish. Arista dark yellowish, chiefly on the thickened base. Palpi yellowish; proboscis brown, with yellow flaps. Bristles and setulae black; lower occipital hairs white.

“Thorax entirely black. On the back it is clothed with dark grey dust and shows two narrow parallel stripes of the ground colour before the suture; the lateral stripes are broader, but less distinct, and are broadly interrupted at suture. Pleurae densely clothed with more whitish dust, unspotted; they are a little reddish at root of wings. Scutellum densely grey dusted, unspotted. All the bristles black; setulae of back likewise black; pleural hairs black, whitish only on pteropleura. Calyptrae white; halteres pale yellowish.

“Abdomen with the first segment entirely black and rather shining; the other segments are likewise shining black, but with the basal half densely grey dusted, with whitish reflexions. Setulae and bristles black, the former placed on small black dots. First segment with a pair of macrochaetae in the middle; second with a pair in the middle and one on each side; third and fourth with a complete row at hind border, even the fourth being without distinct discal. Genitalia shining black, with reddish sutures.

“Legs black, the tibiae dark reddish-brown, the coxae and the femora with whitish dust; bristles and hairs black. Front coxae with strong bristles outwardly; middle and hind tibiae with several long bristles on the middle; pulvilli yellowish; claws black, with reddish base.

“Wings greyish-hyaline, distinctly darkened on the anterior half, chiefly on the subcostal and marginal cell, and along the first and second

longitudinal vein and at base of third. Costa and veins yellowish on the basal part, but blackish on the rest."

FEMALE: Unknown.

TYPE DATA: Holotype, male; Surinam (*ex* Staudinger); originally deposited in the Bezzi Collection. According to Horn and Kahle (1935, p. 18) the Bezzi Collection of Diptera is deposited at the Museo Civico di Storia Naturale, Milan, Italy.

SOURCE OF NAME: From the Latin word *prodigiosus* (strange, wonderful, vast, extraordinary) in reference to the fissicorn antennae.

### ***Cryptocladocera bezzii*, new species**

Figures 1, 2-4, 7, 8

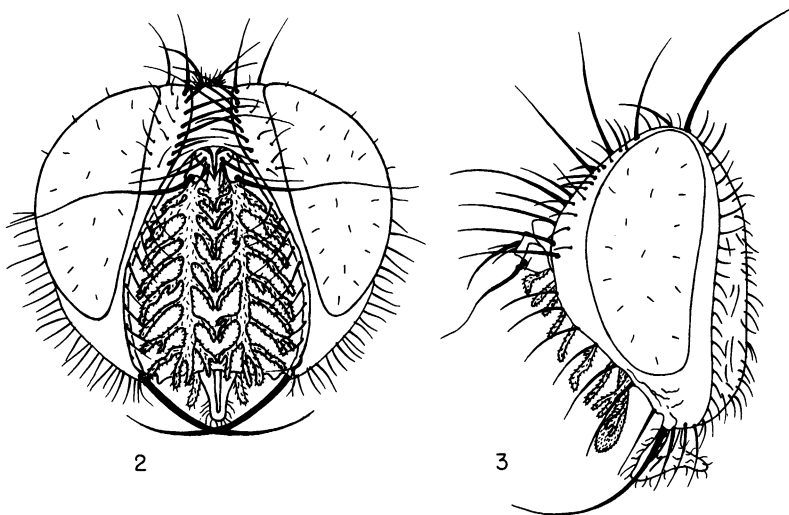
DIAGNOSIS: A medium-sized (length, 8.2 to 9.4 mm.) species, separable from *prodigiosa* by the shorter inner rami of the third antennal segment, and from its two "sibling" species on the basis of the postabdomen; the postabdomen differing in profile from that of *pichilinguensis* by its narrower phallosome and from that of *mojingensis* by its more slender, nearly parallel apical portion of inner forceps (figs. 7-12).

MALE (HOLOTYPE): Length, 8.2 mm.

Head (figs. 2, 3) with front at vertex 0.30 of head width; narrower than thorax (head 73 units wide, thorax 75 units wide) black, with parafacials and cheeks principally brown in ground color; head pollen silvery, with golden tinge on parafrontals and vertex; frontalia reddish brown, about equal to one parafrontal, latter entirely black-haired; outer vertical not differentiated; occipital fringe entirely black-bristled; occiput with golden tinge above, silvery below, occipital hairs of same coloration; eight pairs of frontal bristles, posterior pair reclinate, anterior pairs decussate; three pairs of frontals below bases of antennae; parafacials bare, narrowing to one-fourth of greatest width above lower eye margin; eyes moderately haired with pale-colored hairs; vibrissae strong, approximately on oral margin; facialia with seven (on left) to 10 (on right) bristles, not attaining arisal bases; antennae with first segments reddish brown, second and third segments yellowish brown, first and second segments short, yellow-brown above, third segment elongate, attaining vibrissal base, about seven times length of second segment, with narrow midrib bearing eight to 10 rami on each side, inner rami conspicuously shorter than outer rami, rami curved forward, forming elongate open trough about midrib; third antennal segment with base and all but apical portion of midrib and apexes of rami yellow, with apex of third segment and apexes of rami brown and outer side at arisal base black; arista black, brownish tinged to intermediate portion of enlargement of third arisal segment; first arisal

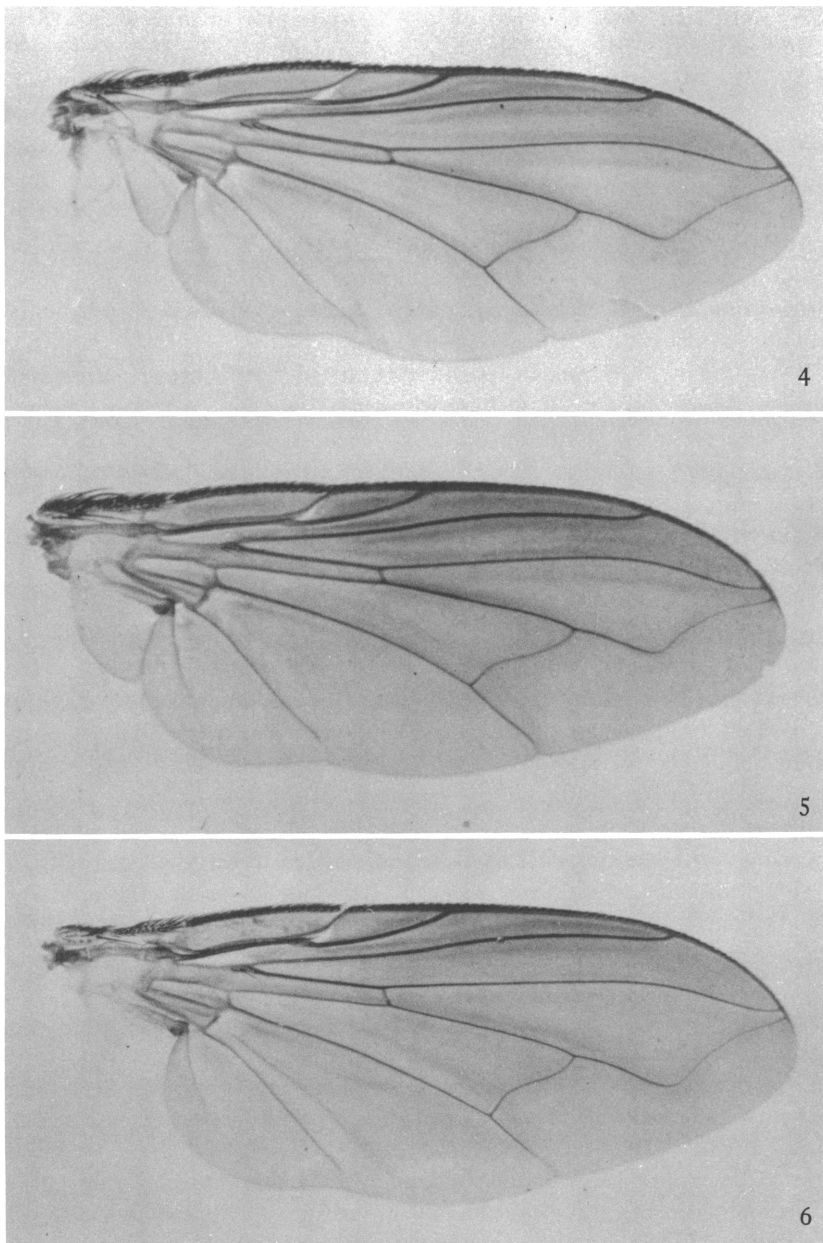
segment shorter than wide, second segment narrower than first, as long as wide, third segment length of third antennal segment, enlargement on basal third narrower than second segment, micropubescent on less than basal half; cheek less than one-third of eye height; proboscis brownish black on chitinized portion, yellow on membranous portion, yellow-haired; palpus yellow, longer than cheek height, black-bristled and with a few brown hairs.

Thorax black, silvery gray pollinose; faintly iridescent when viewed from behind; mesonotum black-haired; pair of narrow black vittae be-



FIGS. 2, 3. Head of *Cryptocladocera bezzii*, new species, front and lateral views.

tween preacrostichals and presutural dorsocentrals, narrowly separated from suture, continuing behind suture indistinctly; pair of broader vittae on outer sides of presutural dorsocentrals starting on inner sides of bases of posterior intraalars, forming obtuse triangles, with their bases perpendicular to transverse suture, continuing behind suture as gently narrowing vittae, almost attaining bases of posterior dorsocentrals; pleura silvery gray, mostly black-haired except for some pale hairs on pteropleura, sternopleura, and hypopleura; three pairs of presutural dorsocentrals, third (posterior) pair small; bare with several pale hairs anteriorly; prosternum with median longitudinal groove on posterior half, yellowish brown on sides of groove; prosternal hairs four in number on each side of posterior half along lateral edges; squamopleura short, white, tomen-



FIGS. 4-6. Right wings of holotypes of *Cryptocladocera* species. 4. *C. bezzii*, new species. 5. *C. mojingensis*, new species. 6. *C. pichilinguensis*, new species.

tose; scutellum gray pollinose, when viewed from behind with a non-pollinose black band occupying about basal fourth.

Legs brownish black, with tarsi black; black-bristled and principally black-haired, yellow-haired on coxae and trochanters, particularly mid and hind legs; fore femur thickly pollinose on posteroventral surface; mid tibia with one anterodorsal bristle, on tibial measurement of 70 units anterodorsal bristle situated at unit 37 (on left leg, right leg with small basal anterodorsal bristle at unit 33, and stronger bristle at unit 38 on tibial measurement of 70 units); apical tarsal segments not elongate; claws brown basally and black apically, about length of apical tarsal segments; pulvilli whitish yellow, shorter than claws.

Wing (fig. 4), 6.3 mm. in length, 2.5 mm. in width; brown infuscated; veins yellowish brown;  $R_5$  at base with three setae above and two below, otherwise veins non-setulose; costal spine undeveloped; costal marginal setulae extending slightly beyond middle of radiocosta; divisions of costa: costigium 24, prestigma 45, stigma 22, poststigma 49, radiocosta 35, disticosta 4; venation as illustrated; epaulet black; calypter white, faintly yellow-tinged; halter yellow.

Abdomen black, with brown undertone; black-haired except for yellow hair on first sternite and surrounding venter; abdominal segment I+II depressed mesially three-quarters of distance to posterior margin; abdominal segments I+II, III, IV, V above medially about 18:33:36:29 units in length, respectively; apical three segments with defined silvery gray pollinose bands, first band on segment III occupying about basal half or less, second and apical bands occupying more than basal half.

Postabdomen (figs. 7, 8) contained within fifth segment; inner forceps in profile with slender and partly parallel-sided apex, posterior margin very gently curved; inner forceps in posterior view slender apically, divided narrowly for apical three-fifths and then separating and divided by V-shaped wedge of membrane, haired principally on basal half and most thickly along inner V-shaped margin about anal membrane; outer forceps shorter than inner forceps, haired on apical outer half and inner apical fourth; first and second genital segments bristled and haired above and laterally; epiphallus shorter than posterior gonapophyses and about one-third of width of latter; posterior gonapophyses gently curved in profile, with a longitudinal groove on outer side and apexes curved inward; anterior gonapophyses in profile with almost straight lower edges and upper edges tapering and narrowing toward apexes, about one-third longer than posterior gonapophyses, very finely haired at apexes; phallosome narrowed, elongate; preputium short, with short spines on ventral portion underlying sclerotized brown hypophallus; fifth sternite brownish,



with deep emargination, haired along emargination, without strong bristles.

FEMALE: Unknown.

PARATYPES: Males; similar to holotype, but with body lengths of 8.5 mm., 9.4 mm., and 8.9 mm., and corresponding wing lengths of 6.3 mm., 7 mm., and 6.6 mm.; heads with fronts at vertexes 0.26 of head widths; heads broader than thoraces (81/76, 87/82, 80/78 units, respectively); facial bristles (left:right), 8:11, 13:14, and 10:12, respectively; postabdomens varying with shorter apexes to inner forceps.

TYPE DATA: Holotype, male; Barro Colorado Island, Canal Zone [Republic of Panama], January 11, 1929 (C. H. Curran); deposited in the collection of the American Museum of Natural History. The right wing of the holotype is mounted in balsam on a slide; the postabdomen is stored in a microvial in glycerine. Paratypes, three males: Arrijan, Panama Province, [Republic of Panama], June 1, 1953 (F. S. Blanton), [U.S.N.M.]; Barro Colorado Island, Canal Zone [Republic of Panama], one collected March 25, 1956, the second collected April 29, 1956 (Carl W. and Marien E. Rettenmeyer), [U.S.N.M., P.H.A.].

SOURCE OF NAME: This species is dedicated to Mario Bezzi (1868–1927) who not only named the genus *Cryptocladocera*, but published the first work on the world genera and species of fissicorn Tachinidae in 1923.

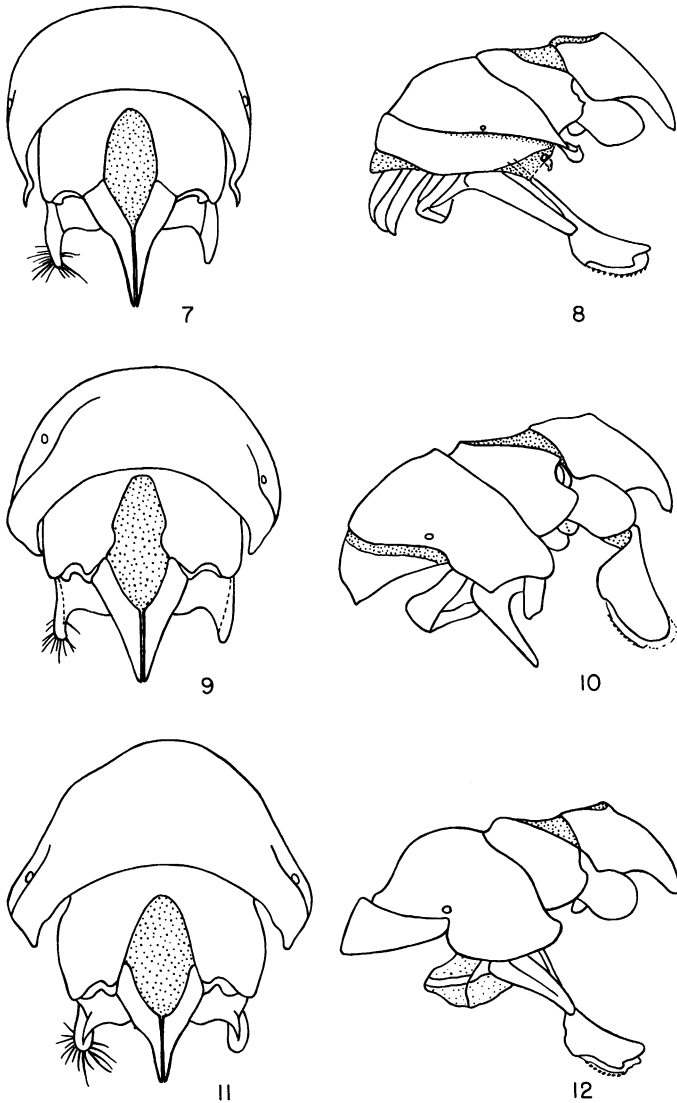
### ***Cryptocladocera mojingensis*, new species**

Figures 1, 5, 11, 12

DIAGNOSIS: A medium-sized (length, 8.4 mm.) species, separable from *prodigiosa* by the shorter inner rami of the third antennal segment, and from its two "sibling" species on the basis of the postabdomen; the postabdomen differing in profile from that of *picilinguensis* by its narrower phallosome and from that of *bezzii* by its broader inner forceps.

MALE (HOLOTYPE): Length, 8.4 mm.

Head with front at vertex 0.28 of head width; wider than thorax (head 75 units wide, thorax 70 units wide), black, with parafacials and cheeks principally brown in ground color, silvery pollinose, with golden tinge on parafrontals and vertex; frontalia blackish, at mid-point about equal to one parafrontal posteriorly; parafrontal with about 30 black hairs; outer vertical not differentiated; occipital fringe entirely black-bristled; occiput with golden tinge above, silvery below; occipital hairs of same coloration; eight pairs of frontal bristles (from bases); three pairs of frontals below bases of antennae; parafacials bare, narrowing below to one-fifth of greatest width, widest at base of antenna; eyes moderately haired with pale-colored hairs; vibrissae strong, approximately on oral margin;



FIGS. 7-12. Postabdomens of male holotypes of *Cryptocladocera* species, posterior views on left, left lateral views on right. Bristles and hairs omitted except on right outer forceps in posterior view. 7, 8. *C. bezzii*, new species. 9, 10. *C. pichilinguensis*, new species. 11, 12. *C. mojingensis*, new species.

facialia with 11 (on left) to 12 (on right) bristles, not attaining aristal bases; antennae with first segments black, second and third segments

yellowish brown, first and second segments short, third segment elongate, attaining vibrissal base in length, six times length of second segment, with narrow midrib bearing 10 to 12 rami on each side, inner rami shorter than outer rami; rami curved forward, forming an elongate open trough about midrib; rami and midrib on apical, upper and lateral sides thickly pale-haired, hairs somewhat longer than diameter of rami; rami may be unbranched, twice- or thrice-branched; inner and outer rami shorter at base of third antennal segment and progressively longer toward apex, with rami shortening again before apex, outer rami about twice length of corresponding inner rami; third antennal segment with base and all but apical portion of midrib and apexes of rami yellow and with apical portion of third segment and apexes of rami brown, outer side at arisal base black; arista black; first arisal segment nearly as long as wide, second segment narrower than first, as long as wide; third segment one-tenth longer than third antennal segment, enlargement on basal third slightly narrower than second segment, micropubescent on less than basal half; cheek less than one-third of eye height; proboscis brownish black on chitinated portion, yellow on membranous portion, yellow-haired; palpus yellow, longer than cheek height, black-bristled and with a few brown hairs.

Thorax longer than broad (85 units long, 70 units wide, with scutellum 23 units long); black, silvery gray pollinose, with faint tinges of yellow and iridescence when viewed from behind; mesonotum black-haired, with pair of narrow black vittae between preacrostichals and presutural dorsocentrals, narrowly separated from suture, indistinguishable behind suture; mesonotum behind suture medially extensively black, non-pollinose; pair of broader vittae on outer side of presutural dorsocentrals starting on both inner and outer sides of bases of posterior intraalars, with minute, V-shaped, pollinose bands immediately behind bristle bases, continuing behind suture, beginning with angulated apexes and tapering as rapidly narrowing vittae far before bases of posterior dorsocentrals; pleura silvery gray, black-haired except for presence of pale-colored hairs on pteropleura, sternopleura, and hypopleura; three pairs of presutural dorsocentrals; bare with several pale hairs anteriorly; prosternum black, with six or more pairs of black and pale-colored hairs along lateral edges; squamopleura short white tomentose; scutellum gray pollinose, when viewed from behind with non-pollinose black band occupying basal fourth.

Legs black, faintly gray pollinose on femora; black-bristled and principally black-haired, with exception of yellow hairs on coxae and trochanters which are most abundantly distributed on mid and hind legs;

fore femur thickly pollinose on posteroventral surface; mid tibia with one anterodorsal bristle situated at unit 41 on tibial measurement of 75 units, one anteroventral bristle situated at unit 45 on tibial measurement of 75 units; apical tarsal segments not elongate; claws brown basally and black apically, approximately length of apical tarsal segments; pulvilli whitish yellow, shorter than claws.

Wing (fig. 5), 6.2 mm. in length, 2.4 mm. in width; brown infuscated; veins yellowish brown;  $R_5$  at base with three setae above and two below, other veins non-setulose; costal spine undeveloped; costal marginal setulae extending slightly beyond middle of radiocosta; divisions of costa: costigium 26, prestigma 44, stigma 24, poststigma 53, radiocosta 32, disticosta 3; venation as illustrated; epaulet black; squamae white, the lower lobe lightly tinged with yellow; halter with whitish knob and brownish tinged stalk.

Abdomen black, black-haired except for yellow hair on first sternite and surrounding venter; abdominal segment I+II depressed mesially three-quarters of distance to posterior margin; narrower than thorax (abdomen 56 units wide, thorax 70 units wide); abdominal segments I+II, III, IV, and V medially above about 21:30:37:31 units in length; apical three segments with defined silvery gray pollinose bands, first band on segment III occupying about basal half or less, second and apical bands occupying more than basal halves.

Postabdomen (figs. 11, 12) contained within fifth segment; inner forceps in profile apically with broad base to tapering apex, posterior margin curved; inner forceps in posterior view slender apically, divided narrowly medially over apical half, basally divided by U-shaped membranous area, haired mostly on basal half and most thickly along posterior border; outer forceps shorter than inner forceps, haired on apical outer half and inner edge of apex only, rounded at apex; first and second genital segments bristled and haired above and laterally; epiphallus shorter than posterior gonapophyses and about one-third of width of latter; posterior gonapophyses gently curved in profile, longitudinally grooved on outer sides and apexes curved medially; anterior gonapophyses in profile lightly concave on lower edges and narrowing toward apexes, about one-fourth longer than posterior gonapophyses, very finely haired apically; phallosome narrowed, elongate; preputium short, with short spines on ventral portion underlying sclerotized blackish brown hypophallus; fifth sternite brown, with a deep, U-shaped emargination attaining three-fifths of length of sternite, bristled and haired at sides of emargination; emargination about one-fifth of width of sternite at widest point.

FEMALE: Unknown.

TYPE DATA: Holotype, male; Mojinga Swamp, Fort Sherman, Canal Zone [Republic of Panama], November 20, 1951 (F. S. Blanton); deposited in the collection of the United States National Museum. The right wing of the holotype is mounted in balsam on a slide; the postabdomen is stored in a microvial in glycerine. Mojinga Swamp is situated on the Caribbean side of the Canal Zone, on the northern side of the Panama Canal.

SOURCE OF NAME: The specific name is chosen from the geographic type locality, Mojinga Swamp, a name probably of regional native origin.

***Cryptocladocera pichilinguensis*, new species**

Figures 1, 6, 9, 10

DIAGNOSIS: A medium-sized (length, 9.1 mm.) species, separable from *prodigiosa* by the shorter inner rami of the third antennal segment, and from its two "sibling" species on the basis of the postabdomen; the postabdomen differing in profile from that of *bezzii* and that of *mojingensis* by its broader phallosome and shape of inner forceps.

MALE (HOLOTYPE): Length, 9.1 mm.

Head with front at vertex 0.30 of head width; wider than thorax (head 82 units wide, thorax 75 units wide); black, with face, parafacials, and cheeks principally brown in ground color, silvery pollinose, with golden tinge on parafrontals and vertex; frontalia brownish black, at mid-point about equal to one parafrontal posteriorly; parafrontal with approximately two dozen long black hairs; outer vertical not differentiated; occipital fringe entirely black-haired on upper half but mixed black- and pale-bristled on lower half; occiput with golden tinge above, silvery below, occipital hairs of same coloration; nine pairs of frontal bristles; three pairs of frontals below bases of antennae and posterior pair semi-decussate-reclinate; parafacials bare, widest at base of antennae, narrowing below to one-fifth of greatest width; eyes moderately haired with pale-colored hairs; vibrissae strong, projecting on base, approximately on oral margin; facialia with 10 (on left) to 11 (on right) elongate bristles, not attaining arisal bases; antennae with first and second segments brown, third segment yellow brown; first and second segments short, third segment elongate, attaining vibrissal base in length, slightly over six times length of second segment, with narrow midrib bearing 9 to 10 rami on each side, inner rami conspicuously shorter than outer rami; rami and apex of midrib curved forward, forming elongate, broad, open trough about midrib; rami and midrib yellow-haired on apical, upper, and lateral sides, hairs equaling or longer than diameter of rami; rami mostly single, but a few twice- or thrice-branched; third antennal segment with exception of

apex and apexes of rami yellow, with apex and apexes of most rami brownish except for inner basal rami; outer side of third antennal segment at aristal base black; arista brownish black, with first two segments black; first aristal segment about as long as broad, second segment narrower than first, longer than broad, third segment about one-tenth longer than third antennal segment, enlargement over basal third as wide as second segment, micropubescent on basal two-thirds to three-fourths; cheek less than one-third of eye height; proboscis brownish black on chitinized portion, yellow on membranous portion, yellow-haired; palpus yellow, longer than cheek height, black-bristled and with a few brown hairs.

Thorax longer than broad (97 units long, 75 units wide, with scutellum 26 units long); black, with brownish coloration along certain pleural sutures and at wing base, silvery gray pollinose, with yellowish tinge and iridescent when viewed from behind; mesonotum black-haired, with pair of narrow black vittae between preacrostichals and presutural dorsocentrals, narrowly separated from suture and continuing behind suture for short distance, wider behind suture; pair of broader vittae on outer side of presutural dorsocentrals starting behind on inner side of base of posterior intraalars, each forming trapezium, continuing behind suture as narrower vittae tapering slightly, attaining posterior dorsocentrals; pleura silvery gray, black-haired except for pale-colored hairs on pteropleura, sternopleura, and hypopleura; two pairs of presutural dorsocentrals, third (posterior) pair absent or indistinguishable from other hairs; baret with several pale hairs anteriorly; prosternum with median longitudinal groove, blackish, with three pairs of black hairs along lateral edges of posterior half; squamopleura short, white, tomentose; scutellum gray pollinose, when viewed from behind with non-pollinose black band occupying more than basal third in center; without hairs under posterior border of scutellum.

Legs black, with brownish tarsi; black-bristled and principally black-haired, but with exception of yellow hairs on coxae and trochanters which are most abundantly distributed on mid and hind legs; mid tibia with one anterodorsal bristle, base situated at unit 46 on tibial measurement of 81 units, and with one anteroventral bristle with base situated at unit 51 on tibial measurement of 81 units; apical tarsal segments not elongate; claws brown basally and black apically, approximately length of apical tarsal segments; pulvilli yellow brown, shorter than claws.

Wing (fig. 6), 7.1 mm. in length, 2.9 mm. in width; brown infuscated; veins yellowish brown;  $R_5$  at base with three setae above and two below, otherwise veins non-setulose; costal spine undeveloped; costal marginal setulae extending to middle of radiocosta; divisions of costa: costigium

30, prestigma 50, stigma 29, poststigma 61, radiocosta 36, disticosta 2.5; venation as illustrated; epaulet black; squamae white, lower lobe lightly tinged with yellow; halter with whitish knob and brownish-tinged stalk.

Abdomen black, black-haired except for yellow hair on first sternite and surrounding venter; abdominal segments I+II depressed mesially two-thirds of distance to posterior margin; narrower than thorax (abdomen 60 units wide, thorax 75 units wide); abdominal segments I+II, III, IV, and V medially above about 21:33:40:33 units in length, respectively; apical three segments with defined silvery gray pollinose bands, first band on segment III occupying about basal half, second and apical bands occupying more than basal half.

Postabdomen (figs. 9, 10) contained within fifth segment; inner forceps in profile apically with narrowed base, short and parallel-sided to narrowed apex; inner forceps in posterior view slender apically, with toothed apexes, gradually widening basally, divided narrowly medially for over apical half and then divided by U-shaped anal membrane separating basal arms, haired mostly on basal half and along posterior border; outer forceps shorter than inner forceps, haired on apical outer third and below inner edge of apexes; first and second genital segments bristled and haired above and laterally; epiphallus shorter and about half or less of width of posterior gonapophyses; posterior gonapophyses gently curved in profile, longitudinally with grooves on outer sides and apexes curved medially; anterior gonapophyses in profile with lower edges very gently concave and narrowing toward apexes, about one-fourth longer than posterior gonapophyses; phallosome broader, elongate; preputium short, with short spines on ventral membrane underlying sclerotized black hypophallus; fifth sternite brown, deep emargination attaining three-fifths of length of sternite; several pairs of bristles and other hairs at sides of emargination; emargination occupying about one-fourth of width of sternite at widest point.

FEMALE: Unknown.

TYPE DATA: Holotype, male; Pichilingue, Los Rios, Ecuador, 40 meters, February 2, 1955 (E. I. Schlinger and E. S. Ross); deposited in the collection of the California Academy of Sciences. The right wing of the holotype is mounted in balsam on a slide; the postabdomen is stored in a microvial in glycerine.

The type locality, Pichilingue, is not listed in the more widely available atlases. Mr. Paul Tillman of the Maps Division, New York Public Library, has informed me that it is situated at latitude 1° 6' S., longitude 79° 20' W., a position that apparently is in the valley of the Rio de Quevedo.

REMARKS: The holotype specimen is not in the best state of preserva-

tion. Unfortunately the left wing is missing, and the pollen of the head and thorax has been partly obscured by an overabundance of mounting medium.

SOURCE OF NAME: The specific name is derived from the type locality.

GENUS **CEROTACHINA**, NEW GENUS

GENERIC CHARACTERIZATION: Medium-sized, slender, 6.8 mm. to 8.5 mm. in length; black and silvery white to faintly golden; male antennae fissicorn, with rami and hair tufts short.

Head one-tenth wider than high, its profile subcuneiform; frontal profile nearly flat to gently arcuate, two-thirds of facial, latter arcuate and receding, oral profile short, less than half of frontal; vibrissal axis less than one-third of antennal; palpi cylindric, longer than cheek height; antennal axis six-sevenths of head height, far above eye middle; first antennal segment very short, second segment short; male third antennal segment eight times second, with about 12 pubescent, short rami and hair tufts borne on each side of slender ventral midrib, long pubescent; female third antennal segment four and one-half times longer than second; arista length of third segment in male, slender except for basal enlargement, micropubescent on basal two-fifths; eyes sparsely haired; vertex three-tenths of head width in male and about one-fourth of head width in female; front not widening in male; face widening gently below to less than one-half of head width on middle; three pairs of frontals below bases of antennae with rows on inner side of parafacials; posterior pair of frontal bristles reclinate; female with two proclinate fronto-orbital bristles, in male lacking or one pair weakly or strongly developed; inner vertical bristles decussate or reclinate; outer vertical bristles absent; frontalia widening forward, about twice parafacial width in male, narrower in female; ocellar bristles present, divaricate, but small in male, weaker in female; parafacialia bare, vertical to eye in male, about one-sixth of clypeal width on middle and widening below; cheeks in male two-fifths of eye length, in female one-fifth of eye length; facialia bristled in male with from nine to 16 bristles, nearing but not attaining bases of aristae, in female with from seven to eight bristles nearing but not attaining bases of aristae.

Thorax with prescutum shorter than postscutum; prosternum haired laterally; propleura and postnotal slopes bare; three preacrostichal bristles removed from suture; three postacrostichal bristles; three presutural dorsocentral bristles, further removed from suture than preacrostichals; three postsutural dorsocentral bristles; three sternopleural bristles; pteropleural bristle minute; no hind preintraalar bristle; one presupraalar

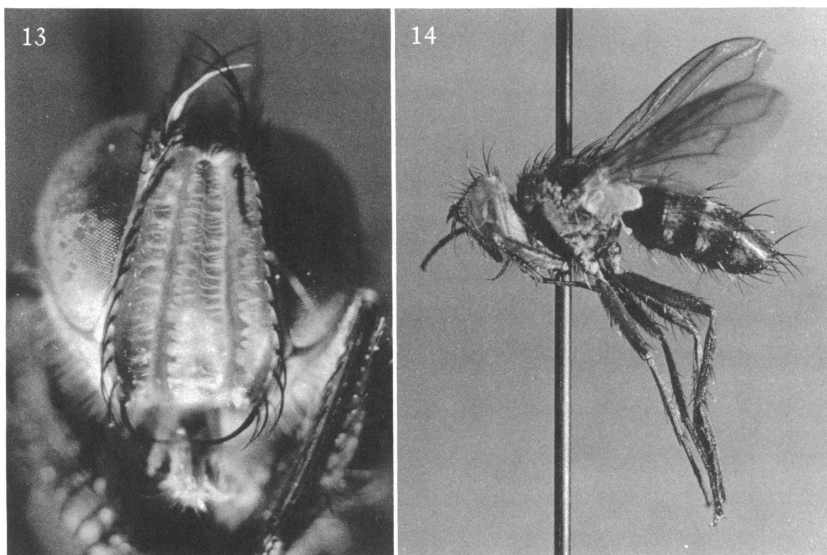


bristle; scutellum with two lateral, one apical, and one discal pairs of bristles, the latter present or absent.

Legs with tarsal claws and pulvilli shorter than apical tarsal segments in both sexes; apical tarsal segment wider in female than male.

Wings clear or infuscated; veins bare except for a few setae at base of third vein; costal spine undeveloped; venation as illustrated (figs. 22–24).

Abdomen narrower and longer than thorax; abdominal segment I+II depressed mesially halfway to hind margin; segments I+II, III, and IV



FIGS. 13, 14. Male, *Cerotachina elegantula*, new species. 13. Front view of head. 14. Left lateral view of fly.

with median marginal bristles somewhat removed from edges of segments; fifth segment with complete row of strong marginal bristles; no median discs; sternites covered or very narrowly visible.

Male postabdomen with inner forceps in profile broadly beak-like; outer forceps rounded apically, shorter than inner forceps.

Female postabdomen with sternotheca ax-like, with its plane in the longitudinal axis.

TYPE SPECIES: *Cerotachina elegantula*, new species.

DISCUSSION: This genus is proposed for a fissicorn species which is characterized by the development of only short rami on the third antennal segment. Phylogenetically the short rami of *Cerotachina* are considered

more primitive than the elongate rami of *Cryptocladocera*, and conversely more highly evolved than the non-ramate genera. Genitally the genus appears to be closely allied to the other genera here considered.

**SOURCE OF NAME:** The name is adapted from two Greek words, *keraiā* (antenna) and *tachinos* (swift), which is the basis for the generic name *Tachina*; in reference to the remarkable antennal condition of the male of this tachinid genus.

#### KEY TO SPECIES OF *Cerotachina*

Head and thoracic pollen with golden tinge, wings brownish-tinged; in female pollinose band on apical abdominal segment occupying more than basal half of segment, and third antennal segments yellow. . . . . *elegantula*, new species

Head and thoracic pollen silvery, wings clear; in female pollinose band on apical abdominal segment occupying less than basal half of segment, and third antennal segments mostly black. . . . . *albula*, new species

#### ***Cerotachina elegantula*, new species**

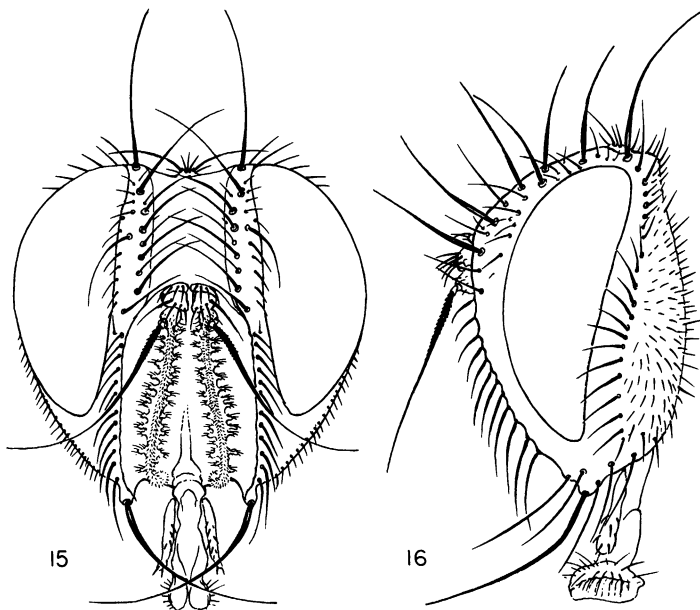
Figures 1, 13–23

**DIAGNOSIS:** A medium-sized (length, 7.3 to 8.5 mm.), slender species, separable from *albula*, new species, by its brownish-tinged wings; pollinose bands of apical three abdominal segments, which cover approximately the basal two-thirds of the segments; and, in the female, by the elongate apical tarsal segments and the yellow third antennal segments.

**MALE (HOLOTYPE):** Length, 8 mm. (fig. 14).

Head (figs. 13, 15, 16) with front at vertex approximately 0.29 of head width; black, silvery gray pollinose; frontalia black basally and reddish brown at bases of antennae, widening posteriorly to nearly twice width at base, at narrowest about one-quarter wider than one parafrontal, latter with about two dozen bristles and hairs, some moderately elongate; outer vertical absent; occipital fringe black, lower bristles very fine; occiput silvery, faintly golden-tinged, white-haired; seven pairs of frontals, basal pair reclinate, following four pairs decussate; three pairs of frontals extending below antennal bases; two weak pairs of proclinate fronto-orbital bristles, about equal in size; parafacial bare, narrowing below to approximately two-sevenths of greatest width at base of antennae; parafacial with elongate, black, non-pollinose mark along facial ridge centered opposite lower eye margin; eyes sparsely haired with pale-colored hairs; vibrissae strong on oral margin; facialia with 12 (on left) and 15 (on right) recurved bristles, almost attaining arisal bases; antennae (fig. 17) with first segments black, second segments brownish, third segments yellow at bases, contrastingly black on outer sides at arisal bases and remainder

brown; first antennal segment short, second segment projected forward, short, and third segment 10 times length of second; third segment with densely light-colored pubescence on anterior border, with about 12 pubescent short rami and hair tufts borne on each side of slender ventral midrib; inner and outer rami of approximately equal length, but length varying from tuft to tuft; arista equal in length to third antennal segment, blackish, with brownish tinge, first segment wider than long, second segment



FIGS. 15, 16. Head of male of *Cerotachina elegantula*, new species, front and lateral views. Hairs omitted from eyes.

narrower than first, but longer than wide below, third segment enlarged on basal two-fifths, tapering to fine apical portion, third segment micro-pubescent at least on basal half, third segment widening only to width of first segment; cheeks slightly less than one-third of eye height; proboscis blackish brown, yellow-haired; palpus yellow, narrow, slightly longer than cheek height, black-bristled mostly on apical half.

Thorax black, with brownish coloration along certain pleural sutures, about base of wing and on under side of posterior border of scutellum; black-haired; mesonotum silvery gray pollinose, golden-tinged, with pair of narrow black vittae between preacrostichals and presutural dorsocentrals, narrowly separated from suture and not continuing behind suture;

pair of shorter, broader, black vittae on outer side of presutural dorsocentrals, removed from suture and continuing behind suture in gently curved arcs, stopping before posterior dorsocentrals; scutellum with basal non-pollinose transverse band when viewed obliquely from behind, golden-tinged at apex; apical lateral scutellar bristles well developed, attaining median marginal bristles of third abdominal segment, apical scutellars decussate, approximately two-thirds of length of apical lateral scutellars;

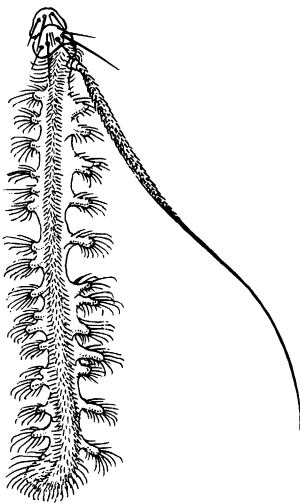


FIG. 17. Antenna of male of *Cerotachina elegantula*, new species.

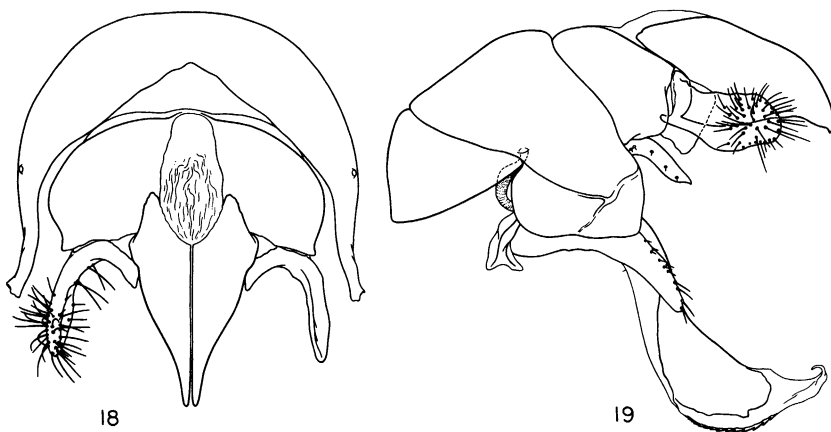
squamopleura white tomentose; bare with two hairs anteriorly; prosternum with five or six black hairs along lateral edges.

Legs blackish, with brownish tinge to tibia and knee joints brown; entirely black-haired with exception of fine brown tibial hairs; fore femur silvery gray pollinose on posteroventral surface; mid tibia with one anterodorsal bristle with its base at unit 44 on tibial measurement of 71 units; claws short, not longer than apical tarsal segments, brown, with black apices; pulvilli yellowish white, shorter than claws.

Wing (fig. 22), 6.3 mm. in length, 2.7 mm. in width; conspicuously brownish-tinged, but varying in intensity; veins brown;  $R_s$  at base with two setae above and one below, otherwise veins non-setulose; costal spine undeveloped; costal marginal setulae extending beyond middle of radiocosta; costal divisions with costigium 25, prestigma 44, stigma 21, poststigma 55, radiocosta 38, disticosta 2.5; venation as illustrated; epaulet black; squamula whitish; squamae whitish basally and yellowish-tinged

posteriorly; halter uniformly light yellow-brown.

Abdomen black, entirely black-haired; abdominal segment I+II depressed mesially on basal half; abdominal segments I+II, III, IV, and V above medially about 23:29:32:32 units in length; apical three segments with basal silvery gray pollinose bands, first and second bands on segments III and IV occupying about basal halves of segments with undulating posterior borders, with fainter brownish pollen attaining posterior



FIGS. 18, 19. Postabdomen of male of *Cerotachina elegantula*, new species, posterior and left lateral views. Bristles and hairs omitted except on right outer forceps.

border of segments medially and invading and shortening length of silvery basal pollen bands, band on fifth segment occupying about basal two-thirds of segment.

Postabdomen (figs. 18, 19) primarily contained within abdomen; inner forceps in profile broad, beak-like, with narrowed tip, in posterior view apical three-fourths narrowly divided medially, basal arms separated by rounded arch of membrane, haired mostly on basal half and thickly along inner, arch-shaped margin, sparser hairs continuing toward apex on posterior border; outer forceps shorter than inner forceps, haired on outer apical half and sparsely on inner side; first and second genital segments haired and bristled dorsally and laterally; aedeagus 0.93 mm. in length, basiphallus 0.22 mm. long, brown, with blackish edge posteriorly; distiphallus with black chitinized portion 0.43 mm. long, with basal half forming a narrow dorsal bridge which widens below and then narrows, ladle-shaped in profile; distiphallial membrane underlying apex of

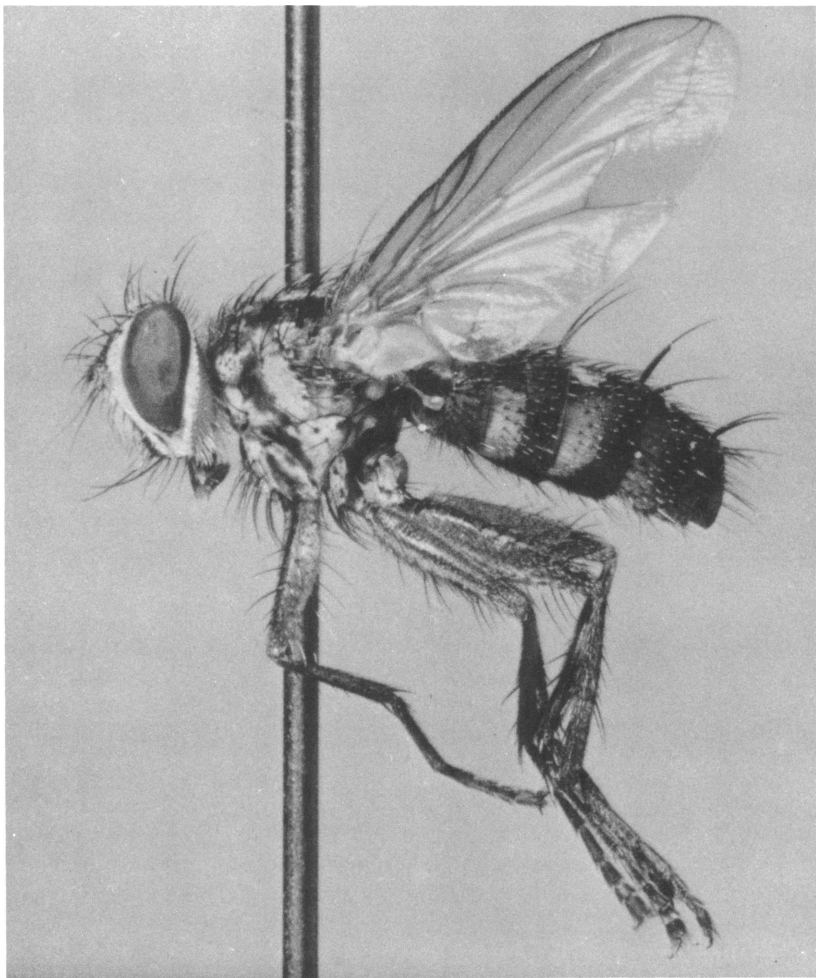


FIG. 20. Female *Cerotachina elegantula*, new species, left lateral view.

chitinized portion of distiphallus with series of nine large black serrations in two longitudinal rows, 0.18 mm. in length, longitudinal rows in ventral view narrowly separated basally and widening into elongate, V-shaped trough; phalrodeme 0.43 mm. long; epiphallus in lateral view straight, upper and lower edges parallel, except at narrowing tip, shorter than posterior gonapophyses; posterior gonapophyses 0.34 mm. in length, strongly bowed almost at right angles medially, broad at bases, narrowing to parallel-sided medial sections, terminating in narrowed, twisted apices,

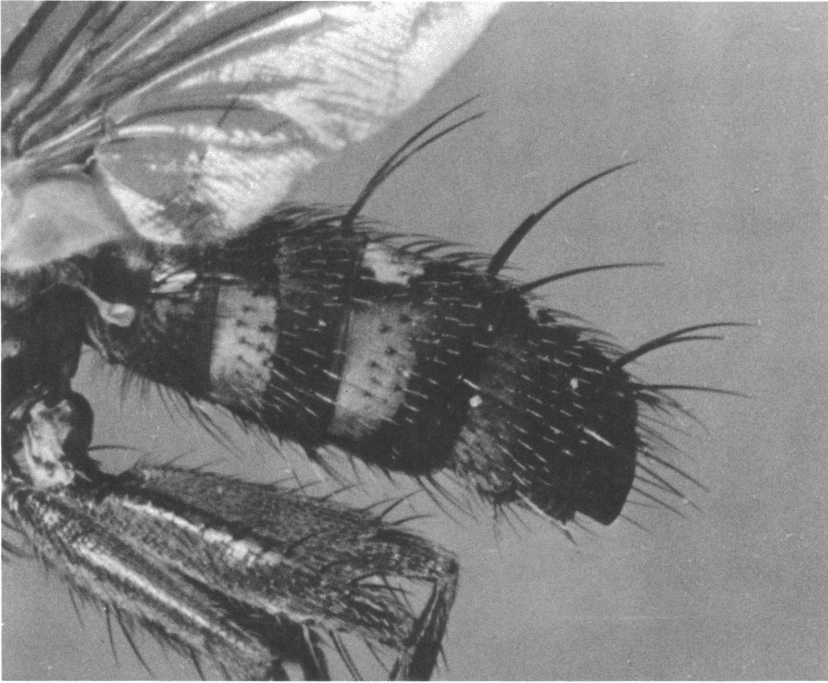


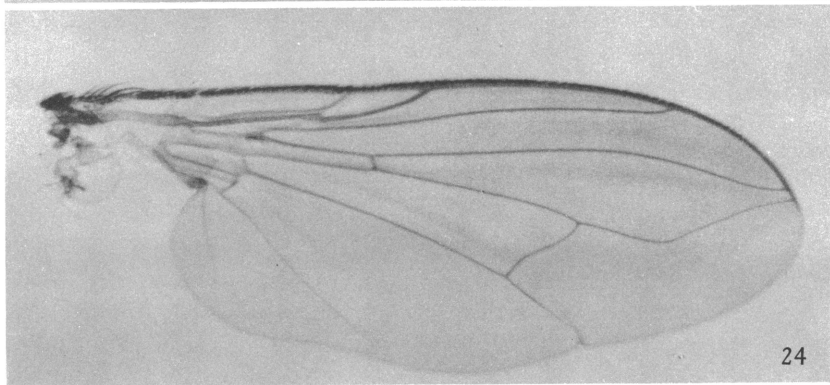
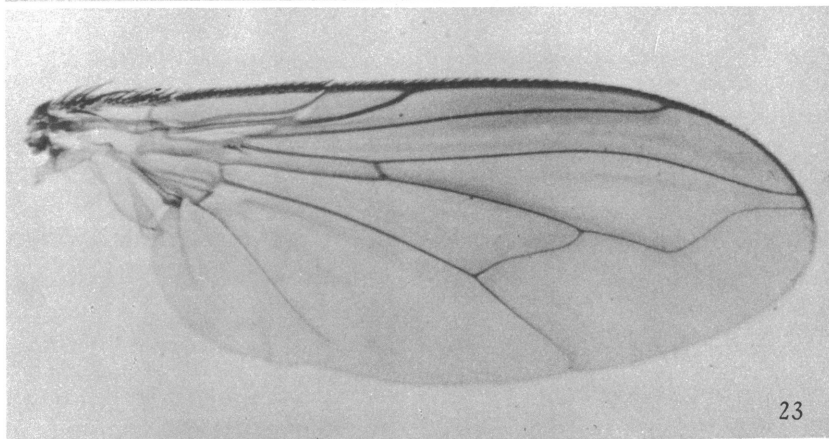
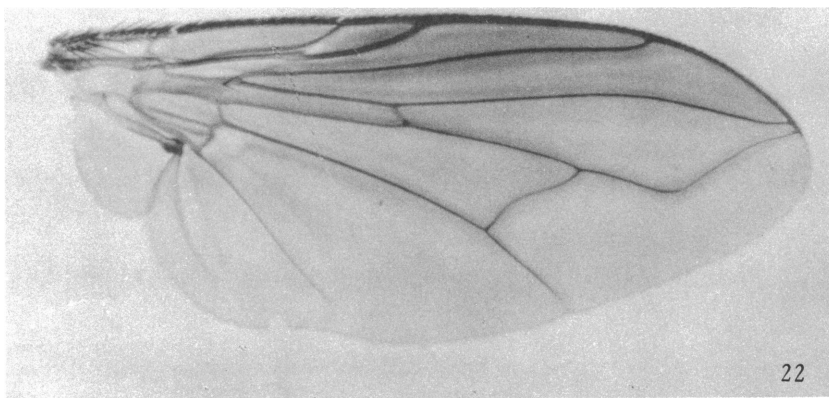
FIG. 21. Abdomen of female of *Cerotachina elegantula*, new species.

laterally with several circular light-colored areas surrounding setal bases, outer sides convex, inner sides concave; anterior gonapophyses 0.46 mm. in length, in lateral view, dorsal basal arms elongate, ventral arms short and bluntly pointed below.

FEMALE (ALLOTYPE): Length, 8.4 mm. (fig. 20).

Similar to holotype in coloration and chaetotaxy but with sexual dimorphism as here enumerated.

Head with front at vertex 0.25 of head width; parafrontal hair short and fine, reduced to four hairs on middle of parafrontal and row on inner edge; eyes sparsely and inconspicuously haired; facialia with seven and eight recurved bristles, spaced somewhat evenly, not attaining arisal bases; antennae with first segments black, second segments brown, with yellow apices, third segments yellow but touched with black on outer sides of arisal bases and with brown on outer apical fourths; third antennal segment without rami and hair tufts, narrowed, and four and one-half times longer than second; arista longer than shortened third antennal segment; cheek one-fifth of eye length.



FIGS. 22-24. Right wings of *Cerotachina* species. 22. *C. elegantula*, new species, holotype male. 23. *C. elegantula*, new species, allotype female. 24. *C. albula*, new species, holotype female.



Legs with apical three tarsal segments enlarged and apical tarsal segments elongate; claws and pulvilli longer in female than male.

Wing (fig. 23), 6.6 mm. in length, 2.6 mm. in width; lightly brownish-tinged along costa and along vein  $M_1$ ; costal divisions with costigium 26, prestigma 42, stigma 21, poststigma 63, radiocosta 39, disticosta 3.5; venation as illustrated.

Abdomen (fig. 21) with first sternite and adjoining venter with some brownish-colored hairs; abdominal segments I+II, III, IV, and V above medially 23:33:35:34 units in length; apical three segments with basal silvery gray pollinose bands occupying more than basal half.

Postabdomen with sixth sternite laterally (as presently exposed) less than half of length of fifth tergite, colored as fifth sternite and non-shining; sternotheca approximately two-thirds of height of fifth abdominal segment, flat above and below, with a slight ventral projection apically; sternotheca ax-like, with its plane in the longitudinal axis, shining black and finely haired.

PARATYPES: Length of males varying from 7 mm. to 8.5 mm., and wing lengths correspondingly from 5.4 mm. to 6.3 mm.; length of females varying from 7 mm. to 8.2 mm. and wing lengths correspondingly from 5.8 mm. to 6.7 mm.; heads with fronts at vertexes in males from 0.278 to 0.31, averaging 0.293, in females from 0.257 to 0.276, averaging 0.26; facial bristles in males (left:right) 15:14, 15:15, 13:12, 10:10, 13:11, 11:8, 11:9, 7:5, averaging about 12 on left and 10.5 on right; facial bristles in females (left:right) 7:7, 7:8, 8:7; males varying with proclinate fronto-orbital bristles lacking or with a weak or strong pair developed; thorax with sternopleurals normally three but with one male possessing but two sternopleurals on left; acrostichals normally 3:3, but in two males and one female either one presutural acrostichal lacking or greatly reduced and hair-like, and in one female an additional pair of small postsutural acrostichals developed and located immediately following suture; dorso-centrals apparently constant.

TYPE DATA: Holotype, male; Nova Teutonia, Santa Catarina, Brazil, November 1, 1957 (Fritz Plaumann); deposited in the collection of the American Museum of Natural History; from the collection of the author. The right wing of the holotype is mounted in balsam on a slide; the postabdomen is stored in a microvial in glycerine. Allotype, female, same data as holotype, but collected November 16, 1951 [P.H.A.]. The right wing is mounted in balsam on a slide. Paratypes, eight males and three females: Topotypical and same collector as holotype, but collected on the following dates: male, March 9, 1950; male, March 17, 1950; male, March 18, 1950; female, March 22, 1957; male, March 26, 1950; male, March 27,

1959; male, April 8, 1950; male, April 15, 1959; male, May 1, 1959; female, December 18, 1950; female, December 22, 1956; [U.S.N.M., H.J.R., P.H.A.].

SOURCE OF NAME: From the Latin word *elegantulus* (very fine), in reference to the fissicorn antennae.

***Cerotachina albula*, new species**

Figures 1, 24

DIAGNOSIS: A medium-sized (length, 6.8 mm. to 7 mm.), slender species, separable from *elegantula*, new species, by the following characters: clear wings, head and thoracic pollen entirely silvery and non-golden; in female, pollinose band of apical abdominal segment occupying less than basal half of segment, apical tarsal segments not elongate, and third antennal segments mostly black.

MALE: Unknown.

FEMALE (HOLOTYPE): Length, 6.8 mm.

Head with front at vertex 0.22 of head width; black, silvery pollinose; frontalia black, slightly widening posteriorly toward antennal bases, equal in width to one parafrontal at middle, latter very sparsely haired; ocellar bristles absent; occiput silvery, white-haired; six or seven frontal bristles, decussate, with two pairs extending below antennal bases; one pair of preverticals, strongly inclined outward; two pairs of proclinate fronto-orbitals, forward pair stoutest; fronto-orbitals situated high, on basal half of parafrontals; parafacials bare, narrowing below to less than one-third of greatest width (at antennal base); eyes sparsely haired with pale-colored hairs; facialia bristled about two-thirds of length with seven or eight (left, right) bristles, bristles not attaining arisal bases; first and second antennal segments brownish black, third segment black, with base and under portion of basal three-fifths yellow; first antennal segment short, second segment projecting beyond first and third segments, third segment more than four times longer than second, narrowed; arista with first two segments black, third segment brown on enlarged basal fourth and micro-pubescence pale, extending onto slender apical half, first arisal segment annulate, about half as long as high, second segment about as long as high, third segment not wider than second and nearly one and a half times longer than third antennal segment; cheek slightly less than one-sixth of eye height; proboscis short, blackish on sclerotized portions, reddish brown to yellow on membranous apical portion, yellow-haired; palpus more than twice cheek height, yellowish, infuscated with brown at base, black-bristled and with a few light-colored hairs on apical three-fifths.

Thorax black; black-haired; mesonotum silvery gray pollinose, pair of

narrow black vittae between preacrostichals and presutural dorsocentrals, very narrowly separated from suture, continuing indistinctly behind suture; pair of broader vittae on outer side of presutural dorsocentrals starting after anterior preintraalar bristles and surrounding posterior preintraalars and stopping before suture, continuing behind suture as narrow vittae one-third of width of anterior vittae; pleura black, silvery gray pollinose; bare bare; squamopleura short white tomentose; prosternum with black and brown hairs along edges; scutellum gray pollinose, when viewed from behind with shining black pollinose basal band; discal scutellar bristles very fine.

Legs with femora black, tibiae brownish or black, and tarsi black; entirely black-haired; fore femur thinly silvery pollinose on posteroventral surface; mid tibia with one anterodorsal bristle, on tibial measurement of 65 anterodorsal bristle is situated at unit 36; mid tibia with one ventral bristle, at unit 42 on tibial measurement of 65; claws brown basally and black apically, approximately length of apical tarsal segments; terminal three tarsal segments slightly widened; pulvilli whitish yellow, shorter than claws.

Wing (fig. 24), 5.85 mm. in length, 2.3 mm. in width; clear; veins yellowish brown;  $R_5$  at base with two to three setae above and two below, otherwise veins non-setulose; costal spine undeveloped; costal marginal setulae extending beyond middle of radiocosta; divisions of costa: costigium 25, prestigma 38, stigma 19, poststigma 54, radiocosta 31, disticosta 2.5; venation as illustrated; epaulet black; squamae white when viewed from in front, very lightly yellow when viewed from behind; halter with white knob and pale brownish stalk.

Abdomen black; black-haired except for brown hairs on first sternite and a few on adjoining venter; abdominal segment I+II depressed mesially over half of distance to posterior margin; abdominal segments I+II, III, IV, and V above medially about 20:28:33:28 units in length; third and fourth segments with defined silvery gray pollinose bands occupying more than basal halves, the fifth segment with pollinose band occupying less than basal half.

Postabdomen with laterally compressed sixth sternite brownish black, shining; sternotheca approximately one-half of height of fifth abdominal segment; sternotheca ax-like, with its plane in longitudinal axis, shining brownish black and finely haired.

PARATYPE: Similar to holotype, but with body length 7 mm., wing length 5.7 mm., head with front at vertex 0.25 of head width; facial bristles (left and right) six and seven.

TYPE DATA: Holotype, female; Nova Teutonia, Santa Catarina, Brazil,

February 5, 1951 (Fritz Plaumann); deposited in the collection of the American Museum of Natural History; from the collection of the author. The right wing of the holotype is mounted in balsam on a slide. Paratype, one female; topotypical and same collector as holotype but collected on January 23, 1958 [P.H.A.].

SOURCE OF NAME: From the Latin word *albus* (whitish), in reference to the color of the thoracic pollen.

#### GENUS **ADERCOMYIA**, NEW GENUS

GENERIC CHARACTERIZATION: Medium-sized (length, 7.5 to 8.2 mm.), slender species, black and silvery gray.

Head one-fifth wider than high; frontal profile arcuate, one-ninth shorter than facial, latter straight above but gently concave on basal third above vibrissa; oral profile short, about half of frontal; vibrissal axis more than half of antennal; palpi slender, flattened, gently widening toward apex, more than one and one-half times cheek height; antennal axis four-sevenths of head height and above eye middle; first antennal segment short, second segment longer, third segment in male seven times longer than second, third segment in female slender and four to four and one-third times longer than second; arista longer than third antennal segment, enlarged only on basal fifth and tapering rapidly to slender apical two-thirds, finely micropubescent on basal half; eyes moderately but long-haired, pale interfacetal hair spaced approximately between every second or third facet; vertex one-fourth of head width in male and more than one-fourth of head width in female; front in female widening to one-third of head width at base of antennae, with face widening to three-sevenths of head width at base of eyes; two frontal bristles below bases of antennae, with rows on inner side of parafacials; posterior pair of frontal bristles reclinate; female with two proclinate fronto-orbital bristles, lacking in male; inner vertical bristles reclinate; outer vertical bristles absent; frontalia widening slightly above bases of antennae; parafrontals widest at bases of antennae and narrowing toward vertex; frontalia at widest about equal to width of parafacials at base of antennae; ocellar bristles well developed in male, finer in female, divaricate; parafacialia with several hairs on upper portion opposite lower frontal bristles, otherwise bare; parafacials not vertical to eye; facialia bristled in male with 11 to 12 (left and right) bristles nearing but not attaining bases of aristae, in female with from seven to 11 bristles nearing but not attaining bases of aristae.

Thorax with prescutum shorter than postscutum; prosternum haired laterally; propleura and postnotal slopes bare; two preacrostichal bristles,

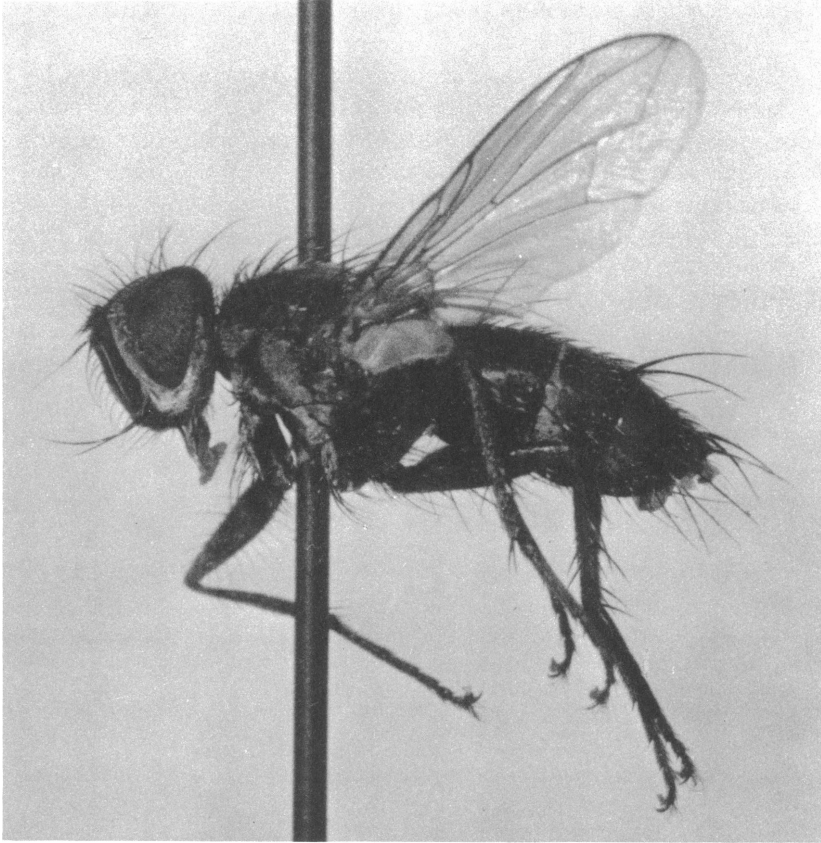


FIG. 25. Male, *Adercomyia sabroskyi*, new species, holotype, left lateral view.

far removed from suture, anterior bristle smallest; three postacrostichal bristles, posterior bristle largest; three presutural dorsocentral bristles, posterior bristle almost twice as long as anterior bristles; three postsutural dorsocentral bristles, posterior bristle elongate and longest; three sternopleural bristles; pteropleural bristle minute; two preintraalar bristles, with posterior one lacking; three postintraalar bristles, anterior bristle smallest; two presupraalar bristles, anterior bristle minute; scutellum with two lateral, one apical decussate and one pair of discal scutellar bristles.

Legs with tarsal claws as long as apical tarsal segments in male, claws and pulvilli shorter than last tarsal segments in female; apical tarsal segments shorter and narrower in male than female.

Wings lightly infuscated; veins bare except for few setulae at base of

third vein above and below; costal spine undeveloped; 5R open before wing tip.

Abdomen narrower and longer than thorax; abdominal segment I+II depressed medially on basal two-thirds; segments I+II, III, and IV with strong median marginal bristles, fifth segment with complete row of strong marginal bristles; sternites covered.

Male postabdomen with inner forceps in profile beak-like; outer forceps elongate, longer than inner forceps; phallosome narrowed, elongate.

Female postabdomen with sternotheca ax-like, with its plane in the longitudinal axis.

TYPE SPECIES: *Adercomyia sabroskyi*, new species.

DISCUSSION: This genus, proposed for non-fissicorn species, is allied to *Cerotachina*. Its non-ramate antennae are more primitive than those possessed by its fissicorn cognates.

SOURCE OF NAME: The name is adapted from two Greek words: *aderkes* (unexpected) and *myia* (fly).

#### KEY TO SPECIES OF *Adercomyia*

- Wing membrane brownish; pollinose bands on apical three abdominal segments occupying less than basal halves of segments. . . . . *sabroskyi*, new species  
 Wing membrane clear; pollinose bands on apical three abdominal segments occupying more than basal halves of segments. . . . . *biseta*, new species

#### ***Adercomyia sabroskyi*, new species**

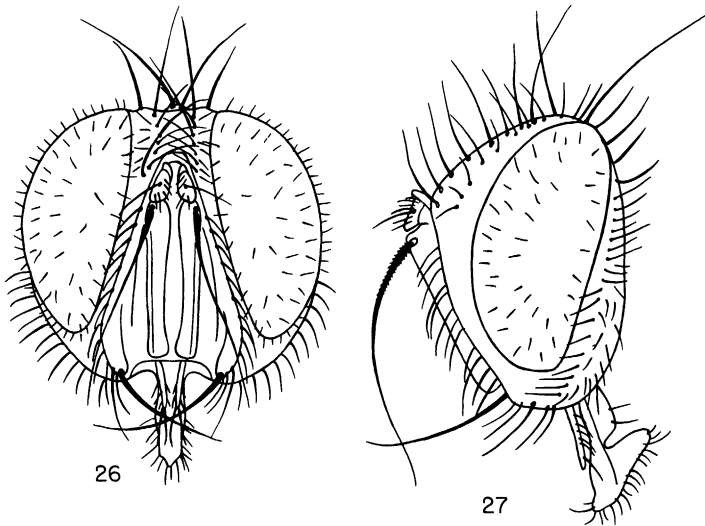
Figures 1, 25–32

DIAGNOSIS: A medium-sized (length, 7.5 to 8.2 mm.), slender species, separable from *biseta*, new species, by the following characters: brownish-tinged wings; pollinose bands of apical abdominal segments less than half of width of segments, upper lateral surfaces of hind coxae with pale-colored hairs.

MALE (HOLOTYPE): Length, 7.8 mm. (fig. 25).

Head (figs. 26, 27) with front at vertex 0.24 of head width; black, silvery pollinose; frontalia black, about equal to width of one parafrontal, latter with sparse, moderately elongate hairs (hairs about two-fifths of length of frontals); outer verticals fine; occipital fringe black, lower bristles very fine; occiput white-haired; nine to 10 frontals, varying in size, decussate except for posterior reclinate pair, two pairs of frontals below antennal bases; parafacial bare, narrowed below to one-half of greatest width; eyes moderately haired with pale-colored hairs; vibrissae strong, on oral margin; facialia with 11 pairs of recurved black bristles, almost attaining aristal bases; antennae black, with brownish apices to

second and base of third segments; second antennal segment longer than forward projection of first, third segment seven times length of second; arista black on basal portions, shading to brown and black on apical four-fifths, about length of combined length of second and third antennal segments, first segment annulate, second segment slightly longer than wide, third segment enlarged on basal fourth to about one and one-half times width of second segment at greatest width, basal three-fourths of



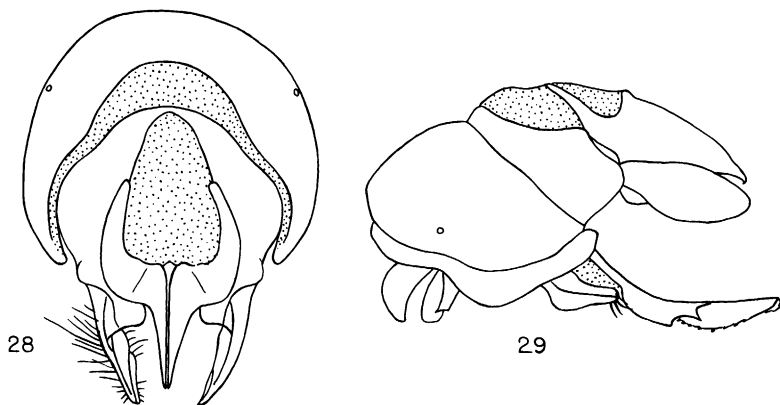
FIGS. 26, 27. Head of male of *Adercomyia sabroskyi*, new species, front and lateral views.

enlarged portion black, shading to brown and black on narrowed apical three-fourths; cheek about one-fifth of eye height; proboscis short, apically yellow, with yellow hairs; palpus slightly flattened, about one-half of length of third antennal segment, yellow apically and brownish basally, black-bristled.

Thorax black, with brownish coloration to postalar callus and along certain sutures, entirely black-haired; mesonotum thinly silvery gray pollinose mostly about humera and laterally; weakly vittate, pair of thin, black, shining vittae present between preacrostichals and presutural dorso-centrals, continuing short distance behind suture, fainter, broader, and shorter pair of vittae on inner side of preintraalars; scutellum, when viewed from behind, thinly gray pollinose except for shining basal third; three left preacrostichals (abnormal fourth preacrostichal on right);

pleura silvery pollinose; prosternum with six pairs of hairs on intermediate three-fifths.

Legs black, brownish at knee joints and undertone to tibial coloration; black-haired; fore femur faintly silvery pollinose on posterior surface; mid tibia with two anterodorsal bristles, the anterior bristle smaller than the posterior bristle, on tibial measurement of 73 units anterior bristle base situated at unit 32 and posterior bristle base situated at unit 41; mid tibia with one anteroventral bristle situated at unit 45 on tibial measurement of 73 units; claws of fore legs brownish black; claws of mid and hind legs yellow-brown basally, dark at apex; pulvilli yellow.



FIGS. 28, 29. Postabdomen of male of *Adercomyia sabroskyi*, new species, posterior and left lateral views. Bristles and hairs omitted except on right outer forceps.

Wing (fig. 31), 6 mm. in length, 2.3 mm. in width; brownish-tinged, darker at base and along costal margin; veins yellow brown,  $R_s$  at base with several setae both above and below, otherwise veins non-setulose; costal spine small; costal marginal setulae ending before middle of radiocosta; costal divisions with costigium 22, prestigma 39, stigma 17, poststigma 53, radiocosta 31, disticosta 3; venation as illustrated; epaulet black; squamae whitish yellow when viewed from in front, more densely yellow when viewed from behind; halter yellow, with light brown tinge.

Abdomen black, entirely black-haired with exception of some pale hairs on first sternite and closely surrounding venter; abdominal segment I+II depressed mesially two-thirds of distance to posterior margin; abdominal segments I+II, III, IV, and V medially about 25:27:35:35 units in length; apical three segments with defined silvery gray pollinose bands basally, occupying less than one-half of basal halves, with fainter brown



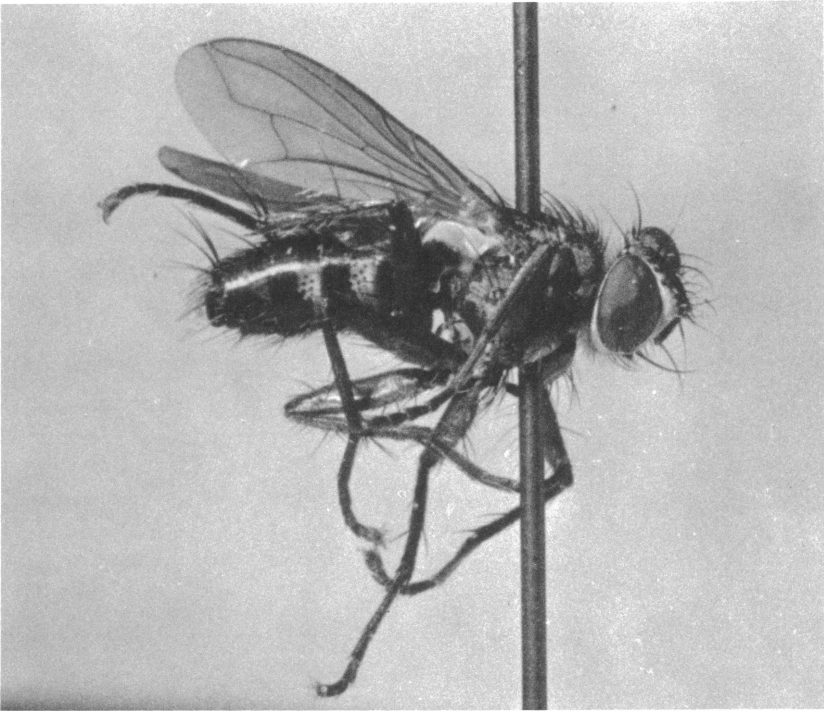
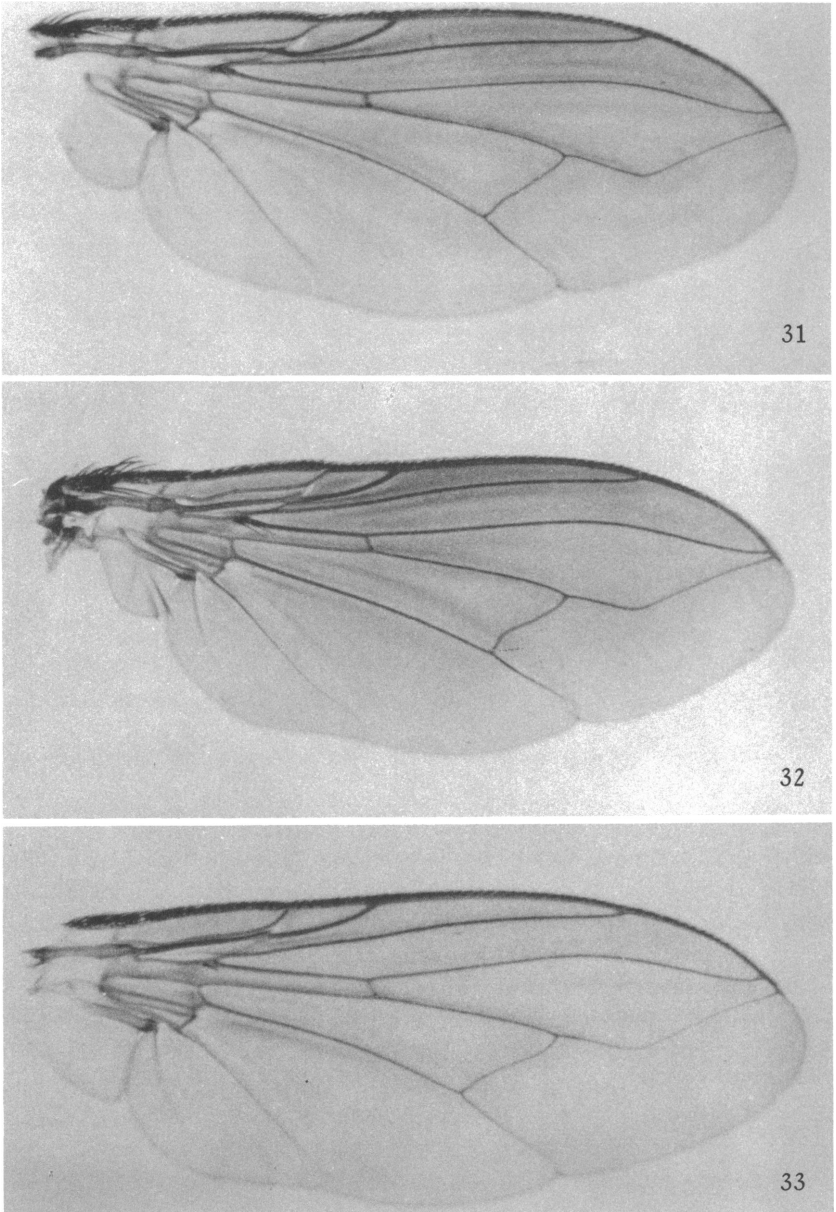


FIG. 30. Female, *Adercomyia sabroskyi*, new species, allotype, right lateral view.

pollinosity extending on dorsum toward posterior margins; fifth segment with band occupying basal two-fifths medially and increasing laterally.

Postabdomen (figs. 28, 29) contained within abdomen; inner forceps beak-like in profile, with finely curved tips, in posterior view divided medially, and basally partially surrounding anal membrane as elongate narrowed arms, basal arms with hairs as long or longer than arms, short-haired along ventral edges; outer forceps elongate, slightly longer than inner forceps in profile, narrowed basally, enlarging medially, and narrowing apically; outer forceps on outer side with longer hairs basally than apically; second genital segment haired above and laterally; first genital segment haired and with six median bristles before posterior border; epiphallus longer and narrower than posterior gonapophyses; posterior gonapophyses broader at bases and narrowing toward apices; anterior gonapophyses stalked at bases when viewed from below, widening and partially concave on under sides, bristled under apical borders; phallosome narrowed, elongate; hypophallus with short spines on ventral



FIGS. 31-33. Wings of *Adercomyia* species. 31. *A. sabroskyi*, new species, male holotype, right wing. 32. *A. sabroskyi*, new species, female allotype, left wing, negative reversed. 33. *A. biseta*, new species, female holotype, right wing.

area; fifth sternite with U-shaped emargination two-thirds of length of sternite, emargination less than one-third of width of sternite, haired along emargination, without strong bristles.

**FEMALE (ALLOTYPE):** Length, 7.8 mm. (fig. 30). Similar to holotype in coloration and chaetotaxy but with sexual dimorphism as enumerated.

Head with front at vertex 0.23 of head width; seven pairs of frontal bristles; two proclinate fronto-orbital bristles, anterior bristle longest; ocellar bristles present but very fine; facialia with 10 to 11 recurved black bristles not attaining arisal bases; antennae with first segments black, second segments brownish black, third segments black but narrowly yellow at bases, narrowed, four and one-third times longer than second; arista longer than combined lengths of second and third antennal segments; cheek one-sixth of eye length.

Legs black, faintly brown on knee joints; apical three tarsal segments moderately enlarged; claws yellow-brown basally and dark at apex; claws shorter than in male.

Wing (fig. 32), 6.1 mm. in length, 2.4 mm. in width; costal marginal setulae ending at middle of radiocosta; costal divisions with costigium 26, prestigma 38, stigma 15, poststigma 60, radiocosta 38, disticosta 2; venation as illustrated.

Postabdomen with fifth and sixth sternites black; sternotheca shining, brownish black above and black apically, adorned with many short hairs directed dorsally, partially concealed within fifth abdominal segment, approximately three-fifths of height of fifth abdominal segment, somewhat roof-like above, ax-like with its plane in longitudinal axis.

**PARATYPES:** Females. Body lengths, 7.5 mm., 7.5 mm., 7.6 mm., and 8.2 mm., corresponding with wing lengths of 6 mm., 5.8 mm., 6.1 mm., and 6.5 mm.; heads with fronts at vertexes 0.22, 0.23, 0.23, and 0.24; facial bristles (left:right) 11:10, 10:7, 9:7, and 7:9; thoracic chaetotaxy constant as to number of sternopleural, acrostichal, and dorsocentral bristles.

**TYPE DATA:** Holotype, male; Nova Teutonia, Santa Catarina, Brazil, 300–500 meters, January 2, 1960 (Fritz Plaumann); deposited in the collection of the American Museum of Natural History; from the collection of the author. The right wing of the holotype is mounted in balsam on a slide; the postabdomen is stored in a microvial in glycerine. Allotype, female; same data as holotype but collected on January 21, 1951 [P.H.A.]. The left wing is mounted in balsam on a slide. Paratypes, four females; same data as holotype, but collected on dates of February 5, 1957, February 14, 1960, February 21, 1952, and March 6, 1957 [U.S.N.M., P.H.A.].

SOURCE OF NAME: This tachinid is named for my friend Mr. Curtis W. Sabrosky, specialist and in charge of the muscoidean Diptera at the United States National Museum, Washington, D. C.

***Adercomyia biseta*, new species**

Figures 1, 33, 34

DIAGNOSIS: A medium-sized (length, 7.5 mm.), slender species, separable from *sabroskyi*, new species, by the following characters: clear wings, basal pollinose bands of apical three abdominal segments more than half of width of segments, upper lateral surfaces of hind coxae black-haired.

MALE: Unknown.

FEMALE (HOLOTYPE): Length, 7.5 mm. (fig. 34).

Head with front at vertex approximately 0.26 of head width; black, silvery pollinose, with brassy tinge on and about ocellus and along inner side of parafrontals; frontalia black, slightly narrower than one parafrontal, latter with very sparse hairs; ocellar bristles very fine; outer verticals small; occipital fringe black, lower bristles very fine; occiput silvery, with faint golden tinge, white-haired; seven pairs of frontals and a single eighth, with two pairs extending below antennal bases, posterior pair probably reclinate; two pairs of proclinate fronto-orbital bristles, anterior pair largest; one pair of decussate fronto-orbital bristles almost in line with proclinate fronto-orbital bristles, separated from upper proclinate fronto-orbitals by distance less than that separating upper and lower fronto-orbitals; parafacial bare, narrowing below to approximately one-half of width at widest point at base of antennae; eyes moderately haired with pale-colored hairs; vibrissae strong, above oral margin; facialia bristled over halfway with 7:8 (left:right) recurved bristles, but not attaining arisal bases; antennae principally black, with exception of brownish apexes of first and second segments and very narrow basal margins of third; second antennal segment longer than forward projection of first; third segment slightly narrowed below attachment of arista, not broader and about four times longer than second; arista mostly brownish, tinged with black, first and second segments blackish, longer than second and third antennal segments combined, first annulate and inconspicuous and second shorter than broad, third segment enlarged on basal fourth to less than one and a half times width of second segment, finely micro-pubescent on more than basal half; cheek about one-sixth of eye height; proboscis short, brownish black, yellow-haired; palpus slightly flattened and slightly broadened subapically, blackish on basal two-fifths, brownish apically, black-bristled on apical half and with a few pale-colored hairs basally, one-eighth shorter than third antennal segment.

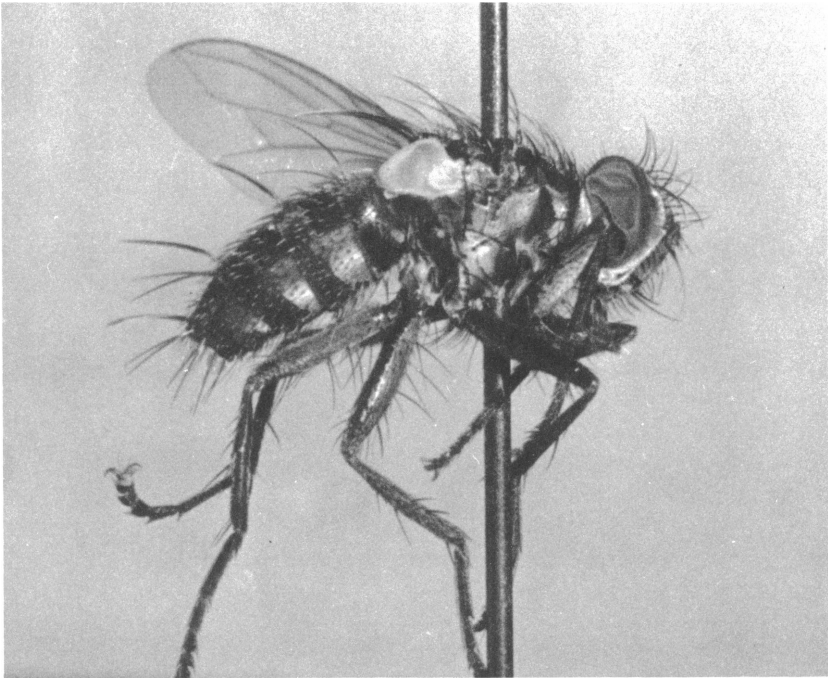


FIG. 34. Female, *Adercomyia biseta*, new species, holotype, right lateral view.

Thorax, black with brownish coloration along certain pleural sutures; black-haired; mesonotum silvery gray pollinose, with pair of black vittae between preacrostichals and presutural dorsocentrals, broad anteriorly but narrowed posteriorly, not attaining suture nor continuing behind suture, pair of shorter, broader, black vittae on outer side of presutural dorsocentrals; mesonotum behind suture medially broadly black and non-pollinose almost to scutellum and laterally in line on outer side of dorsocentrals, anteriorly connected on outer side by vittae which taper to points, pollen brassy behind; scutellum grayish pollinose except for shining basal fourth; pleura black, with exception of brown coloration along certain sutures and at base of wing; bare with one or two hairs anteriorly; prosternum with at least four pairs of black hairs on intermediate three-fifths.

Legs black, with presence of brown at knee joints and undertone to tibial coloration; entirely black-haired, fore femur silvery pollinose on posteroventral surface; mid tibia with two anterodorsal bristles, length of anterior bristle about half of that of posterior bristle, on tibial measure-

ment of 65 units anterior bristle base situated at unit 27 and posterior bristle base situated at unit 34; mid tibia with two posterodorsal bristles situated at units 25 and 41 on tibial measurement of 65 units; claws approximately length of apical tarsal segments, brown basally and black apically; apical three tarsal segments broader than basal two; pulvilli whitish yellow, shorter than claws.

Wing (fig. 33), 5.2 mm. in length, 2.1 mm. in width; clear; veins yellowish brown;  $R_5$  at base with one or two setae both above and below, otherwise veins non-setulose; costal spine undeveloped; costal marginal setulae extending beyond middle of radiocosta; divisions of costa: costigium 15, prestigma 33, stigma 17, poststigma 48, radiocosta 28, disticosta 4; venation as illustrated; epaulet black; squamae whitish when viewed from in front, lightly yellowish when viewed from behind; halter with yellowish white knob and reddish brown-tinged stalk.

Abdomen black, entirely black-haired; abdominal segment I+II depressed mesially two-thirds of distance to posterior margin; abdominal segments I+II, III, IV, and V above medially about 25:28:35:26 units in length; apical three segments with defined silvery gray pollinose bands, extending beyond basal half of segments.

Postabdomen with laterally compressed sixth sternite and sternotheca ax-like, with its plane in longitudinal axis; sternotheca shining black and finely haired.

TYPE DATA: Holotype, female; Nova Teutonia, Santa Catarina, Brazil, 300–500 meters, December 28, 1959 (Fritz Plaumann); deposited in the collection of the American Museum of Natural History; from the collection of the author. The right wing is mounted in balsam on a slide.

SOURCE OF NAME: The name is adapted from two Latin words, *bis* (two) and *seta* (bristle), in reference to the two anterodorsal bristles on the mid tibia.

#### *EUPLECOTHECA* TOWNSEND

*Eupelecothea* TOWNSEND, 1919, Insec. Inscit. Menstr., vol. 6, p. 169; 1936, Manual of myiology, pt. 4, p. 103 (in key to tribe Neominthoini); 1940, *op. cit.*, pt. 10, pp. 103–104 (generic description). CURRAN, 1934, The families and genera of North American Diptera, p. 444 (in key). ARNAUD, 1958, Microentomology, vol. 23, p. 24 (listed).

*Pantagathus* REINHARD, 1935, Ann. Ent. Soc. Amer., vol. 28, no. 1, pp. 168–169 (genotype *P. alogus*, new species, by original designation); 1953, Proc. Ent. Soc. Washington, vol. 55, no. 5, p. 244 (synonym of *Eupelecothea*).

TYPE SPECIES: *Eupelecothea celer* Townsend, by original designation.

DISCUSSION: Generic redescriptions have been given by Reinhard (1935) and Townsend (1940) and consequently are not repeated here.

There is but one species referred to the genus which is of Nearctic distribution.

SOURCE OF NAME: The name is adapted from the Greek word *eu* (very and exceedingly; good, well, agreeable) plus the generic name *Pelecotheca*, probably in reference to its relationship to *Pelecotheca*.

*Eupelecotheca celer* Townsend

Figures 35–38

*Eupelecotheca celer* TOWNSEND, 1919, Insec. Inscit. Menstr., vol. 6, p. 169 (holotype female from Rock Creek, District of Columbia); 1936, Manual of myiology, pt. 4, p. 103 (listed as type of genus); 1940, *op. cit.*, pt. 10, p. 103 (listed as type of genus). ALDRICH AND WEBBER, 1924, Proc. U. S. Natl. Mus., vol. 63, art. 17, p. 45 (state that this species is *rufilabris* van der Wulp of Coquillett's 1897 revision). JOHNSON, 1925, Occas. Papers Boston Soc. Nat. Hist., vol. 7, p. 199 (distribution: Vermont and Massachusetts). WEST, 1928, in Leonard, Mem. Cornell Univ. Agr. Exp. Sta., no. 101, p. 815 (distribution: New York). CURRAN, 1930, Bull. Amer. Mus. Nat. Hist., vol. 61, art. 2, p. 106 (distribution: New York). REINHARD, 1953, Proc. Ent. Soc. Washington, vol. 55, no. 5, p. 244 (*Pantagathus alogus* Reinhard a synonym of *E. celer* Townsend). ARNAUD, 1958, Microentomology, vol. 23, p. 44 (listed).

*Pantagathus alogus* REINHARD, 1935, Ann. Ent. Soc. Amer. vol. 28, no. 1, pp. 169–170 (holotype females from Ames, Iowa; paratypes from Iowa, Ohio, and South Dakota).

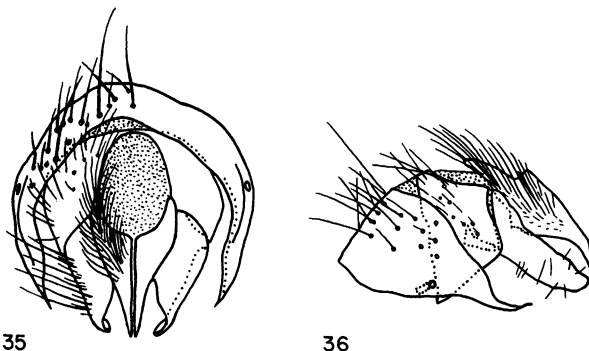
*Phorocera rufilabris* van der Wulp, COQUILLETT, 1897, U. S. Dept. Agr., Div. Ent., Tech. Ser., no. 7, p. 103 (misidentified; in key; distribution: New Jersey).

DIAGNOSIS: A medium-sized (length, 7.5 to 8.5 mm.), slender species, black and grayish pollinose, with eyes thickly pilose, wings nearly clear, pollinose bands on intermediate abdominal segments covering almost entire segments, intermediate abdominal segments also bearing median discal bristles.

DESCRIPTION: Townsend's original description was brief. This species has been redescribed by Reinhard under the name *Pantagathus alogus*. The postabdomen of both the male and female have not hitherto been described, and their description and illustration are presented below.

MALE: Postabdomen (figs. 35, 36) primarily contained within fifth segment; inner forceps in profile elongate and curved ventrally at apex, in posterior view more than apical two-thirds narrowly divided medially and basal arms separated by broad rounded arch of membrane, haired on basal three-fourths and most heavily basally; outer forceps slightly longer than inner forceps, haired on outer apical three-fifths and along inner side at apex, in posterior view apically concave on inner side; first and second segments haired and bristled dorsally and laterally; aedeagus slender (fig. 37), 0.85 mm. in length, excluding apical membrane, basi-

phallus 0.17 mm. long, brownish black; distiphallus black, chitinized portion 0.52 mm. long, with more than basal half narrowed, widened apically; distiphallial membrane elongate, partially brown, serrate ventrally, serrations in two longitudinal rows, 0.23 mm. in length, in ventral view longitudinal rows separated by narrow, parallel-sided trough; ejaculatory apodeme 0.27 mm. long; phallodeme 0.25 mm. long; epi-phallus 0.3 mm. long, gently arched, upper and lower edges parallel,



FIGS. 35, 36. Postabdomen of male of *Eupelecothea celer*. 35. Posterior view. 36. Left lateral view.

viewed dorsally trough-like; posterior gonapophyses 0.23 mm. in length, in profile ventral edges almost straight and dorsal edges gently arched, laterally with a number of circular clear areas; anterior gonapophyses 0.28 mm. in length, at bases with dorsal arms narrower than ventral arms, in profile dorsal edges lightly undulating, at apexes longer ventrally than dorsally, with two hairs on inner sides and in addition rows of six or more circular clear areas directed at diagonal dorsally on apical inner halves, inner side concave; fifth sternite brown, 0.78 mm. long, 0.74 mm. wide, with deep, U-shaped emargination 0.56 mm. in depth and 0.3 mm. wide, haired along outer sides of emargination.

FEMALE: Postabdomen (fig. 38) when cleared in KOH and extended showing basally narrowed tergite and sternite, tergite U-shaped, with spiracle on lower lateral edge, 0.19 mm. in greatest dorsal length and narrowing laterally; sternite longer than tergite, 0.26 mm. long and 0.3 mm. wide, in posterior view V-shaped; second segment or "sternotheca" with tergite and sternite fused, about 0.52 mm. at greatest length, 0.78 mm. at greatest height, laterally compressed, haired except dorsally, very finely haired on mid-lateral surfaces anteriorly, basal ventral protuberance about one-fifth of length of segment and following venter arched



to posterior, ventrally projecting apex, posterior membrane finely spiculate; terminally with two elongate, chitinized, black "appendages," 0.5 mm. in length, in posterior view narrowly separated medially, broader basally and at base surrounding pair of cerci 0.12 mm. in length, at apexes each chitinized "appendage" with two teeth, subapical tooth larger and apical tooth minute.

TYPE DATA: Holotype, female, of *Eupelecotheca celer* Townsend from

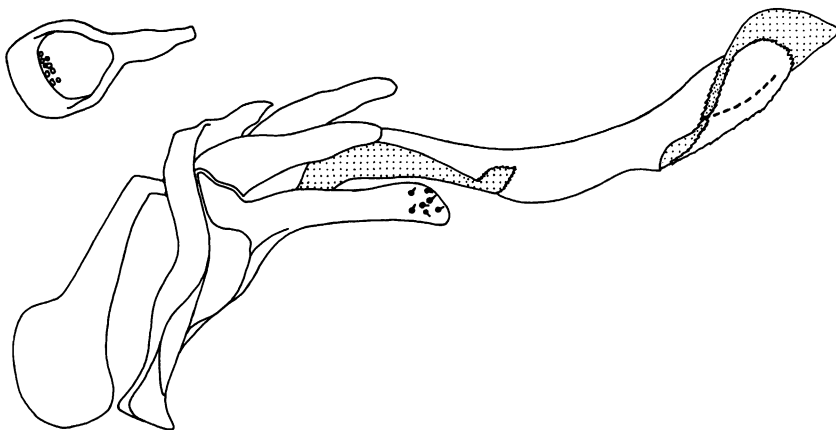


FIG. 37. Aedeagus and allied structures of *Eupelecotheca celer*, left lateral view.

Rock Creek, District of Columbia, July 24 [year?] (C. H. T. Townsend), deposited in the collection of the United States National Museum. Holotype, female, of *Pantagathus alogus* Reinhard from Ames, Iowa, June 29, 1924, U.S.N.M. No. 50350, bearing labels "*Pantagathus enatus* Reinhard, det. H. J. Reinhard" and "Comp. holotypes of both, *Eupelecotheca celer* Tns., det. Sabrosky 1949"; deposited in the collection of the United States National Museum.

DISTRIBUTION: Recorded in the literature from the District of Columbia, Iowa, Massachusetts, New Jersey, New York, Ohio, South Dakota, and Vermont.

Specimens examined in the collections of the American Museum of Natural History and the United States National Museum are the following: *Connecticut*: Avon Old Farms, Avon, June, 1929 (one female, 15th; eight males, 16th; three males, 17th; two males, 19th; two males, 21st) (C. H. Curran) (A.M.N.H.). *Florida*: One male (U.S.N.M.). *Georgia*: Thomasville, April 21, 1938 (P. W. Fattig), one female (U.S.N.M.). *Indiana*: Lafayette, May 23, 1915 (J. M. Aldrich Collection; David G.

Hall Collection), one male (U.S.N.M.); Lafayette, July 30, 1915 (J. M. Aldrich; David G. Hall Collection), one female (U.S.N.M.). *Kansas*: Lawrence (determined as *Eupelecothea celer* by J. R. Malloch), one male (U.S.N.M.); Lawrence (J. M. Aldrich), one female (U.S.N.M.). *Maryland*: Seat Pleasant, June, 1914 (J. M. Aldrich), one female (U.S.N.M.). *Michigan*: Battle Creek (J. M. Aldrich Collection; D. G. Hall Collection) (determined as *Phorocera rufilabris* van der Wulp by Coquillett), one

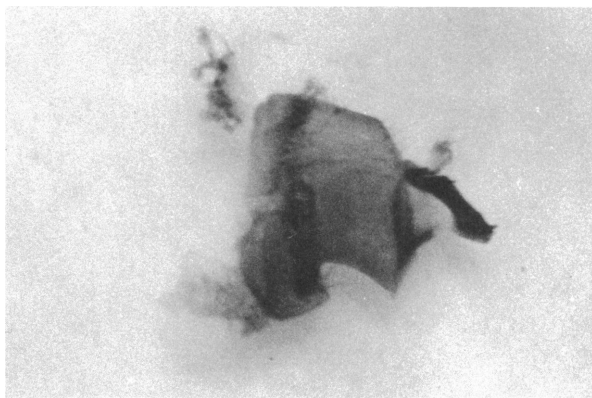


FIG. 38. Postabdomen of female of *Eupelecothea celer*, left lateral view.

female (U.S.N.M.). *New Jersey*: Brookside, Morris County, July (A. J. Weidt, accession number 5642), one male (A.M.N.H.); Newark, June 16, 1892 (*Phorocera rufilabris* van der Wulp determined by Coquillett), one female (U.S.N.M.). *New York*: Cold Spring Harbor, Long Island, June 17, 1930 (C. H. Curran), one male; June 21, 1930 (C. H. Curran), four males; June 15, 1931 (C. H. Curran), three males; June 21, 1931 (C. H. Curran), three males, one female; June 23, 1932 (Ethel Curran), three males, one female; July 8, 1932 (C. H. Curran), three males; July 9, 1932 (C. H. Curran), two males; July 22, 1932 (C. H. Curran), one female; July 25, 1932 (C. H. Curran), one male (all A.M.N.H.). Flushing, Long Island, June 18, 1933 (C. H. Curran), two males (A.M.N.H.); Inwood Hill Park, New York City, June 14, 1941 (S. C. Harriot), one male (A.M.N.H.); Station for the Study of Insects, Tuxedo, July, 1928 (one female, 20th; one male, 23d) (C. H. Curran) (A.M.N.H.). *North Carolina*: Raleigh, July 3, 1929 (C. S. Brimley, 306), one female (U.S.N.M.). *Pennsylvania*: Blue Ridge Summit, August 8, 1920 (J. M. Aldrich), one male (U.S.N.M.); Roxborough, June 21, 1914 (G. M. Greene), (determined as *Neopales rufilabris* van der Wulp), one male (U.S.N.M.). *Virginia*:

Falls Church, July 17, 1912 (C. T. Greene), *Castanea dentata*, resting on trunk, "Townsend Genotype Collection *Eupelecothea celer* Coq. [*sic!*]," one male (U.S.N.M.); Great Falls, July 20, 1913 (Fredk. Knab), one female (U.S.N.M.). *Wisconsin*: Polk County, July (Baker; J. M. Aldrich Collection), one male (U.S.N.M.).

**PLESIOTYPES:** The descriptions and illustrations of the postabdomens were made from a male and female collected at Cold Spring Harbor, Long Island, New York, by C. H. Curran, on July 8, 1932, and June 21, 1931, respectively.

**SOURCES OF NAMES:** The valid specific name is adapted from the Latin word *celer* (swift), which is applicable to the description of the flight of most Tachinidae. The synonymous name is from the Greek word *alogus* (speechless, irrational, absurd); the reason for its application to this species is unknown to me.

#### PELECOTHECA TOWNSEND

*Pelecothea* TOWNSEND, 1919, Insec. Inscit. Menstr., vol. 6, p. 168; 1927, Rev. Mus. Paulista, vol. 15, pp. 263–264 (in key); 1936, Manual of myiology, pt. 4, p. 104 (in key to tribe Neominthoini); 1940, *op. cit.*, pt. 10, p. 108 (generic description). CURRAN, 1934, The families and genera of North American Diptera, p. 443, figs. 138, 152 (in key and figs. of wing and head). ARNAUD, 1958, Microentomology, vol. 23, p. 32 (listed).

**TYPE SPECIES:** *Pelecothea panamensis* Townsend, by original designation.

**DISCUSSION:** This genus was redescribed by Townsend (1940, p. 108); he referred two species to the genus. In addition a species described in the genus *Pantagathus* by Reinhard is tentatively placed here, and two species described by van der Wulp from Mexico may also belong, according to notes left by the late John Merton Aldrich. At the present time I can only provide a redescription of the type species *Pelecothea panamensis* and photographs of it and of the second species *Pelecothea paulensis* Townsend. Bibliographical citations, diagnosis, and distributional data are given for *Pelecothea curulis* (Reinhard), and bibliographical citations only are given for the two van der Wulp species.

**SOURCE OF NAME:** The name is adapted from two Greek words: *pellex* (helmet) and *theke* (sheath), apparently in reference to the sternotheca.

#### *Pelecothea panamensis* Townsend

Figures 1, 39–41

*Pelecothea panamensis* TOWNSEND, 1919, Insec. Inscit. Menstr., vol. 6, p. 169; 1936, Manual of myiology, pt. 4, p. 104 (cited as type species of *Pelecothea*); 1940, *op. cit.*, pt. 10, p. 108 (cited as type species of *Pelecothea*). ALLEN, 1929, Ann. Ent.

Soc. Amer., vol. 22, p. 687 (misidentification; see *P. curulis*). ARNAUD, 1958, Microentomology, vol. 23, p. 55 (listed).

DIAGNOSIS: A medium-sized (length, 8 mm.), slender species, blackish and silvery white pollinose with golden tinge to thoracic pollen, wings clear but infuscated along costa, and legs dark brown.

MALE: Unknown.

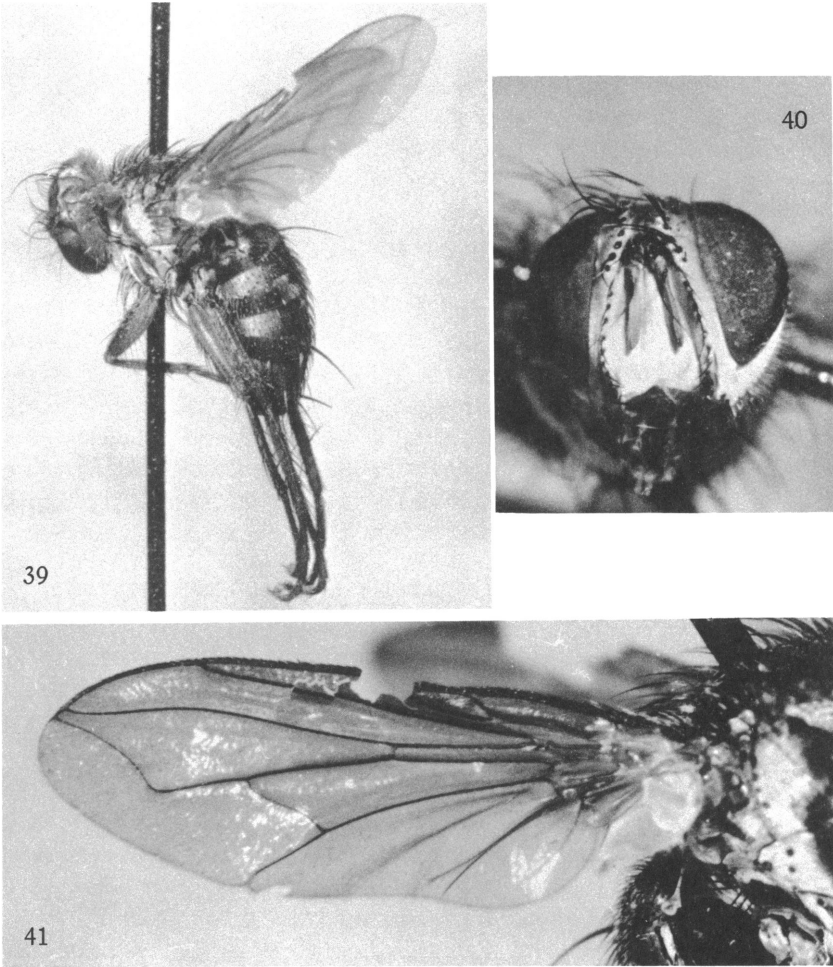
FEMALE (LECTOTYPE): Length, 8 mm. (fig. 39).

Head (fig. 40) with front at vertex 0.294 of head width; black, with cheeks brown; head pollen silvery, with golden tinge to vertex and inner parafrontals at antennal bases, more intensely golden on lateral sides of ocellar triangle for length of ocellar triangle; frontalia blackish brown, about equal to one parafrontal, latter sparsely black-haired; occipital hairs white, with yellowish tinge; two pairs of frontals below bases of antennae; ocellar bristles present but small (contrary to Townsend's statement "no OCS"); inner vertical bristles slightly reclinate; outer vertical bristles small; parafacials bare, at narrowest about one-fifth of clypeal width; eyes thinly haired; facialia bristled, but bristles not attaining arisal bases; first antennal segment short, second longer, and third segment four times longer than second, very slender; first antennal segment brown, second segment yellow, with brownish tinge, third segment yellow basally but darkening to brownish black apex; antennal hairs mostly black, with exception of a few yellow hairs on inner side of second antennal segment; arista black, first segment short, less than half as long as wide, second segment about as long as wide, third segment enlarged on basal third gently narrowing to very fine tip, micropubescent on thickened basal portion; palpus two-thirds of length of antennae, yellow, black-bristled.

Thorax black, silvery white pollinose, golden-tinged; black-haired except for pale-colored hairs on lower pteropleura and on hypopleura; prosternum with several fine hairs; bare with two hairs anteriorly; mesonotum with two pairs of black vittae; two developed pairs of preacrostichals and a third weaker pair; scutellum with strongly developed pair of apical scutellars, decussate at tips; two pairs of lateral scutellars, posterior pair elongate; discal scutellars weakly developed, but distinguishable from scutellar hairs.

Wings (fig. 41) elongate, narrowed, clear except for infuscation along costa, veins, and cross veins; veins yellow to yellowish brown; venation as illustrated; epaulet black; squamae white, with yellowish tinge; halter yellow-brown.

Legs dark brown; claws brown at base and black at apexes; claws and pulvilli short; foreleg with femur 69 units, tibia 60 units, and basal tarsal



FIGS. 39-41. Lectotype female of *Pelecotheca panamensis*. 39. Left lateral view. 40. Head, front view. 41. Right wing.

segment 32 units in length; fore femur with four dorsal bristles on posterior surface at units 13, 20, 26, and 35 on total length of 69, and 10 bristles in a ventral row; mid leg with femur 80 units in length, tibia with two anterodorsal bristles originating at units 28 and 41 on tibial length of 80 units, and two posterodorsal bristles originating at units 30 and 49 on tibial length of 80 units; hind leg with femur 82 units in length, tibia 80 units and basal tarsal segment 38 units, tibia with series of anterodorsal bristles

varying in size, at units 10, 15, 23, 35, 43, and 53, with bristle at unit 43 longest, and series of posterodorsal bristles at units 14, 21, 27, 31, and 42, with bristle at unit 42 longest (26 units long).

Abdomen black, black-haired; segment I+II depressed mesially beyond basal half; abdominal segments I+II, III, IV, and V above medially about 30:38:45:37 units in length; apical three segments with basal silvery pollinose bands occupying more than basal halves.

Postabdomen with sternotheca black, with brownish keel, shining, finely haired, and with slight ventral projection at apex.

TYPE DATA: Lectotype, female; Las Cascadas, Canal Zone, Republic of Panama (A. H. Jennings); deposited in the collection of the United States National Museum.

DISTRIBUTION: Known only from the Republic of Panama. Specimens examined are the following: *Republic of Panama*: Cano Saddle, Gatun Lake, May 3, 1923, one female; May 9, 1923, two females (R. C. Shannon) (U.S.N.M.). Close's Cano Saddle, Canal Zone, May 2, 1923, one female; May 3, 1923, one female; May 4, 1923, one female (R. C. Shannon) (U.S.N.M.).

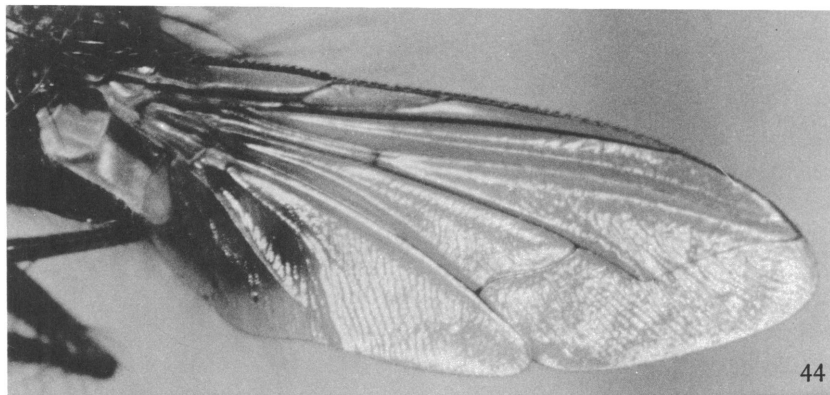
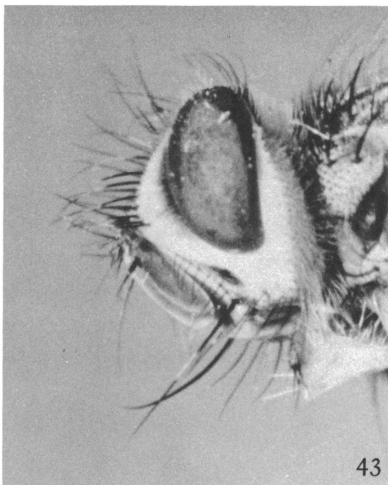
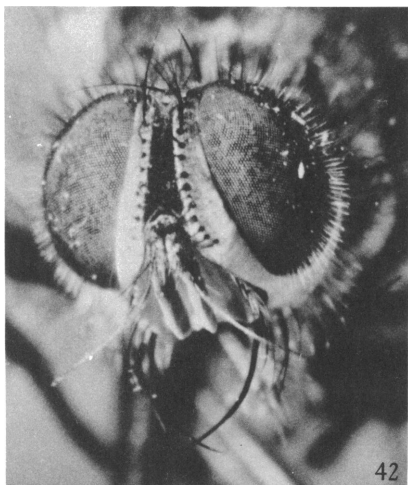
DISCUSSION: This species was described from two females, without the designation of a holotype. In 1940 Townsend mentioned "Ht" [Holotype] "female." My redescription is from the specimen which bears Townsend's tray label in his handwriting which reads "*Pelecotheca panamensis* T. ♀" and has a printed "Det.CHTT" on the bottom left hand and a red label "Type No.—U.S.N.M." This specimen agrees with the published type data and is the specimen segregated into the collection of types at the United States National Museum. I have labeled it lectotype. A second female bearing the labels "Canal Zone, Panama" and "A. H. Jennings Collector," though lacking the "Las Cascadas," may nevertheless have been Townsend's second specimen. I have labeled it "Probably Paratype *Pelecotheca panamensis* Townsend." This probable paratype belongs either to another species or, very probably, to another genus on the basis of its narrow clypeal width.

The record of this species from Mississippi is based on a misidentification.

SOURCE OF NAME: The specific name was chosen from the country of the type locality, Panama, and is taken from a native Indian word meaning both "fisherman" and "lots of fish" that was given to a native fishing village on the Pacific coast.

*Pelecotheca curulis* (Reinhard), new combination

*Pantagathus curulis* REINHARD, 1943. Jour. Kansas Ent. Soc., vol. 16, no. 1,



FIGS. 42-44. Holotype male of *Pelecotheca paulensis*. 42. Head, front view. 43. Head, left lateral view. 44. Left wing.

pp. 18-20 (description of new species on basis of holotype female from Baton Rouge, Louisiana, and paratype male from Griffin, Georgia).

*Pelecotheca panamensis* Townsend, ALLEN, 1929, Ann. Ent. Soc. Amer., vol. 22, p. 687 (misidentification; distribution: Mississippi).

**DIAGNOSIS:** A medium-sized (length, 7 mm.), slender species, black and grayish pollinose, with wings with "a slight tawny tinge," legs black, and intermediate abdominal segments gray pollinose on basal half and remainder of each as well as basal and anal segments shining black.

**TYPE DATA:** Holotype, female; Baton Rouge, Louisiana, August 25,

1935 (W. S. McGregor); deposited in the H. J. Reinhard Collection, College Station, Texas.

DISTRIBUTION: Recorded in the literature from Georgia, Louisiana, and Mississippi. Specimens examined are the following: *Mississippi*: Agricultural College, September 17, 1921, one female (U.S.N.M.); Agricultural College, August 25, 1922 (B. Parch) [*Pelecotheca panamensis* Townsend, compared type, determined by Allen], one female (U.S.N.M.).

SOURCE OF NAME: The specific name is from the Latin word *currus* (of or pertaining to a chariot); its applicability to this species is unknown.

DISCUSSION: This species is tentatively referred to this genus. A study of the postabdomen of the male will be of value in the ascertaining of its relationship and possible placement elsewhere.

*Pelecotheca paulensis* Townsend

Figures 1, 42-44

*Pelecotheca paulensis* TOWNSEND, 1929, Rev. Chilena Hist. Nat., vol. 32, pp. 369-370 (description of new species on basis of one male from Itaquaquetuba, Brazil); 1940, Manual of myiology, pt. 10, p. 108 (stated to belong to genus *Pelecotheca*).

The original description, in its entirety, with an explanation of abbreviations employed by Townsend enclosed within brackets, reads as follows:

"*Pelecotheca paulensis* n. sp.—Bl [Body length],  $9\frac{1}{2}$  mm.; wl [wing length], 8 mm. 1 ♂, Itaquaquetuba, S. P., Brazil, August 27, on foliage.

"Differs from *P. panamensis* by an [antennae] & 1 [legs] wholly black, plp [palpi] pale yellowish or straw-colored, h [head] silvery-white, pollen of last 3 sgs [abdominal segments] approximating hind margins on sides, w [wings] clear."

I have not had the opportunity to make a redescription of this species, but I have photographed the holotype which is deposited in the collection of the United States National Museum (see figs. 42-44).

SOURCE OF NAME: The specific name is chosen from the name of the city and state, São Paulo; Itaquaquetuba, the type locality, is located near the city in the state of São Paulo.

*Pelecotheca macilenta* (van der Wulp), new combination

*Prospheysa macilenta* VAN DER WULP, 1890, Biologia Centrali-Americana, Insecta, Diptera, vol. 2, pp. 117, 122 (key, description of new species on basis of one male from Orizaba, Mexico; not to be confused with *Tachina macilenta* Wiedemann, type species of the genus *Neomintho* Brauer and Bergenstamm). ALDRICH, 1905, Smithsonian Misc. Coll., vol. 46, p. 468 (catalogue reference).



*Pelecotheca macra* (van der Wulp)

*Phorocera macra* VAN DER WULP, 1890, *Biologia Centrali-Americana*, Insecta, Diptera, vol. 2, pp. 77, 84–85 (key; description of new species from Teapa, Tabasco, Mexico; “three specimens, apparently all females”). COQUILLET, 1897, U. S. Dept. Agr., Div. Ent., Tech. Ser., no. 7, p. 103 (in key; distribution: Mississippi). ALDRICH, 1905, *Smithsonian Misc. Coll.*, vol. 46, p. 461 (catalogue reference).

[*Neopales maera* (sic!), MIDDLETON, 1921, *Jour. Agric. Res.*, vol. 20, p. 757 (recorded as a parasite of *Neodiprion lecontei* (Fitch) at East Falls Church, Virginia).]

[*Pelecotheca macra*, BENJAMIN, 1955, *Tech. Bull.*, U. S. Dept. Agric., no. 1118, p. 20 (recorded as parasite of *Neodiprion lecontei* (Fitch)).]

[*Phorocera*, species (near *macra*), GREENE, 1921, *Proc. U. S. Natl. Mus.*, vol. 60, art. 10, p. 32, fig. 91 (description and illustration of puparium).]

DISCUSSION: The Middleton and Benjamin references, as mentioned above in the section on Biology, are misidentifications. Greene's description and illustration of the puparium are probably based on Middleton's specimen and therefore are incorrectly identified. These references refer to a true *Phorocera* (in the sense of Aldrich and Webber, 1924).

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