

American Museum Novitates

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

NUMBER 2133

APRIL 12, 1963

A Revision of the Genus *Borgmeiermyia* Townsend (Diptera, Tachinidae)

BY PAUL H. ARNAUD, Jr.¹

INTRODUCTION

The genus *Borgmeiermyia* was erected by C. H. T. Townsend in 1935 for a tachinid fly with remarkable multifissicorn antennae. The single male specimen, on which the description was based, was collected by Father Thomas Borgmeier at Ric de Janeiro. Since the publication of the original description, no further specimens have been reported in the literature. A small collection of 15 specimens of *Borgmeiermyia* has recently become available for study, which permits the redescription of the male of the type species, the description of both the male and female sexes of a new species from Nova Teutonia, Brazil, and the description of a new species from Tingo Maria, Peru.

The genus *Borgmeiermyia* was assigned to the tribe Frontinini by Townsend. Such an assignment I believe is probably incorrect, but, because of the present chaotic status of the higher classification of the Tachinidae, no reassignment is here proposed.

The genus *Borgmeiermyia*, on the basis of the few available distributional records, occurs at lower elevations (in Brazil from sea level at Rio de Janeiro, to 300 to 500 meters at Nova Teutonia; and in Peru at approximately 750 meters at Monson Valley, Tingo Maria) in tropical South

¹ Research Fellow, Department of Entomology, the American Museum of Natural History, and Research Entomologist, Department of Entomology, the California Academy of Sciences.

America. Unfortunately the insect hosts (probably lepidopteran) of this parasitic genus are presently unknown.

ACKNOWLEDGMENTS

The preparation of this paper was undertaken while I was holding an appointment for a year as Research Fellow at the American Museum of Natural History. I would like to acknowledge my thanks to the authorities of the American Museum and to Drs. Jerome G. Rozen, Jr., and Frederick H. Rindge for facilities and advice.

Father Thomas Borgmeier informed me of the location of the type depository of *Borgmeiermyia brasiliانا* Townsend and kindly made arrangements to have specimens of my two Brazilian species of this genus compared with the type by Dr. H. Souza Lopes. Specimens have been studied from the collections of the California Academy of Sciences (one specimen) and my personal collection (14 specimens). Specimens are deposited in the collections of the American Museum of Natural History, New York [A.M.N.H.]; the California Academy of Sciences, San Francisco [C.A.S.]; Instituto Oswaldo Cruz, Rio de Janeiro [I.O.C.]; P. H. Arnaud, Jr., [P.H.A.]; and United States National Museum, Washington, D. C. [U.S.N.M.]. All drawings and photographic prints were prepared by Miss Marjorie Statham.

SYSTEMATICS

GENUS *BORGMEIERMYIA* TOWNSEND

Borgmeiermyia TOWNSEND, 1935, Rev. Ent., vol. 5, fasc. 3, pp. 292–293 (description of new genus; placed in tribe Frontinini; discussion and in key to four multifissicorn oestrid genera); 1936, Manual of myiology, pt. 4, p. 168 (in key); 1940, *op. cit.*, pt. 10, pp. 315–316 (generic description).

TYPE SPECIES: *Borgmeiermyia brasiliانا* Townsend, by original designation.

GENERIC CHARACTERIZATION: Small-sized species, 4.2 mm. to 5.5 mm. in length; moderately robust (fig. 1); blackish and golden to silvery; third antennal segment of male multifissicorn.

Head of male one-fourth wider than high, in female only one-sixth wider than high; flat frontal profile little sloped and more than one-half of facial, latter receding and gently bulged; very broad male clypeus less than twice as long as wide and deeply sunk, each side with roof-like ridge on median line; epistoma protuberant on middle, facialia one-half of clypeal width on middle; vibrissal axis about five-twelfths of antennal axis in male, over two-thirds in female; palpi developed, gently clavate; antennal axis five-sevenths of head height and set very high in male,

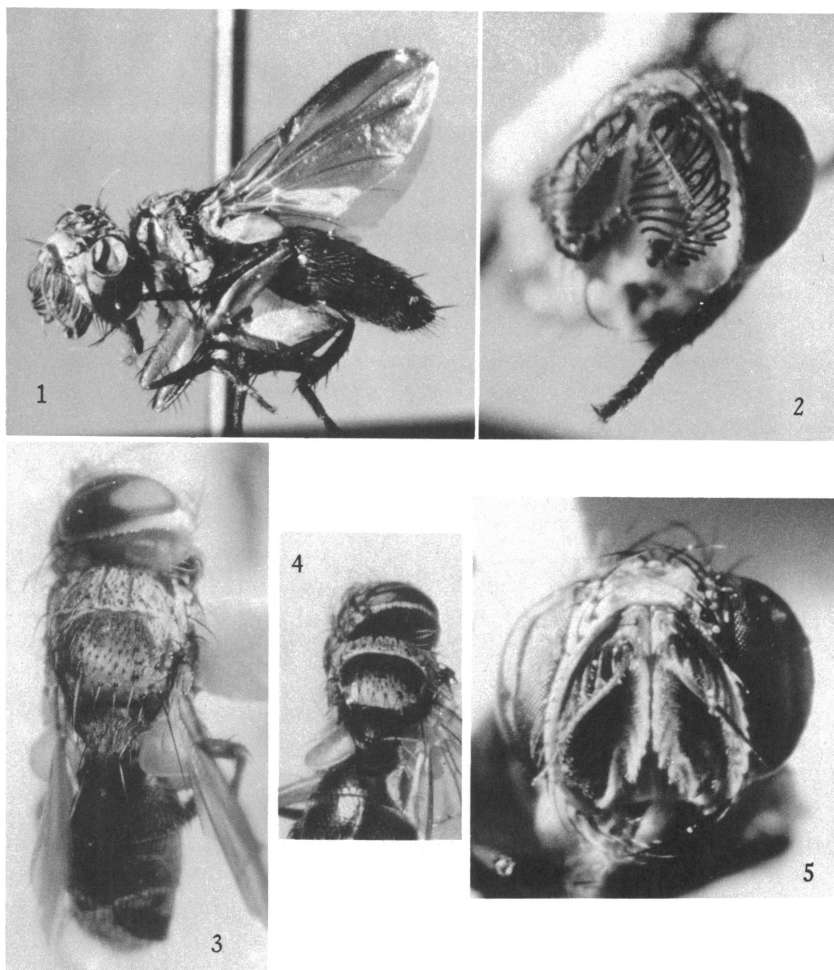
five-eighths of head height and also set very high in female; male third antennal segment split into about 20 pubescent rami borne on inner and outer sides of midrib, tip of latter rounded, outer rami strongly bowed, inner rami straight or bowed, shorter than outer rami, the whole in form of a wide deep trough; female third antennal segment elongate, somewhat enlarged, non-ramate; arista thickened nearly to tip, finely micro-pubescent; eyes bare (extremely fine short sparse hairs are visible under high magnification); male and female vertexes over three-eighths of head width, female vertex slightly narrower than male; inner vertical bristles stout; outer vertical bristles present, smaller than inner verticals; one or two pairs of proclinate fronto-orbital bristles and one pair of reclinate fronto-orbital bristles; frontalia in male twice parafrontal width, in female less than one and one-half of parafrontal width; ocellar bristles developed, proclinate, and widely divaricate; parafacilia in male very narrow below and bare; cheeks from one-sixth to less than one-fifth of eye height; facialia bristled, but not attaining arisal bases.

Thorax with prosternum with a few lateral bristles; prescutum one-third shorter than postscutum, scutellum about length of prescutum; propleura and postnotal slopes bare; two preacrostichals removed from suture, hind pair longest, but bristles shorter than hind presutural dorsocentrals; two or three postacrostichals, hind pair longest, but bristles shorter than hind postsutural dorsocentrals; three presutural dorsocentrals, mid bristles shortest, hind bristles longest; three or four postsutural dorsocentrals, hind bristles longest; Townsend reports two intra-postsutural bristles, but number is variable; hind preintraalar bristles developed or minute; one intrapostalar bristle; two postalar bristles; two or three humeral bristles; two sternopleural bristles and one minute bristle below either present or absent; four lateral scutellar bristles and very small, suberect, apical, scutellar bristles present or absent; one pair of discal scutellar bristles.

Legs short, tarsi short except for metatarsi which are nearly as long as or longer than following tarsal segments combined; mid femur with two anterior bristles midway; mid tibia with one anterodorsal bristle; claws and pulvilli short.

Wings blackish on stigma and poststigma, prestigma two and one-half to three times longer than stigma, latter nearly one-half in female and over half in male of radiocosta; costal spine undeveloped; 5R narrowly open; R_6 before wing tip; R_1 bristled to tip; R_5 bristled from halfway to beyond R_6 ; R_6 on middle 3M, M_3 straight and nearly midway; cubitulus widely arcuate and near hind margin; squamae nearly as wide as long.

Abdomen long ovate, about width of thorax; segment I+II depressed



FIGS. 1-5. *Borgmeiermyia* species. 1-4. *B. rozeni*, new species. 1. Paratype male, left lateral view. 2. Paratype male, antennae, and portion of head. 3. Paratype female, dorsal view. 4. Holotype male, dorsal view. 5. *B. brasiliana*, male, front view of head. Enlarged at different magnifications.

mesially on basal half; segments I+II, III, and IV with lateral marginal bristles, segments I+II, III, IV, and V with rows of small marginals close to posterior borders.

Male postabdomen with inner and outer forceps developed; inner forceps in posterior view separated by suture basally and divided on apical

halves; outer forceps narrowed; aedeagus moderately stout; fifth sternite moderately large, broader than long, with V-shaped emargination about half of length of sternite.

Female postabdomen modified, terminating in a small, fan-shaped, chitinized projection below; not studied.

KEY TO SPECIES OF *Borgmeiermyia* TOWNSEND

- 1. Subapical pair of lateral scutellar bristles small, about one-half of length of apical lateral scutellar bristles; Brazil..... 2
- Subapical pair of lateral scutellar bristles large, more than four-fifths of length of apical lateral scutellar bristles; Peru..... *peruana*, new species
- 2. Wing with vein R_5 above bristled about one-half of distance to R_4 ; male with antennae yellow, outer rami of third segments blackish, aristae brownish..... *brasiliانا* Townsend
- Wing with vein R_5 above bristled beyond R_4 ; male with antennal segments I and II and extreme bases of third yellowish, remaining portions of third segments, including both inner and outer rami and bases of aristae, blackish..... *rozeni*, new species

Borgmeiermyia brasiliانا Townsend

Figures 5, 8, 12-14

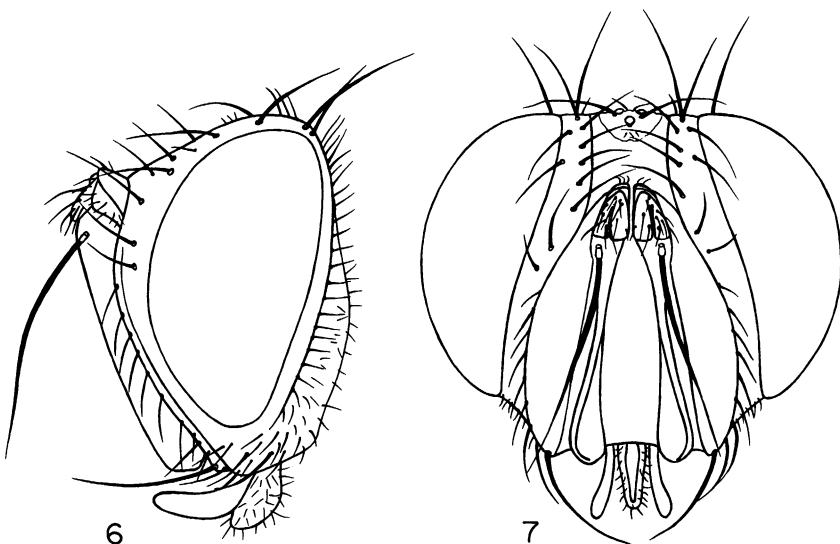
Borgmeiermyia brasiliانا TOWNSEND, 1935, Rev. Ent., vol. 5, fasc. 3, p. 293, figs. 1, 2 (description on basis of one male from Rio de Janeiro, Brazil; figures of head); 1936, Manual of myiology, pt. 4, p. 168 (cited as type species); 1940, *op. cit.*, pt. 10, p. 315 (cited as type species).

Small, moderately robust, blackish and golden to silvery; distinguishable from *rozeni*, new species, by the fact that vein R_5 above bristled only one-half of distance to R_4 ; and from *peruana*, new species, by the fact that subapical pair of lateral scutellar bristles are small; male with third antennal segment yellow including inner rami, with only the outer rami blackish.

MALE: Length, 4.2 mm.

Head (fig. 5) with front at vertex 0.368 of head width; blackish, golden and silvery pollinose; frontalia blackish behind and yellowish rufous anteriorly, about five times width of one parafrontal (at the latter's narrowest portion, opposite ocellar triangle); parafrontal golden pollinose, with a few black hairs only on outer side of frontals; outer verticals half or less length of inner verticals; occipital fringe black, bristles short; occiput with a row of black hairs above and otherwise white-haired; eight pairs of frontals, posterior pair reclinate, three pairs of frontals below antennal bases; two pairs of proclinate fronto-orbital bristles; parafacial strongly narrowed below, bare, golden pollinose above, silvery below; eyes brown, with extremely fine, short, sparse hairs (would be con-

sidered bare); vibrissae developed, decussate, on oral margin; facialia with nine pairs of recurved black bristles, almost attaining lowest frontals, below arisal bases; antennae (fig. 5) yellow, with outer rami of third antennal segments and outer sides at arisal bases blackish, first segment short, second segment elongate on inner side, third segment elongate, almost attaining vibrissal base in length, more than four times longer than second segment, with narrow midrib bearing eight rami on inner side and 11 rami on outer side; inner rami unbranched, outer rami mostly unbranched, but a few branched; inner rami straight, shorter than outer



FIGS. 6, 7. *Borgmeiermyia rozeni*, new species, female, head. 6. Lateral view. 7. Front view.

rami which are curved forward; inner and outer rami shorter at base of third antennal segment and progressively longer toward apex, with rami shortening again before apex; rami and midrib on dorsal, lateral, and apical sides pale, finely haired, hairs longer than twice diameter of rami; arista with first segment black, second segment basally black and apically light brown, third segment light brown; arista with first segment shorter than high, second segment slightly longer than high, third segment at base as wide as second segment and enlarged on basal four-fifths and very finely micropubescent; cheek (head in lateral view) less than one-fifth of eye height, lightly silvery, with small black bristles and hairs on lower margin; proboscis short, brownish black, with some black hairs on chitin-

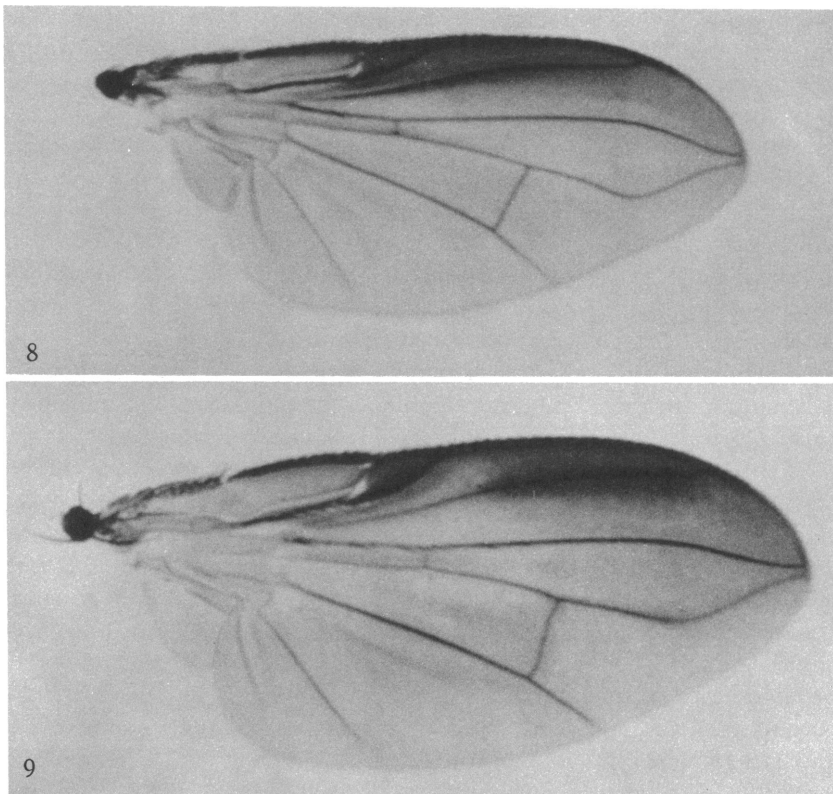
ized portion, fleshy portion brownish, golden-haired; palpus yellow, longer than cheek height, flattened laterally, slightly widened apically, with a few fine black bristles and minute pale-colored hairs.

Thorax with mesonotum black in ground color, pleural areas brown, entirely black-bristled and black-haired, the hairs very sparse on pleural areas; mesonotum golden pollinose, pleura golden pollinose above and silvery below; pair of black vittae between preacrostichals and presutural dorsocentrals, stopping before suture, tapering posteriorly; a second pair of broad black vittae on outer sides of presutural dorsocentrals, not attaining suture, both pairs of vittae united anteriorly to darkened area of anterior mesonotum; mesonotum behind suture, when viewed obliquely from behind, with a broad black band occupying more than basal half of postscutum, but edged by golden pollinose margins laterally (interrupted anteriorly) and posteriorly; scutellum black, with a faint brassy tinge; prosternum with a pair and a half of hairs on sides; bare concealed.

Legs yellow and blackish, black-bristled and black-haired; fore coxae and all femora yellow, latter brown near knee joints, mid and hind coxae brownish, tibiae and tarsi blackish; femora faintly silvery pollinose; mid tibia with one anterodorsal bristle with its base at unit 17.5 on tibial measurement of 27, and two small posterior bristles with their bases at units 12 and 19, the second bristle largest; hind tibia with a row of 10 anterodorsal bristles, their bases at units 5, 8, 10, 12, 14, 16, 19, 21, 23, 25 on total length of 28 units, with bristles at units 10 and 16 longest, and five posterodorsal bristles with their bases at units 6, 10, 12, 15, and 18, bristles at units 10 and 18 longest; apical tarsal segments short, claws and pulvilli short, claws blackish, pulvilli white.

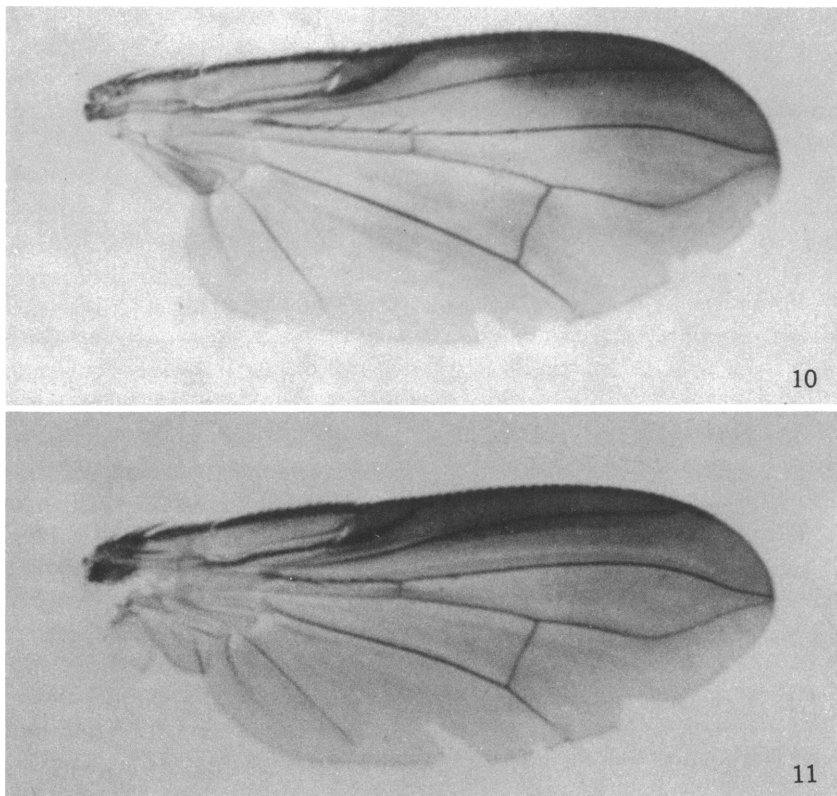
Wing (fig. 8) 2.7 mm. in length, 1.2 mm. in width; infuscated, yellowish at base, blackish on stigma and poststigma; microtrichia brownish, distinct over most of wing surface; microtrichia in costal cell, at base of 6R, in 6M and 2C very fine and almost indistinguishable under magnification of $\times 54$; 5R narrowly open; R_1 bristled almost to tip; R_5 above bristled one-half or more to R_6 , bare below; veins brown, but yellowish at base; costal spine undeveloped; costal marginal setulae extending only on basal fifth of radiocosta; divisions of costa: costigium 20, prestigma 37, stigma 15, poststigma 58, radiocosta 37, and disticosta 2; venation as illustrated; epaulet black; squamae brownish-tinged; halter with stalk and knob light yellow.

Abdomen black, with brownish hue, entirely black-bristled and black-haired; abdomen about width of and one-seventh longer than thorax (thorax 49 units long, abdomen 56 units long); segments I+II, III, IV, and V above medially about 11:15:16:14 units in length; segment I+II



FIGS. 8, 9. *Borgmeiermyia* species, males, left wings. 8. *B. brasiliiana*. 9. *B. rozeni*, new species, holotype. Negatives reversed and enlarged at different magnifications.

depressed mesially on more than basal half; first sternite broadly V-shaped above, with a few fine hairs on lateral margins, second to fourth sternites haired and progressively wider, fourth sternite about one-fifth of width of abdomen (in dried abdomen sternites II to IV concealed); abdomen shining, with narrow, basal, pollinose bands above on segments III, IV, and V, band on segment III silvery, band on segment IV silvery and faintly golden, band on segment V golden, bands interrupted in center, particularly segment V; width of pollinose bands above less than one-fourth of width of segments, the band on segment V widest and most dense; abdomen above and below with thin brassy hue and laterally below with trace of silvery pollinosity; segments I+II, III, and IV with lateral marginal bristles; segments III, IV, and V with row of small marginals, bristles on fifth tergite stoutest.



FIGS. 10, 11. *Borgmeiermyia* species, females, wings. 10. *B. rozeni*, new species, allotype, right wing. 11. *B. peruana*, new species, holotype, left wing, negative reversed. Enlarged at different magnifications.

Postabdomen (figs. 12, 13) contained within abdomen, brownish, with inner forceps blackish brown; first segment narrow and divided by membrane dorsally, about 0.08 mm. long (probably sternite 7); second segment arch-shaped, 0.12 mm. long (probably sternite 8), both first and second segments without hairs or bristles; third segment (ninth tergite) 0.25 mm. in length, with some small bristles on intermediate third; inner forceps about 0.26 mm. in length in posterior view, medially divided and apical halves with undulating inner surfaces; outer forceps about 0.26 mm. in length, haired on inner and outer surfaces, slender, gently curved, projecting beyond inner forceps; anal membrane 0.28 mm. long, 0.15 mm. wide; aedeagus brownish black, moderately stout, 0.34 mm. long; distiphallus 0.1 mm. high and 0.1 mm. wide, with a few serrations below;

ejaculatory apodeme 0.1 mm. in length; epiphallus attaining length of posterior gonapophyses; posterior gonapophyses in profile broad and short; anterior gonapophyses longer and more slender than posterior gonapophyses, with a pair of stout short bristles on upper margin some distance before apex; fifth sternite (fig. 14) curved, 0.50 mm. wide, 0.31 mm. long, with V-shaped emargination 0.17 mm. in depth and 0.17 mm. at greatest width, with pair of strong bristles, and other bristles and hairs on sides of emargination, basal portion of sternite without hairs or bristles.

FEMALE: Unknown.

DISTRIBUTION: Recorded in the literature only from the type locality, Jardim Botânico, Rio de Janeiro, Brazil. I have redescribed and illustrated this species on the basis of one male labeled "Nova Teutonia, 27° 11' B, 52° 23' L, 300–500 meters, [Santa Catarina], Brasilien, April 13, 1959 (Fritz Plaumann)," [P.H.A.]. The left wing of this specimen has been mounted in balsam on a slide; the abdomen and postabdomen are stored in glycerine in a microvial.

REMARKS: The specimen available for redescription was kindly compared with the holotype by Dr. H. Souza Lopes. He reported it to be identical with the holotype, differing only by its smaller size (4.2 mm. versus 5.5 mm.).

Father Borgmeier informed me (*in litt.*) that the holotype specimen of *B. brasiliiana* was collected on the inside of a window in his former office in the Jardim Botânico. He also stated that the excellent illustrations of the head of *brasiliiana* in Townsend's 1935 paper were prepared by his artist friend Joaquim Franco de Toledo (1905–1952).

***Borgmeiermyia peruana*, new species**

Figure 11

Distinguishable from the other two members of the genus by the strongly developed subapical pair of lateral scutellar bristles; wing narrow and bristling on R_5 , stopping just prior to attaining R_6 , with one isolated bristle beyond.

FEMALE (HOLOTYPE): Length, 5.1 mm.

Head with front at vertex 0.346 of head width, brownish, golden and silvery pollinose; frontalia less than twice width of parafrontal; parafrontal golden pollinose, with few black hairs on outer side of frontals; occipital fringe black, bristles short; occiput with a few black hairs above, otherwise white-haired; six pairs of frontals, three pairs of frontals below antennal bases; two pairs of proclinate fronto-orbital bristles; one pair of reclinate fronto-orbital bristles; parafacial narrow, more than half of

width of parafrontal, bare, golden; eyes bare; vibrissae developed, non-decussate; facialia with 10 pairs of recurved black bristles, upper bristles fine, not attaining lower frontals or arista bases; antennae yellow, narrowly black at bases of aristae, third segments with some brownish coloration on under portions on outer sides, less so and only on apical portions on inner sides; third antennal segment not enlarged, elongate, non-ramate, attaining vibrissae in length, more than five times longer than second segment; arista brownish, first segment annulate, much shorter than high, second segment longer than high and about width of first segment, third segment micropubescent except at tip and about eleven-twelfths of length of third antennal segment; cheek one-fourth of eye height, golden, with small black bristles and hairs on lower margin; proboscis concealed, brownish black, golden-haired; palpus enlarged, yellow, flattened laterally, with black bristles and hairs subapically.

Thorax with mesonotum black in ground color, pleural areas brown, entirely black-bristled and black-haired; the hairs very sparse on pleural areas; mesonotum golden pollinose, pleura golden pollinose above and more thinly silvery below; weakly vittate, with pair of thin black vittae between preacrostichals and presutural dorsocentrals, stopping before suture; a second pair of short broad vittae on outer side of presutural dorsocentrals, not attaining suture; mesonotum behind suture, when viewed obliquely from behind, with a broad black band occupying more than basal half of postscutum; scutellum black, devoid of hairs on basal sixth; prosternum with three pairs of fine bristles at sides; bare with one anterior hair.

Legs yellow and brown, black-bristled and black-haired; fore coxae and all femora yellow, latter with brownish tinge above near knee joints; mid coxae brownish; tibiae and tarsi brownish; femora very thinly silvery pollinose; mid femur with two bristles on anterior surface near middle; mid tibia with one anterodorsal bristle with its base at unit 22 on tibial measurement of 37, and two small posterior bristles with their bases at units 17 and 26, the second bristle larger, and two ventral bristles with their bases at units 21 and 24, the second bristle much stouter than first; hind tibia with row of nine anterodorsal bristles, and two posterodorsal bristles with their bases at units 14 and 22, the second bristle larger; apical tarsal segments short; claws and pulvilli short, claws brownish, with black apexes, pulvilli whitish.

Wing (fig. 11) 3.4 mm. in length, 1.4 mm. in width; infuscated, yellowish at base, blackish on stigma and poststigma; microtrichia brownish, distinct over most of wing surface; microtrichia in costal cell, at base of 6R, in 6M and 2C very fine and yellowish-colored; 5R very narrowly

open; R_1 bristled to tip (16 bristles); R_5 above bristled to R_6 , with one bristle beyond and removed from R_6 , bare below; veins brown, but yellowish at base; costal spine undeveloped; costal marginal setulae extending only on basal fifth of radiocosta; divisions of costa: costigium 17, prestigma 50, stigma 18, poststigma 79, radiocosta 38, and disticosta 1; venation as illustrated; epaulet black; squamae yellowish; halter with stalk and knob light yellow.

Abdomen black, with brownish hue, entirely black-bristled and black-haired; abdomen about width of thorax, tapering posteriorly, and about two-ninths longer than thorax (thorax 57 units long, abdomen 75 units long); segments I+II, III, IV, and V above medially about 15:20:21:18 units in length; segment I+II depressed mesially on more than basal half; first sternite broad, second to fifth sternites concealed; abdomen partly shining, with narrow basal pollinose bands on segments III, IV, and V, band of segment III silvery, bands on segments IV and V golden, bands interrupted in center; widths of pollinose bands above less than one-fourth of width of segments; abdomen above and below with a thin brassy hue; segments I+II, III, and IV with lateral marginal bristles; segments III, IV, and V with a row of small marginals close to posterior borders, bristles on fifth segment stoutest.

Postabdomen not dissected, modified, terminating in a small, brown, fan-shaped, chitinized structure below.

MALE: Unknown.

TYPE DATA: Holotype, female; Monson Valley, Tingo Maria, Peru, December 2, 1954 (E. I. Schlinger and E. S. Ross); deposited in the collection of the California Academy of Sciences. The left wing is mounted in balsam on a slide.

***Borgmeiermyia rozeni*, new species**

Figures 1-4, 6, 7, 9, 10, 15-17

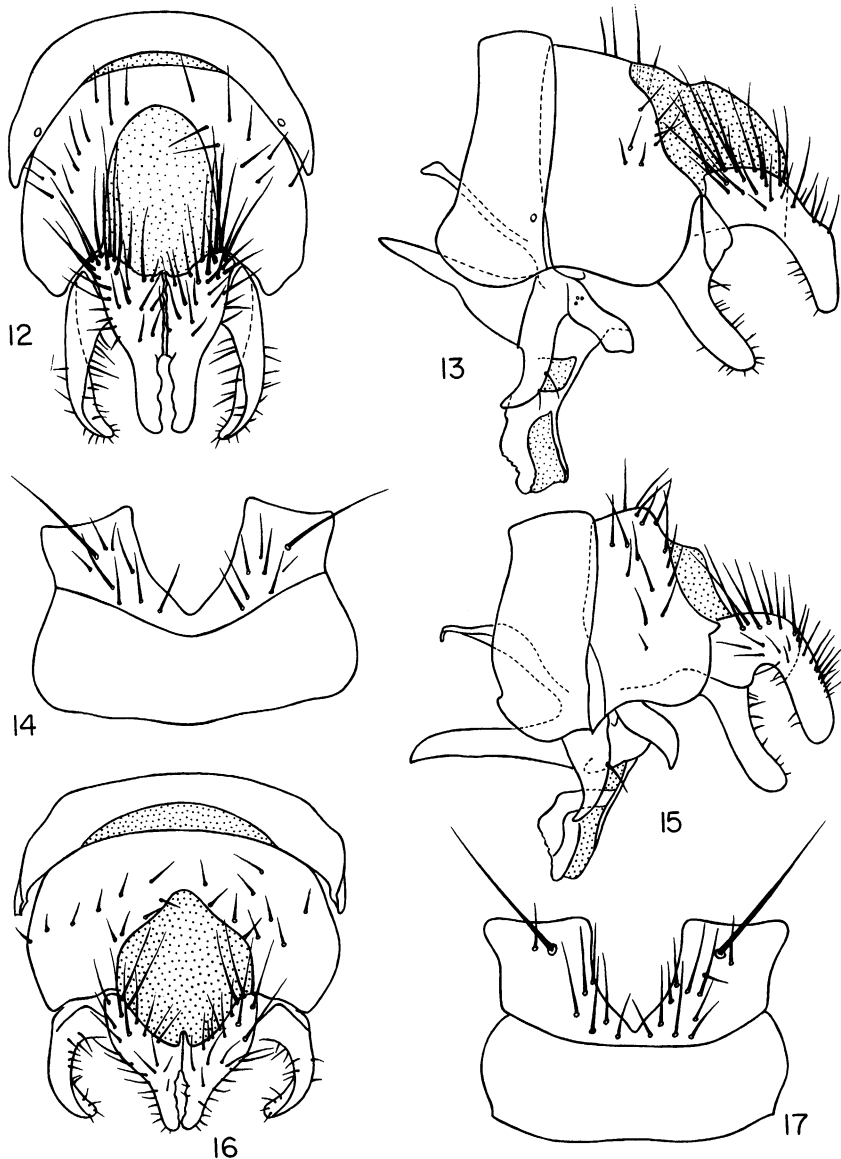
Distinguishable from the other two members of the genus by the fact that the bristling on vein R_5 extends well beyond R_6 and the subapical lateral scutellar bristles are not strongly developed; in male both inner and outer rami of third antennal segments and bases of arista blackish, and inner forceps on apical halves with inner surfaces irregular and complementally fitted.

MALE (HOLOTYPE): Length, 4.8 mm.

Head (fig. 2) with front at vertex 0.354 of head width; blackish above, brownish below, golden and silvery pollinose; frontalia blackish behind and yellowish brown anteriorly, about six times wider than one para-

frontal (at the latter's narrowest portion, opposite ocellar triangle); para-frontal golden pollinose, with a few black hairs only on outer side of frontals; outer verticals more than half of length of inner verticals; occipital fringe black, bristles short; occiput with several rows of black hairs above and white-haired below; eight pairs of frontals, posterior pair reclinate, three pairs of frontals below antennal bases; two pairs of proclinate fronto-orbital bristles (only one bristle on left); parafacial strongly narrowed below, bare, golden pollinose above, silvery below; eyes brown, with extremely fine, short, sparse hairs (would be considered bare); vibrissae strong, decussate, on oral margin; facialia with 10 pairs of recurved black bristles, attaining lowest frontals, but below aristal bases; antenna (fig. 2, paratype) with segments I and II and extreme base of third segment yellowish, remaining portion of third segment, including both inner and outer rami and outer side at aristal base, blackish, first segment short, second segment elongate on inner side, third segment elongate, attaining vibrissal base in length, nearly five times longer than second segment, with narrow midrib bearing eight rami on inner side and 12 rami on outer side; inner rami unbranched, outer rami mostly unbranched, but a few either twice or thrice branched; inner rami straight or slightly bowed, shorter than outer rami, latter strongly curved forward; inner and outer rami shorter at base of third antennal segment and then elongate toward apex, with rami shortening again before apex; rami and midrib on dorsal, lateral, and apical sides pale-haired, fine hairs in length about twice or more width of rami; arista with first segment black, second segment black basally and light brown apically, third segment brown; arista with first segment about half as long as high, second segment narrower than first and longer than high, third segment finely micropubescent, at base as wide as second segment and enlarged on basal four-fifths and then rapidly narrowing to a fine tip; cheek (head in lateral view) one-sixth of eye height, lightly silvery, with small black bristles and hairs on lower margin; proboscis short, brownish black, with some black hairs on chitinated portion, fleshy portion brownish, golden-haired; palpus yellow, longer than cheek height, flattened laterally, slightly widened apically, with a few fine black bristles and minute, pale-colored hairs.

Thorax with mesonotum black in ground color, pleural areas brown, entirely black-bristled and black-haired, the latter very sparse on pleural areas; mesonotum golden pollinose, pleura golden pollinose above and silvery below; weakly vittate, with pair of thin black vittae between preacrostichals and presutural dorsocentrals, stopping before suture, tapering posteriorly, a second pair of vittae on outer side of presutural dorso-



FIGS. 12-17. *Borgmeiermyia* species, males. 12-14. *B. brasiliiana*. 15-17. *B. rozeni*, new species, holotype. Left lateral (12, 15) and posterior views (13, 16) of post-abdomen and fifth sternites (14, 17).

centrals, not attaining suture, widening posteriorly, and anteriorly separated from darkened area of anterior mesonotum; mesonotum behind suture, when viewed obliquely from behind, with a broad, black crescent area occupying more than basal half of postscutum (fig. 4), with lateral posterior extensions on each side of postsutural dorsocentrals, thus forming a median golden pollinose posterior area which connects with narrow golden pollinose margins laterally; scutellum black, with a faint brassy tinge; prosternum with two pairs of small black bristles at sides; baret bare.

Legs yellow and blackish, black-bristled and black-haired, fore coxae and all femora yellow, latter with brownish tinge near knee joints; mid and hind coxae brownish; tibiae and tarsi blackish; femora very thinly silvery pollinose; mid femur with two bristles on anterior surface; mid tibia with one anterodorsal bristle with its base at unit 23 on tibial measurement of 34, and two small posterior bristles with their bases at units 19 and 24, the second bristle larger; hind tibia with a row of 10 anterodorsal bristles, their bases at units 7, 10, 12, 14, 16, 19, 21, 25, 27, 31 on total length of 34 units, with bristles at units 21 and 31 stoutest and longest, and two posterodorsal bristles with their bases at units 14 and 21, the second bristle larger; apical tarsal segments short, claws and pulvilli short, claws blackish, pulvilli white.

Wing (fig. 9) 3.2 mm. in length, 1.4 mm. in width; infuscated, yellowish at base, blackish on stigma and poststigma; microtrichia brownish, distinct over most of wing surface; microtrichia in costal cell, at base of 6R, in 6M and 2C very fine and almost indistinguishable under magnification of $\times 54$; 5R very narrowly open; R_1 bristled almost to tip (with 15 bristles); R_5 bristled to include basal fourth beyond R_6 ; veins brown apically but yellowish at base; costal spine undeveloped; costal marginal setulae extending only onto basal fourth of radiocosta; divisions of costa: costigium 20, prestigma 44, stigma 15, poststigma 73, radiocosta 36, and disticosta 1; venation as illustrated; epaulet black; squamae brownish-tinged; halter with stalk and knob light yellow.

Abdomen black, with brownish hue, entirely black-bristled and black-haired; abdomen about width of and about two-fifths longer than thorax (thorax 51 units long, abdomen 71 units long); segments I+II, III, IV, and V above medially about 14:18:19:16 units in length; segment I+II depressed mesially on more than basal half; first sternite broad, broadly V-shaped above (12 units wide), and with a few fine hairs posteriorly, second to fourth sternites haired, and progressively wider (second sternite about four units wide, fourth sternite six units wide); in dried abdomen sternites II to IV concealed; abdomen shining (fig. 4), with narrow basal

pollinose bands above on segments III, IV, and V, band on segment III silvery, band on segment IV silvery, slightly golden, band on segment V golden, bands interrupted in center; widths of pollinose bands above less than one-fourth of width of segments; abdomen above and below with a thin brassy hue; segments I+II, III, and IV with lateral marginal bristles; segments III, IV, and V with a row of small marginals close to posterior borders, bristles on fifth segment stoutest.

Postabdomen (figs. 15, 16) contained within abdomen, blackish; first segment narrow and divided by membrane dorsally, about 0.08 mm. long (probably sternite 7); second segment arch-shaped, 0.11 mm. long above (probably sternite 8), both first and second segments without hairs or bristles; third segment (ninth tergite) 0.20 mm. in length, with small bristles and hairs on intermediate portion after basal sixth and before apical fourth of segment; inner forceps about 0.23 mm. long, in posterior view with inconspicuous median division and apical halves with lightly undulating inner surfaces rather strongly complementally fitted; outer forceps about 0.22 mm. in length, haired on inner and outer surfaces, slender, curved, projecting slightly beyond inner forceps; anal membrane 0.24 mm. long, 0.175 mm. wide; aedeagus brownish black, moderately stout, 0.31 mm. long; distiphallus 0.2 mm. long, 0.09 mm. high, and 0.06 mm. wide, with rows of serrations below; ejaculatory apodeme 0.1 mm. in length; epiphallus attaining length of posterior gonapophyses; posterior gonapophyses in profile broad and short; anterior gonapophyses longer and more slender than posterior gonapophyses, with a pair of stout short bristles on upper margin about half of distance to apex; fifth sternite (fig. 17) curved, 0.46 mm. wide, 0.31 mm. long, with V-shaped emargination 0.15 mm. in depth and 0.12 mm. at greatest width, with pair of strong bristles, and other bristles and hairs on sides of emargination, basal portion of sternite without hairs or bristles.

FEMALE (ALLOTYPE): Length, 4.7 mm.

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

Head (figs. 6, 7) with front at vertex 0.35 of head width; facialia with eight and nine bristles, first two bristles above smallest, spaced somewhat evenly, not attaining arista bases nor lower frontals; antennae yellow, third segments extensively brownish black on under portions; third antennal segment enlarged and elongate, non-ramate, attaining vibrissae in length, about six times longer than second segment; arista with first and second segments blackish, third segment brown, first segment annulate, higher than long, second segment longer than high, narrower than first segment, third segment finely micropubescent except at tip and about

five-sixths of length of third antennal segment; two pairs of proclinate fronto-orbital bristles, the lower bristles larger; cheek slightly less than one-fourth of eye height; palpus enlarged on apical half, flattened laterally, with one or a few fine black bristles.

Thorax with bristling and pattern as illustrated (fig. 3, paratype).

Wing (fig. 10) 3.4 mm. in length, 1.5 mm. in width; R_1 bristled almost to tip (with 12 bristles); R_5 bristled (with 12 bristles) to include more than basal fourth beyond R_6 , divisions of costa: costigium 15, prestigma 51, stigma 18, poststigma 84, radiocosta 34, and disticosta 2; venation as illustrated.

Abdomen with segments I+II, III, IV, and V above medially about 16:21:25:18 units in length; segment I+II depressed mesially on basal half; abdominal pollen silvery.

Postabdomen not studied.

PARATYPES: Length of males varying from 4.2 mm. to 4.9 mm., and wing lengths correspondingly from 2.9 mm. to 3.5 mm.; length of females 4.4 mm. and 5 mm. and wing lengths correspondingly 3.4 mm. and 3.9 mm.; heads with fronts at vertexes in males from 0.34 to 0.38, averaging 0.362, in females 0.33 and 0.34, averaging 0.335; facial bristles in males (left:right) 8:11, 9:10, 10:9, 10:10, 10:10, 10:11, 12:10, and 12:11; facial bristles in females (left:right) 8:7 and 9:9; several males with only one developed pair of proclinate fronto-orbital bristles; a fine third sternopleural bristle present on some specimens.

TYPE DATA: Holotype male: "Nova Teutonia, 27° 11' B, 52° 23' L, 300–500 meters, [Santa Catarina], Brasilien, May 2, 1959 (Fritz Plau-mann)"; deposited in the collection of the American Museum of Natural History; from the collection of the author. The left wing is mounted in balsam on a slide; the male abdomen and postabdomen are stored in glycerine in a microvial. Allotype female: Same data as holotype, but collected on April 13, 1959 [A.M.N.H.]; from the collection of the author. The right wing is mounted in balsam on a slide. Paratypes, nine males and two females: Same data as holotype, but collected on the following dates: four males, March 2, 10, 15, and 21, 1959; three males, April 19, 21, and 30, 1959; one male, May 2, 1959; one male, March 6, 1962; one female, April 13, 1959; one female, June 27, 1959; [C.A.S., one male; I.O.C., one male; U.S.N.M., one male; P.H.A., seven males, two females].

REMARKS: It is a pleasure to name this species in honor of Dr. Jerome G. Rozen, Jr.

BIBLIOGRAPHY

TOWNSEND, CHARLES HENRY TYLER

- 1935. Multifissicorn male oestroids. *Rev. Ent.*, vol. 5, fasc. 3, pp. 292–293, figs. 1, 2.
- 1936. Manual of myiology in twelve parts. Pt. 4. Oestroid classification and habits, Dexiidae and Exoristidae. Itaquaquecetuba, Escolas Profissionais Salesianas Press, pp. 1–303.
- 1940. Manual of myiology in twelve parts. Pt. 10. Oestroid generic diagnoses and data, Anacamptomyiini to Frontinini. Itaquaquecetuba, Escolas Profissionais Salesianas Press, pp. 1–334.