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A REVIEW OF THE GENUS *MYOSPILA* RONDANI WITH DESCRIPTIONS OF NEW SPECIES (DIPTERA: MUSCIDAE)¹

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The genus *Myospila* has been included in both Muscinae and the Phaoniinae or Mydaeini. It shows its clearest affinities with *Mydaea* Robineau Desvoidy (*sensu stricto*), having in common with it the hairs on the dorsal and ventral surface of the node of the second and third wing veins and hairs on the posteroventral portion of the hypopleura above the base of the hind coxae.

As indicated by Malloch² and more recently expanded by Van Emden,³ the Muscinae may be separated from the other Muscidae by the larger size and the sub-truncated hind margin of the lower calyptrae. Using this character, *Myospila* could not be included in this subfamily. The curvature of the fourth wing vein, while usually found in Muscinae is often met with in other genera belonging to unrelated subfamilies.

In this paper the two Australian species *flavicans* Malloch and *hypopleuralis* Malloch have been included, although I believe that they may ultimately prove to be generically distinct from the other species of *Myospila*.

If the presence of hairs or setulae on the node above and below only and the strong forward curvature of the fourth vein are accepted as primary generic characters then *flavicans* may not be included in *Myospila*, since this species has the third longitudinal wing vein hairy at least one-third the distance to the anterior cross-vein on both surfaces and has the fourth vein only very slightly curved forward at the apex. *Hypopleuralis*, on the other hand, may indi-

cate that the former character may not be of much significance since it possesses hairs on the third vein one-third to one-half the distance to anterior cross-vein only on the ventral surface, but it has the fourth vein distinctly curved forward at apex as in the genotype, *Musca mediotabunda* Fabricius. In the related genera, *Mydaea* Robineau Desvoidy and *Helina* Robineau Desvoidy, the presence of hairs on the hypopleura in front of the posterior thoracic spiracle, which *hypopleuralis* possesses, is not of generic value and I am of the opinion that here too it is of no significance. However, it has a strong bristle at the middle of the posterior margin of the posterior thoracic spiracle which may prove to be of more significance.

It might be desirable to propose a new subgenus or genus for each of these two species on the basis of the characters mentioned. I do not care to follow this course at this time, however, because of lack of material and limited knowledge of related forms from the Australian region.

Seguy, in listing the species of this genus in Genera Insectorum, has placed *Muscina aberrans* Shannon and del Ponte⁴ here. I have seen the holotype of this species in the U. S. National Museum collection and am of the opinion that it cannot be included in *Myospila* because of the presence of a short but distinct calcar on the postero-dorsal surface of the hind tibiae. For this reason it might better be left in *Muscina*, although the presence of hairs on the node may indicate its relationship with *Myospila*. The forward curvature of the fourth vein is only very slight and is not at all similar to that of the other species in *Myospila*.

¹ *Myiospila* of authors; Rondani originally spelled this genus without the "i" and we must continue to use the original spelling of a generic name.

² Malloch, 1934, Dipt. Patagonia and So. Chile, part VII, fasc. 2, Muscidae, p. 342.

³ Van Emden, 1939, Ruwenzori Expedition, II, No. 3, Muscidae: Muscinae and Stomoxydinae, p. 51.

⁴ Shannon and del Ponte, 1926, Revista del Instituto Bacteriologico (Buenos Aires), IV, p. 579.

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KEY TO THE SPECIES OF *Myospila*

- 1.—Thorax entirely yellow in ground color (Australia).....2.
- Thorax, except apical fourth or less of scutellum, darkened in ground color. 3.
- 2.—Hypopleura haired in front of spiracle; fourth vein strongly curved forward at apex.(1) *hypopleuralis* Malloch.
- Hypopleura bare in front of spiracle; fourth vein weakly curved forward at apex.(2) *flavicans* Malloch.
- 3.—Dorsocentrals 2:3 (Africa).....4.
- Dorsocentrals 2:4.....5.
- 4.—Both cross-veins very broadly infuscated; when viewed in profile parafacials of female with a transverse silvery pruinescent spot at base of antennae.(7) *maculiventris* Malloch.
- At most only the anterior cross-vein only very narrowly infuscated; when viewed in profile parafacials and parafrontals of both sexes entirely silvery pruinescent.(8) *cuthbertsoni*, n. sp.
- 5.—Thorax and abdomen entirely shiny blue; halteres black (South America).....(4) *cyanea* (Macquart).
- Thorax and abdomen not shiny blue; halteres yellow to orange.6.
- 6.—Males.....7.
- Females.....10.
- 7.—The posterior parafrontal bristle at level of anterior ocellus longer and stronger than the anterior pair of ocellar bristles; front at narrowest over half as wide as length of third antennal segment; apices of the scutellum and apical abdominal tergite distinctly yellowish (Africa).....(9) *maculiseta*, n. sp.
- The posterior parafrontal bristle at level of anterior ocellus not more than half as long and strong as the anterior pair of ocellar bristles; front at narrowest at most not more than one-third of length of third antennal segment; apex of the scutellum and the apical abdominal tergite concolorous with the rest of the scutellum and the abdomen.8.
- 8.—With a distinctly darkened area on the wings at apex of the subcosta and first vein; margins of both calyptrae distinctly infuscated (South America)....(6) *obscura* (Shannon and del Ponte).
- Without a distinctly darkened area on the wings at apex of the subcosta and first vein; at most the margins of the upper

- calyptrae slightly brownish, the lower margined with yellow.....9.
- 9.—Second and third antennal segments and the fore and mid tibiae black; intra-alars 2 (North and South America, Europe, Africa and Asia).....(3) *meditabunda* (Fabricius).
 - Second and third antennal segments and all the tibiae light brown to orange; intra-alars 1 (South and Central America, Caribbean Islands).....(5) *obsoleta* (Brauer and Bergenstamm).
 - 10.—Apex of scutellum and the last abdominal tergite light yellow to orange.(9) *maculiseta*, n. sp.
 - Apex of scutellum and last abdominal tergite concolorous with rest of scutellum and abdomen.....11.
 - 11.—Fore tibiae with a submedian posterior bristle; mid tibiae with two or three median anterodorsal and one submedian posteroventral bristles; hind tibiae with two or three median posterodorsal bristles; cheeks as high as length of the antennae (China)....(10) *armata*, n. sp.
 - All of these surfaces of tibiae bare; cheeks not more than half as high as length of third antennal segment.12.
 - 12.—Margins of calyptrae and wings at apex of subcosta and first vein infuscated.(6) *obscura* (Shannon and del Ponte).
 - Margins of calyptrae and wings at apex of subcosta and the first vein not infuscated.13.
 - 13.—Antennae, palpi and tibiae black.(3) *meditabunda* (Fabricius).
 - Antennae, palpi and tibiae largely or entirely orange or light brown.(5) *obsoleta* (Brauer and Bergenstamm)

(1) *Myospila hypopleuralis* Malloch

MALLOCH, 1925, Austral. Zool., III, p. 330.

MALE.—8.5 mm. long. Parafacials and parafrontals black, cheeks brownish, all grayish pruinescent. Front at narrowest not as wide as diameter of anterior ocellus. Parafrontals broadly contiguous, with three or four pairs of bristles and several setulae, the former reaching about to middle; none opposite anterior ocellus. Verticals weak, not distinctly differentiated, the ocellars fine but moderately long. Parafacials and parafrontals almost obscured along entire length when viewed in profile. Cheeks as high as greatest width of third antennal segment, with a few scattered yellow to orange setulae along the ventral surface among the regular dark bristles. Eyes bare, the facets enlarged in front. Beard yellow. Antennae and palpi

yellow, the former inserted opposite the middle of the eyes. Third antennal segment two and a half times as long as second. Longest arisal hairs one and a half times as long as width of third antennal segment. Proboscis brown.

Thorax fulvous, with a single grayish-white pruinulent spot between the presutural dorsocentral bristles on the anterior four-fifths of presutural portion of thorax. Presutural acrostical setulae in about ten to twelve irregular rows and a pair of prescutellar acrostical bristles; dorsocentrals 2:4, the anterior two postsutural pairs slightly smaller; intra-alars 1; pra minute; notopleurals with several long, pale setulae at base. Scutellar setulae descending slightly below level of marginals at base, with four lateral and one subapical pair of bristles. Clothing setulae of dorsum and scutellum black, those on notopleura and pleura yellow. Sternopleurals 1:2; hypopleura with several long, pale, hair-like setulae in front of spiracle; the spiracle large, almost as large as the supraspiracular convexity, with a yellow, flap-like covering of hairs and with a single large black bristle at middle of posterior margin. Sternites bare.

Legs including tarsi fulvous, the coxae with pale clothing setulae but black bristles, most of clothing setulae on fore femora and on posterior surface of hind femora yellow. Fore femora normal. Fore tibiae bare in the middle. Mid femora with a single stout median anterior bristle and an apical anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with four or five anteroventral bristles on apical half and a series of much shorter setulae on basal half which are scarcely longer than clothing setulae and one or two weak submedian ventral to posteroventral setulae. Hind tibiae with a submedian anterodorsal and anteroventral bristle.

Wings yellowish hyaline. Costal setulae and thorns undeveloped. Cross-veins not infuscated. Node hairs above and below and beyond about half the distance to posterior cross-vein on the ventral surface. Other veins bare. Fourth vein curved forward as in *meditabunda*. Posterior cross-

vein slightly curved. Calyptres and halteres yellow.

Abdomen orange-brown with variable orange showing through, densely grayish pruinulent with an indistinct dorsocentral vitta. Without a basal row of bristles on fourth, but with an apical row on third and fourth and a few discals at sides of fourth visible tergites. Basal sternite bare; others with a pair of apicals; fifth moderately cleft, without distinctive armature. Hypopygium fulvous.

FEMALE.—7.5 mm. long. Similar to the male, differing from it in having the front at vertex three-tenths of head width, widened to one-third anteriorly. Inner and outer verticals well developed and a complete row of parafrontal bristles. No cruciate frontals. Juncture of parafacials and parafrontals about half as long as width of third antennal segment, parafacials almost obscured below. Facets not enlarged in front.

Leg clothing setulae not as distinctly yellow. Hind femora without as distinct anteroventral setulae on basal half and no ventral to posteroventral bristles.

First two abdominal segments more extensively orange and with a distinct median apical yellow area on last tergite.

SPECIMENS EXAMINED.—1 male and 1 female, Cavins, North Queensland, Australia, paratypes (U. S. Nat. Mus.)

(2) *Myospila flavicans* Malloch

MALLOCH, 1921, Ann. Mag. Nat. Hist., (9) VIII, p. 237; 1925, Austral. Zool., III, p. 330.

MALE.—6 mm. long. Parafacials, parafrontals and cheeks black, silvery-gray pruinulent. Front at narrowest one and a fourth times as wide as distance across posterior ocelli inclusive. Frontal vitta at same level one and a half times as wide as diameter of anterior ocellus. With a row of about six to eight parafrontal bristles and setulae which reach to anterior ocellus and with a pair of backwardly directed bristles. Ocellars not very much stronger than parafrontals. The posterior two pair of parafrontals weaker than others. Verticals not stronger than the surrounding setulae and the anterior parafrontals not stronger than the other parafrontals. Juncture of para-

facials and parafrontals one-fourth as long as width of third antennal segment; parafacials slightly narrowed below. Cheeks as high as width of third antennal segment, with a few downwardly directed short setulae on basal half. Eyes bare. Palpi fulvous on about apical half, dark brown on basal half. Second antennal segment fulvous, third light yellow, two and a half times as long as second. Arista dark brown, hairs twice as long as width of third antennal segment. Antennae inserted opposite middle of eyes.

Thorax yellow with sparse golden-yellow pruinescence and four brownish-yellow vittae. Presutural acrostical setulae in

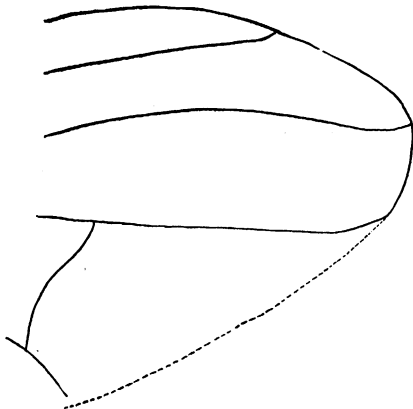


FIG. 1. *Myospila flavicans* Malloch. Apex of wing.

eight to ten irregular rows; dorsocentrals 2:4, the anterior two postsutural pair much shorter than the posterior two pair; intra-alars 1; pra half as long as the posterior notopleural bristle; notopleurals bare at base. Scutellar setulae reaching only to level of marginals. Sternopleurals 2:2, the lower anterior one weak; hypopleura and sternites bare.

Legs yellow, tarsi light brown. Fore femora normal. Fore tibiae bare at middle. Mid femora with three or four ventral bristles on basal half, with a strong median anterior bristle and a row of slightly shorter ones on basal half, and an apical anterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with a row of four median anteroventral bristles

and a well-developed apical one. Hind tibiae with one submedian anterodorsal and anteroventral bristle.

Wings yellowish hyaline. Costal thorns and setulae scarcely developed. Crossveins not infuscated. Node hairy above, below and beyond to about one-fourth to one-third the distance to anterior crossvein. Other veins bare. Fourth vein only very slightly curved forward at apex, the third vein slightly more downwardly curved on apical half than usual.

Abdomen brownish orange, the apical portion of fourth visible tergite and base of fifth at the middle with a darker but not clearly defined darkened portion. Basal sternite bare; others slightly longer than broad, with a pair of apical bristles; fifth only slightly cleft, without distinctive armature. Hypopygium yellow.

FEMALE.—8 mm. long. Similar to the male, differing from it in having the parafacials, parafrontals and cheeks silvery pruinescent. Frontal vitta velvety black. Front at vertex one-fourth of head width, widened anteriorly to one-third of head width. With a complete row of parafrontal bristles, the posterior two outwardly, the others inwardly directed. Frontal vitta with a pair of very fine cruciate setulae. Juncture of parafacials and parafrontals half as long as width of third antennal segment. Eyes with very short sparse hairs.

Legs as in the male except that the tarsi are more brownish, the basal anterior bristles on mid femora not as well developed, but the median anterior bristle more distinct. Mid tibiae with two median posterior bristles.

Abdomen unmarked. Suranal plate with very short but distinct thorns.

SPECIMENS EXAMINED.—1 male, Gordonvale, North Queensland, 6-8, determined by Malloch (U. S. Nat. Mus.). 1 female, Sherwood, Queensland, 12-3-23 (J. Mann), determined by Curran (Amer. Mus. Nat. Hist.).

(3) *Myospila meditabunda* (Fabricius)

Musca meditabunda FABRICIUS, 1781, Spec. Ins., II, p. 444; 1787, Mant. Ins., II, p. 347; 1794, Entom. Syst., IV, p. 322.—FALLEN, 1823,

Muscides, p. 50.—MEIGEN, 1826, Syst. Besch., V, p. 79.

?*Mydina ludibunda* ROBINEAU-DESVOIDY, 1830, Mém. Acad. Roy. Soc. France, II, p. 499.

?*Musca incurvata* BOUCHÉ, 1834, Naturgesch. d. Insect., I, p. 168.

Curtoneura meditabunda MACQUART, 1838, Suite a Buff., II, p. 275.

Musca meditabunda ZETTERSTEDT, 1838, Ins. Lapp., p. 660.

Cyrtoneura meditabunda ZETTERSTEDT, 1845, Dipt. Scand., IV, p. 1357.—RONDANI, 1862, Prodrum, V, p. 219.—SCHINER, 1862, Fauna Austriaca, I, p. 589.

Cyrtoneura quadriseta THOMSON, 1868, Eugen. Resa. Dipt., p. 549.—PANDELLE, 1898, Rev. d'Entom., L, p. 4.—HOUGH, 1899, Biol. Bull., I, p. 23.

Myospila quadrisignata COQUILLET, 1900, Proc. Wash. Acad. Sci., II, p. 441 (= *quadriseta* Thomson, *lapsis calami*).

Myospila meditabunda HOWARD, 1900, Proc. Wash. Acad. Sci., II, p. 576; 1901, Canad. Ent., XXXIII, p. 44.—STEIN, 1911, Archiv f. Natur., LXXVII, p. 97.—SCHNABL AND DZIEDZICKI, 1911, Nova Acta Abh. der Kaiserl. Leop. Carol. Deut. Akad. Natur., XCV, p. 159.—KEILIN, 1917, Parasitology, IX, p. 388.—SEGUY, 1923, Faune. d. France (Anth.), p. 346.—KARL, 1928, Die Tier. Deut., 13:III, Muscidae, p. 10.—STACKELBERG, 1933, Mouch. d. l. pt. Europ. U.R.S.S., VII, p. 509 (in Russian).—STORK, 1936, Tidj. v. Ent., LVIII, p. 103.

MALE.—7 to 8 mm. long. Parafacials, parafrontals and cheeks black, brownish gray pruinulent. Front at narrowest almost as wide as distance across posterior ocelli inclusive. Frontal vitta distinct, about one to one and a half times as wide as diameter of anterior ocellus. At narrowest, the parafrontals half as wide as diameter of anterior ocellus, very often with a pair of stronger, backwardly directed setulae at level slightly in front of anterior ocellus. Junction of parafacials and parafrontals three-fourths as long as greatest width of third antennal segment, parafacials slightly narrowed below. Cheeks one and a half times as high as width of third antennal segment; with several rows of upwardly directed setulae along lower margins in front. Eyes with distinct hairs. Antennae and palpi black, third segment of the former twice as long as second, not quite reaching lower level of eyes. Longest hairs on arista distinctly longer than width of third antennal segment.

Thorax black, distinctly grayish pruinulent and 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, the anterior one much weaker; pra scarcely developed; notopleurals bare at base. Scutellar setulae not descending below level of marginals, ventral surface bare. Sternopleurals 2:2; metathoracic spiracle without bristles; hypopleura with a few hairs above hind coxae; sternites bare.

Legs black, the hind tibiae sometimes slightly reddish brown. Fore femora normal. Fore tibiae bare in the middle. Mid femora with three to seven ventral bristles on basal half to three-fourths, a few much weaker ones on basal half of anterior surface and with a distinct apical anterodorsal bristle and with a few very short, scarcely discernible bristle-like setulae on apical third to half of anteroventral surface. Mid tibiae with two median posterior bristles. Hind femora with a complete row of anteroventral bristles and usually with a few on basal half or less of posteroventral surface. Hind tibiae with two or three median anterodorsal and anteroventral bristles.

Wings slightly brownish hyaline, not marked. Costal setulae and thorns undeveloped. Node hairy above and below, hairs on dorsal surface frequently slightly more well developed. Other veins bare. Fourth vein very distinctly curved forward, ending only slightly behind the tip of the wing, penultimate section two-fifths as long as ultimate. Posterior cross-vein distinctly curved. Calyptrae and halteres yellow.

Abdomen black, with distinct grayish to grayish-yellow pruinulence and a distinct pair of spots on second and third visible tergites. Basal sternite bare; others longer than wide, with the clothing setulae slightly stouter than those on the ventral portions of the tergites; fifth distinctly cleft, without distinctive armature. Hypopygium black.

FEMALE.—7 to 8 mm. long. Similar to the male, differing from it in having the front at vertex one-third of head width, slightly widened anteriorly. Frontal vitta with a distinct pair of cruciate bristles and nu-

merous setulae laterad to the parafrontal row of bristles. Juncture of parafacials and parafrontals one and a fourth times as long as width of third antennal segment, parafacials more distinctly narrowed below. Eyes less distinctly hairy. Palpi slightly broader.

Abdomen less densely pruinose.

SPECIMENS EXAMINED.—5 males and 4 females, New York, Illinois, Arizona, determined by Curran (Amer. Mus. Nat. Hist.). 67 males and 66 females, California, Virginia, Nevada, South Dakota, Indiana, New Mexico, Colorado (U. S. A.); China; Mexico; Norway; England and Guatemala, determined by Brauer and Bergenstamm, Ringdahl, Stein, Hough and Aldrich (U. S. Nat. Mus.). 13 males and 8 females, Wisconsin, Minnesota, Colorado, Texas (U. S. A.); Alberta (Canada); Frankfurt a. Oder (Germany) (F. M. Snyder Coll.).

(4) *Myospila cyanea* (Macquart)

Cyrtoneura cyanea MACQUART, 1843, Dipt. Exot., II, p. 137.

Aricia semiclausia SCHINER, 1863, Reise d. Novara, Dipt., p. 302.

Myospila semiclausia STEIN, 1919, Archiv f. Natur., LXXXIII, p. 128.—MALLOCH, 1934, Dipt. Patagonia and So. Chile, part VII, fasc. 2, p. 340.

MALE.—7 to 8 mm. long. Very similar to *meditabunda* Fabricius, differing from it in having the parafacials, parafrontals and cheeks more brownish, the eyes with much longer and more closely placed hairs. Juncture of parafacials and parafrontals as long as width of third antennal segment, parafacials very distinctly narrowed below. Third antennal segment not more than one and a half times as long as second.

Thorax shiny blue, with scarcely perceptible grayish pruinescence, and quadrivittate. Hypopleura at base of hind coxae usually bare.

Margins of calyptrae and halteres deep black.

Abdomen shiny blue with faint whitish pruinescence, without paired markings.

FEMALE.—7 to 8 mm. long. Similar to the male, differing from it in having the front at vertex one-third of head width, dis-

tinctly widened anteriorly, with a pair of cruciate frontal bristles. With numerous long setulae adjacent the parafrontal bristles.

SPECIMENS EXAMINED.—3 males and 3 females, Valparaiso and Angol, Chile, determined by Curran (Amer. Mus. Nat. Hist.). 7 males and 4 females, Angol, Perales, Santiago, Chile, and San Cristobal, Argentina, bearing label "agrees with Macq. types, Seguy, 1932" (U. S. Nat. Mus.). 22 males and 23 females, Bariloche, Rio Negro, Chile, determined by Aldrich (U. S. Nat. Mus.). 1 female, Las Mercedes, Chile (F. M. Snyder Coll.).

(5) *Myospila obsoleta* (Brauer and Bergenstamm)

Phasiophana obsoleta BRAUER AND BERGENSTAMM., 1891, Denk. Akad. Wien., LVIII, p. 391.

Mydaea mendax STEIN, 1911, Archiv f. Natur., LXXVII, p. 87.

Myospila mendax STEIN, 1919, Archiv f. Natur., LXXXIII, p. 128.—CURRAN, 1928, Proc. N. Y. Acad. Sci., XI, p. 90.

MALE.—7 mm. long. Very similar to *meditabunda* Fabricius, differing from it in having the parafrontal bristles slightly stouter and more evenly developed. Eyes bare. Palpi, second and base of third antennal segments distinctly orange to brown. Longest arisal hairs almost twice as long as narrowest width of third antennal segment.

Anterior intra-alar absent.

Fourth wing vein ending more posterior to the tip of the wing. Anterior cross-vein slightly infuscated. Calyptrae slightly darker at margins, more brownish.

Knees and tibiae orange to light brown; bristled as in *meditabunda*, but hind tibiae usually with three to five median anterodorsal and one or two median anteroventral bristles.

Abdomen whitish gray pruinose and appearing slightly shiny when viewed in various lights, with the spots less distinct and with very distinct dorsal and lateral checkerings. Second, third and fourth sternites with a distinct pair of apical bristles.

FEMALE.—7 mm. long. Similar to the male, differing from it in having the front at vertex one-fourth of head width, not

widened anteriorly, almost parallel sided. Frontal vitta without cruciate bristles. Humeri very slightly brownish, most noticeable along sutures. Calyptrae not as distinctly darkly margined. Anterior cross-vein less distinctly infuscated. Abdomen less distinctly pruinulent, more shiny, slightly bluish, without spots.

SPECIMENS EXAMINED.—4 males and 4 females, British Guiana, determined by Curran as *Myospila mendax* Stein (Amer. Mus. Nat. Hist.). 2 males and 12 females, Puerto Rico, Haiti and Cuba determined by Curran as *Myospila obsoleta* (Brauer and Bergenstamm) (Amer. Mus. Nat. Hist.). 2 males and 2 females, Porto Bello, Panama, and São Paulo, Brazil, determined by Malloch as *Mydaea mendax* Stein (U. S. Nat. Mus.). 1 male and 3 females, Costa Rica, and St. Domingo, (U. S. Nat. Mus.). 1 male, San Jose dos Campos, Brazil (F. M. Snyder Coll.).

There are two distinct male forms in the above series of specimens. Those determined as *mendax* Stein by Malloch, and the one from San Jose dos Campos, have the front at narrowest point slightly wider than the distance across the posterior ocelli inclusive, and the frontal vitta as wide as diameter of the anterior ocellus. The others have the front not quite as wide as the distance across posterior ocelli inclusive and the frontal vitta obliterated or very narrowly complete. However, the width of the frontal vitta is variable, since all steps can be traced from an obliterated one to a moderately broad one. The extensiveness of the fulvous coloring of the third antennal segment is also variable. I have not been able to find any correlation between these two characters, nor have I been able to find differences between the females in the above series.

Since this difference in frontal vitta width may conceivably be due to age of specimen before capture and drying I do not feel justified in treating these two forms as distinct species.

If, however, one wishes to distinguish these two forms by name, *mendax* might be used for the one with the wider frontal vitta and the name *obsoleta* for the form with the narrower one.

(6) *Myospila obscura* (Shannon and del Ponte)

Muscina obscura SHANNON AND DEL PONTE, 1926, Revista del Instituto Bact., IV, p. 580; 1928, Revista del Instituto Bact., V, p. 146.

MALE.—8 mm. long. Very similar to the form of *obsoleta* having the wider front. Front as in this species. Frontal vitta at narrowest not as wide as diameter of anterior ocellus. Juncture of parafacials and parafrontals not quite half as long as width of third antennal segment, parafacials not narrowed below. Palpi and antennae black, at most the third segment slightly brownish at base, distinctly grayish pruinulent.

Knees and tibiae light brown. Bristles as in *obsoleta*.

Wings more distinctly brownish hyaline, with the anterior cross-vein infuscated and with a dark cloud at apex of first vein. Margins of calyptrae and halteres black.

FEMALE.—8 mm. long. Similar to the male, differing from it in having the front at vertex one-fourth of head width, not widened anteriorly, often with a pair of cruciate bristles. With two intra-alar bristles. Halteres brown. Cross-vein and spot at apex of first vein much more darkened. Abdomen slightly bluish black, grayish pruinulent without dorsal spots, but with lateral checkerings.

SPECIMENS EXAMINED.—1 female, Argentina, holotype (U. S. Nat. Mus.). 1 male, R. Charape, Peru, determined by Aldrich as *mendax* (U. S. Nat. Mus.). 2 females, Nova Teutonia, Brazil (F. M. Snyder Coll.).

(7) *Myospila maculiventris* Malloch

MALLOCH, 1921, Ann. Mag. Nat. Hist., (9) VII, p. 161.

FEMALE.—6 mm. long. The single specimen before me agrees almost perfectly with Malloch's description. The following notes may be added. Juncture of parafacials and parafrontals as long as greatest width of third antennal segment; parafacial narrowed to about half its width below. Cheeks one and a fourth times as high as greatest width of third antennal segment and with a few upwardly directed setulae along the lower margin in front. Frontal

stripe shiny black, reaching almost to the base of antennae. Arista with a closely placed group of fine setulae at its base on upper surface which are about half as long as the longest arisal hairs, the latter is almost three-fourths as long as length of third antennal segment and twice as long as its width.

Presutural acrostical setulae in about ten irregular rows; a single intra-alar bristle on each side; notopleurals bare at base. Scutellum with one or two setulae which are continued over the side at middle slightly below level of marginals. Sternopleurals 2:2; hypopleura with one or two hairs above hind coxae; prosternum bare; metasternum not visible in the single specimen before me.

Calyptrae brownish, the margins much darker.

Mid femora with four or five ventral bristles on basal half, the anterior row at base very weak and with a short apical anterior bristle.

Basal abdominal sternite bare; others with a distinct pair of apical bristles.

SPECIMENS EXAMINED.—1 female, Vumba, Southern Rhodesia, November, 1932 (A. Cuthbertson) (at faeces) (Amer. Mus. Nat. Hist.).

(8) *Myospila cuthbertsoni*, new species

MALE.—6.5 mm. long. Parafacials, parafrontals and cheeks black, brownish gray pruincent. Front at narrowest a little wider than distance across posterior ocelli inclusive. At narrowest, frontal vitta two and a half times as wide as diameter of anterior ocellus and the parafrontals one-third as wide, the latter with a complete row of bristles which reach to a level of the anterior ocellus, those at the latter level almost as strong as those at base of antennae. Junction of parafacials and parafrontals three-fourths as long as width of third antennal segment, parafacials narrowed to about the greatest diameter of arista below. Cheeks slightly wider than width of third antennal segment. Eyes with short sparse hairs. Antennae and palpi black, third segment twice as long as second, not quite reaching the lower level of eyes. Longest arisal hairs distinctly longer than width of third antennal segment.

Thorax black, slightly brownish gray pruincent, distinctly quadrivittate, a very limited portion of the apex of scutellum slightly brownish to orange. Presutural acrostical setulae in ten irregular rows, with a short pair of prescutellar acrostical bristles; dorsocentrals 2:3;

intra-alar 2; pra absent or very minute; notopleurals bare at base. Scutellar setulae descending slightly below level of marginals. Sternopleurals 2:2. Hypopleura with a few hairs above hind coxae. Sternites bare.

Legs black, tibiae slightly brownish to reddish. Fore femora normal. Fore tibiae bare in the middle. Mid femora with four strong basal bristles, five or six much weaker but nevertheless distinct basal anteroventral bristles, a few weak anterior bristles on basal half and a similar apical one. Mid tibiae with two median posterior bristles. Hind femora with a complete row of six or seven anteroventral bristles and at most with one or two much weaker posteroventral setulae on basal fourth. Hind tibiae with one strong and one weak anterodorsal and anteroventral bristles.

Wings hyaline, the anterior cross-vein narrowly infuscated. Costal setulae and thorns undeveloped. Node with two or three moderately developed setulae on both surfaces but not as strong as in *maculiventris* Malloch. Other veins bare. Fourth vein distinctly bent forward ending only slightly behind the tip of wing. Posterior cross-vein slightly bent in middle. Calyptrae slightly brownish hyaline, posterior margins of the lower slightly more darkened. Halteres yellow.

Abdomen black, brownish gray pruincent with a pair of small indistinct spots on second and third visible tergites, apex of last tergite narrowly yellow to brown. Basal sternite bare; others with a distinct pair of apical bristles; fifth moderately cleft, without distinctive armature. Hypopygium black.

FEMALE.—6.5 mm. long. Similar to the male, differing from it in having the front at vertex slightly less than one-third of head width, only slightly widened anteriorly. Frontal vitta without cruciate bristles. Parafrontals with one or two rows of setulae laterad the bristles. The posterior two pair of parafrontals outwardly, others inwardly directed, the median two or three of these latter much weaker than the anterior one and not quite as long and strong as the posterior two pair.

Calyptrae whitish, at most with only slightly yellowish margins.

Abdomen without the indistinct paired spots on the tergites.

TYPES.—Holotype male, and allotype female, mounted on the same card, along with a puparium, Salisbury, Southern Rhodesia, May 24, 1937 (A. Cuthbertson); No. 4471, bred ex puparia in cocoons in cattle dung (Amer. Mus. Nat. Hist.). Paratypes: 11 males and 8 females, topotypical, from May 24 to May 27, 1937, to be deposited in British Museum Nat. Hist., Amer. Mus. Nat. Hist., U. S. Nat. Mus., and A. Cuthbertson's and author's collections.

This species is dedicated to Mr. A. Cuthbertson, of the Department of Agriculture, Southern Rhodesia, whose extensive collecting and rearing of the higher Diptera has furthered our knowledge of the flies of this region. Mr. Cuthbertson writes me that he plans to publish biological notes on this species in the near future.

(9) *Myospila maculiseta*, new species

MALE.—8 mm. long. Parafacials, parafrontals and cheeks black, silvery gray pruinescence. Front at narrowest one and a half times as wide as distance across posterior ocelli inclusive. Frontal vitta at narrowest slightly wider than distance across posterior ocelli inclusive and the parafrontals at same level as wide as diameter of anterior ocellus. Parafrontals with six or seven strong, moderately stout bristles extending from base of antennae to anterior ocellus and all of about equal strength and half as long and strong as vibrissae. Juncture of parafacials and parafrontals three-fourths as long as greatest width of third antennal segment, parafacial narrowed to about one-third its width below. Cheeks as high as width of third antennal segment. Eyes bare. Antennae and palpi black, third segment two and a half to two and three-fourths times as long as second, somewhat narrower than usual. Longest arisal hairs more than half as long as length of third antennal segment and two and a half times as long as the width.

Thorax black, slightly yellowish gray pruinescence, with four very narrow brown vittae, apex of scutellum yellowish. Presutural acrostical setulae in ten irregular rows, with a distinct pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 1; pra minute or absent; notopleurals bare at base. Scutellar setulae reaching only to the level of marginals. Sternopleurals 2:2, the lower anterior one much weaker. Hypopleura with a few very weak setulae above hind coxae. Sternites bare.

Legs black, knees and tibiae yellowish to orange. Fore femora normal. Fore tibiae bare at middle. Mid femora somewhat swollen on basal two-thirds and distinctly narrower on apical third, with a few very short setulae at base of anteroventral surface, four or five distinct ventral bristles on basal half, a series of weak bristles on basal half of anterior surface and a somewhat stronger apical anterodorsal setula. Mid tibiae with two median posterior bristles. Hind femora with a complete row of eight or ten anteroventral bristles and two or three weaker posteroventral setulae on basal fourth to third. Hind tibiae with one median anterodorsal and two shorter anteroventral bristles.

Wings yellowish brown hyaline. Cross-veins not infuscated. Costal setulae and thorns undeveloped. Node with two or three setulae above and below. Other veins bare. Fourth distinctly curved forward but ending dis-

tinctly behind the apex of wing. Calyptrae and halteres pale.

Abdomen black, brownish gray pruinescence with a pair of small, round, brown spots toward apex of second and third visible tergites. The apex of fourth distinctly orange colored. Basal sternite bare; others with one or two pairs of distinct median and apical bristles; fifth moderately cleft. Hypopygium orange.

FEMALE.—7 mm. long. Similar to the male, differing from it in having the front at vertex one-fourth of head width, widened to one-third head width anteriorly. Without cruciate frontal bristles. Hind femora more extensively light-colored and without as well-developed posteroventral basal setulae. Abdomen without distinct brown spots. Wings not as distinctly darkened.

TYPES.—Holotype male, and allotype female, Salisbury, Southern Rhodesia (A. Cuthbertson). The male taken September, 1936, and the female October, 1934, and bears the number 3793 (Amer. Mus. Nat. Hist.).

Paratypes: 2 males and 1 female, topotypical, September, 1936, September 20, 1932, and January 21, 1937. One male and 1 female in author's collection; female in U. S. Nat. Mus.

(10) *Myospila armata*, new species

FEMALE.—8.5 mm. long. Parafacials, parafrontals and cheeks black, silvery gray pruinescence, parafacials slightly shiny black on the posterior half. Frontal vitta with a distinct pair of cruciate bristles. Front at vertex slightly more than one-third of head width, distinctly widened anteriorly. With a complete row of parafrontal bristles, of which the posterior two are outwardly, the other six inwardly directed, with three or four stout outwardly directed bristles adjacent the six inwardly directed parafrontal bristles. Parafrontals with numerous rather stout long setulae over the entire surface. Juncture of parafacials and parafrontals slightly longer than the greatest width of the quite broad, short, third antennal segment, parafacials scarcely narrowed below. Cheeks as high as length of third antennal segment and one-third of eye height, with two or three rows of bristles along margin in front, the upper row or two upwardly directed. Eyes distinctly long-haired. Antennae and palpi black, the third segment one and one-fourth times as long as second and very distinctly widened, especially at base of antennae, almost three-fifths as wide as length of second. Longest arisal hairs a little over half as long as greatest width of third antennal segment.

Thorax black, indistinctly brownish gray pruinescence, quadrivittate. Presutural acrostical setulae in seven or eight irregular rows, with a

distinct pair of prescutellar acrostical bristles; dorsocentrals 2:4; intra-alars 2; pra almost three-fourths as long as length of posterior notopleural bristle, the latter bare at base. Scutellar setulae not descending below level of marginals. Sternopleurals 2:2. Hypopleura and prosternum bare. Metasternum not visible.

Legs black. Fore femora normal. Fore tibiae with a very well-developed posterior bristle on apical third. Mid femora with a row of six or seven well-developed ventral bristles, a row of shorter ones on basal half of anterior and with a well-developed apical bristle on anterior and anterodorsal surfaces. Mid tibiae with four or five anterodorsal and posterior bristles. Hind femora with a complete row of anteroventral bristles and one or two at base of posteroventral

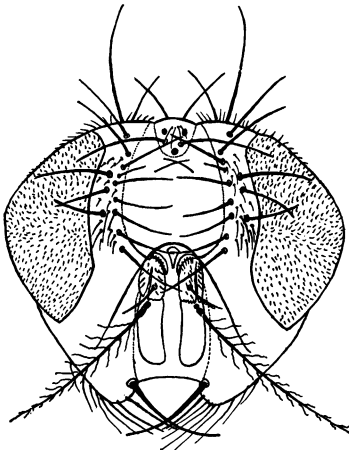


FIG. 2. *Myospila armata*, new species. Head of female.

surface, all of which are about as long as diameter of hind femora where situated. Hind tibiae with four anterodorsal, two anteroventral and four or five posterodorsal bristles, the one at the middle of the posterodorsal series medianly situated and more well developed.

Wings slightly brownish hyaline, especially at the base. Costal setulae undeveloped, the thorns slightly so. Anterior cross-vein slightly infuscated. Node hairy above and below. Fourth vein strongly curved, with a trace of an inwardly directed vein at the middle. Calyptae white, the lower margined with yellow. Halteres dark brown.

Abdomen black, brownish pruinose; when viewed from the side, the apices appear to have a very narrow transverse whitish pruinose band. Basal sternite bare; others with normal setulae but no apical bristles.

HOLOTYPE.—Female, Yu-Long-Si, China

Tibet border 15,600 ft., July 26–28, 1930 (B. S. Graham).

The outwardly directed row of parafrontal bristles is reminiscent of the females of certain *Muscinae* genera, e.g., *Dasyophora*, but the smaller and non-truncated lower calyptae and the absence of a median or submedian ventral bristle on the mid tibiae would preclude it from this subfamily.

It is quite possible that this species might be worthy of generic separation from *Myospila*, but since the male is unknown to me at present, I refrain from following this course.

Undoubtedly the stump of a vein at the middle of the posterior cross-vein is an abnormality since this irregularity is frequently found in this and other genera.

DOUBTFUL SPECIES AND SPECIES THAT I HAVE NOT SEEN

(1) *Cyrtoneura anthomydea* Bigot

BIGOT, 1887, Bull. Soc. Ent. France, XII, p. 614.

This species originally described from North America, if a true *Myospila*, is probably *meditabunda* Fabricius.

(2) *Myiospila bruneltina* Enderlein

ENDERLEIN, 1927, Konowia, VI, p. 51.

This species differs from *meditabunda* Fabricius in having the eyes less hairy and in the shape of the male hypopygium. Enderlein was doubtful of its status, i.e., whether a distinct species or a variety of subspecies of *meditabunda*.

(3) *Myospila meditabunda* var. *angustifrons* Malloch

MALLOCH, 1922, Ann. Mag. Nat. Hist., (9) X, p. 132.

This variety may have the same status as *bruneltina* Enderlein and the form *men-dax* Stein of *obsoleta* Brauer and Bergens-stamm.

(4) *Cyrtoneura nigriceps* Bigot

BIGOT, 1887, Bull. Soc. Ent. France, XII, p. 615.

The same remarks apply to this species as to *anthomydea* Bigot.