

# AMERICAN MUSEUM NOVITATES

Published by

Number 1134

THE AMERICAN MUSEUM OF NATURAL HISTORY  
New York City

August 6, 1941

## CONTRIBUTION TO A REVISION OF NEOTROPICAL MYDAEINI (DIPTERA: MUSCIDAE)

By FRED M. SNYDER

This paper is a portion of a partially completed World revision of the Mydaeni. It was originally planned to publish the revision in its entirety, but because of present World conditions and the difficulties in obtaining material, these plans have had to be abandoned.

It was thought best to break it up into parts dealing with various faunal regions and present the various portions as availability of material permits. Later it is hoped to publish a key to the species of the World and a more complete discussion of genera and certain species as well as a catalogue of species.

For the present, new species will be described in the currently accepted genera unless it is obviously necessary to do otherwise. The present paper contains keys and descriptions of the Neotropical species of the genera *Helina* and *Mydaea* in the strictest sense, known to me at this time.

I wish to express my gratitude to the authorities of The American Museum of Natural History, Illinois Natural History Survey, United States National Museum and the Deutsches Entomologisches Institut, for the opportunity to study type as well as other specimens in their collections and to Dr. C. H. Curran and Mr. J. R. Malloch I am indebted for help and criticisms.

### *Mydaea* ROBINEAU-DESVOIDY (*sensu stricto*)

ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Soc. France, II, p. 479.

The genus *Mydaea* in its strict sense includes species of Mydaeni having hairs on both surfaces of the node of the second and third wing veins and not beyond, pubescent to plumose arista and usually with hairs on the notopleura at the base of the notopleural bristles and, if the arista is dis-

tinctly plumose, there are usually setulae on the posterior ventral portion of the hypopleura above the hind coxae. In the four new species described herein, where visible, the ventral apical portion of the ovipositor bears distinct thorn-like bristles.

### TABLE OF SPECIES

- |   |                           |
|---|---------------------------|
| 1.—Wings with a distinct costal cloud. . . . .  | 2.                        |
| Wings without a distinct costal cloud. . . . .  | 3.                        |
| 2.—With only a costal cloud; fore tibiae with a median posterior bristle; margins of calyptrae not darkened. <i>fumicosta</i> , n. sp.  |                           |
| With a distinct cloud on cross-veins and at apices of third and fourth veins; fore tibiae without a median posterior bristle; margins of calyptrae dark brown to black. . . . . | <i>nubivena</i> , n. sp.  |
| 3.—Fore coxae black; margins of upper calyptrae black; fore tibiae bare at middle; dorsocentrals 2:4. . . . .   | <i>plummanni</i> , n. sp. |
| Fore coxae yellow; margins of upper calyptrae pale; fore tibiae with one or two median posterior bristles; dorsocentrals 2:3. . . . .   | <i>meridia</i> , n. sp.   |

### *Mydaea fumicosta*, new species

FEMALE.—7.5 mm. long. Parafacials, parafrontals and cheeks black with dense, slightly bluish-gray pruinescence. Front at vertex two-sevenths of head width, widened to one-third anteriorly. With a row of seven or eight parafacial bristles, the posterior two pair outwardly, the others inwardly directed, with a few short setulae laterad all of them. The most anterior pair of parafrontals distinctly stronger than others, almost as strong as the ocellars. Junction of parafacials and parafrontals almost as long as greatest width of third antennal segment, parafacials narrowed to half the width of antennae below. Cheeks one and a half times as high as width of third antennal segment. Eyes bare. The head slightly higher and not as long as usual. Antennae inserted opposite dorsal fourth of eyes. Antennae and palpi black. Third antennal segment a little over three times as long as second. Longest hairs on arista about one and a fourth times as long as its greatest diameter.

Thorax black, slightly shiny, with sparse gray pruinescence, only indistinctly quadrivittate.

Presutural acrostical setulae in four to six irregular rows and a pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra about half as long as posterior notopleural bristle, the latter with one or two setulae at base. Scutellar setulae very sparse, not descending below level of marginals. Sternopleurals 1:2; hypopleura and sternites bare.

Coxae, trochanters, tarsi and fore femora black, rest of legs fulvous except apices of mid and hind femora which are slightly brownish. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with two or three ventral bristles on basal half to third, a row of very weak anterior setulae on basal half, the most apical one or two in this series quite well developed and with a very weakly developed apical anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with three or four widely placed short anteroventral bristles on apical half to third. Hind tibiae with one median anterodorsal and anteroventral bristle.

Wings slightly broader than usual, brownish yellow, shiny hyaline, with an almost opaque deep brown to blackish cloud extending from apex of subcosta to apex of second vein and reaching slightly posterior to second vein. Cross-veins not infuscated. Costal setulae and thorns not distinctly developed. Node hairy above and below. Other veins bare. Penultimate portion of fourth vein five-sixths as long as ultimate. Third vein a little more bowed at middle than usual. Third and fourth veins subparallel at apices. Calyptae white. Knobs of halteres dark brown to black, stalk fulvous.

Abdomen long and rather pointed, shiny, slightly greenish black pruinose, unspotted. Basal sternite bare. Ovipositor with short thorns on the last visible sternite but none on suranal plate.

**HOLOTYPE.**—Female, Hda Talahua, Prov. Bolivar (Ecuador), 3100 m., April 29, 1939, F. M. Brown coll. (Amer. Mus. Nat. Hist.).

*Fumicosta* may be distinguished from the Bolivian species, *marginalis* Stein,<sup>1</sup> by the higher insertion of the antennae, mostly yellowish legs and the more basally extended costal cloud. I have not seen *marginalis* and it is impossible to say whether or not *marginalis* belongs to this group because of the great superficial resemblance of many species belonging to different genera.

### ***Mydaea nubivena*, new species**

**FEMALE.**—7 mm. long. Parafrontals, ventral margins of cheeks and posterior half of

frontal vitta black, grayish pruinose, the parafrontals, rest of cheeks and frontal vitta fulvous, grayish pruinose. Occiput black, grayish pruinose. Front at vertex a little less than a third of head width (five-eighths), widened to one-third anteriorly. With a strong anterior parafrontal bristle, four to six pairs of very much shorter, inwardly directed and two pairs of moderately developed, outwardly directed bristles, with a row of very short setulae laterad of all parafrontal bristles. Junction of parafrontals and parafrontals three-fourths as long as narrowest width of third antennal segment and half as wide as its greatest width; parafrontals obscured below. Cheeks one and a half times as high as greatest width of third antennal segment, with one or two rows of downwardly directed, very short setulae along lower margin. Eyes bare or with very short, sparse hairs. Palpi light brown to dark orange, most of the setulae very short and rather spine-like. Antennae light reddish brown; the base of third segment light fulvous. Third antennal segment two and three-fourths times as long as second, gradually narrowed apically. Longest arisal hairs three-fourths as long as greatest width of third antennal segment, and as long as narrowest width.

Thorax bluish black, with sparse bluish-gray pruinose and four very narrow, scarcely distinguishable vittae. Presutural acrostical setulae in ten to twelve irregular rows and a pair of prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra one-third as long as posterior notopleural bristle, the latter with several setulae at base. Scutellar setulae not descending below level of marginals. Sternopleurals 1:2; hypopleura and sternites bare.

Legs black, the knees brownish orange, the tibiae darker brown. Fore femora normal. Fore tibiae bare in the middle. Mid femora with three to five ventral bristles on basal half, without distinguishable basal or apical anterior bristles. Mid tibiae with two median posterior bristles. Hind femora with three or four long, widely spaced anteroventral bristles on apical half, a few very short but distinct anteroventral setulae on basal half and five or six posteroventral bristles on basal half. Hind tibiae with two anterodorsal and one anteroventral median bristles.

Wings very slightly grayish hyaline. Costal margin and cross-veins deeply infuscated, with a faint subconfluent cloud at apex of third and fourth veins; the cloud at apex of third vein grading into the faintly infuscated apical portion of costal cloud. Costal thorns and setulae undeveloped. Node hairy above and below. Other veins bare. Third and fourth veins subparallel at apices. Calyptae white, the margins narrowly blackened. Knobs of halteres black, the stalk yellow.

Abdomen bluish black, subshiny, with sparse grayish pruinose, unmarked. Basal sternite bare; others with a pair of well-developed apical bristles. Ovipositor with strong spines below.

<sup>1</sup> Stein, 1918, Ann. Mus. Nat. Hung., XVI, p. 184.

**Types.**—Holotype, female, Baños (Ecuador), March 4, 1939, F. M. Brown coll. (Amer. Mus. Nat. Hist.). Paratype, 1 female, near mouth Rio Mapiri (Bolivia?), September, Mumford Biological Expedition 1921–1922 (U. S. Nat. Mus.).

*Mydaea trisetata* Curran<sup>1</sup> will trace out to this species in the accompanying key, but since *trisetata* has a short but very distinct posteroventral bristle on apical third of hind tibiae, it is not included within the group of genera treated herein and I believe that it would be more properly placed among the Phaoniini.

There are several neotropical species, *marginipennis* Stein and *vierecki*, new species, having the same rather bluish body coloring and wing markings as *nubivena*. This last species may be distinguished from both of them by the presence of notopleural hairs as well as the setulae on the node above and below.

### *Mydaea meridia*, new species

**FEMALE.**—5.5 mm. long. Head black, the parafacials, parafrontals and cheeks yellowish gray pruinulent. Front at vertex slightly more than one-fourth of head width, distinctly widened anteriorly. Parafrontals with a complete row of bristles, the posterior two outwardly directed. Juncture of parafacials and parafrontals as long as width of third antennal segment at narrowest part, parafacials very much narrowed below. Cheeks as high as width of parafacials at base of antennae. Eyes bare. Palpi yellow. Second antennal segment and base of third to slightly below the insertion of arista yellowish orange, rest of third segment brownish. Third antennal segment three times as long as second. Longest hairs on arista about as long as its basal diameter.

Thorax black, grayish pruinulent with four moderately distinct brown vittae. Humeri slightly lighter in ground color than the rest of thorax. Presutural acrostical setulae in four or five irregular rows and a moderately well-developed pair of prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra not more than half as long as posterior notopleural bristle and slightly more than one-fourth as long as the bristle behind it; with only one or two very weak setulae at base of posterior notopleural bristle on one side. Scutellar setulae reaching to but not below level of marginals. Sternopleurals 1:2; hypopleura including the portion above hind coxae and sternites bare.

Legs yellow, only the tarsi and a very narrow

apical portion of mid and hind femora infuscated. Fore femora normal. Fore tibiae with one long and one short median posterior bristle. Mid femora with two or three short but moderately well-developed basal ventral bristles, bristles on basal half of anterior surface only slightly developed, with one apical anterior but no apical anterodorsal bristles. Mid tibiae with two median posterior bristles. Hind femora with three or four widely scattered bristles on apical half of anteroventral surface, and with two or three at base on posteroventral surface. Hind tibiae with two median anterodorsal and one anteroventral bristle.

Wings hyaline. Third and fourth veins strongly divergent at apices, distinctly curved. Costal thorns and setulae only slightly developed. Node with a few weak hairs above and below. Calyptae white hyaline. Halteres yellow.

Abdomen slightly yellowish in ground color at base of first visible segment, rest of the dorsum black, slightly bluish gray pruinulent, with dorsal and lateral checkerings. The ventral margins of the tergites and lateral margins of the sternites slightly yellowish. Basal sternite bare; others slightly longer than broad with only weak apical bristles. Ovipositor not distinctly visible, but the portion which can be seen is slightly yellowish with distinct spines.

**HOLOTYPE.**—Female, Coapa, D. F. (Mexico), August 26, 1922, E. G. Smyth coll. (U. S. Nat. Mus.).

This remarkable species should be at once recognizable by its three postsutural dorso-central bristles, yellowish undiluted palpi, apically infuscated antennae and largely yellowish legs.

### *Mydaea plaumanni*, new species

**FEMALE.**—7 mm. long. Head black, grayish pruinulent. Front at vertex one-fifth of head width, widened to one-fourth of head width anteriorly. Frontal vitta at middle about twice as wide as distance across posterior ocelli, inclusive; the parafrontals one-fourth as wide as width of frontal vitta, with a complete row of bristles, the most anterior one strongest and about as long as ocellars, the posterior two pairs outwardly and the others inwardly directed, all with setulae laterad of them in one or two irregular rows. Juncture of parafacials and parafrontals four-fifths as long as width of third antennal segment, parafacials narrowed to one-fourth its width below. Cheeks one and a fourth times as high as width of third antennal segment. Eyes with distinct, short, sparse hairs. Palpi rather uniformly broadened, blackish on basal and yellow on apical halves. Antennae black, root of third antennal segment reddish yellow. Third antennal segment three times as long as second. Longest arisal hairs about three-fourths to four-fifths as long as width of third antennal segment. When viewed in profile,

<sup>1</sup>Curran, 1931, American Museum Novitates, No. 492, p. 13.

the front distinctly retreating and the head distinctly higher and narrower than usual.

Thorax bluish black with dense bluish-gray pruinescence and four indistinct black vittae and with a faint median vitta extending from apex of scutellum to level of second dorsocentral. Presutural acrostical setulae in six to eight irregular rows and a distinct pair of prescutellar acrostical bristles; dorsocentrals 2:4; intralars 2; pra three-fourths as long as the short posterior notopleural bristle, but only one-fourth as long as the dorsocentral and supra-alar bristles; numerous hairs at base of notopleurals. Scutellar setulae reaching to but not below level of marginals. Sternopleurals 1:2; prosternum bare, the metasternum with a few setulae. Hypopleura with two or more setulae above base of hind coxae.

Legs black, the knees and tibiae dark yellowish. Fore femora normal. Fore tibiae bare in the middle. Mid femora with three to five ventral bristles on basal third to half, without basal anterior bristles but with an anterior setula. Mid tibiae with three median posterior bristles. Hind femora with a complete row of anteroventral bristles, those on basal half much shorter and more hair-like than those toward apex and with a few fine posteroventral setulae on basal half, the apical one in this series often most well developed. Hind tibiae with two or three anterodorsal and one anteroventral median bristles.

Wings glass hyaline, the anterior cross-veins very slightly infuscated. All veins deep black. Costal setulae and thorns undeveloped. Node hairy above and below, other veins bare. Third and fourth veins gradually divergent at apices. Discs of calyptrae concolorous with wing membrane but the margins darkened, the upper one most noticeably so. Halteres yellow to orange, the juncture of knob and stalk darker.

Abdomen bluish black, bluish gray pruinescence, with slight dorsal and distinct lateral checkerings. Basal sternite bare; others with one to three pairs of short, fine, apical bristles. With distinct thorns on suranal plate of ovipositor.

**TYPES.**—Holotype, female, Nova Teutonia (Brasil), 27°11' B., 52°23' L.,<sup>1</sup> June 6, 1939, Fritz Plaumann coll. (Amer. Mus. Nat. Hist.). Paratype, 1 female, topotypical (U. S. Nat. Mus.); 1 female, topotypical, November 10, 1937 (F. M. Snyder).

One paratype is quite teneral and lacks hairs on the metasternum but agrees in all other respects with the holotype. The very narrow front in the female should readily distinguish this species from all others placed in *Mydaea*, s.s. This character, as well as the metasternal hairs, might be considered

of generic value, but since the former is a sexual character and the latter apparently variable, I shall place it in *Mydaea*, s.s.

#### **Helina** ROBINEAU-DESVOIDY (*sensu stricto*)

ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Soc. France, II, p. 493.

This group of species discussed and described herein will run out to the group of *Helina* mentioned in the second alternative of the fifth couplet of the key in my paper on this genus.<sup>2</sup>

In several cases I have keyed out species in the following table which I have not seen but which I feel confident belong to this group. There are undoubtedly other species which would fall into this group but because there is a possibility that they might possess characters not mentioned by their describers which would exclude them from *Helina* (s.s.) I have not attempted to include them.

#### TABLE OF SPECIES

##### MALES

- 1.—With three pairs of strong postsutural dorsocentral bristles. . . . . 2.  
With four pairs of strong postsutural dorsocentral bristles. . . . . 12.
- 2.—Costal margin, cross-veins and apex of veins broadly infuscated; stalk of halteres at base of knobs darkened; hind femora with fine, almost hair-like bristles on basal half or more of posteroventral surface. . . . . 3.  
Wings not so marked or not as above *in toto*. . . . . 4.
- 3.—Frontal vitta at narrowest not more than one and a half times as wide as diameter of anterior ocellus; when viewed in profile, the antennae inserted opposite middle of eyes; the narrow third antennal segment not more than two and a half times as long as second. . . *vierecki*, n. sp.  
Frontal vitta at narrowest almost two and a half times as wide as distance across posterior ocelli, inclusive; when viewed in profile the antennae inserted opposite dorsal third of eye; the broad third antennal segment almost four times as long as second. . . *marginipennis* (Stein).
- 4.—One or two pairs of strongly developed presutural acrostical bristles. . . . . 5.  
With at most a pair of well-developed acrostical setulae which are never more than half as long and strong as the adjacent dorsocentrals, or eyes not separated by more than distance across posterior ocelli, inclusive. . . . . 6.

<sup>1</sup> Latitude and longitude.

<sup>2</sup> 1940, Amer. Mus. Novitates, No. 1060, p. 2.

- 5.—Eyes with short but distinct hairs; deep blackish pruinose species with only the apices of mid and hind femora orange-colored; hind tibiae with three anterodorsal bristles and three or four shorter posterior ones at middle. . . . . *rufopapicata* Malloch.  
Eyes bare; light yellowish-gray pruinose species with at most only the fore femora indistinctly darkened; hind tibiae with only one anterodorsal and no posterior bristles. . . . . *acrosticalis*, n. sp.
- 6.—Longest arisal hairs shorter than or only as long as greatest diameter of arista. . . . . 7.  
Longest arisal hairs at least half as long as the width of third antennal segment. . . . . 9.
- 7.—Palpi, second antennal segment and fore femora yellowish to fulvous. . . . . *acrinis*, n. sp.  
Palpi, second antennal segment and fore femora black. . . . . 8.
- 8.—Hind tibiae with only one anteroventral bristle which is situated on the apical fourth. . . . . *xena* Malloch.  
Hind tibiae with two or three anteroventral bristles which are situated on the apical two-thirds. . . . . *adelpha* (Schiner).
- 9.—Hind tibiae without a basal posterodorsal bristle; cross-veins very broadly infuscated; abdominal sternites without long marginal bristles. . . . . 10.  
Hind tibiae with one or more posterodorsal bristles on basal half or more; cross-veins very narrowly infuscated; abdominal sternite with a marginal fringe of long bristles. . . . . *lasiosterna*, n. sp.
- 10.—Hind femora with a complete row of antero- and posteroventral bristles or long bristly hairs. . . . . 11.  
Hind femora with at most only the anteroventral bristles. . . . . *decora*, n. sp.
- 11.—A conspicuous dark spot at base of discal cell below juncture of second and third wing veins. . . . . *poeciloptera* (Schiner).  
Only the cross-veins infuscated. . . . . *signatipennis* (v. d. Wulp).
- 12.—All legs black or very dark brown. . . . . 13.  
At least some part of the legs much lighter colored. . . . . 15.
- 13.—Margins of upper calyptrae darkened; hind femora without posteroventral hair-like setulae or bristles. . . . . *browni*, n. sp.  
Margins of upper calyptrae not darkened; hind femora with an almost complete row of posteroventral hair-like bristles or setulae. . . . . 14.
- 14.—Hind tibiae with a series of very long fine posteroventral and ventral bristles on basal three-fourths which are strongest at the base and become shorter toward apex. . . . . *longipila* (Stein).  
Hind tibiae without long hair-like posteroventral and ventral setulae on basal three-fourths. . . . . *equator*, n. sp.
- 15.—With one or more pairs of distinct presutural acrostical bristles which are always stronger than the adjoining acrostical setulae. . . . . 16.  
With only presutural acrostical hairs or setulae. . . . . *copiosa* (v. d. Wulp).
- 16.—Fourth wing-vein strongly deflected posteriorly at apex; posterior cross-vein strongly curved; both cross-veins broadly infuscated. . . . . *inepta* (Stein).  
Fourth wing-vein not strongly deflected posteriorly at apex; other characters not as above *in toto*. . . . . 17.
- 17.—Mid tibiae with a strong median posteroventral bristle; front distinctly wider than width of third antennal segment; pra less than one-third as long as bristle behind it. . . . . 18.  
Mid tibiae with no posteroventral bristles or if present the other characters are not as above *in toto*. . . . . 20.
- 18.—Longest hairs on arista not longer than its greatest diameter; mid tibiae with one or two submedian anterodorsal bristles. . . . . *discolor* (Stein).  
Longest hairs on arista distinctly longer than its greatest diameter. . . . . 19.
- 19.—Mid tibiae with no anterodorsal bristles; scutellar setulae descending below level of marginals. . . . . *chilensis* Malloch.  
Mid tibiae with one or two anterodorsal bristles; scutellar setulae not descending below level of marginals. . . . . *simplex* Malloch.
- 20.—All femora and tibiae entirely fulvous. . . . . *dubia* (Bigot).  
At least some part of femora or tibiae infuscated. . . . . 21.
- 21.—Pra at most not more than one-third as long as first postsutural dorsocentral bristle. . . . . 22.  
Pra as long and strong as the first postsutural dorsocentral bristle. . . . . 25.
- 22.—Hind femora and the tibiae at base with long, slender posteroventral bristles. . . . . *longipila* (Stein).  
Hind legs not so armed. . . . . 23.
- 23.—Front at narrowest equal to length of third antennal segment; parafacial bristles extending all the way to vertex. . . . . *rufopapicata* Malloch.  
Front at narrowest not nearly as wide as length of third antennal segment; at most only slightly wider than distance across posterior ocelli, inclusive. . . . . 24.
- 24.—Mid tibiae without one or two median anterodorsal bristles; hind femora and tibiae darkened only on basal fourth. . . . . *townsendi*, n. sp.  
Mid tibiae with one or two median anterodorsal bristles; hind femora darkened on basal half and the hind tibiae darkened on basal two-thirds. . . . . *fulvocalyprata* Malloch.
- 25.—Longest arisal hairs fully one-half as long as width of third antennal segment; the hair-like anteroventral bristles on hind femora not as long as diameter of femora

- where situated; legs mostly blackish... *bigoti* Malloch.
- Longest hairs on arista not longer than its greatest diameter; the hair-like bristle on hind femora at least one and a half times as long as diameter of femora where situated; legs mostly yellow... 26.
- 26.—Mid tibiae with one or more short but distinct submedian anterodorsal bristles; femora and tibiae yellow; hind femora with a number of long, hair-like posteroventral bristles which are distinctly longer than diameter of femora where situated... *connexa* Malloch.
- Mid tibiae anterodorsally bare; hind femora without long, hair-like posteroventral bristles... 27.
- 27.—Mid and hind femora entirely yellow... *bifimbriata* Malloch.
- Basal two-thirds of mid and hind femora blackened; abdominal pruinescence gray... *bifimbriata* var. *grisea* Malloch.
- Basal one-third or less of mid and hind femora darkened; abdominal pruinescence golden brown... *bifimbriata* var. *basilis* Malloch.
- FEMALES
- 1.—With three pairs of strong postsutural dorsocentral bristles... 2.
- With four pairs of strong postsutural dorsocentral bristles... 13.
- 2.—Cross-veins, costal margins and apex of infuscated; no prescutellar acrostical bristles; pra absent; halteres black... *marginipennis* (Stein).
- At most only the cross-veins infuscated or not as above *in toto*... 3.
- 3.—Hind tibiae with one or more distinct posterodorsal bristles on basal half or less... 4.
- Hind tibiae posterodorsally bare... 7.
- 4.—Frontal vitta with a pair of cruciate bristles; cheeks almost half as high as eye; fore tibiae without median posterior and anterodorsal bristles; pra almost as long and strong as posterior notopleural bristles... *cruciata*, n. sp.
- Frontal vitta without cruciate bristles; cheeks less than one-fourth of eye height; fore tibiae with either a posterior or anterodorsal median bristles or with both... 5.
- 5.—Second antennal segment mostly or entirely light yellow to orange... *parvula* (v. d. Wulp).
- Second antennal segment entirely black or dark brown... 6.
- 6.—Hind tibiae with two or three posterodorsal bristles; longest arisal hairs not quite as long as greatest width of third antennal segment... *copiosa* (v. d. Wulp).
- Hind tibiae with only one posterodorsal bristle on basal third or less; longest arisal hairs not over half as long as greatest width of third antennal segment... *caneo*, n. sp.
- 7.—Aristal hairs at most only slightly longer than the greatest diameter of arista... 8.
- Aristal hairs distinctly longer than greatest diameter of arista, usually at least half as long as greatest width of third antennal segment... 12.
- 8.—Thorax, abdomen and palpi largely or entirely yellow in ground color; fore tibiae with a median anterodorsal bristle... *arvinis*, n. sp.
- Thorax entirely and the abdomen and palpi usually black; fore tibiae without a median anterodorsal bristle... 9.
- 9.—Mid tibiae with two median anterodorsal bristles... *brevivena*, n. sp.
- Mid tibiae without median anterodorsal bristles... 10.
- 10.—With one or more pairs of short but distinct presutural acrostical bristle-like setulae; cross-veins very broadly infuscated... 11.
- Without presutural acrostical bristles; cross-veins at most only moderately infuscated... *socia* (v. d. Wulp).
- 11.—Mid and hind femora infuscated on apical third, the basal two-thirds orange-yellow; hind tibiae with only one anteroventral bristle which is situated on apical fourth... *xena* Malloch.
- All femora almost entirely infuscated; the anteroventral hind tibial bristle situated at middle... *adelpha* (Schiner).
- 12.—First and second longitudinal veins, cross-veins and fourth vein at base of discal cell broadly infuscated; cross-veins most distinctly so; sternopleurals 1:2... *poeciloptera* (Schiner).
- Only the cross-veins infuscated; sternopleurals 2:2... *decora*, n. sp.
- signatipennis* (v. d. Wulp).
- 13.—Metallic violet-blue non-pruinose species with entirely black calyptrae and halteres... *viola* Malloch.
- Species not so colored... 14.
- 14.—Legs entirely black to dark brown... 15.
- Legs partly or entirely yellow to reddish... 17.
- 15.—Margins of both calyptrae and the entire halteres black; scutellar setulae descending well below level of marginals; especially at base of scutellum; abdomen distinctly bluish, with sparse grayish pruinescence... *notha*, n. sp.
- Margins of calyptrae and entire halteres not black; at most with one or two setulae descending below level of marginals at middle of scutellum... 16.
- 16.—Posterior cross-vein joining the fourth vein at about the middle of the portion beyond the anterior cross-vein; costal cell basad the first vein light brownish hyaline, scarcely darker than the highest portion of wing-membrane... *anubes*, n. sp.

- Posterior cross-vein joining the fourth vein well beyond the middle of the portion beyond anterior cross-vein; costal cell before juncture basad first vein almost opaque, black, very much darker than the lightest portion of wing-membrane.....*equator*, n. sp.
- 17.—Mid tibiae with a submedian posteroventral bristle.....*simplex* Malloch.
- Mid tibiae without a submedian posteroventral bristle.....18.
- 18.—Mid tibiae with two or more strong median anterodorsal bristles.....19.
- Mid tibiae bare or with a single very weak median anterodorsal bristle.....21.
- 19.—Pra as long as or longer than the posterior notopleural bristle; mid and hind femora entirely yellow.....*connexa* Malloch.
- Pra not more than half as long as the posterior notopleural bristle.....20.
- 20.—Thorax with dense, golden-yellow pruinescence; all tibiae fulvous; without a strong pair of prescutellar acrostical bristles.....*brevivena*, n. sp.
- Thorax with grayish pruinescence; only the hind tibiae reddish, rest of legs black; with a pair of strong prescutellar acrostical bristles.....*fulvocalyptata* Malloch.
- 21.—Fourth vein very strongly curved posteriorly at apex; cross-veins broadly infuscated, the posterior one most broadly so at its juncture with fourth and fifth veins; eyes with short but distinct hairs.....*inepta* (Stein).
- Fourth vein subparallel with the third at apex; cross-veins not broadly infuscated.....22.
- 22.—Mid and hind femora entirely yellow.....*bifimbriata* Malloch.
- Mid and hind femora mostly infuscated.....23.
- 23.—Pra distinctly longer than the posterior notopleural bristle; mid tibiae with four or five median posterior bristles; fore and mid tibiae entirely fulvous.....*bigoti* Malloch.
- Pra not over half as long as the posterior notopleural bristle; mid tibiae with two median posterior bristles; fore and mid tibiae entirely infuscated.....*anubes*, n. sp.

### *Helina marginipennis* (Stein)

*Spilogaster marginipennis* STEIN, 1904, Ann. Mus. Nat. Hung., II, p. 440.

*Mydaea marginipennis* STEIN, 1911, Archiv f. Nat., Abt. A, heft 1, LXXVII, p. 24.

MALE.—7 mm. long. Head black, grayish pruinescent. Juncture of parafacials and parafrontals and cheeks near facial ridges with a slightly reddish cast. Front at narrowest point almost twice as wide as distance across posterior ocelli, inclusive. At the same level, the parafrontals as wide

as diameter of anterior ocellus. With one well-developed and one somewhat weaker parafrontal bristle and two setulae on anterior third, rest of parafrontal bare. Juncture of parafacials and parafrontals almost as long as the broadened third antennal segment, parafacials almost obscured below. Cheeks almost as high as width of third antennal segment. Eyes with very short, sparse, scarcely distinguishable hairs. Antennae and palpi black, the former inserted opposite the dorsal third of eye. Third antennal segment greatly elongated and broadened, four times as long as second extending well below lower margin of eyes and to the oral margin. Longest hairs on arista scarcely longer than its greatest diameter.

Thorax bluish with grayish pruinescence and four narrow vittae. Presutural acrostical setulae in four moderately regular rows, the outer row most well developed and with a pair of moderately well-developed prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra absent. Scutellar setulae rather sparse, not descending below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Legs black, the apices of femora and the middle of the tibiae somewhat dirty brown. Fore femora normal. Fore tibiae with a strong median posterior bristle. Mid femora with two or three short basal ventral bristles and a row of anterior bristles on basal half as well as a well-developed subapical anterior and anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with four or five widely spaced short anteroventral bristles and a series of somewhat longer but more hair-like posteroventral setulae on basal half or less. Hind tibiae with one median anterodorsal, one median anteroventral and one additional anteroventral bristle on apical fourth.

Wings hyaline, the costal margin from apex of subcosta to wing-tip extending slightly posteriorly to the second longitudinal vein and joining a large round spot around anterior cross-vein, the posterior cross-vein, apex of third wing-vein and a limited subapical portion of the fourth vein

brownish infuscated. Costal setulae and thorns undeveloped. All veins bare; third and fourth slightly divergent at apices. Calyptrae white. Halteres brown, the portion of the stalk at base of knob darkened.

Abdomen bluish with dense whitish pruinescence and with a pair of subconfluent subtriangular black spots on second and third visible tergites. The abdomen rather elongated and narrowed apically. Basal sternite bare; others distinctly longer than wide, with a pair of very well-developed apical bristles; fifth distinctly cleft, the armature not visible. Hypopygium concolorous with rest of abdomen.

FEMALE.—8 mm. long. Similar to the male, differing from it in having the front at vertex not quite one-third of head width, slightly widened anteriorly, with several setulae laterad the two anterior parafrontal bristles and with none adjacent the two outwardly directed posterior ones. Prescutellar acrostical bristles absent. Mid femora with only the apical anterior bristle and hind femora with the median third of anteroventral surface bare. Wings with the clouds at apices of third and fourth veins more distinct and with the costal cloud reaching almost to the humeral crossveins. Abdomen without as distinct subtriangular spots.

SPECIMENS EXAMINED.—1 male and 1 female from Huascaray Ridge, Pr. Jean, Peru, 7000 ft., September 21, C. H. T. Townsend coll. (in U. S. Nat. Mus.). The female bears the label in Townsend's handwriting "this acalyptrate seems to be counterfeited by predatory Tachs or visa versa."

Stein mentions that he had seen a pair of this species determined by Schiner as *lingindii*. I have been unable to find any reference to a species of this name described by Schiner and assume that it was a manuscript name.

See also discussion under *vierecki*, new species.

#### ***Helina vierecki*, new species**

MALE.—7 mm. long. Very similar to *marginipennis* Stein. Head colored as in *marginipennis*. Front at narrowest about as wide as distance across posterior ocelli, inclusive. At

the same level the frontal vitta one and a fourth times as wide as diameter of anterior ocellus and each parafrontal about half the width of vitta. Parafrontals with three to four pairs of bristles and two or three setulae which reach one-third the distance to anterior ocellus. Juncture of parafacials and parafrontals as long as greatest width of the narrowed third antennal segment. At narrowest, parafacials as long as greatest diameter of arista. Cheeks one and a third times as high as width of third antennal segment. Eyes bare. Antennae inserted opposite the middle of the eyes and reaching only to the lower level. Third antennal segment two and a half times as long as second. Longest hairs on arista not more than twice as long as its greatest diameter.

Thorax more greenish blue with grayish pruinescence, and four darker narrow vittae. Presutural acrostical setulae in two irregular rows; pra about one-third as long as posterior notopleural bristle, otherwise as in *marginipennis*.

Legs very dark brown to black, the tibiae slightly lighter brown. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora as in *marginipennis* except the ventral bristles are longer than the anterior ones and only one subapical bristle which is anteriorly placed. Mid tibiae with two median posterior bristles. Hind femora with a complete row of seven or eight closely placed anteroventral bristles and a more compact row of posteroventral hair-like setulae.

Wings, calyptrae and halteres as in *marginipennis*.

Abdomen black, with very dense, brownish to clay-colored pruinescence, with a pair of slender spots on second and a shorter pair on third visible tergite. Otherwise as in *marginipennis*.

TYPES.—Holotype, Male, La Cumbee, Colombia, 7000 ft., December 15, 1922, H. L. Viereck coll.; paratype, 1 male, Vista Nieve, Colombia, December 16, 1922, H. L. Viereck coll. Both types bear C. H. Curran collection Acc. No. 31,144.

It is quite difficult to decide which of these two species represents Stein's *marginipennis*, since it was originally described on the basis of a female. The female which I take to be *marginipennis* agrees with all the characters mentioned by Stein, and the male which I associate with it, while having prescutellar acrostical bristles, also has the antennae inserted well above the middle of the eyes. For this reason I shall consider the male before me which has the broad third antennal segment and wider front as *marginipennis*, while the less bluish species with shorter and narrower



third antennal segment and narrow front as *vierecki*, new species. The paratype agrees in all respects with the above description except that it lacks the slender median anteroventral bristle on hind tibiae.

### *Helina cruciata*, new species

**FEMALE.**—10 mm. long. Head black, densely silvery gray pruinulent, the cheeks and juncture of parafacials and parafrontals with slightly darker reflections. Front at vertex one-third of head width, widened anteriorly. With a complete row of parafrontal bristles, last two outwardly directed and numerous well-developed setulae on both sides of the bristles, those on the inner side being slightly less numerous but extending onto the frontal vitta, and with a pair of cruciate bristles. Juncture of parafacials and parafrontals one and a half times as long as greatest width of third antennal segment; parafacials distinctly narrowed below, but the broadened facial ridges make the parafacial appear not widened. Cheeks as high as length of third antennal segment and three-fifths of eye height. Facial ridges very much broadened, especially at lower level of eyes, at this level, slightly wider than width of third antennal segment and with numerous setulae especially on the lateral margin which reach slightly above level of the apex of third antennal segment. Eyes with distinct, short, sparse hairs. Palpi black. Apex of second antennal segment narrowly brownish to orange, rest of the antennae black. Third antennal segment three times as long as second, extending distinctly below level of lower margin of eyes. Longest arisal hairs three-fourths as long as width of third antennal segment.

Thorax black, densely whitish gray pruinulent, with four distinct brown vittae and with a spot at base of scutellum which joins a median dorsocentral vitta which extends anteriorly on the mesonotum slightly posterior to the transverse suture. The ventral surface of scutellum shiny brown and the margins slightly orange colored. Presutural acrostical setulae in six to eight irregular rows and with one or two pairs of well-developed prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra three-fourths as long as posterior notopleural bristle and about half as long as the bristle behind it and the anterior postsutural dorsocentral bristle. Scutellar setulae not descending below level of marginals. Sternopleurals 1:2; hypopleura and sternites bare.

Legs black, the tibiae slightly orange and with quite distinct whitish-gray pruinescence which in certain lights makes them appear colorous with the femora. Fore femora normal. Fore tibiae bare in the middle. Mid femora with a row of ten to twelve quite short, bristle-like setulae on basal half of ventral surface and with a much weaker and scarcely distinguishable row of setulae on basal half of anterior surface,

no apical bristles on anterior surfaces. Mid tibiae with two median posterior bristles. Hind femora with a complete row of anteroventral bristles which are distinctly more well developed on apical half but none except the subapical one or two are longer than height of femora where situated and with a row of short, but distinct setulae on basal half of posteroventral surface. Hind tibiae with two median anterodorsal, posterodorsal and two or three anteroventral bristles.

Wings very faintly yellowish hyaline, especially along longitudinal veins. Cross-veins distinctly infuscated. Costal setulae and thorns undeveloped. All veins bare. Third and fourth veins distinctly divergent at apices.

Calyptrae white, halteres especially the knobs dark brown.

Abdomen black, densely whitish gray pruinulent, with a distinct dorsocentral vitta and subtriangular black spots on second visible tergite, which are confluent at their base; with a narrow transverse black band and with similar but less distinct markings on third visible tergite, the last tergite with a median triangular spot which joins the dorsocentral vitta and when viewed from the side with distinct lateral checkerings.

**HOLOTYPE.**—Female, Nogales, Arizona, June 25, 1933, Jean Russell coll. and bearing a label: *Helina*, n. sp., determined by D. G. Hall (U. S. Nat. Mus.).

I placed this very interesting species in *Helina* with some doubt, but it might be almost made the genotype of another genus because of the cruciate frontal bristles. This character is to be found among the Mydaeini only in the genus *Myospila*, but here the fourth wing-vein is distinctly curved forward at apex and the node is hairy above and below, characters which are not exhibited by this species. However, I hesitate in doing any more than describing this species, since the male is unknown and quite possibly might not exhibit any peculiar characters other than proportional cheek, parafacial and facial ridge width.

This species is included in this paper as it is quite likely that it might be found farther South.

### *Helina lasiosterna*, new species

**MALE.**—8.5 mm. long. Head black with dense silvery-white pruinescence. Front at narrowest point slightly wider than the distance across posterior ocelli, inclusive. The frontal vitta twice as wide as diameter of anterior ocellus and each parafrontal almost as wide as diameter of ocellus. With seven or eight pairs

of parafrontal bristles and setulae reaching to narrowest part of front. Juncture of parafacials and parafrontals one- and two-tenths times as long as width of third antennal segment and parafacials narrowed to about half its width below. Cheeks twice as high as width of third antennal segment, with a few upwardly directed setulae along lower margin. Eyes bare. Palpi yellowish brown on basal three-fourths, infuscated on apical fourth. Antennae black, third segment almost two and a fourth times as long as second. Longest arisal hairs as long as or slightly longer than the width of third antennal segment.

Thorax black, yellowish gray pruinose, with four distinct brown vittae. Presutural acrostical setulae in four to five irregular rows and a pair of weak prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra absent. Scutellar setulae reaching to, but not below, level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

All coxae black with slight variable brownish markings, trochanters brownish, fore femora darkened except at knees, mid and hind femora blackened on basal half to three-fourths, rest of femora yellow, all tibiae yellowish orange; fore tarsi yellow, only the first segment darkened, mid and hind tarsi with only the apical two or three segments yellowish, rest of segments black. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with three or four strong ventral bristles on basal half, the anterior bristles fine but distinct, limited to basal third and no apical bristles on anterior surfaces. Mid tibiae with two median posterior bristles. Hind femora with five or six anteroventral bristles on apical half. Hind tibiae with three median anterodorsal bristles, the middle one longest and strongest, three long anteroventral bristles, the middle one longest and strongest, three long anteroventral bristles on apical half, a distinct posterodorsal bristle on basal fourth and one or two short median posterior setulae.

Wings slightly yellowish-brown hyaline. Cross-veins no more infuscated than longitudinal. Costal setulae and thorns undeveloped. Third and fourth veins slightly divergent at apices. All veins bare. Calyptres and halteres pale yellow.

Abdomen black, yellowish gray pruinose, with a pair of brown spots on second and third visible tergites. Basal sternite with a few setulae; second about twice as long as broad, with about four long bristles on lateral margin of posterior half to one-third, these bristles about three-fourths as long as length of the sternite; third and fourth distinctly wider than long, with a complete row of very long bristles along lateral margins, these bristles fully as long as width of the sternite; fifth almost heart-shaped, with a deep but very narrow cleft and three short, stout bristles, one at middle of cleft on inner surface, the other two on apical half of disc. Hypopygium black.

**Types.**—Holotype, male, Las Visayas, Chic. (Mexico), August 27, 1909, C. H. T. Townsend coll. (U. S. Nat. Mus.); paratype, 1 male, Horseshoe Canyon, Chiricahua Mt., Arizona (U. S. A.), 6000 ft. (U. S. Nat. Mus.).

The paratype lacks the apical four abdominal segments, but the basal and second abdominal sternite as well as other characters indicate that the two specimens are conspecific.

### *Helina caneo*, new species

**Female.**—7 mm. long. Head black, densely grayish pruinose, the grayish pruinose frontal triangle extending three-fourths the distance to base of antennae. Frontal vitta velvety black with sparse grayish pruinose. Front at vertex one-third of head width, scarcely widened anteriorly. Each parafrontal one-third of frontal vitta width, with a complete row of parafrontal bristles, the anterior five inwardly directed, the posterior two outwardly directed and with a few rather long setulae below level of the anterior three or four parafrontal bristles. Juncture of parafacials and parafrontals four-fifths as long as length of antennae or three times as long as width of third antennal segment, parafacials narrowed to one and a half times the width of third antennal segment. Cheeks as high as juncture of parafacials and parafrontals. Eyes bare. Third antennal segment black, second and palpi dark brown. Third antennal segment one and two-thirds times as long as second. Longest arisal hairs half as long as width of third antennal segment.

Thorax black, densely grayish pruinose, with four brown vittae. Presutural acrostical setulae in three or four irregular rows and a pair of weak prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra absent. One or two scutellar setulae reaching slightly below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Coxae, fore femora, tarsi and a limited basal portion of mid and hind femora infuscated, rest of legs including trochanters fulvous. Fore femora normal. Fore tibiae with a strong median posterior bristle. Mid femora with one stout ventral bristle on basal fourth and a few very weak setulae beyond, with a row of slender anterior bristles on basal half and an apical anterodorsal bristle. Mid tibiae with three median posterior bristles. Hind femora with three long anteroventral bristles on apical third and about six to eight shorter setulae on basal two-thirds. Hind tibiae with three anterodorsal and three to four anteroventral bristles and a distinct posterodorsal bristle on basal fourth.

Wings brownish hyaline, cross-veins slightly infuscated. Costal setulae and thorns moder-

ately well developed. All veins bare. Third and fourth veins slightly divergent at apices, both slightly bent posteriorly. Calyptres white, margined with pale yellow. Halteres pale yellowish orange.

Abdomen black, densely grayish pruinose, with a pair of small, brown spots on first and a pair of much larger ones on second and third visible tergites, fourth with a small central median brown vitta and the discal bristles inserted in brown spots. Basal sternite bare; others with a pair of very short, fine apical setulae.

**HOLOTYPE**.—Female, Mexico City, 10,000 ft., July, 1936, H. G. Meyer coll. (Amer. Mus. Nat. Hist.).

It may be possible that this is the female of the preceding species, *lasiosterna*, but I do not describe it as such because it seems probable that the female of *lasiosterna* would have similarly colored tarsi, if not entirely fulvous. On the other hand, it is difficult to theorize on what a specimen should look like.

### *Helina copiosa* (v. d. Wulp)

*Spilogaster copiosa* VAN DER WULP, 1896, Biol. Cent. Amer., II, p. 321.—MALLOCH, 1921, Ent. News, XXXII, p. 43.

Additional chaetotaxic notes based on cotype male and female specimens in Illinois Natural History Survey collection and not included in either above references follow:

Frontal vitta at narrowest one and a half times as wide as diameter of anterior ocellus. Longest hairs on arista three-fourths as long as greatest width of third antennal segment. Dorsocentrals 2:4; the second posterior one weak; intra-alars 2; pra two-thirds as long as posterior notopleural bristle; sternopleurals 2:2, lower anterior one weak. Hypopleura and sternites bare.

Fore femora normal. Fore tibiae with a median posterior bristle. Mid tibiae with no anterodorsal and three median posterior bristles. Hind femora with about six anteroventral bristles on apical two-thirds. Hind tibiae with two to three anterodorsal and anteroventral median bristles and a distinct bristle on basal third of postero-dorsal surface.

Stein<sup>1</sup> was in error when he recorded this

<sup>1</sup> Stein, 1920, Archiv f. Nat., (A-9), LXXXIII, p. 1920 (*Mydaea*).

species from Indiana, U. S. A. His specimens, now in the U. S. Nat. Mus., were *nigribasis* Malloch.

### *Helina parvula* (v. d. Wulp)

*Spilogaster parvula* VAN DER WULP, 1896, Biol. Cent. Amer., II, p. 321.—MALLOCH, 1921, Ent. News, XXXII, p. 43.

The single female cotype specimen from Tepetlapa, Guerrero, Mexico, 3000 ft., October (H. H. Smith), in the Illinois Natural History Survey collection, is quite teneral. The only distinct characters worthy of note at this time and not mentioned by either v. d. Wulp or Malloch follow:

Longest hairs on arista three-fourths as long as width of third antennal segment. Thorax bristled as in *copiosa* v. d. Wulp.

Fore tibiae with two median posterior bristles. Mid tibiae with no anterodorsal but with three posterior bristles. Hind femora with one strong subbasal anteroventral and four stronger ones on apical third.

### *Helina socia* (v. d. Wulp)

*Leucomelina socia* VAN DER WULP, 1896, Biol. Cent. Amer., II, p. 326.—MALLOCH, 1921, Ent. News, XXXII, p. 42.

Additional descriptive notes follow:

Longest arisal hairs not as long as greatest diameter of arista. Dorsocentrals 2:3; intra-alars 2; pra one-fifth as long as bristle behind it; sternopleurals 1:2.

Fore femoral normal. Fore tibiae with a median posterior bristle. Mid tibiae with two posterior bristles. Hind femora with a complete row of anteroventral bristles, those on basal half shortest. Hind tibiae with one median anterodorsal and three to five shorter anteroventral median bristles.

**SPECIMENS EXAMINED**.—1 female cotype, Illinois Natural History Survey collection, Omillteme, Guerrero, Mexico, 8000 ft., July (H. H. Smith).

### *Helina rufoapicata* Malloch

MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 310.

I have seen only the holotype in the U. S. National Museum.

***Helina acrinis*, new species**

**MALE.**—7 mm. long. Head brownish to reddish, densely silvery gray pruinulent, frontal vitta brownish to brownish red. Front at narrowest point one and a fourth times as wide as distance across posterior ocelli, inclusive. Frontal vitta and parafrontals at same level one and a half to two times as wide as diameter of anterior ocellus. With only two or three moderately strong parafrontal bristles and with a few additional setulae which are confined to anterior fourth to third of front. Juncture of parafacials and parafrontals almost as long as width of third antennal segment, parafacials narrowed to half the width below. Cheeks about as high as width of third antennal segment. Eyes bare or with a very few scattered microscopic hairs. Palpi yellow to brown, the apices sometimes slightly darkened. Second antennal segment yellow to orange-brown, the third black, one and eight-tenths times as long as second. Longest hairs on arista at most one and a fourth times as long as its greatest diameter.

Thorax fulvous, the dorsum and mesopleura slightly grayish yellow, with indistinct grayish-white pruinescence and four moderately distinct light brown vittae. Presutural acrostical setulae in one or two irregular rows, often with one or two more well-developed setulae which are at most one-fourth to one-fifth as long as the first presutural dorsocentral bristles and a pair of distinct prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra short, not more than one-third to a half as long as posterior notopleural. Scutellar setulae very sparse, not reaching to level of marginals. Sternopleurals 2:2, the lower anterior one much weaker and occasionally absent; hypopleura and sternites bare.

Legs except tarsi yellow, tarsi brownish. Fore femora normal. Fore tibiae with one weak median anterodorsal and one stronger posterior bristles. Mid femora with five or six ventral bristles on basal half and two or three anteroventral setulae on basal two-fifths, a row of stronger anterior setulae on basal half and an apical anterior to anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with a complete row of anteroventral bristles which are about as long as height of femora where situated and a row of five posteroventral hairs or setulae on basal half. Hind tibiae with one median anterodorsal and two much weaker anteroventral bristles on apical third.

Wings yellowish hyaline. Cross-veins, especially the anterior one, pale brownish clouded. Costal thorns and setulae scarcely developed. All veins bare. Third and fourth veins subparallel. Calyptrae and halteres pale yellow.

Abdomen yellow, concolorous with the thorax, the sides of third and apices of fourth visible tergites at base grayish brown, with a pair of yellowish-brown spots on second and third visible tergites; third and fourth with an indistinct grayish dorsocentral line, the bristles and

setulae inserted in slightly darker yellowish to brownish spots. Basal sternite bare; others distinctly longer than broad, with a distinct pair of apical bristles; fifth moderately cleft, with two or three moderately distinct bristles on base of processes. Hypopygium yellow.

**FEMALE.**—Very similar to the male, differing from it in having the front at vertex one-third of head width, only slightly wider anteriorly. With a complete row of parafrontal bristles, the posterior pair outwardly and the anterior ones inwardly directed. Hind femora with the posteroventral hairs scarcely distinguishable and the basal anteroventral bristles shorter and less well developed than those on apical half. Abdominal spots less and the dorsocentral vitta more distinct. The basal and apical lateral darkening of tergites less distinct.

**Types.**—Holotype, male, Chosica (Peru), 3000 ft., December 6, 1913, on foliage (U. S. Nat. Mus.); allotype, female, topotypical, September 13, 1913 (U. S. Nat. Mus.); paratypes, 2 males and 1 female, topotypical; all collected by C. H. T. Townsend.

In addition to these specimens there are 2 males and 3 females from Peru, South America, 1913, H. A. Parrish coll., 1 female, Matucana, Peru, April 22, 1914, C. H. T. Townsend coll., and 1 female, Baños, Tungurahua, Ecuador, October 25, 1937, Clark-McIntyre, before me now which agree in all structural characters with the type series.

They differ in having the parafacials, parafrontals, cheeks and frontal vitta black in ground color. Only the humeri and scutellum are yellow and the former rather indistinctly so. The abdomen is darker, only the basal tergite, the ventral portion of tergites and the sternites yellow, the tergites more distinctly spotted.

They may represent a distinct variety or species but, since the difference is in color, I prefer to treat them as the same species but do not include them in the type series.

Dr. Aldrich had determined these specimens as *adelpha* Schiner, with a question. If I have identified *adelpha* Schiner correctly, it may be distinguished from *acrinis* by the possession of a much wider front, more broadly infuscated cross-veins, more distinct costal setulae and thorns and only a partial row of anteroventral bristles on apical half of hind femora. In addition,

*adelpha* has only the tibiae and the base and apices of mid and hind femora dark yellow. The abdominal spots are also much larger and distinctly subsquare in *adelpha*.

***Helina acrosticalis*, new species**

MALE.—6.5 to 7 mm. long. Quite similar to *acrinis*, new species. Head black, slightly brownish gray pruinulent, the cheeks with faint reddish reflections. Front at narrowest point two and a fourth times as wide as distance across posterior ocelli, inclusive. The black frontal vitta at narrowest one and a half times as wide as distance across posterior ocelli, inclusive, and the parafrontals at the same level about as wide as distance between the posterior ocelli, exclusive. Parafrontal bristles as in *acrinis*. Juncture of parafacials and parafrontals not quite as long as width of third antennal segment, parafacials narrowed to about half its width below. Cheeks as high as width of third antennal segment. Eyes bare. Palpi and second antennal segment orange-brown, third antennal segment black, only one and six-tenths times as long as second, slightly broader than in *acrinis*.

Thorax brownish black, brownish gray pruinulent, with four rather indistinct brownish vittae. With one or two pairs of presutural acrostical bristles which are half as long as first presutural dorsocentral bristle and with one or two pairs of weaker bristles or setulae in front of the usual prescutellar pair of acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra one-third as long as posterior notopleural bristle. With only about six to eight short, scutellar setulae, the center of scutellar disc usually bare. All thoracic setulae slightly longer and sparser than usual. Sternopleurals 2:2; hypopleura and sternites bare.

Fore femora slightly infuscated, tarsi black, rest of the legs yellow. Bristled as in *acrinis* except the hind femora with longer and more slender anteroventral bristles and posteroventral setulae, and with the posteroventral setulae longer and covering the basal two-thirds to three-fourths.

Wings as in *acrinis*.

Abdomen entirely black, with dense brownish-gray pruinulence, a pair of round, brown spots on second and a less distinct pair on third visible tergites. Basal sternite bare; others including fifth as in *acrinis* except they also are black. Hypopygium dark brown to black.

TYPES.—Holotype, male, Quito, Ecuador, 2850 ft., F. Campos coll. (U. S. Nat. Mus.); paratype, 1 male, topotypical.

***Helina xena* Malloch**

MALLOCH, 1934, Dipt. Pat. Soc. Chile, pt. VII, fasc. 2, p. 305.

Besides the two paratype males from Bariloche and Casa Pangue, Chile, in the U. S. National Museum, I have seen a female from Angol, Chile, August 21, 1934 (D. S. Bullock), in The American Museum of Natural History.

***Helina adelpha* (Schiner)**

*Spilogaster adelpha* SCHINER, 1868, Dipt. Nov. Resa., p. 300.—STEIN, 1904, Ann. Mus. Nat. Hung., II, p. 432; 1907, Zeit. Hymen. Dipt., p. 209.

MALE.—5.5 mm. long. Head black, grayish pruinulent. Front at narrowest point twice as wide as distance across posterior ocelli, inclusive, and one-fifth of head width. Frontal vitta at narrowest slightly wider than distance across ocelli and parafrontals at same level twice as wide as diameter of anterior ocellus. With only two or three bristles on anterior third of parafrontals. Juncture of parafacials and parafrontals about as long as width of third antennal segment, parafacials narrowed to one-third of antennal width below. Cheeks slightly higher than width of third antennal segment. Eyes bare. Antennae and palpi black. Third antennal segment two and three-fourths times as long as second. Longest hairs on arista not longer than its basal diameter.

Thorax black, grayish pruinulent, indistinctly brown quadrivittate and with a narrow whitish vitta just laterad the dorsocentral series of bristles. Only three or four pairs of moderately well-developed presutural acrostical setulae and a pre-scutellar pair of acrostical bristles; dorsocentrals 2:3, with a weak postsutural pair of moderate setulae between first and second, and second and third pairs of bristles so that the dorsocentrals may appear to be 2:4 or 2:5; pra not more than one-third as long as posterior notopleural. Scutellar setulae sparse, confined to middle of disc of scutellum. Sternopleurals 2:2, the lower anterior one very weak and almost hair-like. Hypopleura and sternites bare.

Legs mostly black, the tibiae distinctly yellow and the basal portions of mid and hind femora yellow, but with blackish-gray pruinulence. The bases of tibiae slightly infuscated. Fore femora normal.

Fore tibiae with a strong median posterior and a much weaker and shorter median anterodorsal bristle. Mid femora with about seven long, slender ventral bristles on basal half and with the clothing setulae along anteroventral surface slightly longer and more distinct than usual, with a row of short anterior bristles on basal half and a distinct apical anterior bristle. Mid tibiae with two median posterior bristles. Hind femora with five or six short but distinct anteroventral bristles on apical half and a few shorter, more widely placed basal anteroventral setulae. Hind tibiae with one median anterodorsal and two to three shorter median anteroventral bristles.

Wings faintly brownish hyaline, the cross-veins very broadly infuscated with a few slender but distinctly developed costal setulae, the thorns distinct. All veins bare. Third and fourth veins subparallel at apices. Calyptrae pale, halteres orange.

Abdomen black, brownish gray pruinulent, with a pair of very large, black, sub-square spots on second and third visible tergites. Basal sternite bare; others with very short, sparse clothing setulae and a pair of slender, subapical bristles; fifth moderately cleft. Hypopygium black.

FEMALE.—6 mm. long. Similar to the male, differing from it in having the front at vertex one-third of head width, widened anteriorly. With a complete row of parafacial bristles, the posterior two inwardly, the others inwardly directed. With a distinct spot at juncture of parafacials and parafrontals which reaches from eyes to apex of second antennal segment.

SPECIMENS EXAMINED.—1 male and 1 female, Bogota (Colombia), January 4, 1937, H. Osorne coll. (Amer. Mus. Nat. Hist.), bears the label "Ex nest of *Bombus aratus*?"

According to Stein, specimens in the Bigot collection labeled as *adelpha* Schiner, by Bigot, are not the true *adelpha* but are another species similar to *duplicata* (Meigen).

#### *Helina decora*, new species

MALE.—5.5 to 6 mm. long. Head black, grayish brown pruinulent. Front at narrowest point about one and a fourth times as wide as diameter of anterior ocellus or half as wide as

width of third antennal segment. Parafrontals subcontiguous, the frontal vitta very narrow but distinct at middle. Three to five parafacial bristles and setulae which extend to narrowest portion of front. Juncture of parafacials and parafrontals almost as long as greatest width of third antennal segment, parafacials narrowed to one-third the antennal width below. Cheeks one and three-tenths times as high as width of third antennal segment, with three to four upwardly directed setulae at middle of ventral margin. Eyes bare, the facets above in front slightly larger than others. Antennae and palpi black, second segment very slightly orange at apex on inner surface. Third antennal segment one and six-tenths times as long as second. Longest arisal hairs as long as greatest width of third antennal segment.

Thorax black, grayish brown pruinulent, distinctly quadrivittate and with a central subshiny brown spot on scutellum. Presutural acrostical setulae in four rather regular rows, the outer rows slightly more well developed and a pair of prescutellar acrostical bristles; dorso-centrals 2:3; intra-alars 2; pra less than one-third as long as posterior notopleural bristle. Scutellar setulae not descending below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Legs black, trochanters brownish, the tibiae and a very narrow apical portion of femora yellowish. Fore femora normal. Fore tibiae with a median posterior bristle and a scarcely discernible median anterodorsal setula which is only slightly longer than the clothing setulae. Mid femora with four or five ventral, a row of shorter anterior bristles on basal half and an apical anterodorsal bristle. Mid tibiae with two strong and occasionally a weaker third posterior bristle. Hind femora with four or five anteroventral bristles on apical half, those at base of this group are about as long as diameter of femora where situated and become gradually longer and with a few fine setulose bristles on basal third which are about three-fourths as long as femoral diameter, no posteroventral bristles or setulae. Hind tibiae with one median anterodorsal bristle and with five or six median anteroventral and posteroventral weaker and shorter bristles.

Wings very faintly brownish hyaline. The anterior cross-vein broadly infuscated and with a narrower cloud along posterior cross-vein which is most distinct at its juncture with fourth and fifth veins. Costal setulae not, the thorns slightly developed. All veins bare. Third and fourth veins subparallel at apices. Posterior cross-vein almost straight. Calyptrae and halteres slightly brownish yellow.

Abdomen black with dense light brown pruinescence, a pair of distinct round, dark brown spots on second and third visible tergites and a very faint brownish dorsocentral vitta on second to fourth tergites. Basal sternite with a few hairs; others with a pair of distinct apical bristles; fifth moderately cleft, with a moder-

ately long bristle at base of each process. Hypopygium black.

**TYPES.**—Holotype, male, Huipulco (Mexico), August 21, 1922, E. G. Smyth coll. (U. S. Nat. Mus.); paratype, male, San José (Costa Rica), March, 1915 (Amer. Mus. Nat. Hist.).

There is a female without abdomen in the U. S. Nat. Mus. from Huipulco, bearing the same data as holotype, which is probably this species, although it is impossible to separate it from the female cotype of *signatipennis* v. d. Wulp, in the Ill. Nat. Hist. Surv. collection.

It differs from the male in having a distinct, shiny, brown spot extending from the eyes to apex of second and base of third antennal segments at juncture of parafacials and parafrontals. Front at vertex one-third of head width, widened to three-sevenths anteriorly, with a row of five or six pairs of parafrontal bristles, the posterior two outwardly, others inwardly directed and with numerous fine setulae laterad them.

Legs with the basal five-sixths of fore femora, three-fourths of mid femora and half of hind femora infuscated, rest of femora, tibiae and trochanters fulvous. Mid femora with three ventral bristles. Hind femora with three apical and basal anteroventral bristles. Hind tibiae with only three anteroventral bristles.

The male of the species is very similar to *signatipennis* v. d. Wulp but may be distinguished from it by the absence of the long basal anteroventral and row of posteroventral hair-like setulae and by the presence of posteroventral setulae on hind tibiae.

### ***Helina poeciloptera* (Schiner)**

*Spilogaster poeciloptera* SCHINER, 1868, Dipt. Nov. Resa., p. 300.—STEIN, 1904, Ann. Mus. Nat. Hung., II, p. 440.

**MALE.**—6.5 to 7 mm. long. Head black, silvery gray pruinulent. Front at narrowest point twice as wide as diameter of anterior ocellus. Parafrontals contiguous, each one as wide as diameter of anterior ocellus. With three strong parafrontal bristles and a few setulae which reach posteriorly three-fourths the distance to

contiguous portion of parafrontals. Juncture of parafacials and parafrontals not quite as long as width of third antennal segment, parafacials almost obliterated below. Cheeks one and a fourth times as high as width of third antennal segment. Eyes bare. Antennae and palpi black, third antennal segment two and a half times as long as second. Longest arisal hairs almost as long as greatest width of third antennal segment.

Thorax black, yellowish gray pruinulent, with four distinct brown vittae and a darkened spot in the center of the scutellum at its base. Presutural acrostical setulae in four to six irregular rows, with a pair of weak prescutellar acrostical bristles; dorsocentrals 2:3; intra-alars 2; pra short, about one-third as long as posterior notopleural bristle. Scutellar setulae sparse, reaching to level of marginals. Sternopleurals 1:2, occasionally with a very much weaker lower anterior setula; hypopleura and sternites bare.

Tarsi and coxae black, fore femora and basal half to three-fourths of mid and hind femora infuscated, rest of legs yellow. Fore femora normal. Fore tibiae with one or two very short anterodorsal setulae on apical half and a strong median posterior bristle. Mid femora with a row of five or six slender ventral bristles on basal half, and a few much shorter ones on basal third of anteroventral surface, a row of shorter anterior bristles on basal half and a distinct apical anterior to anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with five or six widely separated, long anteroventral bristles along with a row of short, hair-like setulae along entire anteroventral surface and a row of fine posteroventral hair-like bristles. Hind tibiae with one median anterodorsal and one or two anteroventral bristles on apical half to third which are longest toward apex.

Wings hyaline, with a large brown cloud over both cross-veins and another extending from posterior margin of node narrowly invading the discal cell and with a very faint costal cloud. Costal setulae not developed, the thorns small but distinct. All veins bare. Third and fourth veins slightly

divergent at apices. Calyptrae white to pale yellow, halteres light orange.

Abdomen slender, slightly pointed, black, with dense yellowish to brownish-gray pruinescence. With a pair of distinct spots on second and third visible tergites, the larger bristles inserted into small, round spots. Basal sternites bare; others with a pair of long, fine discal and apical bristles and sometimes a shorter, weaker basal pair. Hypopygium black.

FEMALE.—6.5 to 7 mm. long. Similar to the male, differing from it in having the front at vertex one-fourth of head width, widened anteriorly, with three inwardly and two outwardly directed parafrontal bristles and numerous setulae opposite the former. Hind femora with six to eight anteroventral bristles but no finer, hair-like ones and only one or two fine hairs on basal fourth of posteroventral surface. Wings with costal cloud slightly more distinct and the cloud in the discal cell less distinct. Abdomen not yellowish but slate-gray, with the paired spots; only a few bristles inserted into spots. The sternal bristle not as well developed.

SPECIMENS EXAMINED.—1 male and 1 female, Camandacaia Mts., Minas (Brazil), 1600 meters, June 8, 1933, H. S. Lopes coll. (F. M. Snyder); 1 female, Nova Teutonia (Brazil), 27° 11' S., 52° 23' L., April 11, 1937 (F. M. Snyder).

The female from Minas returned to Señor Lopes.

### ***Helina signatipennis* (v. d. Wulp)**

*Spilogaster signatipennis* VAN DER WULP, 1896, Biol. Cent. Amer., II, p. 322.—MALLOCH, 1921, Ent. News, XXXII, p. 43.

Very similar to *poecilioptera* Schiner, differing from it in having the parafacials as wide as juncture of parafacials and parafrontals which is as long as width of third antennal segment. Longest arisal hairs as long as narrowest width of third antennal segment.

All femora entirely black.

Wings with only the cross-veins infuscated.

Abdomen without the spots at base of the large abdominal bristles and setulae. Sternites with much shorter clothing setulae.

FEMALE.—Impossible to distinguish from the female described under *decora*, new species.

SPECIMENS EXAMINED.—1 male and 1 female, Guerrero, Mexico, cotypes, 9500 ft. (Ill. Nat. Hist. Surv. coll.).

### ***Helina longipila* (Stein)**

*Mydaea longipila* STEIN, 1918, Ann. Mus. Nat. Hung., XVI, p. 217.

MALE.—6.5 to 8 mm. long. Head black, brownish gray pruinose, occiput grayish pruinose. Front at narrowest point as wide as distance across posterior ocelli, inclusive. Frontal vitta of uniform width from middle of front to ocellar triangle. Each parafrontal about half as wide as the diameter of the anterior ocellus, with four or five pairs of strong bristles and several more weaker setulae which extend half way to the anterior ocellus. Juncture of parafacials and parafrontals about twice as long as width of third antennal segment, parafacials distinctly narrowed to half this width below. Eyes distinctly hairy. Cheeks twice as high as width of third antennal segment, with several rows of setulae along the lower margins, the most dorsal row of which is upwardly directed. Antennae and palpi black. Third antennal segment one and eight-tenths times as long as second. Longest hairs on arista about twice as long as its greatest diameter and about half as long as width of third antennal segment.

Thorax black, with slightly bluish-gray pruinescence and quadrivittate. With a distinct pair of presutural acrostical bristles, sometimes a pair of shorter and weaker ones in front of these and with a distinct pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra quite short and weak, about half as long as posterior notopleural bristle. Scutellar setulae not descending below level of marginals. Sternopleurals 2:2, occasionally with an accessory additional pair in either the anterior or posterior group; hypopleura always and sternites usually bare.

Legs black, hind tibiae slightly yellowish to orange on apical two-thirds. Fore femora normal. Fore tibiae with a median



posterior bristle. Mid femora with a complete row of ventral bristles which are longest and strongest at base, the basal and apical anterior bristles very weak or absent. Mid tibiae with three or four median posterior bristles. Hind femora with a complete row of long, slender anteroventral, ventral and posteroventral bristles, the former longest at apex and the latter longest at base, the ventral series much shorter. Hind tibiae with two anterodorsal and one to three median anteroventral bristles, the posteroventral surface with a group of long, hair-like setulae on almost the entire surface, which are longest and more slender on the basal half and become shorter and stouter and more regularly placed on the apical half.

Wings slightly darkened at base, becoming lighter toward apex. Anterior cross-vein slightly infuscated. Costal setulae and thorns undeveloped. All veins bare. Third and fourth veins slightly divergent at apices. Calyptrae white, halteres darkened, the knobs dark brown to black.

Abdomen black, grayish pruinose, when viewed in certain lights with a somewhat bluish tinge. Second and third visible tergites with a distinct pair of subtriangular large black spots. Basal sternite bare; others with numerous pairs of long, hair-like bristles; fifth moderately cleft. Hypopygium slightly brownish.

**SPECIMENS EXAMINED.**—4 males, Huariaca (Peru), 10,750 ft., December 20, 1913, C. H. T. Townsend coll. (U. S. Nat. Mus.).

In one or two specimens the prosternum has one or two long, fine, pale hairs on the posterior half which are scarcely discernible unless viewed in a very favorable light and angle. I do not believe that this character is constant enough to be used as a diagnostic character.

*Longipila* was originally described from material in the Bezzi collection from Olalachea, Peru. The present specimens agree quite well with Stein's description, and I have little hesitancy in identifying them as this species, although I have not seen either type or authentically determined specimens.

Stein's description states that the pra is

entirely lacking, but in all the specimens before me the pra, while very short and weak, is nevertheless quite distinct. The legs, as stated in Stein's description, are black, while the specimens before me have the hind tibiae slightly orange colored. I do not believe these characters to be of enough importance to warrant proposing a new species for these specimens, since the very characteristic front, short plumose arista, leg bristling and wing, calyptrae and halter coloring are the same.

See also remarks under *equator* and *browni*, new species.

### *Helina browni*, new species

**MALE.**—8.5 mm. long. Similar to *longipila* Stein. Head colored as in that species. Front at narrowest point one and a fourth times as wide as the distance across posterior ocelli, inclusive. Each parafrontal at the same level about half as wide as diameter of anterior ocellus, with a row of three or four long bristles on anterior half along with about five or six shorter ones and a row of shorter bristle-like setulae on posterior half so that the row reaches all the way to the anterior ocellus. Juncture of parafrontals and parafrontals one and a third times as long as the greatest width of third antennal segment, parafrontals narrowed to width of antennae below. Cheeks twice as high as width of third antennal segment, the vibrissal angle with numerous moderately stout upwardly directed setulae which are not continued on to the lower margin of cheeks as in *longipila*. Otherwise as in that species.

Thorax black, colored and marked as in *longipila* but with a slightly more bluish cast, with a single pair of well-developed presutural acrostical bristles. Otherwise bristles as in *longipila*.

Legs entirely black. Fore and mid legs bristled as in *longipila*. Hind femora with six apical anteroventral bristles, the posteroventral surface and basal half of anteroventral and ventral surfaces bare. Hind tibiae with two median anterodorsal and four anteroventral bristles and with a row of five or six shorter posterior bristles on median half.

Wings brownish hyaline, the base and the costal region distinctly opaque black. Wings otherwise as in *longipila*. Upper calyptrae hyaline, distinctly margined with black, lower calyptrae white, without darkened margins. Knobs of halteres black, the stalk somewhat lighter colored.

Abdomen as in *longipila* except that the hypopygium is entirely brownish black and somewhat shiny.

**HOLOTYPE.**—Male, Uyambicho, November 18, 1938, 2700 m., Ecuador.

Acc. No. 36,379, F. M. Brown coll. (Amer. Mus. Nat. Hist.).

***Helina equator*, new species**

MALE.—7.5 mm. long. Head black, grayish pruinosecent, parafacials and parafrontals silvery. Front at narrowest point as wide as distance across posterior ocelli, inclusive. At the same level, each parafrontal about three-fourths and the frontal vitta twice as wide as diameter of anterior ocellus. With four to six pairs of strong parafrontal bristles and numerous shorter setulae, the latter reaching to the narrowest portion of front. Juncture of parafacials and parafrontals twice as long as greatest width of third antennal segment, parafacials narrowed to one and a half times the antennal width below. Cheeks three times as high as width of third antennal segment, with several rows of numerous, closely placed, long, strong setulae along lower margin. Eyes with moderately dense, long hairs. Antennae and palpi black, the former inserted opposite middle of eyes. Third antennal segment one and three-fourths times as long as second. Longest arisal hairs half as long as greatest width of third antennal segment or about two and a half times as long as greatest arisal diameter.

Thorax slightly bluish black, with bluish-gray pruinescence, distinctly quadrivittate. With two pairs of strong presutural and one pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra one-third as long as posterior notopleural bristle. Scutellar setulae reaching to or with one or two descending very slightly below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Legs black. Fore femora normal. Fore tibia with a median posterior bristle. Mid femora with an almost complete row of ventral bristles which are longest on basal half, a row of short, rather indistinct anterior bristles on basal half and with no bristles at apex of anterior surface. Mid tibiae with two median posterior bristles. Hind femora with seven or eight long anteroventral bristles on apical half, a row of more numerous, finer, bristle-like setulae on basal half which are half to three-fourths as long as diameter of femora where situated and eight to ten, long slender posteroventral bristles on basal four-fifths which are two to three times as long as femoral diameter. Hind tibiae with two median anterodorsal and anteroventral bristles and several median posterior bristle-like setulae.

Wings infuscated at base along costal region, becoming gradually smoky to light brownish hyaline at apex and along anal region. Cross-veins no more infuscated than longitudinal veins. Costal thorns and setulae scarcely developed. All veins bare. Third and fourth veins subparallel at apices. Penultimate section of fourth vein five-eighths as long as ultimate. Posterior cross-vein moderately curved at middle. Calyp-

trae white, the stalk of halteres brownish orange, the knobs yellow.

Abdomen black, with dense grayish-blue pruinescence, a pair of large, rather indistinct, black spots on second and a pair of smaller ones on third visible tergites. Basal sternite bare; others with moderately long clothing setulae and a pair of more well-developed apical bristles; fifth moderately cleft. Hypopygium black.

FEMALE.—8.5 to 9 mm. long. Similar to the male, differing from it in having head pruinescence distinctly brownish, a complete row of parafrontal bristles, the posterior two outwardly directed and with numerous setulae laterad all bristles. Front at vertex one-third of head width, widened to four-ninths anteriorly. Juncture of parafacials and parafrontals one and three-fourths times as long as width of third antennal segment, parafacials narrowed to three-fourths the width of third antennal segment.

Thorax not as bluish, more brownish black, the pruinescence brownish.

Hind femora with the bristles arranged the same but not as long, the longest posteroventral ones not longer than one and a fourth times the femoral diameter. Hind tibiae without posterior bristle-like setulae.

Abdomen not as distinctly bluish pruinosecent, without spots but with dorsal and lateral check-erings. Sternites without as dense clothing setulae.

TYPES.—Holotype, male, Pichincha Prov. (Ecuador), 3000 m., November 5, 1938, F. M. Brown coll. Acc. No. 36,379 (Amer. Mus. Nat. Hist.); allotype, female, Miazza Ridge, Vol. Tungurahua (Ecuador), 3200 m., April 8, 1939, F. M. Brown coll. (Amer. Mus. Nat. Hist.).

***Helina anubes*, new species**

FEMALE.—7 mm. long. Head black, with slightly brownish-gray pruinescence and a slightly darker subshiny spot at juncture of parafacials and parafrontals, front, including parafrontals, distinctly brownish. Front at vertex slightly less than one-third of head width, widened to not quite half anteriorly. With a complete row of parafrontal bristles, the anterior five inwardly, the posterior two outwardly directed, with numerous setulae laterad all of them, the anterior ones much more well developed. Juncture of parafacials and parafrontals one and three-fourths times as long as width of third antennal segment, parafacials narrowed to three-fourths the width of third antennal segment below. Cheeks two and a half times as high as width of third antennal segment, with two or three rows of short, upwardly directed setulae along lower margin. Eyes with sparse but distinct hairs. Antennae and palpi black. Third antennal segment about one and three-fourths times as

long as second. Longest arisal hairs about one and a half times as long as greatest arisal diameter.

Thorax black, with rather dense, very slightly bluish-gray pruinescence, quadrivittate. With one weak and one strong pair of presutural acrostical bristles and a prescutellar acrostical pair; dorsocentrals 2:4; intra-alars 2; pra about half as long as the posterior notopleural bristle. Scutellar setulae not descending below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Legs black, hind tibiae reddish yellow at middle. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with four or five strong ventral bristles on basal half which form an almost continuous row with the shorter but distinct posteroventral bristle on apical half, a row of shorter, more numerous anterior bristles on basal half and no apical anterior bristles. Mid tibiae with two median posterior bristles. Hind femora with a complete row of anteroventral bristles, those on basal three-fourths not longer than greatest femoral diameter and with a row of finer posteroventral ones on basal half. Hind tibiae with two median anterodorsal and anteroventral bristles.

Wings very faintly brownish hyaline at extreme base. Cross-veins not infuscated. Costal setulae scarcely developed. All veins bare. Third and fourth veins slightly divergent at apices. Penultimate section of fourth vein as long as ultimate. Posterior cross-vein distinctly curved. Calyptrae white, with very pale, yellowish margins. Stalk of halteres brownish orange, the knobs pale orange.

Abdomen black, rather densely, slightly bluish gray pruinose, with dorsal and lateral checkerings. Basal sternite bare; others with a pair of apical bristles and moderately short clothing setulae. Cerci brownish, rather short but quite broadened.

**HOLOTYPE**.—Female, Urbina Cerro, Chimborazo (Ecuador), 3650 m., April 18, 1939, F. M. Brown coll. (Amer. Mus. Nat. Hist.).

### *Helina brevivena*, new species

**FEMALE**.—7 mm. long. Head black, parafacials, cheeks and front grayish and parafrontals slightly yellowish gray pruinose, the former including frontal vitta with moderately dense bluish silvery-white pruinescence. Front at vertex five-fourteenths of head width, widened to six-fourteenths anteriorly. With three or four inwardly and two outwardly directed, strong parafrontal bristles and numerous setulae laterad all of them. Junction of parafacials and parafrontals twice as long as width of third antennal segment, parafacials narrowed to one and three-fourths times this width below. Cheeks two and a half times as high as width of third antennal segment or three-

eighths of eye height. Eyes with very sparse, long hairs. Antennae and palpi black. Third antennal segment one and eight-tenths times as long as second. Longest hairs on arista not as long as its basal diameter.

Thorax black, densely golden yellow pruinose, with four brownish vittae. With a pair of presutural acrostical bristles and without prescutellar acrostical bristles; dorsocentrals 2:3 or 2:4; intra-alars 2; pra one-third as long as posterior notopleural bristle. Scutellar setulae sparse on disc but with more numerous ones descending below level of marginals. Sternopleurals 2:2. Hypopleura and sternites bare.

Legs black, the apical fourth to fifth of femora and tibiae entirely reddish orange. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with an almost complete row of slender ventral bristles, those on basal half twice as long as femoral diameter, a complete row of long anteroventral setulae, a row of anterior setulae on basal half and a distinct apical anterodorsal bristle. Mid tibiae with two anterodorsal and three to five median posterior bristles. Hind femora with three or four long anteroventral bristles on apical half, a row of very short anteroventral setulae and a few short posteroventral setulae on basal half. Hind tibiae with three anterodorsal and three or four anteroventral median bristles.

Wings yellow hyaline, especially at base. The strongly curved posterior cross-vein infuscated. Costal setulae and thorns rather long. All veins bare. Third and fourth veins subparallel at apices. Penultimate section of fourth vein as long as or longer than the ultimate. Calyptrae and halteres pale orange.

Abdomen black with slightly yellowish-gray pruinescence and distinct dorsal and lateral checkerings. Basal sternite hairy; others without distinct apical bristles, the clothing setulae moderately short but dense.

**TYPES**.—Holotype, female, Cumbre Tiliac Chimborazo (Ecuador), 4200 m., April 21, 1939, F. M. Brown coll. (Amer. Mus. Nat. Hist.); paratype, female, same data as holotype.

The holotype has three postsutural dorsocentral bristles and three median posterior bristles on mid tibiae, while the paratype has four dorsocentrals and five posterior bristles on mid tibiae. Since the paratype was apparently injured in emerging from the puparium, because of the crumpled left wing and hind femora, I believe the dorsocentral and mid tibiae number may not be normal and therefore do not treat this specimen as a distinct species, since the coloring and other characters are the same in the two specimens.

***Helina notha*, new species**

FEMALE.—8.5 to 9 mm. long. Head black, the parafacials, parafrontals, cheeks and frontal vitta seal-brown pruinose, occiput grayish pruinose. When viewed from above and behind with a shiny brown spot which extends from eyes to base of antennae at juncture of parafacials and parafrontals. Front at vertex not quite three-tenths of head width, distinctly widened anteriorly. With a row of four strong and one weak inwardly and two strong outwardly directed parafrontal bristles, with some short setulae laterad all of them. Juncture of parafacials and parafrontals one and a half times as long as greatest width of third antennal segment, parafacials narrowed to about antennal width below. Cheeks two and a fourth times as high as width of third antennal segment, with several rows of setulae along lower margin in front and with a single row of much shorter ones behind. Eyes with rather long, moderately dense hairs. Antennae and palpi black. Third antennal segment one and two-thirds times as long as second. Longest hairs on arista about one and a half times as long as its greatest diameter.

Thorax brownish black, rather densely grayish brown pruinose, distinctly quadrivittate. With a pair of presutural acrostical bristles and a pair of prescutellar acrostical bristles which are situated on a level between third and fourth postsutural dorsocentral bristles; dorsocentrals 2:4; intra-alars 2; pra about three-fourths as long as posterior notopleural bristle. Scutellar setulae descending below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Legs black. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with a complete row of ventral bristles and a row of shorter but more numerous anterior bristles on basal half, no apical bristles on anterior surfaces and the anteroventral setulae on apical half longer and stronger than usual. Mid tibiae with four median posterior bristles. Hind femora with a complete row of anteroventral bristles, a row of longer and more slender posteroventral bristles on basal half and a row of shorter ones on apical half. Hind tibiae with two or three median anterodorsal and anteroventral bristles.

Wings extensively infuscated at base. Cross-veins no more infuscated than longitudinal veins. Costal setulae and thorns scarcely developed. All veins bare. Fourth vein very slightly curved forward apically, the apex parallel with third. Penultimate section of fourth vein a little over half as long as ultimate. Halteres and margins of upper and lower calyptres black.

Abdomen distinctly blackish blue, with sparse grayish pruinose, unmarked. Basal sternite bare; others with a pair of moderately long apical bristles and clothing hairs.

HOLOTYPE.—Female, Miazza Ridge, Vol. Tungurahua (Ecuador), 3200 m., April 8,

1939, F. M. Brown coll. (Amer. Mus. Nat. Hist.).

***Helina inepta* (Stein)**

*Mydaea inepta* STEIN, 1911, Archiv f. Natur., (A-1), LXXVII, p. 82.

FEMALE.—7 mm. long. Superficially resembles *acrosticalis*, new species. Head black, yellowish gray pruinose. Front at vertex one-third of head width, distinctly widened anteriorly. With a complete row of setulae adjacent parafrontal bristles, all of which are inwardly directed except the posterior pair which are outwardly directed. Juncture of parafacials and parafrontals as long as length of the short third antennal segment, about one and a half times as wide as its greatest width, parafacials narrowed to its width below. Cheeks almost one-third of eye height, with two or three rows of upwardly directed setulae on anterior half of the lower margin. Eyes short-haired. Palpi brownish, infuscated on apical half to three-fourths. Antennae black, third segment one and a fourth to one and a third times as long as second. Longest hairs on arista about as long as its greatest diameter.

Thorax black, with brownish to yellowish-gray pruinose, four distinct brown vittae and an indistinct brown prescutellar dorsocentral vitta. With a strong pair of presutural acrostical bristles, the presutural and postsutural acrostical setulae very sparse and short, but with a pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra two-thirds as long as posterior notopleural bristle. Scutellar setulae more numerous than in *acrosticalis*, but not descending below level of marginals. Sternopleurals 2:2; hypopleura and sternites bare.

Legs mostly yellow, the femora usually with an indistinct infuscated dorsal stripe which is distinctly whitish gray pruinose; coxae and tarsi black and fore femora with a distinct posterodorsal infuscated stripe. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with four ventral and a row of distinct anterior bristles on basal half, no apical anterior bristles. Mid tibiae with two median posterior bristles. Hind

femora with a row of short anteroventral bristles, only the subapical one as long as diameter of femora where situated and with two to four posteroventral setulae on basal third. Hind tibiae with one strong anterodorsal and two to three weaker anteroventral median bristles.

Wings slightly yellowish hyaline. Cross-veins very broadly infuscated, the cloud at posterior cross-vein broadest at its juncture with fourth vein. Posterior cross-vein strongly curved at middle. Costal setulae and thorns undeveloped. All veins bare. Fourth vein distinctly deflected posteriorly at apex. Calyptrae white, the margins pale yellow; halteres yellow.

Abdomen black, grayish pruinose, with distinct dorsal and lateral checkerings. Basal sternite bare.

SPECIMEN EXAMINED.—1 female, Peru, 1914, H. H. Parish coll. (U. S. Nat. Mus.).

The strongly backwardly curved fourth vein, the broadly infuscated cross-vein should at once distinguish this species from any other occurring in South America. *Acrosticalis*, new species, is somewhat similar, having the distinct presutural acrostical bristles, but the fourth wing-vein is only slightly backwardly curved and the posterior cross-vein is only slightly infuscated.

### *Helina discolor* (Stein)

*Mydaea discolor* STEIN, 1911, Archiv f. Nat., (A-1), LXXVII, p. 83.—MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 305.

Originally described from Peru by Stein and subsequently recorded from Bariloche, Chile, by Malloch. I have not seen this species.

### *Helina viola* Malloch

MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 303.

It is with some hesitation that I include this species without having seen it because of the unusual color and structural characters.

### *Helina chilensis* Malloch

MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 312.

Upon measuring the length of the arisetal hairs on the holotype, in the U. S. National

Museum, I find that they are four-fifths as long as width of third antennal segment. Most of the hairs appear to be broken off and probably account for Malloch's statement that they are about half as long as width of third antennal segment.

### *Helina simplex* Malloch

MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 309.

I have seen only the holotype in the U. S. Nat. Mus.

### *Helina dubia* (Bigot)

*Yetodesia dubia* BIGOT, 1885, Ann. Soc. Eng. France (6) IV, p. 294.—STEIN, 1901, Zeits. f. Hymen. Dipt., p. 274.—MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 304.

I have included this species upon the basis of the descriptions given in the above references.

### *Helina townsendi*, new species

MALE.—7 mm. long. Parafacials, parafrontals and cheeks black, with dense slightly brownish-gray pruinescence. Front at narrowest as wide as distance across posterior ocelli, inclusive. At narrowest frontal vitta twice as wide as diameter of anterior ocellus, and each parafrontal about three-fourths as wide as diameter of anterior ocellus. With four or five strong parafrontal bristles and numerous setulae which reach to but not beyond narrowest part of front. Juncture of parafacials and parafrontals one and a fourth times as long as width of third antennal segment, parafacials narrowed to three-fourths its width below. Cheeks almost three times as high as width of third antennal segment and about one-third of eye height, with two or three rows of upwardly directed setulae along lower margin, those in front distinctly more well developed. Eyes distinctly haired. Antennae and palpi black. Third antennal segment twice as long as second. Longest hairs on arista slightly more than twice as long as its basal diameter and almost half as long as width of third antennal segment.

Thorax black, grayish pruinose, distinctly quadrivittate. Two pairs of distinct presutural acrostical bristles, the posterior pair almost as long and strong as the dorsocentral bristles, the anterior pair half as long and strong as the posterior pair, the acrostical setulae in four to six irregular rows and with a pair of weak prescutellar acrostical bristles; dorsocentrals 2:4; intralargals 2; pra short, not more than one-third as long as posterior notopleural bristle. Scutellar setulae not descending below level of marginals. Sternopleurals 2:2. Hypopleura and sternites bare.

Legs black, only the apical third of mid

femora, apical two-thirds of hind femora and hind tibiae orange-yellow. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with a row of ventral bristles on basal half, no anterior row of setulae or bristles and only an apical anterodorsal setula. Mid tibiae with four posterior bristles. Hind femora with six to eight anteroventral bristles on apical half, those toward apex longest. Hind tibiae with three median anterodorsal and anteroventral bristles, and a series of six to nine short posterior bristles or setulae at middle.

Wings uniformly very slightly brownish black hyaline. Cross-veins not infuscated. Costal setulae and thorns undeveloped. All veins bare. Third and fourth veins divergent at apices. Posterior cross-veins very distinctly curved, joining the fourth vein at its middle beyond the anterior cross-vein. Calyptrae almost white, halteres orange.

Abdomen black, brownish gray pruinose, with very distinct dorsal and lateral checkerings, the larger bristles inserted in small dark spots, when viewed from behind with a pair of large, square dark spots on second and third visible tergites and a grayish dorsocentral vitta. Basal sternite bare; others with a pair of distinct apical bristles; fifth moderately cleft, the discs of processes with a row of short, only moderately distinct bristles. Hypopygium black.

**HOLOTYPE.**—Male, Huariaca (Peru), 10,750 ft., December 21, 1913, C. H. T. Townsend coll., determined as *Helina biseta* Stein, by Aldrich.

*Biseta* Stein<sup>1</sup> was originally described on the basis of a female from Callanga, Peru. I have not seen this species, but the description calls for three dorsocentral bristles and two anterodorsal and one ventral median mid tibiae bristle in addition to the usual four or five posterior bristles. The presence of anterodorsal bristles is often sexual, but in none of the related species, i.e., *chilensis* Malloch, *simplex* Malloch and *discolor* Stein, which possess either ventral or posteroventral bristles, is this character sexual.

<sup>1</sup> Stein, 1904, Ann. Mus. Nat. Hung., II, p. 44.

### ***Helina fulvocalyptrata* Malloch**

MALLOCH, 1934, Dipt. Pat. So. Chile, pt. VII, fasc. 2, p. 311.

Besides the allotype female from Bariloche, Chile, in the U. S. National Museum, I have seen a male from Tierra del Fuego, February 2, 1938 (J. Bird), in The American Museum of Natural History. There is a female paratype in the U. S. National Museum which has entirely fulvous femora. It may be closely related to *dubia* (Bigot) but because of the lack of more material I do no more than mention it at this time.

### ***Helina bigoti* Malloch**

MALLOCH, *op. cit.*, p. 312.

Included upon the basis of five male and three female paratypes from Ancud and Castro, Chile, in the U. S. Nat. Mus.

### ***Helina connexa* Malloch**

MALLOCH, *op. cit.*, p. 309.

Two male and two female paratypes in U. S. National Museum from Casa Pangue, Puerto Blest and Correntosa, Chile.

### ***Helina bifimbriata* Malloch**

MALLOCH, 1934, *op. cit.*, p. 307.

Thirteen male and ten female paratypes from Bariloche, Correntosa, Los Loros, Puerto Blest and Casa Pangue, Chile, in U. S. National Museum.

### ***Helina bifimbriata* var. *basalis* Malloch**

MALLOCH, *op. cit.*, p. 308.

Nine male paratypes in U. S. National Museum from Puerto Blest, Casa Pangue, Los Loros and Bariloche, Chile.

### ***Helina bifimbriata* var. *grisea* Malloch**

MALLOCH, *op. cit.*, p. 308.

I have not seen the single specimen known only from Puerto Blest, Chile.