

American Museum Novitates

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

NUMBER 2157

NOVEMBER 8, 1963

Two New Genera of the Germariini from the Western Nearctic, with Notes on Related Genera (Diptera, Tachinidae)

BY PAUL H. ARNAUD, JR.¹

INTRODUCTION

The main purpose of the present paper is to describe two new genera, *Metamyia* and *Coloradomyia*, and the three new species assigned to them. The genera belong to the tribe Germariini (*sensu* Townsend). *Metamyia* bears a striking resemblance to the Nearctic fissicorn genus *Dichocera* Williston (1895, p. 32), in that they both contain species that are black, gray pollinose, with sarcophagid-like tessellated abdomens terminated with orange apices. *Coloradomyia* is of special interest because it furnishes the first American host record for this group of genera.

As a secondary purpose, the male postabdomen of the type species of the closely related Holarctic *Lydina* Robineau-Desvoidy (1830, p. 124) is described and illustrated for the first time and compared with that of *Metamyia*.

The species of the genera discussed are probably all parasitic on the larvae of heterocerous Lepidoptera. In Europe *Lydina aenea* (Meigen) has been reared and recorded from the hosts *Panolis flammea* Schiffermüller and *P. griseovariegata* Goeze (Noctuidae) and *Acrobasis tumidella* Zincken

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

and *A. zelleri* Ragonot (Pyrilidae). *Coloradomyia eucosmaphaga*, new genus and species, from Colorado, has been reared from *Eucosma ridingsana* (Robinson) (Oleuthreutidae). The hosts of *Metamyia* and *Dichocera* Williston are presently unknown.

The preparation of this paper was undertaken while I was holding an appointment for one year as Research Fellow at the American Museum of Natural History. I wish to acknowledge my thanks to the authorities of the American Museum and to Dr. Jerome G. Rozen, Jr., of the Department of Entomology for facilities and advice. I also wish to thank Messrs. L. P. Mesnil, H. J. Reinhard, and C. W. Sabrosky for their kindness in examining specimens of the new genus *Metamyia* and for other aid. I also thank Mr. Gaetano di Palma, who made most of the line drawings, and Miss Marjorie Statham, who prepared the photographic prints.

SYSTEMATICS

GENUS **METAMYIA**,¹ NEW GENUS

GENERIC CHARACTERIZATION: Head one-sixth wider than high, its profile narrow, subtriangular; nearly flat frontal profile moderately sloped and less than one-half of length of facial, latter lightly receding in male; oral profile slightly shorter than frontal profile; long clypeus depressed and about two-thirds as wide as long; short epistoma somewhat warped and narrowed from clypeus; facialia moderately broad and bowed below; vibrissae decussate in male, less so in female; oral margin axis seven-eighths antennal in male, about equal to antennal in female; haustellum about equal to large labella; palpi slender and faintly clavate in male and female; antennal axis about four-sevenths of head height and high above eye middle; first antennal segment moderately long in male and short in female, second segment longer in female than in male; male third antennal segment stout and about seven times length of second; female third antennal segment two and one-half times length of second; stout arista narrowed on apical fourth, extremely finely micropubescent, with first segment about as long as wide, second segment at least twice as long as wide; eyes thickly, moderately long-haired in male, less thickly in female; vertex about one-fourth of head width in male, about one-third in female; about five frontal bristles below bases antennae, in male; about four frontal bristles below bases antennae, in female; outer vertical bristles present; proclinate fronto-orbital bristles present in female, lacking in male; ocellar bristles strong and proclinate divaricate, smaller in female

¹ This genus is dedicated to Marguerite Elizabeth Tripet Arnaud (1884–1961).

than male, more divaricate in female than male; parafacialia setose on upper half on outer side of frontals; parafacialia in male one-fifth of clypeal width at narrowest, in female one-third of clypeal width at narrowest; cheeks three-eighths of eye length in male, one-seventh of eye length in female.

Thorax with prescutum shorter than postscutum; prosternum and propleura bare and infrascutal setulae absent or present; three preacrostichal bristles, hind pair close to suture; three postacrostichal bristles; three presutural dorsocentral bristles, hind pair removed from suture; four postsutural dorsocentral bristles; three to four sternopleural bristles, almost in a straight line, center bristle weak; one pteropleural bristle; two anterior preintraalar bristles, hind one lacking; three postintraalar bristles; one presupraalar bristle; three postsupraalar bristles, the middle bristle strongest; scutellum with three strong lateral pairs, one apical pair, and one discal pair of bristles.

Legs of moderate length; tarsal claws and pulvilli shorter than apical tarsal segments in both sexes.

Wings infuscated along veins, otherwise clear; veins bare except for setae at base of R_5 halfway or more to R_6 ; costal spine undeveloped; 5R open before wing tip.

Abdomen as wide as and slightly longer than thorax; abdominal segment I+II depressed mesially to hind margin; segment I+II without median marginal bristles, segments III and IV with; segments I to V with lateral marginal bristles; segment V with strong row of marginal bristles.

Male postabdomen with first segment minute, second and third segments developed and exposed from abdomen; inner forceps in posterior view parallel-sided and fused; outer forceps developed, extending beyond inner forceps; fifth sternite with a shallow emargination, less than one-fourth of length of sternite.

TYPE SPECIES: *Metamyia dichocerooides*, new species.

REMARKS: *Metamyia* differs from the genus *Dichocera* Williston (type, *lyrata* Williston) by having normal, non-fissicorn antennae. It contrasts with *Cacozelus* Reinhard (type, *riederi* Reinhard) in the following ways: narrower clypeus not over one-half of head width (versus clypeus more than eleven-twentieths of head width), shallow pair of clypeal grooves for each antenna (versus deeply sunken grooves for each antenna), parafrontal near vertex with a single row of frontal bristles (versus parafrontal near vertex with double row of frontals), third antennal segment moderately enlarged (versus third segment greatly enlarged), three or four sternopleural bristles (versus two sternopleurals), three lateral scutellar

bristles (versus four lateral scutellars), wing with R_5 bristled more than halfway to R_6 (versus less than halfway), median discal bristles on intermediate abdominal segments single (versus median discals on intermediate abdominal segments double), and abdomen gray tessellated with orange tip (versus abdomen blackish, non-tessellated, and black-tipped). The male postabdomen of *Cacozelus* has not been studied, and the genus is known only from the unique holotype of *riederi*, from Oregon, so that the degree of similarity or difference in the postabdomen is unknown at this time. *Metamyia* contrasts with *Lydina* (type, *aenea* Meigen) in the following respects: basic color pattern of vittate, gray pollinose thorax (versus black, non-vittate, shining thorax) and tessellated, gray pollinose abdomen, with orange apex (versus shining black abdomen), frontalia haired laterally, prosternum bare, sternopleural bristles three or four approximately in a row (versus sternopleurals one above anteriorly plus two below posteriorly), and wing with costal spine undeveloped. *Metamyia* differs from *Coloradomyia*, new genus, in the following characters: parafacials with the lower third bare (versus strongly bristled and haired), proclinate fronto-orbital bristles absent (versus three developed), rather normal first and third aristal segments (versus first elongate, third short and stout), pteropleural bristle strongly developed (versus small pteropleural), first abdominal segment above without median marginals (versus median marginals developed), fifth sternite with small emargination (versus deep, U-shaped emargination), and first genital segment minute (versus segment developed and haired). When compared with *Lydina*, it is seen that both share vittate thoraxes and pollinose abdomens, haired frontalia, bare prosterna, a similar arrangement of the sternopleurals, and undeveloped costal spines.

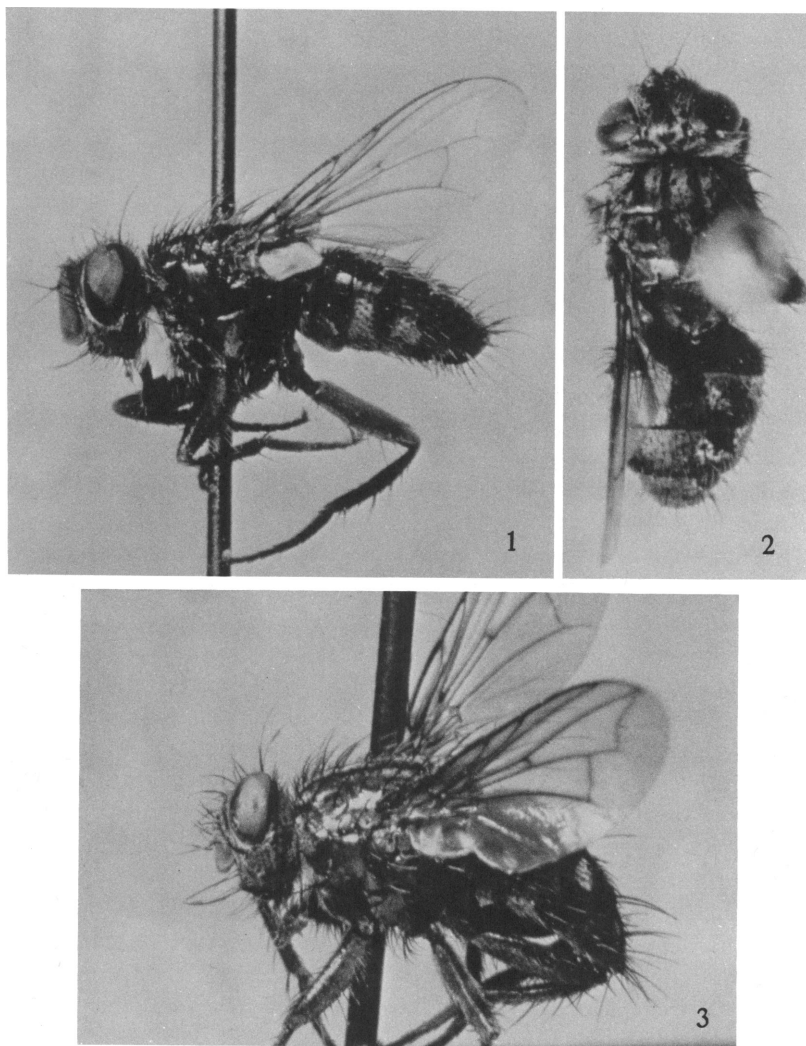
***Metamyia dichoceroides*, new species**

Figures 1-9

Medium-sized (6.2 mm. to 7 mm.), similar to *M. auranticauda*, new species, but with infrasquamal setulae absent, fifth tergite with orange coloration on apical one-third to one-half (rarely two-thirds), and abdominal segment I+II non-pollinose in median depression.

MALE (HOLOTYPE): Length, 6.6 mm.

Head (figs. 4, 5) with front at vertex 0.318 of head width; blackish above, brownish below, grayish pollinose; frontalia brownish, with scattered black hairs, one and one-fourth times width of one parafrontal (at the latter's widest portion, opposite base of antenna); parafrontal thinly gray pollinose, black-haired; outer verticals less than half of length of



FIGS. 1, 2. *Metamyia dichoceroidea*, new species, holotype male. 1. Left lateral view. 2. Dorsal view.

FIG. 3. *Metamyia dichoceroidea*, new species, allotype female, left lateral view.

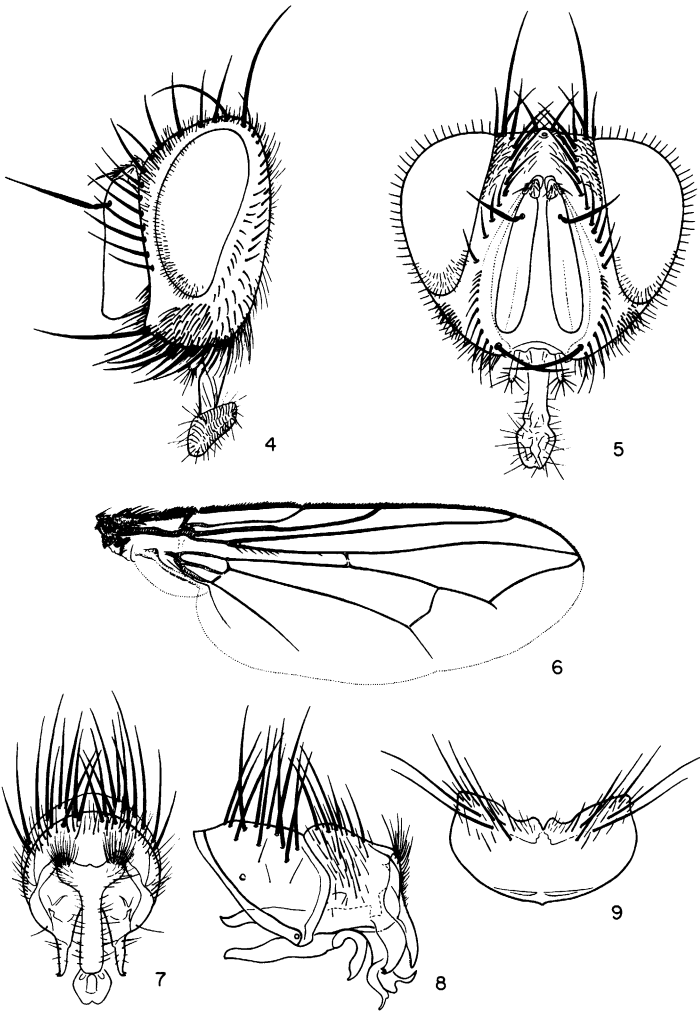
inner verticals; occipital fringe black, bristles very fine below; occiput with inner row of black hairs, elsewhere white-haired; 10 to 13 frontals extending onto lower half of parafacials; six to eight frontals below antennal bases; parafacial narrowed below, bare below lowest frontal,

haired on outer side of frontals above, black and gray pollinose except for basal brownish portion; eyes brown, with thick, moderately long, yellow hairs; vibrissae strong, decussate, on oral margin; facialia with several bristles and haired on lowest fourth, almost attaining lowest frontals, far below aristal bases; antennae (figs. 4, 5) black, first and second segments short, third segment elongate, enlarged, almost attaining vibrissal base in length, nearly six times length of second segment; arista black, first segment annulate, more than half as long as high, second segment narrower than first at base, nearly three times as long as wide, third segment finely micropubescent, at base slightly narrower than second segment and enlarged on basal three-fifths and then narrowing to a fine tip, about five-sevenths of length of third antennal segment; cheek three-eighths of eye length, lightly silvery, extensively bristled and with long black hairs; proboscis short, haustellum reddish brown, black-haired, labella reddish brown, golden-haired; palpus yellow-brown, about cheek height in length, slender, slightly widened apically, with black bristles and hairs on apical portion.

Thorax (fig. 2) with mesonotum and pleura black in ground color, entirely black-bristled and black-haired; mesonotum and pleura silvery gray pollinose, vittate, with pair of thin black vittae between preacrostichals and presutural dorsocentrals, continuing behind suture for basal third and then disappearing, a second pair of broader vittae on outer side of presutural dorsocentrals, narrowing before attaining suture, continuing behind suture to beyond posterior postsutural dorsocentrals; three sternopleurals almost in straight row; scutellum black, silvery gray pollinose; three stout pairs of lateral scutellar bristles, basal pair smallest, one fine pair of decussate apical scutellar bristles, and one pair of discal scutellar bristles; prosternum black, bare; bare bare.

Legs black, black-bristled and black-haired, lightly silvery gray pollinose; mid femur with several bristles on anterior surface; mid tibia with three anterodorsal bristles with their bases at units 15, 24, and 33 on tibial measurement of 54, four posterodorsal bristles with their bases at units 13, 18, 27, and 37, and two posterior bristles with their bases at units 22 and 36; tarsal segments of both mid and hind legs equal to tibia in length; claws and pulvilli short; claws brown at base, black at apex; pulvilli white.

Wings (fig. 6) 5 mm. in length, 1.9 mm. in width; lightly brownish infuscated; microtrichia brownish, distinct over most of wing surface; 5R very narrowly open before wing tip; R_5 above with seven bristles on more than basal half to R_6 ; veins brown; costal spine small; costal marginal setulae extending only onto basal sixth of radiocosta; divisions of costa:



FIGS. 4-9. *Metamyia dichoceroides*, new species, holotype male. 4. Head, left lateral view. 5. Head, front view. 6. Right wing, dorsal view. 7. Postabdomen, posterior view. 8. Postabdomen, left lateral view. 9. Fifth sternite.

costigium 22, prestigma 70, stigma 41, poststigma 84, radiocosta 38, and disticosta 2; venation as illustrated; epaulet black; squamae white, faintly yellowish-tinged along borders; halter with stalk brown and knob blackish.

Abdomen black with orange tip, extensively silvery gray pollinose, entirely black-bristled and black-haired, about width of and one-sixth longer

than thorax (figs. 1, 2); segments I+II, III, IV, and V above medially about 17:25:25:22 units in length; segment I+II broadly depressed mesially to posterior border; first sternite exposed, not broad, haired, second to fourth sternites concealed in dried abdomen; abdomen extensively gray silvery pollinose, tessellated (fig. 2), with broad, basal, pollinose bands above on segments III to V occupying more than basal halves, band on segment V as wide as black basal coloration; orange tip to abdomen occupying less than half of segment; abdomen below with faint pollinosity; segments I+II, III, and IV with lateral marginal bristles; segments III and IV with pairs of median marginals and median discals; segment V with strong row of marginal bristles and pair of widely separated median discals.

Postabdomen (figs. 7, 8) with basal segments exposed, orange, remainder orange and blackish; first segment very narrow, without bristles or hairs, narrower than spiracle with exception at spiracle, about 0.015 mm. long; second segment elongate, stoutly bristled above, medially above about 0.57 mm. long; inner forceps about 0.56 mm. long, in posterior view fused, broad, and haired above to apex, spiculate on inner apex; outer forceps about 0.57 mm. in length, haired on outer surfaces, broad, curved, with two or three spines on outer apex, projecting slightly beyond inner forceps; anal membrane 0.38 mm. long, 0.16 mm. wide; aedeagus brownish, bent nearly at right angle ventrally before middle, 0.21 mm. long to angle, 0.36 mm. long after angle, moderately stout; distiphallus enlarged apically, with a dorsal median projection and lateral lobes very finely serrated below; ejaculatory apodeme 0.18 mm. in length, in profile, angulate posteriorly; anterior gonapophyses stout, bent upward, in profile with double-pointed apexes divided by semicircle; posterior gonapophyses in profile strongly curved downward; fifth sternite (fig. 9) curved, 0.64 mm. wide, 0.43 mm. long, with minute, V-shaped emargination 0.11 mm. in depth and 0.07 mm. at greatest width, with long bristles and hairs on apical half, basal portion of sternite without hairs or bristles.

FEMALE (ALLOTYPE): Length, 6 mm.

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

Head (fig. 3) with front at vertex 0.33 of head width; four or five frontals below bases of antennae; facialia with one pair of bristles and small hairs almost attaining lowest frontals; antenna blackish, third segment orange at base and on part of under portion; third antennal segment not attaining vibrissae in length, about two and one-half times length of second segment; arista black, first segment annulated but more than

half as long as high, second segment longer than high, third segment finely micropubescent, slightly longer than third antennal segment; two pairs of proclinate fronto-orbital bristles, the lower bristles larger; cheek one-half of eye length; palpus yellow-brown, less than cheek height in length.

Thorax with bristling and pattern like those of male, but apex of scutellum orange-tinged.

Legs with fore tarsi slightly widened.

Wings (fig. 3) 4.8 mm. in length, 1.9 mm. in width; R_5 bristled with nine small bristles on more than basal half to R_6 ; divisions of costa: costigium 18, prestigma 68, stigma 40, poststigma 80, radiocosta 43, and disticosta 0; apical cell closed at apex; venation as partially illustrated.

Abdomen with segments I+II, III, IV, and V above medially about 17:29:28:26 units in length; segment I+II depressed mesially to posterior border; segment V above orange except for black coloration at base laterally.

Postabdomen not studied.

PARATYPES: Length varying from 6.2 mm. to 7 mm., averaging 6.6 mm.; heads with fronts at vertexes from 0.298 to 0.344 of head widths, averaging 0.319; several specimens with orange tinge at apex of scutellum; orange color on abdomen occupying apical one-fifth to two-thirds (in one specimen only) of segment V, normally occupying about apical one-half to one-third.

TYPE DATA: Holotype male, Corte de Madera Creek, near Portola, San Mateo County, California, June 3, 1954 (P. H. Arnaud, Jr.); deposited in the collection of the American Museum of Natural History; from the collection of the author. The right wing has been mounted in balsam on a slide; the postabdomen is stored in glycerine in a microvial.

Allotype female, same data as holotype, but collected on June 11, 1960 (collection of P. H. Arnaud, Jr.).

Paratypes,¹ 14 males, same data as holotype, but collected on the following dates: one male, June 3, 1954; seven males, June 11, 1960; and six males, June 19, 1960 (deposited in the collections of the American Museum of Natural History; the California Academy of Sciences; H. J.

¹ Three specimens collected by the author on June 30, 1963, at the type locality, consisting of one male and two females, are also designated paratypes. The male is 6.5 mm. in length, with front at vertex 0.315 of head width, and fifth tergite orange on less than apical half. The females are 6 mm. in length, with fronts at vertexes 0.32 and 0.34 of head widths, one with the apex of the scutellum tinged with orange and the fifth tergite almost entirely orange except at extreme base, and the other with scutellum entirely black and fifth tergite with slightly more than apical half orange.

Reinhard; L. P. Mesnil; United States National Museum, Smithsonian Institution; and the author).

REMARKS: These flies are believed to parasitize lepidopterous larvae in the forest canopy and therefore probably fly out of reach of ordinary collecting methods. However, in 1960, during periods of warm weather in the pre-noon hours, I collected individuals of this species as they rested on sun-bathed rocks and damp sand in an otherwise shaded, deep-sided canyon along a small creek, with water present. The June, 1960, series was collected in association with five males of *Dichocera lyrata* Williston.

***Metamyia auranticauda*, new species**

Medium-sized (7.6 mm. in length), similar to *M. dichoceroïdes*, new species, but differing by having infrascapular setulae present, fifth tergite entirely orange, fifth sternite orange, abdominal segment I+II gray pollinose above (particularly so in median depression), inner forceps slightly more slender, and body larger and less shining.

MALE (HOLOTYPE): Length, 7.6 mm.

Head with front at vertex 0.32 of head width; black above, brown below, grayish pollinose; frontalia brownish, with scattered black hairs laterally, one and one-third times width of one parafrontal; parafrontal thinly gray pollinose, black-haired; outer verticals small (from bases only); occipital fringe black; occiput with inner row of black hairs, elsewhere white-haired; 15 to 16 frontals extending onto lower third of parafacials, with 11 to 12 frontals below antennal bases; parafacial narrowed below, haired on more than upper half, bare below, gray pollinose; eyes brown, with moderately elongate yellow hairs; vibrissae strong, decussate, on oral margin; facialia with several bristles and hairs on basal fourth, attaining lowest frontals; antenna black, first and second segments short, third segment elongate, enlarged, almost attaining vibrissal base in length, about six times length of second segment; arista black, first segment annulated, more than half as long as wide, second segment narrower than first at base, over three times as long as wide, third segment finely micropubescent, enlarged on basal three-fifths and then narrowing to fine tip, about five-eighths of length of third antennal segment; cheek one-third of eye length, lightly silvery, bristled and with long black hairs; proboscis short, haustellum brown, labella reddish brown, golden-haired; palpus yellow-brown, partially concealed, slender, slightly widened apically, with black bristles on apical portion.

Thorax with mesonotum and pleura black in ground color, brownish on postalar callus, tip of scutellum, at wing base, and on lower sternopleura,

entirely black-bristled and black-haired; mesonotum and pleura silvery gray pollinose, vittate, with pair of thin black vittae between preacrostichals and presutural dorsocentrals, continuing behind suture for indeterminate distance, a second pair of broader vittae on outer side of presutural dorsocentrals, narrowing before attaining suture, continuing behind suture to beyond posterior postsutural dorsocentrals; sternopleurals three or four in staggered row; scutellum silver gray pollinose; three stout pairs of lateral scutellar bristles, one fine pair of decussate apical scutellar bristles, and stouter pair of discal scutellar bristles; prosternum narrow, elongate, black, bare; bare with fine hair anteriorly; infrascapular setulae present.

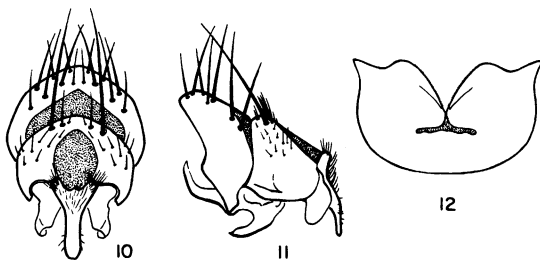
Legs black, black-bristled and black-haired, lightly silvery gray pollinose; mid femur with several bristles on anterior surface; mid tibia with four anterodorsal bristles with their bases at units 14, 22(?), 31, and 42 on tibial measurement of 64, the latter two largest, three posterodorsal bristles with their bases at units 25, 35, and 42, and two posterior bristles at units 32 and 46; tarsal segments of mid and hind legs equal to tibiae; foreleg with tarsi longer than tibia; claws and pulvilli short; claws brown, black at apex; pulvilli yellow-tinged.

Wings 5.5 mm. in length, 2.2 mm. in width; lightly brownish infuscated; microtrichia brownish, distinct over most of wing surface; 5R closed at wing tip, with very short petiole; R_5 above with eight bristles on basal half before R_6 ; veins brown; costal spine undeveloped; costal marginal setulae stopping at base of radiocosta; divisions of costa: costigium 25, prestigma 82, stigma 50, poststigma 104, radiocosta 38; petiole 3; epaulet black; squamae white; halter yellow and brown.

Abdomen black, with entire fifth tergite orange, extensively gray pollinose, entirely black-bristled and black-haired, about width of and one-seventh longer than thorax; segments I+II, III, IV, and V above medially about 16:34:32:26 units in length; segment I+II broadly depressed mesially to posterior border; first sternite small, not broad; sternites II to IV exposed, bristled, and haired; abdomen extensively gray silvery pollinose, tessellated, segment I+II above broadly pollinose, broad basal pollinose bands above on segments III and IV occupying more than basal halves, pollinose band on segment V faint; abdomen below with faint pollinosity except on apical fourths of segments; segments I to IV with lateral marginal bristles; segments III and IV with pairs of median marginals and median discals; segment V with strong row of marginal and median discal bristles.

Postabdomen structurally similar to *M. dichocerooides*, new species, with basal segments exposed, orange; first segment not visible; second segment

elongate, medially above about 0.64 mm. long, stoutly bristled above; third segment, including anal membrane, 0.52 mm. long, stoutly bristled and haired; inner forceps about 0.63 mm. long, medially 0.105 mm. wide, light brown, shining, slightly bowed in profile; outer forceps 0.62 mm. long, haired on outer surfaces, broad, curved, with black spines on outer apex projecting slightly beyond inner forceps; aedeagus with stalk brown, apical portion black, with white lateral projections and white and brown apex; anterior gonapophyses yellow-brown, stout, curved at apices; posterior gonapophyses in profile strongly curved downward, broad at apices; fifth sternite orange, with black apices at sides of emargination,



FIGS. 10-12. *Lydina aenea* (Meigen), male. 10. Postabdomen, posterior view. 11. Postabdomen, left lateral view. 12. Fifth sternite, bristles and hairs omitted.

with minute, V-shaped emargination, with long bristles and hairs on apical half, basal half concealed.

TYPE DATA: Holotype male. Upper Lake, [Lake County], California, August 8, 1959 (R. E. Dolphin), light trap collecting; returned to H. J. Reinhard.

LYDINA ROBINEAU-DESVOIDY

A study of the male postabdomen and fifth sternite of the type species, *Tachina aenea* Meigen (1824, p. 273), of the genus *Lydina* Robineau-Desvoidy, 1830, is provided here for comparison with those of *Metamyia*, new genus, as they have not been illustrated and described previously. The adult external characters are not described, since there are several descriptions of these in recent literature. In *Lydina* the inner forceps are fused apically as is typical of *Metamyia*, new genus, and *Dichocera* Williston, but the outer forceps are shorter, rounded apically, and lack the apical teeth. Apically the aedeagus is simple, without dorsal or lateral projections. The fifth sternite bears a wide and deep emargination. The following

description is based on a specimen collected at Zuoz, 1800 meters, High Engadine, Switzerland, on August 14, 1955 by Baltensweiler, kindly donated by Mr. L. P. Mesnil.

Postabdomen (figs. 10, 11) with basal segments exposed from abdomen, black; first segment probably narrow, missing in preparation; second segment elongate, bristled above medially, about 0.30 mm. long, basal third membranous above medially, spiracle removed from lateral margin; third segment 0.27 mm. in length above medially, with stout pair of bristles near base and other smaller hairs; inner forceps about 0.42 mm. long, fused apically, broad, in profile sinuous, sparsely haired apically; outer forceps about 0.28 mm. in length, broad, finely haired on inner surfaces apically, shorter than inner forceps; anal membrane 0.31 mm. long, 0.20 mm. wide; aedeagus gently bowed ventrally, 0.31 mm. in length, tubular, without dorsal or lateral projections; distiphallus enlarged apically, in profile 0.07 mm. high; ejaculatory apodeme lost; epiphallus absent; posterior gonapophyses 0.17 mm. in length, broad at bases, terminating in fine pointed apexes; anterior gonapophyses 0.22 mm. in length, strongly curved ventrally, with single toothed apexes; fifth sternite (fig. 12) curved, large, 0.61 mm. wide, 0.51 mm. long, with large V-shaped emargination 0.24 mm. in depth and 0.29 mm. at greatest width, haired on apical two-thirds.

GENUS **COLORADOMYIA**, NEW GENUS

Medium-sized (5.8 mm. in length), black and gray pollinose; head with front broad, more than four-tenths of head width, eyes haired, male third antennal segment enlarged, ocellar bristles developed, parafacial bristled and haired on lower third; thorax with prosternum, propleura, and lateral postscutellar plates bare, four sternopleurals in row, pteropleural bristle small; wing with costal spine undeveloped; abdomen with small pair of medial marginals on segment I+II; first genital segment developed and haired, fifth sternite with U-shaped emargination; puparium elongate, with posterior spiracular plates situated on a mamiform protuberance and plates extremely minute.

GENERIC CHARACTERIZATION: Head of male about one-fourth wider than high, its profile subquadrangular, narrower than thorax; frontal profile sloped, slightly arched, about one-fourth shorter than facial, latter receding; clypeus less than twice as long as wide, depressed, with depression for each antenna; epistoma sunken below bases of vibrissae; facialia about one-fourth of clypeal width; vibrissal axis about one-half of antennal axis; palpi present, small; antennal axis more than three-fifths of head

height and set above middle of eye; male third antennal segment enlarged, about five times length of second; arista with first and second segments elongate, third segment thickened, micropubescent; eyes haired; male vertex more than four-tenths of head width; inner verticals present, outer verticals absent; male with three pairs of fronto-orbital bristles; frontalia slightly wider than one parafrontal; ocellar bristles developed, proclinate divaricate; parafacialia strongly bristled and haired, not narrowed below; cheek three-fifths of eye height; mouth parts small.

Thorax with prescutum about one-third shorter than postscutum, scutellum about length of prescutum; prosternum, propleura, and lateral postscutellar plates bare; scutellum haired on posterior lateral borders; three preacrostichals, first pair minute, hind pair absent; three postacrostichals; three presutural dorsocentrals, all stout, hind pair removed from suture; three postsutural dorsocentrals; one anterior preintraalar; three postintraalar bristles (plus minute anterior fourth); two presupraalar bristles, anterior bristle minute; three postsupraalar bristles; two strong postalar bristles; five humeral bristles; posthumeral absent; two notopleural bristles; one small pteropleural bristle; four sternopleural bristles, approximately in row, anterior and posterior bristles larger; two strong lateral scutellar bristles on basal half; apical scutellar and discal scutellar bristles developed.

Legs of moderate length, tarsi as long as or longer than tibiae; mid femur with anterodorsal and posterodorsal bristles; claws and pulvilli short.

Wings clear, prestigma two and one-half times length of stigma, latter more than half of radiocosta; costal spine undeveloped; apical cell closed on costa; R_5 with only two bristles above at base; R_6 slightly beyond middle of $3M$; M_3 sinuous on lower half, beyond middle M_2 ; squamae nearly as wide as long, bare, upper squama small.

Abdomen long ovate, wider and longer than thorax; segment I+II depressed mesially on basal half; segments with median, lateral, and discal bristles (except segment I+II).

Male postabdomen with first, second, and third segments developed, exposed from abdomen; inner forceps in posterior view, narrowed and united; outer forceps developed, longer than inner forceps; fifth sternite with U-shaped emargination.

Puparium elongate; posterior spiracles minute and located on mammiform protuberance; anterior spiracles on small divided protuberances.

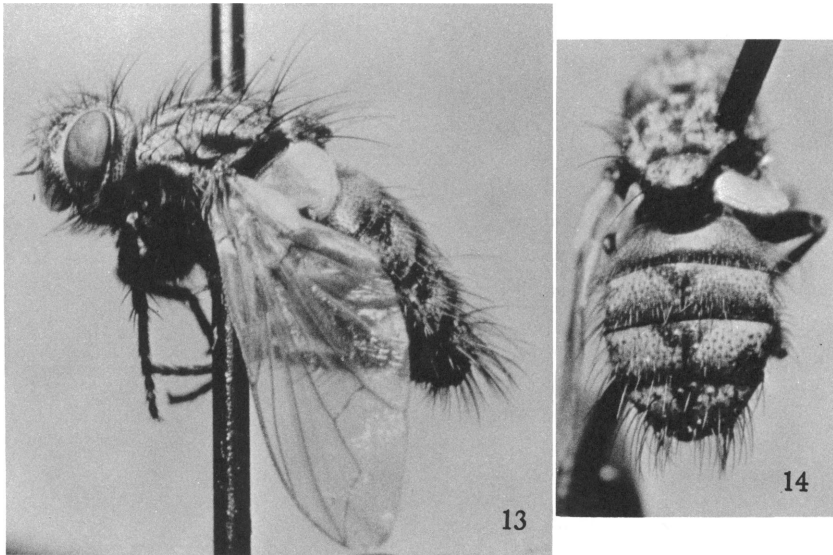
TYPE SPECIES: *Coloradomyia eucosmaphaga*, new species.

***Coloradomyia eucosmaphaga*, new species**

Figures 13–22

MALE (HOLOTYPE): Length, 5.8 mm.

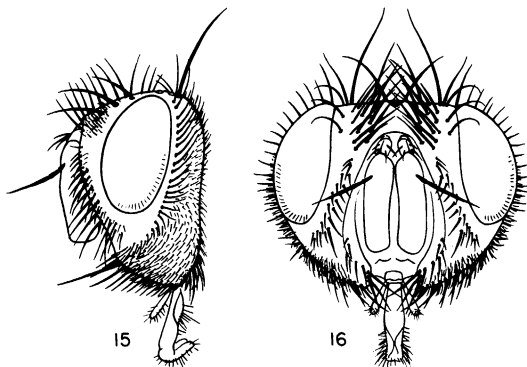
Head (figs. 15, 16) with front at vertex 0.44 of head width; black, with frontalia and portions of cheeks and inner sides of parafacials reddish brown, grayish pollinose; frontalia gradually narrowing toward vertex, wider than one parafrontal, black-haired on outer lateral sides; para-



FIGS. 13, 14. *Coloradomyia eucosmaphaga*, new species, holotype male. 13. Left lateral view. 14. Abdomen, dorsal view.

frontal bristled, black-haired; outer verticals absent; occipital fringe black, bristles fine and elongate; occiput mostly black-haired, with some white hairs below; nine pairs of frontals, posterior pairs decussate, two pairs of frontals below antennal bases; praeverticals developed; three pairs of proclinate fronto-orbital bristles, upper pair small; parafacial not narrowed below, bristled and haired to below lower margin of eye, forming diagonal rows; eyes brown, with sparse, moderately elongate, yellow hairs between facets; vibrissae strong, decussate, above sunken epistoma; facialia with four pairs of small black bristles, attaining apexes of antennae; antenna (figs. 15, 16) with segments one and two brownish black, third segment black, with extremely fine, silvery, tomentous cover-

ing, first segment short, second segment short and about as long as wide, third segment elongate, enlarged, thickened, not attaining vibrissal base in length, nearly five times length of second segment; arista black, with brownish tinge, finely short silvery micropubescent; arista with first and second segments elongate, first segment narrow at base and widening apically, twice as long as high, second segment longer than first, nearly three times longer than high, third segment less than three times length of second, at base as wide as second segment and enlarged on basal two-thirds; cheek three-fifths of eye height, black-bristled and with long black



FIGS. 15, 16. *Coloradomyia eucosmaphaga*, new species, holotype male. 15. Head, left lateral view. 16. Head, front view.

hairs; proboscis very short, haustellum reddish black, yellow-haired, labella reddish brown, yellow-haired; palpus yellow, four-fifths of cheek height, slightly widened apically, with few fine black bristles and black hairs on outer apical half.

Thorax black, grayish pollinose, entirely black-bristled and black-haired; humeri thickly haired below; mesonotum vittate, with pair of thin black vittae between preacrostichals and presutural dorsocentrals, continuing behind suture for one-third of length of postsutum, gently widening posteriorly; second pair of vittae on outer side of presutural dorsocentrals, not attaining suture, widening posteriorly, continued behind suture and stopping before hind postsutural dorsocentrals; scutellum with black hairs at base above, faintly brownish tinged at apex, two strong lateral scutellars removed from fine apical scutellars, subapical scutellars developed; bare prosternum reddish brown, with median longitudinal depression; bare with one long fine bristle and one hair.

Legs black, with brownish tinge, black-bristled and black-haired;

femora very thinly gray pollinose; mid femur with one bristle on mid anterior surface; mid tibia with four anterodorsal bristles with their bases at units 10, 15, 18, and 27, on tibial measurement of 43, the apical two stoutest, five posterodorsal bristles at units 8, 12, 17, 20, and 28, the first three small, the last two large, and one posterior bristle with its base at unit 30; apical tarsal segments short; claws and pulvilli short, claws black, pulvilli white.

Wings (fig. 17) 4.9 mm. in length, 2.1 mm. in width; clear, lightly yellowish at base; microtrichia clear, distinct over most of wing surface;

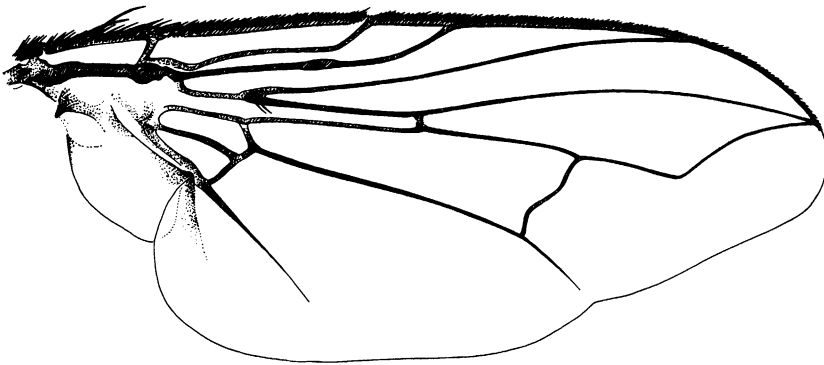


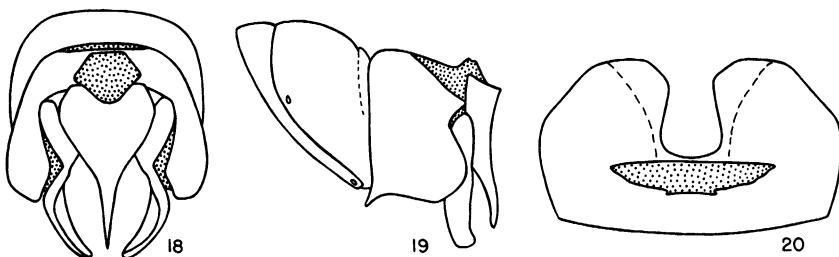
FIG. 17. *Coloradomyia eucosmaphaga*, new species, holotype male, right wing, dorsal view.

5R closed; R_5 with two bristles above at base; veins yellow-brown; costal spine small; costal marginal setulae extending onto basal half of radiocosta; divisions of costa: costigium 23, prestigma 73, stigma 29, poststigma 82, radiocosta 48, and apical cell closed on costa; venation as illustrated; epaulet black, brown at base; squamae white, very lightly yellowish tinged; halter with stalk yellow and knob brown.

Abdomen (figs. 13, 14) black, entirely black-bristled and black-haired, about one-seventh wider and about one-third longer than thorax; segments I+II, III, IV, and V above medially about 20:23:24:23 units in length; segment I+II depressed mesially on basal half; first sternite broad, second to fourth sternites broad, exposed, haired; segments III to V broadly pollinose basally and medially to posterior borders of segments III and IV, segment V mostly pollinose; segment I+II and posterior halves of segments III and IV shining black; segments I+II, III, and IV with lateral marginal bristles; segments I+II and III with pairs of small marginals removed from posterior borders; segments IV

and V with marginal rows of bristles, segments III and IV with two pairs of median discs, anterior pair on basal fourth of segment, slightly stouter than second pair; segment V with several rows of bristles starting on basal fourth to fifth of segment.

Postabdomen (figs. 18, 19) exposed from abdomen, blackish basally, partly reddish brown apically; first segment with chitinized portion forming a segment of a circle, rounded border anterior, haired, about 0.17 mm. long; second segment elongate, rounded, 0.38 mm. long, black-haired; third segment 0.26 mm. long, black-haired; inner forceps very



FIGS. 18–20. *Coloradomyia eucosmaphaga*, new species, holotype male. 18. Postabdomen, posterior view. 19. Postabdomen, left lateral view. 20. Fifth sternite. Bristles and hairs omitted.

slender apically, 0.45 mm. long, fused except at apex, shining, with very few hairs; outer forceps in posterior view bowed, longer than inner forceps, brownish black apically, finely haired; anal membrane reddish brown; aedeagus brownish black, moderately stout, about 0.44 mm. long; ejaculatory apodeme 0.255 mm. long, somewhat concave on more than basal half and very thin and fin-like on apical portion; anterior gonapophyses stout, 0.15 mm. long, directed dorsally, with broad curved apices; posterior gonapophyses 0.26 mm. long, in profile strongly curved and convex above distally; fifth sternite (fig. 20) broad and short, 0.87 mm. wide, 0.48 mm. long, with rounded emargination 0.26 mm. in depth and 0.28 mm. at greatest width, with wide membranous area below emargination, bristled and haired on more than upper half.

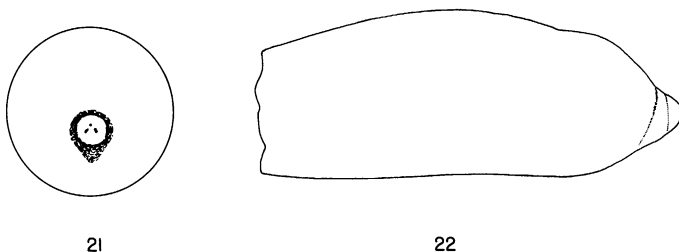
FEMALE (ALLOTYPE): Length, 6.5 mm.

Similar to holotype in coloration and chaetotaxy but differing as here enumerated.

Head with front at vertex 0.46 of head width; parafacials with double row of about 10 bristles, inner bristles stouter, outer smaller, directed forward or ventrally; facialia with but one (on right) and two (on left)

bristles above vibrissae; five frontals below antennal bases, lower two paired; second antennal segment reddish brown, third segment faintly black, with strong reddish coloration on inner and on basal portions; third antennal segment less than three times length of second; arista with first segment about one and one-half times as long as wide, second segment only about twice as long as wide, and third segment enlarged on basal half and narrowed on apical half, third segment at least four times length of second; arista black except for lighter coloration on apical half of third segment; cheek in profile more than half of eye height.

Thorax with three (on left) to five (on right) sternopleural bristles in row; scutellum with three pairs of developed lateral scutellars, one pair of small apical bristles, and one pair of fairly strong discal bristles.



FIGS. 21, 22. *Coloradomyia eucosmaphaga*, new species, puparium. 21. End view, with posterior spiracles. 22. Lateral view.

Abdomen more elongate and slender, segment III with two pairs of median discals, the anterior pair small, posterior pair stronger.

Postabdomen black, without conspicuous development or modification (not studied).

PUPARIUM: Medium-sized, elongate (figs. 21, 22), shining, light brown (reddish brown under microscope lamp); smooth, with horizontal banding, without conspicuous spine bands; posterior spiracular plates situated on a mammiform protuberance, plates extremely minute, each with three minute slits, button absent (not discernible under available magnification); spiracles situated below longitudinal axis; anal opening minute, at base of mammiform protuberance; anterior spiracular plates on separate, low protuberances; length, 7 mm.; diameter, 2.6 mm.

TYPE DATA: Holotype male: Garden of the Gods, Colorado, emerged May 4, 1915 (A. B. Champlain), "Hopk. U. S. 12197²." Determined as "*Dichocera* sp. ?, ♀" by the late C. T. Greene. Mr. C. W. Sabrosky, by reference to the Hopkins number file, has been able to furnish the name of the host lepidopteran as *Eucosma ridingsana* (Robinson) of the family

Olethreutidae. The host species is discussed by Heinrich (1923, p. 82) and was reared from roots of "greasewood?" (*Sarcobatus vermiculatus?*). The holotype belongs to the United States National Museum of the Smithsonian Institution. The right wing is mounted in balsam on a slide; the postabdomen is stored in glycerine in a microvial.

Allotype female: Colorado Springs, Colorado, June 6, 1952 (Cheng Liang), deposited in collection of H. J. Reinhard.

REMARKS: There is a male of *Coloradomyia* in the Reinhard collection from Wanship, Utah, September 15, 1925 (G. F. Knowlton), that appears to be closely allied to *eucosmaphaga*, but differs in coloration and in the width of its pollinose abdominal bands.

LITERATURE CITED

HEINRICH, CARL

1923. Revision of the North American moths of the subfamily Eucosminae of the family Olethreutidae. Bull. U. S. Natl. Mus., no. 123, pp. 1-298, pls. 1-59.

MEIGEN, J. W.

1824. Systematische Beschreibung der bekannten Europäischen zweiflügeligen Insekten. Hamm, vol. 4, pp. i-xii, 1-428, pls. 1-9.

ROBINEAU-DESVOIDY, J. B.

1830. Essai sur les myodaires. Acad. des Sci., Mém. présentes par divers Savants, Sci. Math. et Phys., vol. 2, pp. 1-813.

WILLISTON, S. W.

1895. A new tachinid with remarkable antennae. Ent. News, vol. 6, pp. 29-32.