

The Ohio Naturalist,

PUBLISHED BY

The Biological Club of the Ohio State University.

Volume XIV.

JUNE, 1914.

No. 8.

TABLE OF CONTENTS

HINE—Diptera of Middle America.....	333
LAMB—Middle Mississippian Unconformities and Conglomerates in Northern Ohio....	344
MCAVOY—The Panicums of Ohio.....	347
MCAVOY—Meetings of the Biological Club.....	355
RICE—Meeting of the Executive Committee of the Ohio Academy of Science.....	356

DIPTERA OF MIDDLE AMERICA.

FAMILY SYRPHIDÆ.

JAS. S. HINE.

A large number of species of diptera from southern localities have accumulated in the collections at the Ohio State University. They have been procured from various sources and come from many localities, having been taken by different collectors. In working up this material it is my purpose to consider one family at a time. Having quite fully studied the Syrphidæ I offer for publication the following notations on the included species. For the purposes of this paper and those of the same series to follow the term "Middle America" may be taken to include a wide stretch of territory from Southern United States to points in South America several degrees beyond the Equator.

MICRODON Meigen.

Microdon angustus Macquart. This name is applied to two specimens from Bartica, British Guiana. The body is elongate, face, legs, scutellum and base of abdomen pale yellowish; disk of thorax greenish black with a transverse narrow golden band; toward the apex the abdomen gradually shades into brown; antennæ long, scutellum with spines. Total length 14 mm. *Microdon angustiventris* Macquart must be very close to this species.

Microdon baliopterus Loew. One specimen from Gualan, Guatemala, January 20th, 1905.

Microdon bidens Fabr. Thorax greenish black, scutellum with the extreme apex and two spines pale brown. Abdomen and legs mostly reddish. Wings uniformly fumose. Five specimens from Bartica, British Guiana, April and May.

Microdon coarctatus Loew. A small bright green species with many of the wing veins margined with dark brown. Three specimens from Louisiana.

Microdon flavitibia Walker. Thorax and abdomen purplish black. Wings fumose. Of the same form and size as *bidens*. Six specimens from Bartica, British Guiana.

Microdon rufiventris Rondani. Face, front and thorax shining green clothed with golden pile; antennae brown; abdomen reddish yellow with the exception of a triangular green spot near the scutellum. Legs pale, wings nearly hyaline. Length 11 mm. One specimen from Bartica, British Guiana.

MIXOGASTER Macquart.

Five American species have been described in this genus. Some of them might well be placed in *Microdon* were it not for the distinctly clavate abdomen but others do not show such close relationship with that genus. *M. breviventris* Kahl is the only species that has been taken as far north as the United States. An additional species was taken at Los Amates, Guatemala, and is here described as new. The following key for the separation of the known species has been compiled in large measure from descriptions and figures that have appeared in various publications.

1. Thorax with a middorsal yellow stripe. *conopsoides* Macq.
Thorax not with a middorsal yellow stripe. 2.
2. The third longitudinal vein emits a stump into the first posterior cell. 3.
The third longitudinal vein does not emit a stump into the first posterior cell. 4.
3. Wing clear hyaline, legs brown. *claripennis* n. sp.
Base of marginal cell and a cloud along the third vein brown, bases of all the tibiae light yellow. *bellula* Will.
4. The vein closing the distal end of the first posterior cell almost straight. *breviventris* Kahl.
The vein closing the distal end of the first posterior cell distinctly angulated. 5.
5. Face extraordinarily arcuate. *dimidiata* G. Tos.
Face normal. *mexicana* Macq.

Mixogaster claripennis n. sp. Length about 10 mm., body black with yellow bands, legs generally brownish. Face yellow on each side and black at middle, clothed with yellow appressed hairs, cheeks black; front largely shining black narrowed near lower third where there is a transverse space clothed with short yellow hairs, vertex tumid, also a prominence just above base of antennae. Antennae long, first segment long and slender, second segment short, third segment thickened and about as long as the first, whole antenna black except the extreme base of first segment which is yellow. Thorax black in ground color, humerus with a very small pale spot, suture with a very narrow band of yellow pile. Scutellum golden pilose. Wings clear hyaline.

Legs brown, coxæ and parts of the femora darker, bases of the tibiæ somewhat paler. Abdomen generally black, second segment narrow and elongate, on basal half with two transparent spots separated by a black interval, apex of the same segment with a narrow pale band, apex of the third segment with a narrow band of golden yellow pile, apex of the fourth segment and all of the fifth brownish. A male type taken at Los Amates, Guatemala, in February, 1905.

This species is related to Willistons' *bellula* but differs from it in having entirely hyaline wings, and the coloration of the legs and abdomen is quite different. Also the elongation of the stump of a vein from the third longitudinal almost dividing the first posterior cell appears to be an important characteristic of *claripennis*.

BACCHA Fabricius.

Baccha callida n. sp. Length about 10 mm. Front with a slight prominence for the insertion of the antennæ, front, face and antennæ yellow, a small geminate black spot on the middle of the front near the antennæ. Thorax largely yellow with four black stripes separated by yellow on the dorsum, and an irregular greenish brown marking beneath the scutellum to the bases of the middle legs; wings narrowly at base and along the anterior border pale yellowish, otherwise clear hyaline; legs all yellow with the exception of the hind pair, each of which have a pale brown band around the apical third of the femur and a wider band of the same color on the basal half of the tibia. Abdomen black, brown and yellow, first segment yellow with a black marking beneath the scutellum and a clear brown band on the posterior margin, second segment brown on anterior half, this followed by an area of yellowish somewhat intermixed with brown and this by a black band occupying more than the apical fourth of the segment, third segment with a middorsal stripe slightly abbreviated before, an apical band and an oblique marking on each side connected with apical band black, fourth segment like the third, fifth segment with three black stripes, all the segments behind the second are yellowish where they are not black.

The male type collected at Puerto Barrios, Guatemala, March 5, 1905.

This species is somewhat suggestive of *lineata* but is colored quite differently.

Baccha capitata Loew. A female example of this fine species was taken at Holguin, Cuba, by H. S. Parish. The species has been reported from Cuba and Porto Rico by previous writers. Loew's type is a male. From reading the original description and comparing my specimen with it I find the two sexes are very similar in coloration.

Baccha conjuncta Wiedemann. Two female specimens of this species were taken at Bartica, British Guiana. The head is short and the antennæ are attached high up and much elongated for a species of *Baccha*. The front is wide with the sides parallel giving quite a different appearance from that present in many species where the front is distinctly narrowed above. The two specimens differ in having the submarginal cell hyaline in one and plainly yellowish in the other.

Baccha cultrata Austin. A female specimen from Puerto Barrios, Guatemala, agrees well with Austin's figure and description in the Proceedings of the Zoological Society of London for 1893, page 151. Austin's specimens were taken in Brazil and this record extends the range for the species much to the northward and establishes it as a member of the North American fauna. The general form is quite different from most species of *Baccha*, but the characters of the head are nearly normal.

Baccha clavata Fabricius. Specimens of this common species are before me from many localities ranging from South America to Wisconsin. I have taken it plentifully in Ohio, Louisiana and in several localities in Guatemala and Honduras where it occurs from the Atlantic to the Pacific.

Baccha lineata Macquart. This is a very common species in Guatemala and numerous specimens are at hand from Honduras and British Guiana. The coloration of the body and wings varies somewhat in a series of specimens. Williston suggests that *livida* Schiner may be the same as *lineata* Macquart and from my study of more than a score of specimens of both sexes I am convinced that the species should be called *lineata* and that *livida* should drop into synonymy. Macquart describes and figures the female and my specimens of that sex are as near to the figure certainly as most identifications are to his reproductions.

OCYPTAMUS Macquart.

Ocyptamus dimidiatus Fabricius. Plentiful in a number of localities in Guatemala and Honduras.

Ocyptamus funebris Macquart. Three specimens. A male from Puerto Barrios, Guatemala, March 5th, and a male and female from San Pedro, Honduras, February 21, 1905.

Ocyptamus fuscipennis Say. Numerous specimens from Slidell, Louisiana. The species is common in all parts of Ohio.

Ocyptamus scutellatus Loew. Four specimens from Boniato, Cuba. It is much like *dimidiatus* but the wings are more suffused and the body is not so highly colored.

SALPINGOGASTER Schiner.

Salpingogaster pygophora Schiner. A male specimen from Boniato, Cuba, appears to be this species. The mesonotum is dark, scutellum light, slightly darkened across the disk, legs wholly yellow and abdomen reddish-brown throughout.

MELANOSTOMA Schiner.

Melanostoma fenestratum Macquart. Three specimens from La Paz, Bolivia.

SYRPHUS Fabricius.

Syrphus bisinuatus Williston. Taken at Laguna, Guatemala.

Syrphus poecilogaster Philippi. From Arequipa, Peru; La Paz, Bolivia and from Valparaiso, Chile.

Syrphus similis Blanchard. From Santiago, Chile. This species is very similar to *S. ribesii*, but the markings are paler and the wings are slightly fumose.

MESOGRAMMA Loew.

Mesogramma basilaris Wiedemann. From Puerto Barrios and Los Annates, Guatemala and Boniato, Cuba.

Mesogramma bidentata Giglio-Tos. From Puerto Barrios, Los Amates and Santa Lucia, Guatemala.

Mesogramma ciliata Giglio-Tos. From Los Amates, Guatemala.

Mesogramma confusa Schiner. From Los Amates, Guatemala.

Mesogramma diversa Giglio-Tos. From Los Amates, Guatemala.

Mesogramma duplicata Wiedemann. From Puerto Barrios and Los Amates, Guatemala.

Mesogramma laciniosa Loew. From Gualan and Los Amates, Guatemala; San Pedro, Honduras, and Holguin and Boniato, Cuba.

Mesogramma linearis van der Wulp. From Los Amates, Guatemala and Boniato, Cuba.

Mesogramma marginata Say. From Los Amates, Guatemala and Slidell, Louisiana.

Mesogramma polita Say. From Panzos, Gualan, and Puerto Barrios, Guatemala.

Mesogramma rombica Giglio-Tos. From Los Amates, Guatemala and Boniato, Cuba.

Mesogramma saphridiceps Bigot. From Georgetown, British Guiana.

Mesogramma subannulata Loew. From Boniato, Cuba and Los Amates and Puerto Barrios, Guatemala.

Mesogramma variabilis van der Wulp. From Los Amates and Santa Lucia, Guatemala.

SPHÆROPHORIA St. Fargeau and Serville.

Sphærophoria picticauda Bigot. Numerous specimens from Los Amates, Guatemala and from San Pedro, Honduras. The San Pedro specimens were collected by E. B. Williamson.

VOLUCELLA Geoffroy.

Volucella abdominalis Wiedemann. Three specimens of this conspicuous species have been received from Cuba, a female from Holguin and a pair from Boniato. The large size, the uniform blue-black abdomen, yellow scutellum and face and plain black cheeks characterize it. Length 16 mm.

Volucella azurea Philippi. A brilliant green species, wings clear hyaline with a conspicuous dark spot at the stigma. Length 13 mm. One female from Santiago, Chile.

Volucella boliviana n. sp. Body dark colored, front and face prominent making the head appear unusually large, wings hyaline. Length 12 mm. Front and face wide, pale yellowish green; front tumid, antennæ rather small, reddish; face concave beneath the antennæ, quite prominent above the oral margin; eyes pilose, pilosity of the face and front largely dark colored. Thorax, dark, scutellum paler, legs black with the exception of the bases of all the tibiæ which are red, wings hyaline. Abdomen dark with mostly dark hair, some tufts of white hair on the outer margins of each segment behind the incisures.

Type female from La Paz, Bolivia. Also a female from Arequipa, Peru.

At first glance this species much resembles a *Goniops* of the family Tachinidae, but it has all the structure characters of *Volucella*.

Volucella dichroica Giglio-Tos. Entirely purplish-green with unevenly infuscated wings. Length close to 10 mm. A male from Los Amates, Guatemala.

Volucella esuriens Fabricius. A large violet colored species with the base of the wing distinctly brown before. The species is widely distributed and has many synonyms. Length 16 mm. Taken at Santa Lucia, Guatemala.

Volucella eugenia Williston. A specimen from Boniato, Cuba seems to be this species. Face and front pale, cheeks black, thorax dark on the disk, sides and scutellum pale. A row of prescutellar bristles and another row at the apex of the scutellum. Wings nearly hyaline, crossveins narrowly margined with fuscus. Legs dark, tibiæ partially pale. Abdomen black with yellow on sides of first and second segments. Length 13 mm.

I have made this identification with some hesitation mainly on account of the yellow at base of abdomen which Williston does not mention in his description.

Volucella guianica n. sp. Length 7 mm., entire body shining dark green, antennæ and face, including the cheeks, yellow, wings with dark markings.

Face strongly produced forward and downward, tubercle prominent, front brown below, black at vertex. Thorax including scutellum dark green, a row of spines at the apex of the scutellum

and one before the scutellum; wing largely hyaline and brown, base largely hyaline, anterior border pale yellowish, first basal cell with a small oblique dark marking; a large dark marking at stigma sending out three prominent extensions, one backward along the veins which close the second basal and anal cells, another obliquely along the vein which separates the second and third posterior cells and one outward along the costa. The first second and third posterior cells also have more or less dark color at their apexes. Legs dark with the exception of the apical two-thirds of each front femur and all the tarsi which are pale. Abdomen very dark shining green. Type female from Bartica, British Guiana, collected by H. S. Parish.

Volucella macula Wiedemann. General color metallic reddish, wings nearly hyaline with a well defined quadrate black spot near the middle of the costal border. Length 9 mm. Four specimens from Bartica, British Guiana.

Volucella obesa Fabricus. This is the most common species of the genus in middle America. Body shining green, wings nearly hyaline with a black stigmatic spot and a black point at the apex of the marginal cell. Length 12 mm. one specimen a little smaller. Our collection contains specimens from Mexico, Cuba, Guatemala, Honduras, British Guiana and Bolivia.

Volucella perlata n. sp. Face and front bright shining green. Thorax bright green, scutellum and abdomen pale with shining iridescent reflections, wings yellowish, more intense on apical half. Length 9 mm.

Face produced largely downward, green, and obscure yellow markings on the cheek, antenna including the arista yellow, eyes hairy. Thorax green, scutellum pale with an apical depression, three weak bristles on each side; legs dark with purplish or greenish reflections, knees pale; wings yellowish, most intense in the marginal and first second and third posterior cells. Abdomen pale with a very bright, shining iridescent reflection. Type male taken at Los Amates, Guatemala.

Volucella picta Wiedemann. Very close to *fasciata* and *pusilla* from the United States. In fact Williston suggests that the latter may be a synonym of *picta*. Length 8 mm. Specimens from Gualan, Guatemala. The larva probably lives in the stems of some species of cactus.

Volucella praescutellaris Williston. A modest colored species. Dorsum of thorax green with yellow and black pile intermixed, scutellum pale, a row of prescutellar bristles and eight rather strong bristles on the posterior border of the scutellum; wings infuscated, not quite so dark on posterior border; legs black; abdomen yellow and brown, the tip shining. Length between 11 and 12 mm. A male specimen from Los Amates, Guatemala.

Volucella scutellata Bigot. Mostly plain black, front and face pale, scutellum brown with stout spiniferous tubercles. Many of the veins adjacent to the costal border of the basal part of the wing margined with brown. Length 15 mm. Santiago, Quillota and various other localities in Chile.

Volucella tympanitis Fabricus. A rather small pale species with the abdomen banded with brown. Wing hyaline with a brown spot at stigma and another near the apex. **Volucella ardua** Wiedemann seems to be a synonym. True Wiedemann recognizes both as valid species in the same publication but the descriptions read so near alike that I cannot make the distinction. Length 9 mm. A specimen from Bartica, British Guiana and one from Santa Lucia, Guatemala.

PHALACROMYIA Rondani.

Phalacromyia nigrifrons n. sp. A small dark colored species. Thorax, including the scutellum, shining purple, abdomen brown, front black, face yellow. Length 6 mm.

Face much produced forward but not so much downward, yellow without black markings, antenna yellow, proboscis near the length of the front femora; front shining black, the color changing at the insertion of the antennæ producing a pronounced contrast with the yellow of the face. Thorax shining purple, scutellum of the same color as the thorax and with a distinct impression just before its apex. Legs all dark brown with the exception of the posterior tibiæ which are pale. Wings very pale yellowish, costal border more intense, a dark brown point at stigma. Abdomen dark yellowish brown, slightly darker at the incisures.

The type female taken at Bartica, British Guiana, May 28, 1901, by H. S. Parish.

Phalacromyia virescens Williston. A pale green species with yellowish wings. Anterior part of the thorax yellowish, a small dark spot in front of the scutellum and another in the transverse impression just before its apex. Front pale green, face yellow. A female specimen from Bella Vista Yungas, Bolivia.

The locality is some distance from where Williston's type was procured but the specimen answers the description in detail.

ERISTALIS Latreille.

Eristalis aemulus Williston. Five specimens from Bartica, British Guiana. Williston has reported the species from Mexico and Central America.

Eristalis albifrons Wiedemann. We have the species from Louisiana, Yucatan and Guatemala.

Eristalis assimilis Macquart. Numerous examples of both sexes from Arequipa and Puno, Peru.

Eristalis atrimanus Loew. Specimens from Cuba are considered as this species. This and Wiedemann's *fasciatus* must be much alike.

Eristalis bogotensis Macquart. From La Paz, Bolivia and Puno, Peru.

Eristalis conicus Fabricus. Numerous specimens from Bartica, British Guiana and one which is typical for the species from Livingston, Guatemala. This is the first North American record so far as I can find.

Eristalis cubensis Macquart. So far as I am aware this species has not been recognized since Macquart named it, but there are nearly fifty specimens in our collection from various places in Louisiana and Guatemala and one each from Honduras and Jamaica agreeing well with its description. C. W. Johnson says he has the same from Cuba, the type locality, and my opinion is that Williston referred to the same under "21", *Biologia* Vol. III, page 65.

The species is much like *alibifrons* but the markings of the abdomen are distinctly yellower and the pile of the front is mostly black instead of pale.

Eristalis fasciatus Wiedemann. Numerous specimens from Bartica, British Guiana.

Eristalis furcatus Wiedemann. Specimens from various places in Guatemala. Common on the west shore of Lake Amatitlan in low ground February 7th.

Eristalis minutalis Williston. A single example from San Pedro, Honduras, February 25, 1905. Collected by E. B. Williamson.

Eristalis obsoletus Wiedemann. Taken at several stations in Guatemala during the first part of February.

Eristalis philippi Schiner. Three specimens from Chile. The type came from Chile.

Eristalis pusillus Macquart. Said to be the same as **Eristalis tricolor** of Jaenicke. From several places in Guatemala.

Eristalis ruficeps Macquart. A specimen from Coroico Yungas, Bolivia has many characters with *ruficeps* although it may not be that species.

Eristalis rufiventris Macquart. Rather common, flying near the margin of a stagnant pond at Los Amates, Guatemala, January 18, 1905. Other specimens from San Pedro, Honduras.

Eristalis scutellaris Fabricius. From Los Amates, Sanarate and Puerto Barrios, Guatemala and from Bartica, British Guiana, more than a dozen specimens.

Eristalis triangularis Giglio-Tos. Collected at Los Amates, Gualan, Mazatenango and Santa Lucia, Guatemala. Others have taken the species at several stations in Mexico and Brazil.

Eristalis vinetorum Fabricius. Widely distributed and common from southern United States southward. Lynch reports it from Argentina and Macquart claimed to have it from Philadelphia. We have abundance of specimens from Cuba, Guatemala, British Guiana and Louisiana.

LYCASTRIRHYNCHA Bigot.

Lycastrihyncha nitens Bigot. One specimen of this extraordinary species taken at Los Amates, Guatemala near the middle of January 1905.

MEROMACRUS Rondoni.

Meromacrus acutus Fabricius. One specimen from Los Amates, Guatemala. The front margins of the wings are widely infuscated.

DOLICHOGYNA Macquart.

A genus somewhat related to *Helophilus*. The latter genus is listed from South America but all my specimens belong to *Dolichogyna* on account of the wide and prominent front, and the exerted sexual organ of the male. There may be some question whether or not it is advisable to separate the two genera on such small characters. I have four species which is more than is recognized usually, but surely the four are congeneric. The bibliography of the species of the genus is given by Williston in Transactions of the American Entomological Society, Vol. XIII, page 320 and Vol. XV, page 392.

KEY TO THE SPECIES.

1. Specimens 10-12 mm. in length. 2.
Specimens less than 9 mm. in length. *abrupta* n. sp.
2. Legs largely black, face much produced. *nigripes* Bigot.
Legs largely yellow, face not so much produced. 3.
3. Markings of the abdomen bright yellow, at most only a trace of pale color near the middorsal line. Legs all yellow.

Markings of the abdomen largely pale gray. Legs often partially black, variable. *chilensis* Guerin.
fasciata Macquart.

Dolichogyna abrupta n. sp. Small sized species, markings of the abdomen mostly bright yellow. Length a little less than 9 mm.

Male. Ocelli widely separated and located within a black area at vertex, all the front except the vertex, yellow, a crescent shaped area immediately above the antennæ devoid of pile, from thence to where the black ground color begins with prominent dark pile; the black vertex and rear of the head with yellow pile. Front prominent with the antennæ inserted on the most prominent part. Face yellow, mostly naked, cheeks slightly brown on posterior margin. Dorsum of the thorax dark and clothed with yellow pile; margins next the insertions of the wings, two stripes near the mid-dorsal line and scutellum yellow; wings hyaline; legs mostly reddish yellow, some or all of the femora black or blackish on basal parts. Abdomen dark above, second

segment with a large yellow triangular marking on each side, third with a similar shaped marking which is yellow outwardly and gray inwardly, fourth with a similar shaped marking which is nearly all gray; venter mostly pale. Hypopygium exerted and protruding forward under the abdomen to about the middle of the third segment.

Female. Like the male but the markings of the dorsum of the abdomen are more plainly yellow.

Type male, allotype female and four paratype males from Arequipa, Peru, October 28, 1898.

Dolichogyna chilensis Guerin. This species was described as *Helophilus* but if I have made a correct determination it should be placed in this genus. *Helophilus pictus* Philippi I consider a probable synonym. Nearly a dozen specimens from Arequipa and Puno, Peru, have been placed here.

Dolichogyna fasciata Macquart. *Helophilus chilensis* Walker and *Dolichogyna hahni* Bigot have been placed as synonyms by Williston. This is the type of the genus. Five specimens from Santiago, Valparaiso and Chiloe, Chile, are determined as *fasciata*. The markings of the abdomen are mostly bright yellow and nearly the whole body is clothed with prominent yellow pile.

Dolichogyna nigripes Bigot. A male specimen with the face produced and legs mostly black is placed here. The middle and front tarsi are flattened and the corners at the apex of each segment are produced into rather long appendages thus forming a pronounced type of foot very different from that present in the other species. The knees, bases of all the tibiae and all the tarsi are yellowish while the other parts of the legs are shining black. One specimen from Puno, Peru.

ASEMOSYOPHUS Bigot.

Asemosyophus bicolor Bigot. Two specimens taken at Lake Amatitlan February 7, 1905.

Asemosyophus mexicanus Macq. Two males and a female from San Antonia Canyon, California, July 25, 1907.

XYLOTA Meigen.

Xylota chloropyga Schiner. A specimen from Bartica, British Guiana.

Xylota cœrulea Rondani. Same as *Strephus antennalis* Philippi. One specimen from Alhue, Chile.

STILBOSOMA Philippi.

Stilbosoma cyanea Philippi. This shining green species with red front and face and black antennæ is one of the most striking sphyphides I have seen. Three specimens from Santiago and Quillota, Chile.

CERIA Fabricius.

Ceria tricolor Loew. Two specimens from Holguin, Cuba, collected by H. S. Parish, December 23, 1904.