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REVIEW OF NEARCTIC *MYDAEA, SENSU STRICTO,* AND *XENOMYDAEA* (DIPTERA, MUSCIDAE)

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Several years ago a study of the Mydaeini of the world was undertaken. The present paper is a review of the Nearctic species. It covers the Nearctic species of *Mydaea* Robineau-Desvoidy, *sensu stricto,* and *Xenomydaea* Malloch. As the study progresses, it may be necessary either to broaden the limits of the genera involved or to restrict them considerably and propose names for various well-defined categories.

The Holarctic Mydaeini can, as a rule, be divided into five fairly distinct categories, although when African and Australian species particularly are studied forms are found which connect and invalidate most of the known generic characters.

For the present the genera will be treated in the traditional sense, which is essentially that of J. R. Malloch. The five groups mentioned above may be separated by the following key.

GENERA OF NEARCTIC MYDAEINI

1. With setulae on both dorsal and ventral surface of juncture of second and third wing veins (node) but not beyond.....2
   Without hairs on both surfaces of the node.....3
2. Either front or oral margin or both protuberant in profile.....
   .....*Xenomydaea* Malloch
   Neither front nor oral margin protuberant in profile.....
   .....*Mydaea* Robineau-Desvoidy, *sensu stricto*
3. Head of male distinctly flattened above; pra absent; arista long plumose; oviposiler usually with spines on suranal plate; small species.....
   .....*Hebecnema* Schnabl
   Head of male not distinctly flattened above; pra present or absent; arista pubescent to plumose; oviposiler without thorns on suranal plate; larger species.....4

4. With hairs or setulae on all of the following surfaces: notopleura adjacent to bristles, ventral surface of scutellum, hypopleura below spiracle.... .....*Helina* (*lucorum* group)[1]
Without hairs on all these surfaces....*Helina* Robineau-Desvoidy, *sensu lato*

It is with the greatest pleasure that I express my gratitude to the many museums and entomologists who have either lent material or allowed me to examine their material.

In particular, I wish to thank the authorities of the American Museum of Natural History who have made the entire collection of these flies available and allowed me to work them over. The United States National Museum has lent numerous specimens and permitted me to study their entire collection. Mr. J. R. Malloch offered several kind suggestions in the early stages of this study. Dr. H. C. Huckett was most kind in lending several European species unknown to me for comparison. To Dr. C. H. Curran I am particularly indebted for his kindness and many helpful suggestions.

Unless otherwise noted, all holotypes are or will be deposited in the American Museum of Natural History.

To conserve space, distribution records are limited to notation of the state, and the source of these specimens is omitted.

GENUS **MYDAEA** ROBINEAU-DESVOIDY

? *Fellaea* ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Sci. France, ser. 2, vol. 2, p. 476.

Mydaea ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Sci. France, ser. 2, vol. 2, p. 479.

Opsolasia COQUILLETT, 1910, Proc. U. S. Natl. Mus., vol. 37, p. 580.

In 1830, Desvoidy proposed the genus *Fellaea* for five new species without designating a genotype. Macquart (1835, p. 33) and Schiner (1864, p. 564) were of the opinion that the first species, *F. fera*, was the same as *Anthomyia urbana* Meigen. Apparently following this synonomy, Coquillett (1901, p. 137) designated *fera urbana* as genotype and placed *Fellaea* as a synonym of *Mydaea*.

However, Bezzi and Stein (1907, p. 615) placed *Fellaea* as a questionable synonym of *Phaonia* with *fera* as possibly the same as *Anthomyza basalis* Zetterstedt. Coquillett (1910, p. 545) in his second work on genotypes appears to have accepted

[1] *Spilaria* authors, not Schnabl.

Bezzi and Stein's suggestion, since *Fellaea* is placed as a synonym of *Phaonia* in that paper.

If it should be shown that *fera* belongs to *Mydaea*, then the name *Fellaea* should replace *Mydaea*.

In 1910, Coquillett proposed the name *Opsolasia*, with *Lasiops clavicrura* Coquillett as genotype, for the group of species considered by authors to represent *Lasiops* Meigen. The validity of this need not concern us here, since *L. clavicrura* (= *orichalcea* Zetterstedt) is a *Mydaea* and hence *Opsolasia* becomes a synonym of *Mydaea*.

The genotype is *Musca pagana* Fabricius.

Besides the characters mentioned in the key, most species possess hairs on the notopleura adjacent to base of at least the posterior notopleural bristle and have thorn-like bristles on the suranal plate of the ovipositer.

KEY TO NEARCTIC *Mydaea* ROBINEAU-DESVOIDY, SENSU STRICTO

1. Dorsocentrals 2:4 2
   Dorsocentrals 2:3 ..... *occimons*, new species
2. Scutellum yellow, contrasting sharply with the dark thoracic disc 3
   Scutellum dark, concolorous with the rest of the thorax 6
3. Palpi and antennae fulvous, at most only apex of third antennal segment infuscated 4
   Palpi and antennae entirely darkened 5
4. Lateral ventral margins of scutellum with some black bristles ..... *flavicornis* Coquillett
   Lateral ventral margins of scutellum bare ..... *impedita* Stein
5. *Males:* acrosticals 0:2; hind femora with a complete row of anteroventral bristles and with a row of posteroventral bristles on basal one-half to three-fourths. *Females:* humeri concolorous with disc; fore tibiae without median posterior bristles ..... *pagana* (Fabricius)
   Males: acrosticals 0:1; hind femora with anteroventral bristles only on basal half and with at most one or two posteroventral bristles at base. *Females:* humeri fulvous, contrasting with darker disc; fore tibiae with one or two median posterior bristles ..... *occidentalis* Malloch
6. Eyes distinctly haired; wing base of males infuscated; of females deep yellow to fulvous ..... *orichalcea* (Zetterstedt)
   Eyes bare; wing bases not infuscated or deep yellow to fulvous 7
7. Fore and mid tibiae with a submedian ventral bristle ..... *armatipes* Malloch
   Fore and mid tibiae without submedian ventral bristles 8
8. Knobs or more of halteres darkened 9
   Knobs of halteres not darkened 11
9. Subtriangular portion of hypopleura above hind coxae with one or more setulae; longest aristal hairs distinctly longer than greatest diameter of arista ..... *nubila* Stein
   Subtriangular portion of hypopleura above hind coxae bare; longest aristal hairs not longer than greatest diameter of arista 10

10. Palpi of the male abruptly dilated on apical three-fourths; mid femora with only one apical bristle anteriorly ..... *palpalis* Stein[1]
    Palpi of the male not abruptly dilated on apical three-fourths; mid femora with an apical anterior and anterodorsal bristle ..... *hannai* Malloch[1]
11. Subtriangular portion of hypopleura above hind coxae without hairs or setulae; the aristal hairs usually shorter than greatest width of third antennal segment 12
    Subtriangular portion of hypopleura above hind coxae with one or more hairs or setulae, but, if bare, then the aristal hairs are as long as, or longer than, greatest width of third antennal segment 17
12. Males 13
    Females 14
13. Second antennal segment concolorous with third; fore and mid femora darkened ..... *brevipilosa* Malloch[2]
    Second antennal segment lighter colored than third; fore and mid femora fulvous ..... *persimilis* Malloch[2]
14. All femora mostly darkened, often the base or more of at least the hind tibiae darkened; longest aristal hairs as long as, or distinctly longer than, width of third antennal segment 15
    All femora yellow to orange; at most only the fore femora partly darkened; longest aristal hairs not more than half as long as width of third antennal segment 16
15. Tibiae black or dark reddish brown ..... *obscurella* Malloch
    Tibiae yellow to pale orange ..... *neobscura*, new species
16. Second antennal segment brownish orange; longest hairs on arista two times as long as its greatest diameter ..... *brevipilosa* Malloch
    Second antennal segment entirely yellow; longest hairs on arista not longer than its greatest diameter ..... *persimilis* Malloch
17. Pra distinctly longer than posterior notopleural bristle and almost or quite as long as the first postsutural dorsocentral bristle ..... *urbana* (Meigen)
    Pra at most only as long as posterior notopleural bristle and not nearly so long as the first postsutural dorsocentral bristle 18
18. Males 19
    Females 27
19. Sternopleurals 1 : 2 or, if a weak lower anterior setula is present, then the calyptrae are whitish or hyaline 21
    Sternopleurals 2 : 2, the lower anterior one strong; calyptrae yellow 20
20. All femora infuscated ..... *electa* (Zetterstedt)
    At most only the fore and base of mid femora infuscated ..... *neglecta* Malloch
21. Front at narrowest part not nearly so wide as diameter of the anterior ocellus; small, slightly shiny species; hind femora with a complete row of posteroventral bristles ..... *narona*, new species
    Front at narrowest part distinctly wider than anterior ocellus; larger species, or, if small, then without a complete row of posteroventral bristles on hind femora 22

[1] I have been unable to find reliable characters to separate the females of these two species.

[2] It is possible one of these two species is the European *deserta* Zetterstedt which I have not seen. Of the two, *brevipilosa* agrees best with existing descriptions.

22. Thorax with four clearly visible vittae; with dense grayish to yellowish gray pruinescence....23
Thorax not vittate or with only two very narrow and scarcely visible presutural vittae....25
23. Apical fore tarsal segment slightly but distinctly widened; without a weak lower anterior sternopleural setula....*discimana* Malloch
Apical fore tarsal segment not at all widened; often with a short, weak, lower anterior sternopleural setula....24
24. All femora partly or entirely infuscated; calyptrae white....*neobscura*, new species
All femora mostly or entirely yellow; calyptrae distinctly yellow....*neglecta* Malloch
25. Fore and mid tibiae fulvous....*winnemana* Malloch
Fore and mid tibiae black....26
26. Longest aristal hairs as long as, or longer than, width of third antennal segment; abdomen without dorsal or lateral checkerings; mid femora with an apical anterior and anterodorsal bristle; halteres very deep orange to brownish black....*nubila* Stein
Longest aristal hairs not more than three-fourths as long as width of third antennal segment; abdomen with dorsal and lateral checkerings; mid femora with only the apical anterodorsal bristles; halteres light yellow to pale fulvous....*obscurella* Malloch
27. Fifth fore tarsal segment distinctly broader than others....28
Fifth fore tarsal segment not broader than the others....29
28. Fore femora fulvous; fore tibiae with at least one and usually two median posterior bristles; thoracic and abdominal pruinescence yellowish gray to golden....*discimana* Malloch
Fore femora infuscated; fore tibiae without median posterior bristles; thoracic and abdominal pruinescence bluish gray....*discimanoides*, new species
29. Sternopleurals 2 : 2, the lower anterior one strong, if 1 : 2 then the femora entirely fulvous....*neglecta* Malloch[1]
Sternopleurals 1 : 2, if with a weak lower anterior one, one or more femora largely or entirely infuscated....30
30. All tibiae and extreme apices of femora yellow; hind femora usually with distinct posteroventral bristles on basal half....31
All tibiae and entire femora darkened, at most the hind tibiae reddish brown in the middle; hind femora with posteroventral setulae confined to basal fourth to basal fifth....33
31. Hind femora with distinct posteroventral bristles on basal third or more; calyptrae distinctly yellowish to fulvous....*narona*, new species
Hind femora without posteroventral bristles, at most with two or three weak posteroventral setulae; calyptrae white or very pale yellow....32
32. Third antennal segment 2.8 to 3.0 times as long as second; without a weak lower anterior sternopleural setula....*winnemana* Malloch
Third antennal segment at most 2.5 times as long as second; usually with a

[1] I have seen no female specimens of *electa*, but it is probable that they may be separated from *neglecta* by having the femora infuscated in part.

very weak but distinct lower anterior sternopleural setula.....
.....*neobscura*, new species

33. Thorax shiny, non-vittate; abdomen without checkerings.....*nubila* Stein
Thorax densely grayish pruinescent, quadrivittate; abdomen with dorsal and lateral checkerings.....*obscurella* Malloch

Mydaea occimons, new species

MALE: Length 6 mm. Head black, grayish pruinescent, frontal vitta velvety black. Narrowest part of front two-thirds as wide as distance across posterior ocelli inclusive. Parafrontals subcontiguous, with seven or eight pairs of bristles which extend to anterior apex of ocellar triangle, the anterior four or five pairs of bristles strongest. Juncture of parafacials and parafrontals as long as width of third antennal segment, only slightly narrower below. Cheeks twice as high as width of third antennal segment, with numerous bristly hairs along lower margin, the hairs extending onto facial region to a level slightly below lower level of eyes. Longest aristal hairs as long as, or very slightly longer than, greatest aristal diameter. Eyes bare or with very short, sparse hairs.

Thorax black, slightly brownish gray pruinescent, quadrivittate. Presutural acrostical setulae in five to seven irregular rows and a pair of prescutellar acrostical bristles. Dorsocentrals 2:3; pra almost or quite as long as the rather short posterior notopleural bristle and half as long as the first postsutural dorsocentral; notopleura without hairs at base of posterior notopleural bristle. Sternopleurals 1:2. Hypopleura and sternites bare.

Legs black. Fore femora normal. Fore tibiae bare in the middle. Mid femora with five ventral bristles on basal half and a row of scarcely developed anterior ones on basal half, with the apical anterior bristles scarcely developed. Mid tibiae with two median posterior bristles. Hind femora with a row of anteroventral bristles on apical two-thirds and four or five short but distinct posteroventral bristles on basal half, the clothing setulae on the ventral surface slightly longer and more well developed than usual. Hind tibiae with two median anterodorsal and anteroventral bristles.

Wings brownish yellow at base, becoming hyaline beyond juncture of second and third wing veins, veins narrowly bordered with infuscation. Costal thorn and setulae scarcely developed; with

bristles above and below a juncture of second and third wing veins. Other vein bare. Third and fourth veins divergent apically. Calyptrae with distinct, broadly yellowish margins, the central portion whitish hyaline. Halteres deep yellow to brown.

Abdomen colored as in *nubila* Stein. Basal sternite bare. Fifth only moderately cleft, without distinctive armature.

FEMALE: Length 6.5 mm. Similar to the male, differing from it in having the front at vertex five-fourteenths of head width, slightly widened anteriorly. With a complete row of stronger parafrontal bristles and numerous setulae laterad to them. The parafrontals more brownish pruinescent, and the parafrontal setulae do not extend quite so far dorsally onto the facial ridges, reaching a level slightly above apex of third antennal segment. The pra is almost as long as the first postsutural dorsocentral bristle. The costal thorns are more well developed, and the wing bases are a lighter yellow. The clothing setulae on the ventral surface of hind femora are undeveloped.

TYPE MATERIAL: Holotype, male, Red River, New Mexico, August 14, 1940, 9000 feet (F. M. Snyder); allotype, female, Valdez, Alaska, June 8, 1921 (J. M. Aldrich); in the United States National Museum.

Before the male was collected, the female had been sent to Herr O. Ringdahl who wrote that it was not conspecific with the closely related *soot-reynei* Ringdahl (1928, p. 45). *Occimons* seems to be most closely related to that northern European species. The male differs from a European specimen of *soot-reynei*, which was determined by Ringdahl and kindly lent by Dr. H. C. Huckett, in having a narrower front, higher cheeks, hairs extending farther upward onto the facial ridges, and the aristal hairs longer. In *soot-reynei*, the latter are not over half as long as greatest aristal diameter, and the fore tibiae have a short median posterior bristle. The fifth sternite of *occimons* does not have such long processes nor such well-developed apical bristles as does *soot-reynei*.

Mydaea impedita Stein

Mydaea impedita STEIN, 1920, Arch. Naturgesch., sect. A, vol. 84, p. 33.
Mydaea flavidipalpis MALLOCH, 1923, Canadian Ent., vol. 55, p. 221.

MALE: Length 7 mm. Head black, silvery gray pruinescent. Front at narrowest part about twice as wide as anterior ocellus. Parafrontals contiguous, at narrowest part each about as wide

as anterior ocellus, with four or five pairs of bristles and one or two setulae, none of which extends beyond apical third of front. Juncture of parafacials and parafrontals about twice as long as greatest diameter of arista, parafacials somewhat narrower below. Cheeks as high as width of third antennal segment. Antennae and palpi entirely yellow. Third antennal segment two and one-fourth times as long as second. Longest aristal hairs about as long as narrowest width of third antennal segment.

Thorax largely darkened, humeri, postalar declivities, and scutellum yellow in ground color, rest black, grayish pruinescent, narrowly quadrivittate. Bristled as in *pagana* (Fabricius) but with only one pair of prescutellar acrostical bristles and with a few scutellar setulae which descend below basal marginal bristle but do not invade the ventral surface.

Legs entirely yellow. Fore femora normal. Fore tibiae bare in the middle. Mid femora with two or three ventral bristles on basal half, and with only one apical anterodorsal bristle. Mid tibiae with three or four median posterior bristles. Hind femora with four or five strong apical anteroventral bristles and with a row of much shorter ones which extend to the base, none of the latter more than half as long as diameter of the femora where situated. Hind tibiae with two anterodorsal, and three or four anteroventral, median bristles.

Wings yellowish hyaline, especially at base. Costal thorns and setulae undeveloped. Third and fourth veins subparallel at apices.

Abdomen black, grayish yellow pruinescent, with an indistinct dorsocentral vitta and with dorsal and lateral checkerings. Basal sternite bare; fifth distinctly cleft, with a row of four or five moderately well-developed bristles on disc of processes. Hypopygium and apex of fifth sternite yellow to orange.

FEMALE: Length 7 to 8 mm. Similar to the male, differing from it in having the front at vertex one-fourth of head width, only slightly widened anteriorly. Fore tibiae with a median posterior bristle. Mid femora with the basal anterior bristles moderately well developed. Abdomen with slight dorsal and lateral checkerings.

SPECIMENS EXAMINED: One male, Woods Hole, Massachusetts, 7-00, holotype (Zoological Museum, University of Berlin), and seven males and five females from Massachusetts, New York, New Jersey, Pennsylvania, Maryland, North Carolina, and Virginia.

Mydaea flavicornis Coquillett

Mydaea flavicornis COQUILLETT, 1902, Proc. U. S. Natl. Mus., vol. 25, p. 122; STEIN, 1920, Arch. Naturgesch., sect. A, vol. 84, p. 26; MALLOCH, 1921, Canadian Ent., vol. 51, p. 10; 1923, *ibid.*, vol. 55, p. 220.

MALE: Length 5 mm. Very similar to *impedita* Stein, differing from it in having the humeri entirely darkened. The scutellum with a row of distinct setulae along the ventral margin on the basal half.

Mid tibiae with only two median posterior bristles. Hind tibiae with two anterodorsal and two or three anteroventral bristles.

Abdomen with distinct dorsocentral vitta, and the fifth sternite with only two or three bristles on the disc of the processes.

FEMALE: Length 6 to 7 mm. Similar to the male, differing from it in having the front one-fourth of head width at vertex and of almost uniform width throughout. The humeri distinctly yellowish as in *impedita* Stein.

SPECIMENS EXAMINED: Five males and four females from Missouri, Wisconsin, Indiana, Pennsylvania, New York, and the holotype male in the United States National Museum from Quebec.

Mydaea pagana (Fabricius)

Musca pagana FABRICIUS, 1794, Entomologia systematica, vol. 4, p. 326; 1805, Systema antliatorum, p. 288; Fallén, 1825, Muscides, p. 79.

Anthomyia pagana MEIGEN, 1826, Systematische Beschreibung der bekannten Europäischen zweiflügeligen Insekten, vol. 5, p. 116.

Mydaea scutellaris ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Sci. France, ser. 2, vol. 2, p. 480.

Spilogasier lucana RONDANI, 1870, Bull. Soc. Ent. Italiana, vol. 2, p. 323.

Aricia pagana PANDELLÉ, 1899, Rev. Ent. France, vol. 18, p. 86.

Mydaea pagana MEADE, 1897, Descriptive list of the British Anthomyidae, vol. 1, p. 16; STEIN, 1914, Arch. Naturgesch., sect. A, vol. 79, p. 21; 1916, *ibid.*, sect. A, vol. 81, p. 66; SÉGUY, 1923, Faune de France (Anthomyidae), p. 255; KARL, 1928, Die Tierwelt Deutschlands, pt. 13, Diptera, vol. 3, p. 75.

MALE: Length 8 mm. Head black, golden yellow pruinescent. Front at narrowest part not so wide as diameter of anterior ocellus. Parafrontals contiguous on almost half their length and with a row of seven or eight bristles which do not extend beyond the point where the parafrontals become contiguous, but the small accessory setulae extend almost to the ocellar triangle.

Juncture of parafacials and parafrontals twice as long as greatest diameter of arista; parafacials not narrowed below. Cheeks one and one-half times as high as width of third antennal segment. Eyes bare or with short, sparse hairs, the facets somewhat larger on the upper surface of the eye. Antennae and palpi black. Third antennal segment two and one-fourth times as long as second. Longest aristal hairs almost or quite as long as width of third antennal segment.

Thorax black, with dense grayish pruinescence, distinctly quadrivittate. Scutellum yellow, contrasting sharply with the rest of the thorax. Presutural acrostical setulae in about 12 irregular rows and with two pairs of long, strong, prescutellar, acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra as long as, or slightly longer than, the posterior notopleural bristle, the latter with distinct setulae adjacent to its base. Scutellar setulae descending slightly below level of marginals. Sternopleurals 1:2; hypopleura and sternites bare.

Legs, except coxae, trochanters, and tarsi yellow. Fore femora normal. Fore tibiae bare in the middle. Mid femora with a row of 10 to 12 very long ventral bristles. Mid tibiae with three to five median posterior bristles. Hind femora with a complete row of long anteroventral bristles and with an almost complete row of shorter posteroventral bristles. Hind tibiae with two or three median anterodorsal and anteroventral bristles.

Wings yellowish hyaline, especially at the base. Third and fourth veins divergent at apices. Costal setulae and thorns scarcely developed. Calyptrae and halteres yellowish.

Abdomen black, with dense yellowish pruinescence, indistinct dorsal and lateral checkerings and with a narrow dorsocentral vitta. Basal sternite bare; apices of other sternites with one or two pairs of apical bristles; fifth distinctly cleft, without distinct long bristles.

FEMALES: Length 7.5 mm. Similar to the male, differing from it in having the front at vertex one-third of head width, widened anteriorly. Thorax usually with only one pair of prescutellar acrostical bristles. Hind femora without as strong posteroventral bristles.

Description based on 13 males and three females from Finland, Sweden, the Netherlands, and Germany determined by Ringdahl, Karl, Tiensuu and De Meijere.

I have not seen any North American specimens that I considered to be conspecific with the foregoing European ones. *Pagana* has been recorded several times from North America, but in all cases such specimens in my opinion have been *occidentalis* Malloch or closely related species. It is always possible that *pagana* occurs in North America so it has been included, especially since it is the genotype.

Mydaea occidentalis Malloch

Mydaea occidentalis MALLOCH, 1920, Trans. Amer. Ent. Soc., vol. 44, p. 134; 1921, Canadian Ent., vol. 53, p. 9; 1923, *ibid.*, vol. 55, p. 220.

MALE: Length 6 to 7 mm. Very similar to *pagana* (Fabricius). Front at narrowest part not quite so wide as the distance across posterior ocelli inclusive. Parafrontals subcontiguous, about as wide as the diameter of anterior ocellus; with six to eight pairs of bristles and setulae which extend midway to the ocellar triangle. The small parafrontal setulae do not extend posteriorly beyond middle of front. Juncture of parafacials and parafrontals one-half as long as width of third antennal segment, parafacials slightly narrowed below. Antennae and palpi black. Third antennal segment twice as long as second. Longest aristal hairs as long as width of third antennal segment.

Thorax colored and bristled as in *pagana* except that the pra is not quite so long as posterior notopleural bristle; with a single pair of prescutellar acrostical bristles.

All femora and tibiae entirely yellow, bristled as in *pagana*, except the long anteroventral ones on hind femora are confined to apical half, and there are no well-developed posteroventral bristles except for an occasional one or two at base.

FEMALE: Length 7 mm. Similar to the male, differing from it in having the front at vertex a little over one-fourth of head width, widened anteriorly. Humeri distinctly yellowish. Fore tibiae with one or two median posterior bristles.

SPECIMENS EXAMINED: Seven males and six females from Maine, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Quebec, and British Columbia.

There is a single female from the Zoological Museum of the University of Berlin from "U.S.A." bearing the label "*Mydaea humeralis-tincta* Zetterstedt" in Stein's handwriting before me. I believe this to be one of the two female specimens from the Hough collection mentioned by Stein (1897a, p. 38) when

humeralis Zetterstedt was reported from North America.

I have not seen determined European specimens of *humeralis* Zetterstedt and cannot, therefore, state definitely whether or not the above specimen is conspecific with the European *humeralis* Zetterstedt.

There is considerable confusion regarding the availability of the name *Anthomyza humeralis* Zetterstedt in *Mydaea*, and the following remarks are made not to settle any question but to present the problem.

In reporting on the Zetterstedt collection, Ringdahl states that he has not seen the type but is of the opinion that *Phaonia norvegica* Ringdahl is *humeralis* Zetterstedt. On the other hand, Bezzi and Stein (1907, p. 640) placed it in *Mydaea* as a good species.

Robineau-Desvoidy (1830, p. 481) described a *Mydaea humeralis* so the name *humeralis* Zetterstedt is not available in *Mydaea* unless Desvoidy and Zetterstedt had the same species. Bezzi and Stein were questionably of the opinion that *Mydaea humeralis* Robineau-Desvoidy was the same as *tincta* Zetterstedt. If this is true, then the name *humeralis* Robineau-Desvoidy must replace *tincta* Zetterstedt.

It may prove that we are dealing with a single species having two geographical forms, *tincta* Zetterstedt and *occidentalis* Malloch, in which case the name *occidentalis* would become a synonym of *tincta* (= ? *humeralis* Robineau-Desvoidy). If there are two distinct species, then the name *occidentalis* Malloch is the next available one for *humeralis* Zetterstedt *nec* Robineau-Desvoidy if Stein's manuscript synonomy should prove correct.

Occidentalis is very similar to the European *tincta* and is separated from it by very minor characters, namely, the broader front in the male. *Pagana* has the front at narrowest part not so wide as diameter of anterior ocellus, *tincta* has it slightly wider than the anterior ocellus, and *occidentalis* has it almost as wide as distance across posterior ocelli.

As pointed out by Malloch in his original description of *occidentalis*, *tincta* possesses four to five anterodorsal bristles on the hind tibiae, while *occidentalis* has two to three. The female of *occidentalis* also differs from *tincta* in having entirely fulvous femora, while the latter has at least the fore femora infuscated.

I have dissected the male genitalia of *occidentalis* and *tincta* and can find no reliable distinguishing characters. However,

genitalic characters do not appear to be of great value in this genus for separating closely related species.

Mydaea orichalcea (Zetterstedt)

? *Aricia subfuscinervis* var. *B* ZETTERSTEDT, 1845, Diptera Scandinaviae, vol. 4, p. 1489.

Aricia orichalcea ZETTERSTEDT, 1849, Diptera Scandinaviae, vol. 8, p. 3285; STEIN, 1902, Wiener Ent. Zeitg., vol. 21, p. 39.

Lasiops clavicrura COQUILLETT, 1900, Proc. Washington Acad. Sci., vol. 2, p. 444.

Opsolasia clavicrura COQUILLETT, 1910, Proc. U. S. Natl. Mus., vol. 37, p. 580.

Mydaea astuta STEIN, 1920, Arch. Naturgesch., sect. A, vol. 84, p. 29.

Mydaea clavicrura MALLOCH, 1921, Canadian Ent., vol. 53, p. 7; 1923, *ibid.*, vol. 55, p. 220.

Mydaea orichalcea STEIN, 1914, Arch. Naturgesch., sect. A, vol. 79, p. 20; 1916, *ibid.*, sect. A, vol. 81, p. 66; RINGDAHL, 1924, Ent. Tidskr., vol. 45, p. 45.

MALE: Length 8 mm. Head black, brownish gray pruinescent. Front at narrowest part slightly less than twice the diameter of anterior ocellus. Parafrontals not contiguous, separated by a distance equal to diameter of anterior ocellus; with a row of eight to 12 well-developed parafrontal bristles and four to five setulae basad of these which extend to a level opposite anterior ocellus. Juncture of parafacials and parafrontals as long as greatest width of third antennal segment; parafacials very slightly narrowed below. Cheeks two and one-half times as high as width of third antennal segment, lower margin with three or four rows of moderately well-developed, upwardly curved bristles. Eyes very distinctly haired. Antennae and palpi black. Third antennal segment one and one-half times as long as second. Arista pubescent, the longest hairs at most as long as greatest aristal diameter.

Thorax black, scarcely pruinescent, slightly shiny, indistinctly brownish quadrivittate. Presutural acrostical setulae in eight to 10 irregular rows more hair-like, longer and numerous than usual; with one pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; with several notopleural setulae adjacent to base of posterior bristle; pra about one-half as long as bristle behind it. Scutellar setulae descending distinctly below level of margin of bristles but not invading the ventral surface. Sternopleurals 1:2; hypopleura usually with setulae above base of hind coxae.

Legs entirely black. Fore femora normal. Fore tibiae bare in

the middle. Mid femora with the clothing setulae slightly longer and denser than usual, and with the usual row of bristles on basal half of the anterior surface shorter than usual; with six to eight well-developed ventral bristles on basal half and with several rows of closely placed, shorter, hair-like setulae. Mid tibiae with three to five median posterior bristles and often with a very short, median, anterodorsal bristle. Hind femora with a complete row of long, anteroventral and posteroventral bristles, those on the former surface more complete and slightly longer. Hind tibiae with three to five anterodorsal and usually three anteroventral bristles.

Wings smoky, very distinctly blackened at base. Costal setulae and thorns only slightly developed. Third and fourth veins slightly divergent. Posterior cross vein moderately curved. Halteres and calyptrae yellow to orange, contrasting quite sharply with the base of the wings.

Abdomen black, yellowish gray pruinescent, with a distinct pair of subtriangular black spots on second visible tergite and with a less distinct pair at apex of third; with indistinct dorsal and lateral checkerings. Basal sternite usually bare; fifth moderately cleft, without outstanding bristles.

FEMALE: Length 8 to 9 mm. Similar to the male, differing from it in having the front one-third of head width. Palpi slightly more broadened. Fore tibiae with two or three median posterior bristles. Mid tibiae usually with two or three stronger, submedian, anterodorsal bristles. Posteroventral bristles on hind femora confined to basal half. Thorax quite distinctly quadrivittate. Prescutellar acrostical setulae shorter than in male. Wings yellowish hyaline at base. Abdomen without subtriangular spots, but with dorsal and lateral checkerings.

SPECIMENS EXAMINED: One male, Popoff Islands, Alaska, type of *L. clavicrura* Coquillett, in United States National Museum; one female, Marshal Pass, Colorado, cotype of *M. astuta* Stein, in United States National Museum; four males and two females from Alaska and Colorado.

This species shows superficial resemblance to *Helina laxifrons* Zetterstedt in its dark color and very dark wing bases as well as hairs at the base of the posterior notopleural bristle. It differs from all species usually placed in *Mydaea, sensu stricto*, in having eyes very distinctly haired. If this character should be considered of generic value, the name *Opsolasia* Coquillett must be used.

Mydaea armatipes Malloch

Mydaea armata MALLOCH (*nec* Stein), 1920, Trans. Amer. Ent. Soc., vol. 46, p. 135.

Mydaea armatipes MALLOCH, 1921, Canadian Ent., vol. 53, p. 10; 1923, *ibid.*, vol. 55, p. 10.

MALE: Length 9 mm. Head black, grayish pruinescent. Front at narrowest part about twice as wide as diameter of anterior ocellus, with a complete row of bristles and setulae extending almost to the ocellar triangle. Juncture of parafacials and parafrontals distinctly longer than greatest width of third antennal segment, parafacials not distinctly narrowed below. Cheeks about as high as length of third antennal segment or one-third of eye height, with a row of weakly developed, upwardly curved bristles. Eyes bare. Second antennal segment brownish to orange, third black, one and one-half times as long as second. Palpi black, sometimes slightly brownish at base. Longest hairs on arista only very slightly longer than its greatest diameter.

Thorax black, yellowish gray pruinescent, distinctly quadrivittate. Bristled as in *urbana* Meigen.

Coxae, trochanters, tarsi, and basal portion or more of all femora infuscated. Tibiae and apical portion of femora yellowish. Fore femora normal. Fore tibiae with one or two fine, median, posterior bristles and a much more well-developed ventral bristle on apical third. Mid femora with a closely placed series of about 12 bristles on apical half. Hind femora with a complete row of well-developed anteroventral bristles. Hind tibiae with two or three median anterodorsal and anteroventral bristles.

Wings hyaline, yellowish orange at base. Third and fourth veins divergent at apices. Costal thorns and setulae not prominent. Calyptrae and halteres orange.

Abdomen black, yellowish pruinescent, with a narrow dorsocentral vitta and dorsal and lateral checkerings. Basal sternite hairy; fifth moderately cleft, disc of each process with three or four strong bristles. Hypopygium black.

FEMALE: Length 9 to 10 mm. Similar to the male, differing from it in having the front at vertex one-third of head width widened anteriorly. The parafacials and parafrontals more distinctly brownish pruinescent. Legs bristled as in the male, but not so extensively infuscated.

SPECIMENS EXAMINED: Two males and three females from

Oregon, Montana, Wyoming, Colorado, and New Mexico, including the holotype in Illinois Natural History Survey Collection.

In his original description, Malloch states that he cannot ascertain from his specimens whether or not the armature of the ovipositer bears thorns as in *urbana* and related species. In a specimen from Aspen, Colorado, it is possible to see a small portion of the ovipositer, and there are several thorns present on suranal plate.

This species should be readily distinguishable from any of the other known Nearctic *Mydaea* by the presence of the ventral bristles on the mid and hind tibiae as well as the pubescent arista.

This species might be placed in the genus *Xenomydaea* because of the slightly protuberant front, but the oral margin is not so protruding as in the genotype.

Mydaea hannai (Malloch)

Helina hannai MALLOCH, 1921, Canadian Ent., vol. 53, p. 109; 1923, North American Fauna, no. 46, p. 189.

MALE: Length 7 mm. Head black, whitish gray pruinescent. Front at narrowest part as wide as distance across posterior ocelli inclusive. At the same level, each parafrontal one-half as wide as the frontal vitta. With a row of strong parafrontal bristles and setulae which reach to opposite the anterior ocellus. Vertical bristles scarcely differentiated from the groups of long hairs at vertex. Ocellars not quite so long as the anterior parafrontals. Juncture of parafacials and parafrontals as long as width of third antennal segment, parafacials not narrowed below. Cheeks twice as high as width of third antennal segment, with two or three rows of upwardly directed setulae along ventral margin. Eyes bare. Antennae and palpi black. The palpi slightly compressed so that they appear slightly wider than usual, but the widening is very gradual. Antennae inserted opposite the upper six-tenths of eye. Third antennal segment one and two-thirds times as long as its greatest diameter.

Thorax black, subshiny, sparsely brownish gray pruinescent, indistinctly quadrivittate. Presutural acrostical setulae in seven to eight irregular rows; with a pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra one and one-tenth times as long as posterior notopleural bristle; hairs adjacent to base of posterior notopleural bristle. Scutellar setulae

extending slightly below level of marginals. Sternopleurals 1:2 to 1:4, the posterior accessory ones shorter but nevertheless distinct. Hypopleura and sternites bare.

Legs black. Fore femora normal. Fore tibiae without median bristles, the clothing setulae slightly finer and longer than usual. Mid femora with long, anteroventral, hair-like setulae on basal third, a row of at least five ventral bristles on basal half which gradually become shorter and finer apically and joining the posteroventral long setulae so as to appear to form a complete row of ventral to posteroventral bristle-like setulae, with a row of slender anterior bristles on basal half and with an apical anterior and anterodorsal bristle. Mid tibiae with two strong median posterior bristles. Hind femora with a complete row of anteroventral bristles which are only slightly longer than the diameter of femora where situated, and a row of shorter posteroventral ones on basal half to two-thirds. Hind tibiae with two strong anterodorsal and two weaker anteroventral bristles on apical half.

Wings slightly smoky brown hyaline, rather yellowish at base. Costal setulae slightly, the thorns moderately, developed. Node hairy dorsally and ventrally but not beyond. Cross veins not infuscated. Third and fourth veins slightly divergent apically. Penultimate section of fourth vein seven-twelfths as long as ultimate. Calyptrae bright yellow. Knobs of halteres dark fuscous to black, stalks light brown to dark orange.

Abdomen subcylindrical, black, grayish pruinescent, with an indistinct dorsocentral vitta. Basal sternite bare; others longer than broad, with a pair of moderately well-developed apicals; fifth moderately cleft, without distinctive armature. Hypopygium black.

FEMALE: Length 6.5 mm. Similar to the male, differing in having the parafacials yellow to brownish pruinescent. Front at vertex four-tenths of head width, with a complete row of parafrontal bristles and strong lateral setulae. Parafacials narrowed below to half the length of juncture of parafacials and parafrontals. Palpi broadened but not so abruptly so. The mid femoral anteroventral setulae are not so long, and there are only two or three ventral bristles. Wings more yellowish to orange at base. Fourth vein more strongly divergent.

The description of the male is based on the holotype from St. George Island, Alaska, in the United States National Museum.

SPECIMENS EXAMINED: Six males and two females from Alaska.

Mydaea palpalis Stein

Mydaea palpalis STEIN, 1916, Arch. Naturgesch., sect. A, vol. 81, p. 56; RINGDAHL, 1924, Ent. Tidskr., vol. 45, p. 44.

MALE: Length 5.5 to 6 mm. Very similar to *hannia* Malloch. Parafacials, parafrontals, and cheeks more brownish, with sparser grayish brown pruinescence. Parafacials narrowed to half the width of third antennal segment below juncture of parafacials and parafrontals. Palpi abruptly widened on apical half. Mid femora with only the apical anterodorsal bristle. Hind tibiae usually with three median posterior bristles. Abdominal pruinescence sparser, distinctly brownish gray.

SPECIMENS EXAMINED: One male, Mt. Washington, New Hampshire, in United States National Museum bearing the label *Mydaea rugia* Walker. This specimen was sent to Herr O. Ringdahl who stated it was identical with European specimens of *Mydaea palpalis* Stein.

Mydaea discimana Malloch

Mydaea discimana MALLOCH, 1920, Trans. Amer. Ent. Soc., vol. 46, p. 136; 1921, Canadian Ent., vol. 53, p. 10; 1932, *ibid.*, vol. 55, p. 221; RINGDAHL, 1936, Opusc. Ent., vol. 2, p. 45.

MALE: Length 7 to 9 mm. Very similar to *urbana* Meigen, differing from it in having the pra absent or not more than one-half the length of posterior notopleural bristle. The fore tarsal segment slightly wider than the apical width of fore metatarsus. There is often a weak lower anterior sternopleural hair-like setula.

FEMALE: Length 9 mm. Like the male, but differing from it in having the front slightly less than one-third of head width, widened anteriorly and with a complete row of parafrontal bristles, the posterior two pair outwardly directed. The fourth and fifth fore tarsal segments more distinctly broadened, especially the fifth.

SPECIMENS EXAMINED: Eleven males and 20 females from New Hampshire, Massachusetts, New York, New Jersey, Colorado, Alberta, Ontario, Quebec, Alaska, Germany, and Finland, including the holotype in Illinois Natural History Survey Collection.

Mydaea discimanoides, new species

FEMALE: Length 8 mm. Very similar to *discimana* Malloch, differing from it in having the juncture of parafacials and parafrontals twice as long as width of third antennal segment, parafacials narrowed to its width below. Cheeks two and one-half times as high as width of third antennal segment. Third antennal segment two and one-half times as long as second.

Thorax with distinctly bluish gray pruinescence, with four broad black vittae. Sternopleurals 2:2. Fore coxae, all tarsi, and fore femora infuscated, rest of legs fulvous. Apical fore tarsal segment greatly, and the apical three mid tarsal segments slightly, broadened. Fore tibiae without median bristles. Wings and calyptrae almost white, hyaline.

Abdomen black, with dense bluish gray pruinescence, with very distinct dorsal and lateral checkerings and a dorsocentral vitta.

TYPE MATERIAL: Holotype, female, Bear Wallow, St. Catalina Mountains, Arizona, July 12–17, 1912 (latitude 32° 25.3′ N., longitude 110° 44′ W.), about 8000 feet.

Mydaea urbana (Meigen)

Musca angelicae FALLÉN (*nec* Scopoli), 1825, Muscides, p. 78.

Anthomyia urbana MEIGEN, 1826, Systematische Beschreibung der bekannten Europäischen zweiflügeligen Insekten, vol. 5, p. 118.

? *Fellaea florea* ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Sci. France, ser. 2, vol. 2, p. 477.

? *Mydaea musca* ROBINEAU-DESVOIDY, 1830, Mem. Acad. Roy. Sci. France, ser. 2, vol. 2, p. 481.

? *Aricia orthoneura* MACQUART, 1835, Histoire naturelle des insectes, diptères, vol. 2, p. 292.

Aricia urbana MACQUART, 1835, Histoire naturelle des insectes, diptères, vol. 2, p. 292; PANDELLÉ, 1899, Rev. Ent. France, vol. 18, p. 87.

Spilogaster urbana SCHINER, 1862, Fauna Austriaca, vol. 1, p. 612.

Mydaea urbana STEIN, 1914, Arch. Naturgesch., sect. A, vol. 79, p. 21; 1916, *ibid.*, sect. A, vol. 81, p. 69; MALLOCH, 1921, Canadian Ent., vol. 53, p. 9; 1923, *ibid.*, vol. 55, p. 220; RINGDAHL, 1924, Ent. Tidskr., vol. 45, p. 42.

MALE: Length 8 mm. Head black, silvery gray pruinescent. Front at narrowest part as wide as distance across posterior ocelli inclusive. Parafrontals contiguous, with a series of bristles and setulae extending to anterior apex of ocellar triangle. Juncture of parafacials and parafrontals three-fourths as long as the narrowest width of third antennal segment. Eyes bare. Antennae and palpi black, second segment sometimes light brown

at apex. Third antennal segment two to two and one-fourth times as long as second. Longest hairs on arista as long as width of third antennal segment.

Thorax black, yellowish gray pruinescent, distinctly quadrivittate. Presutural acrostical setulae in nine to 10 irregular rows; with a pair of strong prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra distinctly longer than either notopleural bristle, fully three-fourths as long as bristle behind it and equal in length to the first postsutural dorsocentral; with a few setulae adjacent to posterior notopleural bristle. Scutellar setulae descending below level of marginals but not invading ventral surface. Sternopleurals 1:2. Hypopleura with setulae above base of hind coxae.

Coxae, trochanters, and tarsi and often fore femora and basal third of mid femora partly or entirely black, rest of legs yellow. Fore femora normal. Fore tibiae usually bare in the middle. Mid femora with four to six ventral bristles on basal half, the anterior surface without well-developed bristles, with only the apical anterodorsal bristle. Mid tibiae with two to four median posterior bristles. Hind femora with a complete row of anteroventral bristles which are most distinct on apical half, those on basal half not more than one-half as long as diameter of femora where situated. Hind tibiae with two median anteroventral and anterodorsal bristles, occasionally with a few weak, median, posterior setulae.

Wings yellowish hyaline. Third and fourth veins distinctly divergent apically. Costal setulae and thorns not noticeably developed. Calyptrae and halteres yellow.

Abdomen black, with dense yellowish gray pruinescence, a moderately distinct darkened narrow dorsocentral vitta and indistinct dorsal and lateral checkerings. Basal sternite bare; others with a strong pair of apical bristles; fifth distinctly cleft, with two to four well-developed bristles in the middle of the disc of processes. Hypopygium black.

FEMALE: Length 9 mm. Very similar to the male, differing from it in having the front at vertex one-third of head width and only slightly widened anteriorly. Usually all the femora yellow. The abdomen with more distinct dorsal and lateral checkerings.

SPECIMENS EXAMINED: Twenty-one males and 10 females from Quebec, New York, Maryland, North Carolina, Michigan, Finland, Germany, the Netherlands, and France. The European

specimens were determined by Stein, Karl, Tiensuu, and De Meijere.

Mydaea persimilis Malloch

Mydaea persimilis MALLOCH, 1920, Trans. Amer. Ent. Soc., vol. 46, p. 134; 1921, Canadian Ent., vol. 53, p. 9; 1923, *ibid.*, vol. 55, p. 223.
Mydaea furtiva STEIN, 1920, Arch. Naturgesch., sect. A, vol. 84, p. 32.

MALE: Length 7 to 8 mm. Very similar in color and bristling to *urbana* Meigen, differing from it in having the longest aristal hairs scarcely longer than greatest diameter of arista. Hind femora with a row of bristles on basal half of posteroventral surface; the bristles on basal half of anteroventral surface almost as long as diameter of femora where situated. Front at narrowest part only slightly wider than diameter of anterior ocellus.

FEMALE: Length 7.5 to 8 mm. Similar to the male, differing from it in having the front at vertex slightly less than one-third of head width, almost parallel sided. Fore femora not infuscated. Hind femora with only a few bristles at base of posteroventral surface. Palpi distinctly broadened apically.

SPECIMENS EXAMINED: Seven males and six females from Alaska, Alberta, Washington, and California, including the holotype. The specimen from Washington bears the label *Mydaea urbana* and a typewritten label "returned by Enderlein."

In addition to the above characters, *persimilis* in both sexes also differs from *urbana* in possessing some moderately well-developed bristles on basal half of mid femora on the anterior surface and in lacking hairs at base of the hind coxae on the hypopleura.

I have not seen the type of *Mydaea furtiva* Stein, a female, but I have no hesitation in placing it as a synonym of this species, since the description agrees almost perfectly with the type of *persimilis*.

Mydaea brevipilosa Malloch

Mydaea brevipilosa MALLOCH, 1920, Trans. Amer. Ent. Soc., vol. 56, p. 135.

MALE: Length 7 mm. Very similar to *urbana* Meigen, differing from it in having the second antennal segment light orange. Longest hairs on arista two to two and one-half times as long as its greatest diameter. The femora and trochanters entirely

yellowish. Mid femora with well-developed basal anterior bristles, the basal anteroventral bristles not so well developed as those at apex. Otherwise as in *urbana*.

FEMALE: Length 7.5 mm. Very similar to the male, differing from it in having the front at narrowest one-third of head width, almost parallel sided.

SPECIMENS EXAMINED: Four males and three females from Illinois, Wisconsin, Massachusetts, and Quebec, including the holotype in Illinois Natural History Survey Collection.

The shorter-haired arista and the entirely yellowish femora as well as the absence of hairs on the hypopleura above hind coxae should readily distinguish the male of this species from *urbana*. It may be distinguished from the other species resembling *urbana* which have short-haired arista by the longer pra and the lack of posteroventral bristles on hind femora.

Mydaea electa (Zetterstedt)

Anthomyza electa ZETTERSTEDT, 1860, Diptera Scandinaviae, vol. 14, p. 6371; STEIN, 1902, Wiener Ent. Zeitg., vol. 21, p. 46; RINGDAHL, 1939, Opusc. Ent., vol. 4, p. 154.

Spilogaster electa STROBL, 1893, Verhandl. Zool. Bot. Gesellsch. Wien, vol. 43, p. 222.

Mydaea electa RINGDAHL, 1924, Ent. Tidskr., vol. 45, p. 43; KARL, 1929, Zool. Anz., vol. 80, p. 276.

MALE: Length 7 mm. Head black, grayish pruinescent. Front at narrowest part twice as wide as diameter of anterior ocellus. Parafrontals narrowly contiguous, the contiguous portion being only about one-tenth the length of the front, with about 10 pairs of parafrontal bristles. Juncture of parafacials and parafrontals about one-half as long as width of third antennal segment; parafacials scarcely narrowed below. Cheeks about one and one-fourth times as high as width of third antennal segment. Eyes bare or with a few very short, sparse hairs. Antennae and palpi black, the second segment sometimes slightly brownish at apex, third segment twice as long as second. Longest aristal hairs as long as, or slightly longer than, width of third antennal segment.

Thorax black, grayish to yellowish gray pruinescent, with four narrow but distinct vittae. Dorsum bristled as in *urbana*, except that the pra is only one-half as long as posterior notopleural bristle. Sternopleurals 2:2, the lower anterior one somewhat weaker but always distinct.

Legs black, the tibiae and sometimes the apical one-eighth or less of femora dark fulvous, occasionally the bases of the tibiae darkened. Fore femora normal. Fore tibiae bare at middle. Mid femora with four or five strong ventral bristles on basal half, the anterior row scarcely developed and with an apical anterodorsal bristle. Mid tibiae with three posterior bristles. Hind femora with a complete row of anteroventral bristles and occasionally one or two short posteroventral setulae on basal fourth. Hind tibiae with two median anterodorsal and anteroventral bristles.

Wings yellowish hyaline, the yellow tinge more distinct towards base. Third and fourth veins slightly divergent at apices. Calyptrae and halteres yellow.

Abdomen black, rather golden yellow pruinescent, with moderately distinct dorsal and lateral checkerings and a dorsocentral vitta. Basal sternite bare; fifth rather distinctly cleft, without distinct long bristles. Hypopygium black.

SPECIMENS EXAMINED: One male from Finland determined by Ringdahl and 11 males from New Hampshire and New York.

Mydaea neglecta Malloch

Mydaea neglecta MALLOCH, 1920, Trans. Amer. Ent. Soc., vol. 46, p. 136.

MALE: Length 7 to 8 mm. Very similar to *electa* Zetterstedt, of which it may ultimately prove to be a subspecies. It differs from it in having the legs yellow, only the coxae, tarsi, and basal half to three-fourths of fore femora infuscated. The anteroventral bristles on basal half of hind femora absent or setulose. Sternopleurals usually 2:2, occasionally with the lower anterior one very much reduced or absent.

FEMALE: Length 7 to 8.5 mm. Similar to the male, differing from it in having the front at vertex one-fifth of head width. Second antennal segment slightly brownish to dark fulvous. The femora and tibiae entirely fulvous. Sternopleurals frequently 1:2 instead of 2:2.

SPECIMENS EXAMINED: Eight males and 10 females from Massachusetts, Connecticut, New York, New Jersey, Maryland, Pennsylvania, Wisconsin, and Ontario, including the holotype in the Illinois Natural History Survey Collection.

Mydaea narona, new species

MALE: Length 6.5 mm. Head black, brownish pruinescent. Front at narrowest part about one-half as wide as diameter of

anterior ocellus, the parafrontals broadly contiguous, with five or six pairs of bristles reaching only to narrowest part of front. Juncture of parafacials and parafrontals as long as one-third the width of third antennal segment or about twice as long as greatest aristal diameter. Cheeks as high as width of third antennal segment. Eyes bare, very large, the facets enlarged above in front, but the eyes are not flattened above. Antennae and palpi black, second antennal segment slightly lighter colored at apex. Third antennal segment at least three and three-fourths times as long as second, slender. Antennae inserted at middle of eyes. Longest aristal hairs about one and one-fourth times as long as width of third antennal segment.

Thorax black, with sparse, slightly yellowish gray pruinescence, with two narrow, but distinct median, and two less distinct but broader, lateral dark vittae. Bristled as in *nubila* Stein except the hypopleura has two or three hairs above hind coxae.

Legs brown, the tibiae and apices of femora fulvous. Fore femora normal. Fore tibiae without median bristles. Mid femora with a row of short anterior bristles on basal one-half and a more complete row of longer ventral bristles, and with an apical anterior and anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with a complete row of anteroventral bristles which are longer than femoral diameter on apical one-third and a row of posteroventral bristles on basal three-fourths. Hind tibiae with two median anterodorsal and anteroventral bristles.

Wings yellowish hyaline. Costal setulae and thorns undeveloped. Cross veins not infuscated, the posterior one straight. Third and fourth veins subparallel at apices. Calyptrae and halteres brownish yellow.

Abdomen black, with rather sparse, slightly yellowish gray pruinescence, with very indistinct dorsal and lateral checkerings but with a very narrow but distinct dorsocentral vitta. Basal sternite bare; others with a distinct pair of apical bristles; fifth slightly shiny, moderately cleft, with three or four short bristles on inner margin of each process. Hypopygium black.

FEMALE: Length 6.5 to 7 mm. Similar to the male, differing from it in having the front at vertex a little over one-fourth of head width, slightly widened anteriorly. With a complete row of parafrontal bristles, the anterior three inwardly, the posterior

two outwardly, directed. Juncture of parafacials and parafrontals about as long as width of third antennal segment. Eye facets not enlarged. Antennae inserted opposite dorsal two-thirds of eye. Third antennal segment about three times as long as second. Apices of femora more extensively fulvous and the tibiae lighter fulvous. Abdomen slightly shiny, very sparsely pruinescent.

TYPE MATERIAL: Holotype, male, Plummers Island, Maryland, August 6, 1915 (R. C. Shannon); allotype, female, and paratype female, Cabin John, Maryland, June 9, 1923 (J. M. Aldrich); in the United States National Museum.

Mydaea winnemana Malloch

Mydaea winnemana MALLOCH, 1919, Proc. Biol. Soc. Washington, vol. 32, p. 133; 1921, Canadian Ent., vol. 53, p. 9; 1923, *ibid.*, vol. 55, p. 220.

MALE: Length 5 to 6 mm. Similar to *neobscura*, new species, differing from it in having the parafacials, parafrontals, and cheeks silvery gray pruinescent. The front at narrowest part not quite so wide as distance across posterior ocelli inclusive, parafrontals broadly contiguous; each parafrontal about as wide as anterior ocellus. Third antennal segment twice as long as second; base of third segment light brown to fulvous, rest of antennae and palpi infuscated. Eyes with not such enlarged facets.

Thorax with but two very narrow dorsocentral vittae which are visible only on presutural portion. Without the weak anterior sternopleural setula. Hypopleura with hairs above hind coxae.

Legs more extensively fulvous yellow, fore and variable portions of the mid and hind femora infuscated. Hind femora with the anteroventral bristles on basal half shorter, not longer than diameter of femora where situated, and with only four or five posteroventral bristles on basal half. Calyptrae white or with a very faint yellowish tinge; halteres yellow.

FEMALE: Length 5 to 6 mm. Similar to the male, differing from it in having the front at vertex one-fourth of head width, distinctly widened anteriorly. Palpi distinctly broadened. Third antennal segment longer and broader than usual, almost three times as long as second, the thoracic vittae more distinct. Bristles on hind femora less numerous but stronger.

SPECIMENS EXAMINED: Thirty-three males and 10 females from Virginia, North Carolina, and Florida.

I believe that I have correctly identified this species but cannot be sure until the type can be examined. An extensive search for it in the United States National Museum where it was stated to be deposited failed to reveal it.

Mydaea neobscura, new species

MALE: Length 5.5 mm. Head black, grayish white pruinescent. Front at narrowest part as wide as distance across posterior ocelli inclusive; the parafrontals subcontiguous. With a row of about eight parafrontal bristles which become gradually shorter posteriorly, extending to narrowest part of front. Anterior ocellar bristles as strong as the anterior parafrontals. Juncture of parafacials and parafrontals as long as width of third antennal segment, parafacials slightly narrowed below. Cheeks slightly higher than width of third antennal segment. Antennae black, the second segment very dark brown. Third segment two and one-fifth times as long as second. Longest aristal hairs as long as width of third antennal segment. Palpi deep brown to black. Eyes bare, facets slightly enlarged in front in center.

Thorax black, grayish pruinescent, with four broad black vittae. Presutural acrostical setulae in four to six regular rows. Acrosticals 0:1; dorsocentrals 2:4; pra slightly less than one-half as long as posterior notopleural bristle. Notopleura with hairs adjacent to posterior bristle. Scutellar setulae descending slightly below level of marginal bristles. Sternopleurals 2:2, the lower anterior sternopleural setula is very weak but nearly always distinct. Hypopleura usually bare above hind coxae.

Legs infuscated, apices of femora and tibiae dark fulvous. Fore femora normal. Fore tibiae without median bristles. Mid femora with anterior setulae scarcely distinguishable from clothing setulae, with a row of very short anteroventral bristles and a row of much stronger ventral bristles on basal one-half. With a single, rather weak, apical, subanterodorsal setula. Mid tibiae with two median posterior bristles. Hind femora with a row of anteroventral bristles on apical half, only the most apical ones longer than femoral diameter, at most one or two weak, basal, posteroventral setulae. Hind tibiae with two median anterodorsal and anteroventral bristles.

Wings very pale yellowish hyaline. Third and fourth veins moderately divergent apically. Posterior cross vein moderately curved. Calyptrae white, halteres fulvous.

Abdomen black, densely grayish pruinescent. With distinct median vitta, dorsal and lateral checkerings. Basal sternite bare, other with strong apicals. Fifth moderately cleft, without distinctive armature.

FEMALE: Length 6 mm. Similar to the male. Front at vertex five-sixteenths of head width, widened to six-sixteenths anteriorly. Second antennal segment fulvous brown at apex. Third antennal segment about two and one-half times as long as second. Legs lighter brown. Mid femora without anteroventral setulae and only two or three ventral bristles.

TYPE MATERIAL: Holotype, male, Raleigh, North Carolina, April 24, 1923 (C. S. Brimley); allotype female, topotypical, August 14, 1930; paratypes: one male, Lafayette, Indiana, August 5 (J. M. Aldrich), three females, Madison, Wisconsin, September 6, 1935 (F. M. Snyder), Cabin John, Maryland, May 19, 1923 (J. M. Aldrich), Plummers Island, Maryland, June 20, 1912 (H. Barber).

ADDITIONAL RECORDS: White Mountains, New Hampshire, and Miribca Hills, New Jersey.

This is the species that I had identified as *obscura* Stein before examining the type. It is recorded as such in Brimley's list of North Carolina insects.

Mydaea nubila Stein

Spilogasier obscura STEIN (*nec* Van der Wulp), 1897, Berliner Ent. Zeitschr., vol. 62, p. 197; CZERNY, 1901, Wiener Ent. Zeitg., vol. 20, p. 43.

Mydaea nubila STEIN, 1916, Arch. Naturgesch., sect. A, vol. 81, p. 65; 1918, *ibid.*, sect. A, vol. 84, p. 39.

Mydaea obscura MALLOCH, 1921, Canadian Ent., vol. 53, p. 9; 1923, *ibid.*, vol. 55, p. 220.

MALE: Length 6 to 7 mm. Head black, silvery gray pruinescent. Front at narrowest part as wide as distance across posterior ocelli inclusive. Parafrontals contiguous or subcontiguous; if subcontiguous, the frontal vitta at narrowest part less than one-half as wide as diameter of anterior ocellus; with about eight pairs of bristles and setulae which extend to narrowest part of front. Juncture of parafacials and parafrontals three-fourths as long as greatest width of third antennal segment, parafacials scarcely narrowed below. Cheeks one and one-fourth times as

high as greatest width of third antennal segment. Eyes bare. Antennae black, reaching a little below level of lower margin of eyes. Third antennal segment two and one-fourth times as long as second. Longest aristal hairs as long as narrowest width of third antennal segment. Palpi black.

Thorax black, slightly shiny, sparsely grayish pruinescent, very indistinctly quadrivittate. Presutural acrostical setulae in six to eight irregular rows and with a pair of prescutellar acrostical bristles; dorsocentrals 2:4; the pra not more than three-fourths as long as posterior notopleural bristle and not more than half as long as first postsutural notopleural bristle. Hypopleura hairy above hind coxae. Sternopleurals 1:2.

Legs black, the tibiae black to slightly brownish. Fore femora normal. Fore tibiae bare at middle. Mid femora with a series or five or six well-developed ventral bristles on basal half and a much weaker and less distinct series on basal half of anterior surface; with an apical anterior and anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with a complete row of anteroventral bristles and a row of shorter ones on basal half of posteroventral surface, only those on apical half of anteroventral surface as long as diameter of femora where situated. Hind tibiae with two median anterodorsal and anteroventral bristles.

Wings hyaline, slightly yellowish brown at base. Costal thorns and setulae scarcely developed. Third and fourth veins slightly divergent at apices. Calyptrae yellowish hyaline. Halteres deep orange to black.

Abdomen black with sparse yellowish gray pruinescence. When viewed from behind, with an indistinct dark dorsocentral vitta and without distinct lateral or dorsal checkerings. Basal sternite bare; fifth moderately cleft, without distinctive armature. Hypopygium black.

FEMALE: Length 6 mm. Very similar to the male, differing from it in having the front at vertex one-third of head width, slightly widened anteriorly. The apical anterodorsal bristle of mid femora not so well developed as the apical anterior bristle. Abdomen with very slight dorsal and lateral checkerings and without as distinct pruinescence.

SPECIMENS EXAMINED: One male, Pennsylvania, type of *obscura* Stein (Hough collection, Chicago Natural History Museum); two males, Genthin, Germany, determined as

nubila Stein (Zoological Museum, University of Berlin); two males, New York, determined as *nubila* Stein (Zoological Museum, University of Berlin); six males and one female, Washington, Oregon, New Mexico, and Quebec.

The two Genthin specimens are labeled "typ," but I do not consider these specimens to be authentic types since Stein, originally describing the species under the name *obscura;* mentioned a single male from Pennsylvania. The specimen from Pennsylvania listed above should be the holotype.

There has been considerable confusion regarding the identification of this species. Specimens having the femora broadly yellowish at apices and the tibiae entirely so have been identified by various workers as *obscura* or *nubila*. I am of the opinion that these specimens have in reality been one of several closely related species. As herein considered, *nubila* is limited to those specimens having the legs mostly or entirely black to brownish, dark halteres and with two apical bristles on mid femora and with a complete row of anteroventral bristles and a partial row on basal half of posteroventral surface of hind femora.

Mydaea obscurella Malloch

Mydaea obscurella MALLOCH, 1921, Canadian Ent., vol. 53, p. 108.

MALE: Length 6.5 mm. Similar to *nubila* Stein, differing from it in having the parafacials, parafrontals, and cheeks distinctly brownish pruinescent. The parafrontal bristles and setulae longer and more distinct, reaching all the way to the anterior ocellus. Juncture of parafacials and parafrontals three-fourths as long as greatest width of third antennal segment, parafacials narrowed to half this width below. Longest aristal hairs three-fourths as long as width of third antennal segment or four times as long as greatest aristal diameter.

Thorax shiny and sparsely pruinescent as in *nubila*, but the pruinescence is more brownish.

Legs as in *nubila*, except the mid femora lacks the apical anterior bristle. Hind tibiae with two or three median anterodorsal and anteroventral bristles.

Wings more brownish hyaline, especially at base. Calyptrae distinctly yellowish to light orange. Halteres pale yellow to light orange.

Abdomen with more distinct yellowish brown pruinescence and dorsal and lateral checkerings.

FEMALE: Length 7.5 mm. Similar to the male, differing from it in having the front at vertex one-third of head width, scarcely widened anteriorly. With a complete row of parafrontal bristles, the posterior two outwardly, the others inwardly, directed and with numerous setulae, rather longer than usual, laterad to them all. Fore tibiae with one or two median posterior bristles. Hind femora without posteroventral bristles. Wings more yellowish hyaline.

SPECIMENS EXAMINED: Seven males and five females from Alaska, British Columbia, and Idaho.

The distinctly shiny and indistinctly quadrivittate thorax as well as the entirely black legs in the male should at once distinguish this species from *electa* and *narona*. However, it is not so easily separated from *nubila* Stein except by characters mentioned in the keys. It is also similar to the European species *bengstssoni* Ringdahl (1924, p. 44), but the latter has a median posterior bristle on the fore tibiae.

GENUS **XENOMYDAEA** MALLOCH

Xenomydaea MALLOCH, 1920, Trans. Ent. Soc. Amer., vol. 46, p. 144.

As far as is known, this genus is limited to the Holarctic regions. Except for the head shape, when viewed in profile, I have been able to find no reliable characters to separate it from *Mydaea*. The only species known to me which might connect *Mydaea* with it is *armatipes* Malloch. It should not be confused with any species at present placed in *Xenomydaea* or *Mydaea* because of the presence of ventral bristles on fore and mid tibiae. *Xenomydaea nudiseta* Stein has a submedian ventral bristle on mid tibiae, but the two species can be easily separated by other characters.

The genotype of *Xenomydaea* is *buccata* Malloch.

KEY TO *Xenomydaea*

1. Halteres, margins of calyptrae, and base of wings black; bluish black species with whitish pruinescence; sternopleurals 2 : 2 or 2 : 3 ..... *fuscomarginata* (Malloch)
   Halteres, margins of calyptrae, and base of wings not blackish; dark but not shiny species and without whitish pruinescence; sternopleurals 1 : 2 except in *buccata* 2
2. Sternopleurals 2:2; all tibiae and mid and hind femora partly or entirely fulvous ..... *buccata* Malloch
   Sternopleurals 1 : 2; at most hind tibiae yellow to fulvous 3

3. Fore tibiae without a median posterior bristle; hind femora without posteroventral bristles..... *pogonoides*, new species
   Fore tibiae with a median posterior bristle; hind femora with posteroventral bristles at base.....4
4. Mid tibiae with a median to submedian posteroventral bristle; hind tibiae fulvous; dorsocentrals usually 2 : 3; base of wing pale yellow..... ..... *nudiseta* (Stein)
   Mid tibiae without a median to submedian posteroventral bristle; hind tibiae black; dorsocentrals 2 : 4; base of wings intensely yellow to fulvous..... *rufinervis* (Pokorny)

Xenomydaea fuscomarginata (Malloch)

Helina fuscomarginata MALLOCH, 1919, Proc. California Acad. Sci., ser. 4, vol. 9, p. 298.

Mydaea pulla STEIN, 1920, Arch. Naturgesch., sect. A, vol. 84, p. 35.

MALE: Length 8.5 mm. Head black, brownish pruinescent. Front at narrowest part scarcely as wide as the distance across posterior ocelli inclusive. Parafrontals at this level not so wide as diameter of anterior ocellus, with a row of about 10 strong bristles and an equal number of shorter setulae which extend to the level of the shiny black ocellar triangle. Juncture of parafacials and parafrontals as long as length of third antennal segment or one and one-half times its greatest width, parafacials slightly narrowed below. Cheeks one-third of eye height and about two and one-half times as high as width of third antennal segment, distinctly retreating below. Lower margin with two or three rows of strong, upwardly curved bristles. Front distinctly protruded beyond level of vibrissae. Eyes distinctly haired. Antennae and palpi black, the former inserted opposite middle of eyes, extending to a level of the lower margin of eyes. Third antennal segment one and one-half times as long as second. Longest hairs on arista not so long as its greatest diameter.

Thorax bluish black, whitish gray pruinescent, distinctly quadrivittate. Presutural acrostical setulae in eight to 10 irregular rows; with a pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra almost as long, but not so strong, as posterior notopleural bristles; with distinct hairs on notopleura adjacent to base of posterior bristle; scutellar setulae descending slightly below level of marginals. Sternopleurals 2:2, often with several quite well-developed accessory bristles in the posterior group so that the sternopleurals sometimes appear to be 2:3 or 2:4; sternites and hypopleura bare.

Legs entirely black. Fore femora normal. Fore tibiae bare in the middle. Middle legs as in *buccata* Malloch. Hind femora with a complete row of anteroventral and a row of posteroventral bristles on the basal third to half. Hind tibiae with two or three median anterodorsal and anteroventral bristles.

Wings brownish hyaline, almost black at base. Costal thorns slightly developed, costal setulae undeveloped. Third and fourth veins distinctly divergent at apices. Node distinctly hairy below and with one or two hairs on the upper surface. Cross veins slightly infuscated. Halteres black, calyptrae margined with black, the disc whitish to yellowish hyaline.

Abdomen distinctly bluish black, with bluish gray pruinescence, with a distinct pair of black spots on second and a weaker pair of third visible tergites. Basal sternite bare; others with moderately long bristles or setulae; fifth only moderately cleft, without distinctive armature. Hypopygium black.

SPECIMENS EXAMINED: One male cotype of *pulla* Stein, California, United States National Museum. I have not seen the type of *fuscomarginata* which is in the Stanford University collection.

Malloch originally placed this species in *Helina*, but the strongly protuberant and moderately widened front, almost bare arista, and hairs on the node, at least below, would indicate that it is much more closely related to *buccata* Malloch, the genotype of *Xenomydaea*, than to *pertusa* Meigen, the genotype of *Helina*.

Xenomydaea buccata Malloch

Xenomydaea buccata MALLOCH, 1920, Trans. Ent. Soc. Amer., vol. 46, p. 144.
Mydaea otiosa STEIN, 1920, Arch. Naturgesch., sect. A, vol. 84, p. 34.

MALE: Length 7.5 mm. Head black, grayish pruinescent. Front at narrowest part about one-fifth of head width and twice as wide as distance across posterior ocelli inclusive. Frontal vitta at narrowest part as wide as length of second antennal segment, almost parallel sided. Parafrontals at narrowest part as wide as diameter of anterior ocellus, with six to eight pairs of bristles which extend to the ocellar triangle. Parafacials and parafrontals distinctly protruded, juncture as long as the length of third antennal segment from its apex to base of the arista; parafacials distinctly narrowed below, at narrowest part scarcely as wide as width of third antennal segment. Oral margin slightly produced. Cheeks as high as length of third

antennal segment, with two or three rows of upwardly directed short bristles and setulae, lower margin slightly retreating. Eyes bare or with only very short, sparse, scarcely discernible hairs. Antennae and palpi black. Third antennal segment one and one-fourth times as long as second. Longest hairs on arista not longer than its greatest diameter.

Thorax black, slightly brownish gray pruinescent, distinctly quadrivittate. Presutural acrostical setulae in eight to 10 irregular rows and with a distinct pair of prescutellar acrostical bristles; dorsocentrals 2:3 or 2:4; intra-alars 2; pra three-fourths as long as posterior notopleural and about one-half as long as the bristle behind it; with distinct hairs on notopleura near base of posterior bristle. Scutellar setulae descending slightly below level of marginals. Sternopleurals 2:2. Hypopleura bare.

Coxae and tarsi black, tibiae yellow to orange, the knees of fore and mid femora and hind femora to a greater extent, yellowish to orange, rest of femora variably darkened. Fore femora normal. Fore tibiae without median bristles. Mid femora with six to 10 ventral bristles on basal half to two-thirds, with a row of much shorter bristles on basal half of anterior surface and with one apical anterior bristle. Mid tibiae with two or three median posterior bristles. Hind femora with a complete row of anteroventral bristles which are longest towards apex, apex of posteroventral surface with two or more short but distinct bristles which are about as long as diameter of femora where situated. Hind tibiae with two median anterodorsal and three median anteroventral bristles.

Wings infuscated at base. Costal thorns moderately well developed, setulae undeveloped. Node hairy above and below. Other veins bare. Third and fourth veins distinctly divergent at apices. Calyptrae and halteres yellow.

Abdomen black, yellowish gray pruinescent, with moderately distinct, paired, subtriangular spots on second to fourth visible tergites. Basal sternite bare; fifth distinctly cleft, with a few short, closely placed bristles at base of processes. Hypopygium black.

FEMALE: Length 7.5 to 8 mm. Quite similar to the male, differing from it in having the front one-third of head width at vertex, scarcely widened anteriorly. Parafrontals with numerous short setulae laterad to the row of bristles, the posterior two pair of bristles outwardly directed.

The femora not so distinctly infuscated. Mid and hind femora usually entirely yellow. Hind femora without conspicuous, weak, apical, posteroventral bristles. Wings more yellowish hyaline. Abdomen without as distinct spots but with distinct dorsal and lateral checkerings.

SPECIMENS EXAMINED: Five males and three females from Idaho, Montana, Colorado, and New Hampshire, including the holotype in the Illinois Natural History Survey Collection.

There is considerable variation in the femoral coloring in the above series of specimens. In the majority of them, the fore femora is largely infuscated, while the mid and hind femora are less distinctly infuscated.

Buccata should be readily separated from all the others at present placed in *Xenomydaea* by the less strongly produced oral margin as well as the more yellowish mid and hind femora.

Xenomydaea pogonoides, new species

MALE: Length 7.5 mm. Head black, silvery gray pruinescent with slightly reddish reflections. Front at narrowest part slightly less than two times as wide as the distance across posterior ocelli inclusive. Frontal vitta at narrowest part slightly wider than the distance across posterior ocelli inclusive. Parafrontals at narrowest part as wide as diameter of anterior ocellus, with about 10 pairs of bristles which extend to the level of the anterior ocellus and with a few weaker setulae interspersed between them. Juncture of parafacials and parafrontals as long as greatest width of third antennal segment, parafacials scarcely narrowed below. Oral margins distinctly protruded. Cheeks as high as length of third antennal segment, with two or three rows of upwardly directed bristles and setulae. Vibrissal angles slightly convergent. Antennae and palpi black. Longest hairs on arista not so long as its greatest diameter. Eyes bare.

Thorax black, slightly bluish gray pruinescent, distinctly quadrivittate. Presutural acrostical setulae in six to eight irregular rows and with a distinct pair of prescutellar acrostical bristles. Dorsocentrals 2:4; intra-alars 2; pra slightly longer than posterior notopleural bristle and almost two-thirds as long as the bristle behind it; notopleura with hairs adjacent to the posterior bristle. Scutellar setulae descending slightly below level of marginals. Sternopleurals 1:2; hypopleura bare.

Legs black. Fore femora normal. Fore tibiae bare in the

middle. Mid legs as in *buccata*. Hind femora with a complete row of anteroventral bristles. Hind tibiae with one median anterodorsal and two median anteroventral bristles.

Wings hyaline, slightly orange at base. Costal setulae and thorns undeveloped. Node with a few weak setulae above and below; other veins bare. Third and fourth veins distinctly divergent at apices. Calyptrae and halteres yellow to orange.

Abdomen black, bluish gray pruinescent with scarcely discernible paired spots on second and third visible tergites, with distinct lateral checkerings. Basal sternite bare; fifth moderately cleft. Hypopygium black.

HOLOTYPE: Male, Mt. Rainier, Sluiskin, July 28, 1922 (A. L. Melander), United States National Museum.

It is with some hesitation that I place this species in *Xenomydaea*, since the front is not distinctly protruded in profile. However, the rather broad front, protuberant oral margin, almost bare arista, hairs at base of notopleural bristle, and the hairy node above and below would seem to indicate that it is most closely related to this group.

It may be distinguished from all others by the very protuberant oral margin and more numerous parafrontal bristles.

Xenomydaea rufinervis (Pokorny)

Spilogaster rufinervis POKORNY, 1889, Verhandl. Zool. Bot. Gesellsch. Wien, vol. 39, p. 554.

Mydaea rufinervis BEZZI AND STEIN, 1907, Katalog der Paläarktischen Dipteren, vol. 3, p. 647; STEIN, 1916, Arch. Naturgesch., sect. A, vol. 81, p. 63; BEZZI, 1918, Mem. Soc. Italiana Sci. Nat. e Mus. Civ. Stor. Nat. Milano, vol. 9, p. 117.

MALE: Length 9 mm. Head black, brownish gray pruinescent. Front at narrowest part about as wide as length of antennae or one-fifth of head width. Frontal vitta of almost equal width throughout, twice as wide as distance across posterior ocelli inclusive. Parafrontals at narrowest part slightly wider than diameter of anterior ocellus, with a complete row of bristles which become shorter opposite anterior ocellus, the posterior ones not outwardly directed and without accessory hairs. Juncture of parafacials and parafrontals not quite so long as length of third antennal segment, parafacials only slightly narrower below. Greatest height of cheeks equal to length of antennae and about one-third of head height. Ventral margin of head quite strongly retreating so that if a straight line were drawn

from the lower margin of eye anteriorly, the cheeks at narrowest would be only slightly wider than width of third antennal segment. Eyes bare or with very short sparse hairs. Antennae and palpi black, third segment of the former twice as long as second, descending to lower margin of eyes. Longest hairs on arista not so long as its greatest diameter.

Thorax black, grayish pruinescent, with four moderately distinct vittae. Presutural acrostical setulae in seven to 10 irregular rows, with a distinct pair of prescutellar acrostical bristles. Dorsocentrals 2:4; intra-alars 2; notopleura with several setulae at base of posterior bristle; pra fully as long as posterior notopleural bristle, over one-half as long as bristle behind it and the first postsutural dorsocentral. Sternopleurals 1:2; hypopleura bare. Metathoracic spiracle small, with short hairs. Scutellar setulae quite short and widely scattered, descending below level of marginals.

Legs black, at most hind tibiae dark brown. Fore femora normal. Fore tibiae with a median posterior bristle. Mid femora with a number of short anterior bristles on basal half and with a row of eight or nine ventral bristles on basal two-thirds and an apical anterior bristle. Mid tibiae with three median posterior bristles. Hind femora with a complete row of anteroventral bristles which become distinctly longer and stronger towards apex and with a partial row of posteroventral bristles on basal half or more which are equal in development to those on basal half of anteroventral surface. Hind tibiae with two or three median anterodorsal and two median anteroventral bristles.

Wings yellowish hyaline, deep orange at base, concolorous with halteres and calyptrae. Costal setulae minute, thorns moderately developed. Third and fourth veins strongly divergent at apices. Node with a few hairs above and below, other veins bare. Cross veins not infuscated.

Abdomen black, grayish yellow pruinescent, when veiwed from behind, with a distinct, narrow, dark dorsocentral vitta and distinct dorsal and lateral checkerings. Basal sternite with a few hairs; others with short setulae and a distinct pair of apical bristles; fifth distinctly cleft and with three or four moderately long bristles at base of each process. Hypopygium black.

FEMALE: Length 9 mm. Similar to the male. Front wider than the eye, slightly more than one-third of head width, para-

frontals with a complete row of bristles, the posterior pair outwardly directed, and with two or three rows of accessory hair-like setulae below the bristles. The lower margin of head not so strongly retreating as in male.

Abdomen with a less distinct dorsocentral vitta, and the pruinescence has a slight bluish tinge. The tergal bristles almost or quite as well developed as in the male.

SPECIMENS EXAMINED: One male and one female from Germany and Switzerland and three females from Alaska.

The female specimen from Switzerland has three intra-alar bristles on one side and four dorsocentrals on the other. This is probably abnormal, since the specimens from Alaska, which agree with it in all important respects, do not show this abnormal bristling.

It appears to be most closely related to *Xenomydaea nudiseta* Stein, but may readily be distinguished from that species by the entirely black legs, the less strongly retreating oral margin, the more strongly yellowed wing bases, and the equally well-developed bristles on the ventral surface of hind femora.

Xenomydaea nudiseta (Stein)

Mydaea nudiseta STEIN, 1920, Arch. Naturgesch., sect. A, vol. 83, p. 33.

MALE: Length 8.5 mm. Similar to *rufinervis* Pokorny. Parafacials, parafrontals, and cheeks silvery gray pruinescent. Front as in *buccata*. Juncture of parafacials and parafrontals four-fifths as long as third antennal segment, parafacials at narrowest slightly wider than greatest width of third antennal segment. Cheeks at greatest height one-third of head height or four times as high as width of third antennal segment, the lower margin distinctly retreating. Lower margin of cheeks as in *buccata*. Eyes bare. Antennae and palpi black. Arista bare. Third antennal segment scarcely longer than second.

Thorax black, densely grayish pruinescent, distinctly quadrivittate. Bristled as in *buccata*, except sternopleurals 1:2 and the dorsocentrals usually 2:3. Wings as in *rufinervis*.

Legs black, only hind tibiae with a very limited area on the knees reddish. Fore femora normal. Fore tibiae with one or two median posterior bristles. Mid femora bristled as in *buccata*. Mid tibiae with two or three median posterior bristles and a weaker median ventral bristle. Hind femora with a complete row of anteroventral bristles and a partial row of posteroventral

ones on basal two-thirds. Hind tibiae with two median anterodorsal and three median anteroventral bristles.

Abdomen black, grayish to brownish gray pruinescent, marked as in *buccata*, but with more distinct dorsal and lateral checkerings. Bristled as in *buccata*.

SPECIMENS EXAMINED: Three males from Washington and Idaho including a cotype in the United States National Museum.

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