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INTRODUCTION.

THIS Volume includes the enumeration of the Families Syrphidæ, Conopidæ, Pipunculidæ, and Platypezidæ, contributed by Prof. S. W. Williston, the date of publication of his work extending from December 1891 to May 1892, the closing-up of the subject having been deferred till Vol. II. was completed. As with the preceding Volumes, a list of the species described from Mexico or Central America by other authors during the progress of the work is appended, this list including only such as have been recorded since 1891. These have been mainly contributed by Dr. Giglio-Tos; and as the date of publication of his paper is later by one month than that of the final instalment of Prof. Williston's, the last-mentioned has priority in every case where the same species has been described by both authors. The two coloured Plates of Syrphidæ and Conopidæ have been prepared by Mr. Wilson, of Cambridge, from drawings made by Van der Wulp.

ED.

August 1903.

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BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class INSECTA.

Order DIPTERA.

Fam. SYRPHIDÆ*.

MIXOGASTER.

Mixogaster, Macquart, Dipt. Exot. ii. 2, p. 14 (1842).

1. *Mixogaster mexicana*.

Mixogaster mexicanus, Macq. Dipt. Exot. 1^{er} Suppl. p. 123, t. 10. f. 15¹.

Hab. MEXICO¹, Omilteme in Guerrero 8000 feet, Chilpancingo 4600 feet (*H. H. Smith*).

Five specimens. Easily distinguished from *M. conopsoides* by the shorter antennæ, which are not much longer than the front.

2. *Mixogaster bellula*, sp. n., ♂. (Tab. I. figg. 1, ♂; 1 α, head in profile; 1 β, head seen from in front.)

Face reddish-yellow, with a median black stripe and light yellow pile. Antennæ longer than the face; first joint slender, black, yellow at the base; second and third joints ashy-black; third joint thickened, spindle-shaped. Least width of front equal to about half the distance from the foremost ocellus to the base of the antennæ; front, below the constriction, black, not shining, with yellow pile, above forming a large, bare, shining black tubercle. Eyes bare. Thorax opaque black; the dorsum of the scutellum, and a narrow, broadly interrupted band on the mesonotum, extending on the pleuræ, clothed with golden-yellow, appressed pile. Abdomen opaque black; second segment with two long, narrow, yellowish-white stripes, which are separated from each other and from the lateral margins by a slender black space; third segment with a narrow, golden-yellow-pilose posterior band; fourth segment broadly, triangularly, sparsely yellow-pilose behind. Legs dark brown, the base of all the tibiæ light yellow; hind tarsi elongate and dilated. Wings nearly hyaline; base of the marginal cell and a cloud along the third vein brown; no stump on

* By S. W. WILLISTON.

the fourth vein; a stump on the penultimate section of the third vein; last section of fourth vein not angulated or broken.

Length 10 millim.

Hab. MEXICO, La Venta in Guerrero 300 feet (*H. H. Smith*).

One specimen.

The present species is in all respects a *Microdon* with a pedicellate abdomen, though a true *Mixogaster*.

MICRODON.

Microdon, Meigen, in Illiger's Magazin, ii. p. 275 (1803).

Aphritis, Latreille, Hist. Nat. Crust. et Ins. xiv. p. 358 (1805).

Ceratophya, Wiedemann, Aussereur. zweifl. Ins. ii. p. 79 (1830).

Dimeraspis, Newman, Ent. Mag. v. p. 372 (1838).

Mesophila, Walker, List Diptera, iv. p. 1157 (1849).

Ubristes, Walker, Ins. Saunders., Diptera, p. 217 (1856).

Synopsis of the Central-American species.

- | | |
|--|----------------------------|
| 1. Scutellum with distinct points or spines | 2. |
| Scutellum rounded or emarginate, without points or spines; small species | 5. |
| 2. Large, resplendent green, violet and coppery species; spines of scutellum remote; legs without yellow; wings without clouds. | <i>aurifex</i> , Wiedem. |
| Not such species; spines of scutellum approximate | 3. |
| 3. Deep opaque black, elongate species; wings black, with the extremity yellow | <i>niger</i> , sp. n. |
| Smaller, more or less metallic species | 4. |
| 4. Slender species; wings fasciate; antennæ short | <i>baliopterus</i> , Loew. |
| Moderately elongate species; antennæ not unusually short; wings not fasciate | ? <i>gracilis</i> , Bigot. |
| 5. Legs black; abdomen broad and flattened | 6. |
| Legs yellow; hind tibiæ dilated and ciliated; abdomen yellowish- red; wings hyaline | Sp. (no. 5). |
| 6. Third joint of antennæ large, elongate, falcate | <i>falcatus</i> , Willist. |
| Third joint of antennæ not markedly enlarged at the base | Sp. (no. 6). |

1. *Microdon aurifex*. (Tab. I. figg. 2, ♂; 2 a, head.)

Microdon aurifex, Wiedem. Aussereur. zweifl. Ins. ii. p. 85¹; Willist. Synopsis N.-Am. Syrphidæ, p. 9^{2*}.

Aphritis aurifex, Macq. Dipt. Exot. ii. 2, p. 11, t. 2. f. 2³.

Microdon trochilus, Walker, Ins. Saunders., Dipt. p. 216⁴.

? *Microdon*, sp., Willist. Trans. Am. Ent. Soc. xv. p. 258⁵.

Hab. MEXICO⁴, Omilteme 8000 feet, Xucumanatlan 7000 feet, Cuernavaca (*H. H. Smith*), Isthmus of Tehuantepec².—BRAZIL^{1 5}, Pará³.

* Bull. U.S. Nat. Mus. no. 31 (1886).

The specimens captured by Mr. Smith, all of which are males, agree with the one described by me from the Isthmus of Tehuantepec; I would amend the description of that, however, by calling only the tarsi black, and the femora and tibiæ deep blue. In all the examples before me the posterior part of the abdomen is coppery-red: in three of them strongly so. In the specimen with the less cupreous abdomen the thorax is of a deep purple colour. Wiedemann's description does not apply quite so well as that of Macquart. There are either a number of closely allied species or well-marked varieties of the same species, and some doubt of the identity must remain till specimens quite alike are compared from Brazil and Central America. Whether the example from Brazil with yellow tibiæ mentioned by me⁵ is of this species, I am, after comparison of the specimens, unable to say. It is quite certain that this is Walker's *M. trochilus*.

2. *Microdon gracilis*.

Microdon gracile, Bigot, Ann. Soc. Ent. Fr. 1883, p. 320¹.

Hab. MEXICO¹, Orizaba (*H. H. Smith and F. D. Godman*).

Bigot's inadequate description will not permit any certainty in the determination, but it seems not impossible that the single specimen before me belongs to this species. There is a discrepancy between the diagnosis and description, as regards the antennæ. Our specimen has the antennæ elongate, black; the face with light yellow pile above and on the sides; the front with black pile, and its least width (male) scarcely less than the distance from the foremost ocellus to the antennæ. The scutellum has two stout, moderately approximated, spines. The femora, and terminal joints of the tarsi, are black. The wings have the cross-veins narrowly clouded, but I do not see "deux petites macules diffuses, brunâtres, au bord externe."

3. *Microdon baliopterus*.

Microdon baliopterus, Loew, Centur. x. no. 56, in Berl. ent. Zeitschr. 1872, p. 86¹; Willist. Synopsis N.-Am. Syrphidæ, p. 5, t. 1. f. 2².

Hab. UNITED STATES, Texas^{1 2}.—MEXICO, Amula in Guerrero 6000 feet, Teapa in Tabasco (*H. H. Smith*), Temax in Northern Yucatan (*Gaumer*).

The antennæ vary in colour from red to black, and the tip of the abdomen is more or less reddish.

4. *Microdon falcatus*.

Microdon falcatus, Willist. Synopsis N.-Am. Syrphidæ, p. 9¹.

Hab. MEXICO, Tierra Colorada in Guerrero 2000 feet (*H. H. Smith*), Isthmus of Tehuantepec¹.

I am not able to compare the type-specimen, and cannot say with certainty that my

determination is correct, inasmuch as the abdomen is nearly black, save upon the margins, and not "red or brownish-red." The mesonotum, moreover, has the "coalescent stripes" united. The Guerrero example agrees with the description otherwise, and especially does it agree with my recollection of the antennæ, which have a peculiar basal dilatation of the third joint. The scutellum is nearly triangular.

5. *Microdon* — ?

Hab. PANAMA, Taboga Island (*Champion*).

A single male specimen, without head. The mesonotum is reddish-yellow, with a black disc, the moderately elongate abdomen red, the legs yellow, with the tip of the hind tibiæ and the hind tarsi, in part, brownish; the hind tibiæ are dilated and ciliated. The wings are small and nearly hyaline. It may belong to the species mentioned by me in my Synopsis, p. 8.

6. *Microdon* — ?

Hab. GUATEMALA, San Gerónimo (*Champion*).

A female specimen, which resembles structurally *M. falcatus*; but it has the third antennal joint regular, and the scutellum less triangular in shape, the emargination more distinct. The colour is light translucent yellow, the antennæ and legs black; the wings are strongly pubescent, and the mesonotum has three coalescent black stripes.

7. *Microdon niger*, sp. n., ♂. (Tab. I. figg. 3, ♂; 3 a, head.)

Face rusty-black, with rusty and white pile, not at all shining; front black, not shining, except about the antennæ, its least width about four-fifths of the distance from the foremost ocellus to the antennæ. Antennæ black, the first joint slightly reddish; elongate, slender, the third joint cylindrical, and a little longer than the first two joints together. Eyes bare. Thorax and abdomen deep, opaque, brownish-black, finely roughened, bare. Scutellum with two rather small points. Abdomen narrowed, elongate, the second segment the widest, thence gently tapering; fourth segment about as long as the first three segments together. Pleuræ and the stout legs deep brown. Wings dark blackish-brown; the distal fourth yellowish-white, with light-coloured veins, the extreme tip clouded; terminal section of the fourth vein and the posterior cross-vein without stumps.

Length 14 millim., of the antennæ $3\frac{1}{2}$ millim.

Hab. MEXICO, Panima in Vera Paz (*Champion*).

One specimen. This species, like its congener *M. mirabilis*, Willist., is remarkable for its black and light yellow wings. It is not impossible that, as in *M. mirabilis*, the two sexes may differ in the wing-markings.

CHRYSOTOXUM.

Chrysotoxum, Meigen, in Illiger's Magazin, ii. p. 275 (1803).

1. *Chrysotoxum integræ*.

Chrysotoxum integræ, Willist. Synopsis N.-Am. Syrphidæ, p. 16¹.

Hab. UNITED STATES, Arizona¹.—MEXICO, Northern Sonora (*Morrison*).

Two specimens from Sonora, male and female, agree with the description; the black of the fifth abdominal segment is perhaps better described as forming an elongate V-shaped mark.

2. *Chrysotoxum* — ?

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

A single female specimen differs from *C. integræ* in having the first two joints of the antennæ somewhat more elongate, the pile of the abdomen posteriorly longer and denser, the abdomen itself narrower, and with slender and more V-shaped bands; the coalescence of the hind band of the fourth segment with the yellow in front at the middle; and the black of the fifth segment forming two slender, straight, convergent vittulæ.

3. *Chrysotoxum* — ?

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Two specimens, male and female, possibly referable to *C. laterale*, Loew, described from Nebraska. I have never been sure of the identification of Loew's species, and am less so here. The first joint of the antennæ is longer than the second, the white vittulæ of the thorax are not conspicuous, and only the first abdominal fascia is interrupted; the black of the fifth abdominal segment forms an inverted V, not a Y. From *C. ypsilon*, Willist., it may be distinguished by the less divergent rami of the black of the fifth abdominal segment.

PARAGUS.

Paragus, Latreille, Hist. Nat. Crust. et Ins. xiv. p. 359 (1805).

1. *Paragus dimidiatus*.

Paragus dimidiatus, Loew, Centur. iv. no. 63, in Berl. ent. Zeitschr. 1863, p. 308¹; Willist. Synopsis N.-Am. Syrphidæ, p. 20 (translation).

Hab. UNITED STATES, District of Columbia¹.—MEXICO, Northern Sonora (*Morrison*), Ciudad in Durango 8100 feet (*Forrer*), Amula in Guerrero 6000 feet (*H. H. Smith*).

Three specimens, agreeing well with Loew's description of *P. dimidiatus*; it is perhaps not really distinct from *P. tibialis*.

NAUSIGASTER.

Nausigaster, Williston, Trans. Am. Ent. Soc. xi. p. 33 (1883); Synopsis N.-Am. Syrphidæ, p. 21 (1886).

1. *Nausigaster punctulata*.

Nausigaster punctulata, Willist. Trans. Am. Ent. Soc. xi. p. 34, t. 2. f. 15¹, & xv. p. 259²; Synopsis N.-Am. Syrphidæ, p. 21, t. 1. figg. 10, 10a³.

Hab. UNITED STATES, California³, New Mexico^{1 3}.—MEXICO³, Isthmus of Tehuantepec³.—BRAZIL, Chapada².

I have seen but a single specimen of this insect from Central America, the one mentioned in my Synopsis, p. 22, and this differs very much in the markings of the wings from the typical ones from the United States. The example from Brazil, examined by me, is quite like the Central-American one, and I am, more than ever, of the opinion that the form is distinct from the more northern one.

PIPIZA.

Pipiza, Fallén, Dipt. Svec., Syrph. p. 58 (1816).

Heringia, Rondani, Dipt. Ital. Prodr. i. p. 53 (1856).

Pipizella, Rondani, Dipt. Ital. Prodr. ii. p. 185 (1857).

Cnemodon, Egger, Verh. zool.-bot. Ges. Wien, xv. p. 573 (1865).

Penium, Philippi, Verh. zool.-bot. Ges. Wien, xv. p. 741 (1865).

1. *Pipiza* (*Heringia*) — ?

Antennæ reddish-black, the first joint yellow. Face shining greenish-black, with yellowish pile. Frontal triangle on the upper part opaque black, with erect black pile; below like the face. Eyes black-pilose. Mesonotum brownish or bronze-black, but little shining, with yellowish pile. Abdomen opaque black, shining metallic on the sides; pile very short. Legs black; first two joints of the four anterior tarsi and the tip of the hind metatarsi and the two following joints light yellow; hind metatarsi thickened; hind femora with long white pile; hind tibiæ densely black-ciliate behind. Wings subhyaline, the stigma yellow.

Length 6 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

One specimen.

This species is very similar in structure to *P. pulchella*, Willist., Synopsis N.-Am. Syrphidæ, p. 29, t. 2. figg. 1, 1 a, 1 b. The ultimate section of the fourth vein is bent, not broken, and there is no groove at the tip of the scutellum. The auxiliary vein, moreover, terminates distinctly beyond the anterior cross-vein.

2. *Pipiza* (*Pipizella*) *bellula*, sp. n., ♂.

Antennæ elongate; wings with a brownish spot, the last section of the fourth vein nearly straight; legs black. Eyes light-pilose. Frontal triangle shining metallic black, with erect black pile; face shining black, with black pile, in profile with a slight convexity above the middle. Antennæ black; third joint fully twice

as long as wide, shorter than the first two joints together. Mesonotum and scutellum shining bronze-black, with light-coloured pile; scutellum with a slender groove before its tip. Abdomen shining bronze, rather thickly yellow-pilose; second segment, except the sides, and a large spot on the third, opaque black. Legs black, all the femora more or less shining metallic above; pile white; the articulations of the tarsi somewhat reddish. Wings broadly clouded distally; a large, diffuse, brownish spot in the middle; posterior cross-vein and the last section of the fourth vein oblique, nearly straight.

Length 8 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

Three specimens.

This species is a *Pipizella* in its narrowest sense, that is, it has the auxiliary vein terminating before the anterior cross-vein.

CHRYSOGASTER.

Chrysogaster, Meigen, in Illiger's Magazin, ii. p. 274 (1803).

Orthonевра, Macquart, Hist. Nat. Ins., Dipt. (Suites à Buffon), i. p. 563 (1834).

Campeneura, Rondani, Dipt. Ital. Prodr. ii. p. 163 (1857).

Cryptineura, Bigot, Rev. et Mag. Zool. 1859, p. 308.

1. *Chrysogaster nitida*.

Chrysogaster nitidus, Wiedem. Aussereur. zweifl. Ins. ii. p. 116¹.

Orthonевра nitida, Schiner, Reise der Novara, Dipt. p. 368².

Chrysogaster nitida, Willist. Synopsis N.-Am. Syrphidæ, p. 35, t. 2. figg. 7, 7 a³.

Cryptineura hieroglyphica, Bigot, Rev. et Mag. Zool. 1859, p. 308⁴.

Orthonевра hieroglyphica, Loew, Centur. iv. no. 58, nota, in Berl. ent. Zeitschr. 1863, p. 306⁵.

Hab. NORTH AMERICA¹, New England³, Pennsylvania³, Virginia³, South Carolina³, Kansas³, New Orleans⁴. — MEXICO, Amula, Vera Cruz (*H. H. Smith*). — SOUTH AMERICA².

Two specimens from Mexico, agreeing in all respects with others from the eastern United States.

2. *Chrysogaster bellula*.

Chrysogaster bellulus, Willist. Trans. Am. Phil. Soc. xx. p. 304¹.

Chrysogaster bellula, Willist. Synopsis N.-Am. Syrphidæ, p. 36, t. 2. figg. 6, 6 a².

Hab. UNITED STATES, Washington², California^{1 2}, Colorado^{1 2}. — MEXICO, Ciudad in Durango 8100 feet (*Forrer*), Patzcuaro (*F. D. Godman*).

This species may be easily confounded with *C. nitida*. In addition to the differences in the length of the second antennal joint, and in the facial profile, there is a distinctive character to be found in the markings of the eye. In *C. nitida* the lines are labyrinthine above as well as below the subhorizontal line; in *C. bellula*, on the contrary, the two lines running to the orbital margin are parallel and only gently curved.

CHILOSIA.

Cheilosia, Meigen, Syst. Besch. iii. p. 296 (1822).

Cartosyrphus, Bigot, Ann. Soc. Ent. Fr. 1883, p. 230.

Synopsis of the Central-American species.

- | | |
|--|-------------------------------|
| 1. Eyes hairy | 2. |
| Eyes bare | 3. |
| 2. Shining bronze, with abundant golden pile | <i>chrysochlamys</i> , sp. n. |
| Shining green, with sparse, lighter pile | <i>sororia</i> , sp. n. |
| 3. Mesonotum shining black | <i>sororcula</i> , sp. n. |
| Mesonotum and abdomen opaque black | <i>frontosa</i> , Bigot. |

1. ***Chilosia chrysochlamys***, sp. n., ♂ ♀. (Tab. I. figg. 4, ♀; 4 a, head.)

Male. Eyes with long, light pile, broadly contiguous. Frontal triangle not swollen, thinly pollinose, and with yellow pile and a slender median groove. Antennæ red, the first two joints darker; third joint rounded, not large; arista black, bare. Face shining black, bare, save on the outer side of the well-marked lateral grooves; whitish-pollinose above and on the orbits; in profile, the well-developed tubercle not projecting beyond the base of the antennæ. Mesonotum shining bronze, with long, reddish-yellow pile. Scutellum similarly coloured and pilose; without bristles. Abdomen shining bronze, like the mesonotum; first segment subshining green; second segment, except the sides and narrow hind margin, opaque black; third segment with a large opaque triangle; pile long, abundant (especially posteriorly), semi-recumbent, golden-yellow; on the sides in front white. Venter subshining, black, with yellowish hind margins to the segments; pile white and light yellowish. Tegulæ white, light yellow-ciliate. Legs black, white-pilose; base and tip of all the tibiæ, and the articulations of the anterior tarsi more or less red. Wings tinged with yellowish and brownish.

Female. Front subshining, with lateral grooves and yellow pile; third joint of antennæ a little larger, subquadrate; facial tubercle more prominent. Abdomen more oval, wholly shining bronze, except the first segment; and with abundant, recumbent, golden pile, as in the male.

Length 12 millim.

Hab. MEXICO, Omilteme 8000 feet, Sierra de las Aguas Escondidas 9500 feet, both in Guerrero (*H. H. Smith*).

Five specimens.

The only North-American species with which this may be confounded is *C. lasioophthalma*, Willist., from which the facial profile, opacity of the male abdomen, and the long yellow abdominal pile will at once distinguish it.

2. ***Chilosia sororia***, sp. n., ♀.

Eyes clothed with a short, sparse pile. Front shining metallic, yellowish-pollinose and with yellowish pile; a distinct groove on either side. Antennæ red; arista black, bare. Face shining black, bare, save on the narrow orbits; whitish-pollinose above; in profile with a strongly protuberant tubercle projecting beyond the base of the antennæ. Mesonotum shining metallic green, with bronze reflections; pile short, sparse, yellowish. Scutellum without bristles. Pleuræ with white pile. Abdomen shining metallic, with yellowish or whitish pile. Legs with white pile; femora, except the tips, black; for the rest the legs are yellowish-red, except the tips of the tarsi, which are somewhat blackish. Wings greyish-, or slightly yellowish-, hyaline.

Length 8-9 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Two specimens.

This species is distinguishable from *C. petulca*, Willist., by the absence of bristles on the scutellum; from *C. baroni*, Willist., by the red antennæ and metallic coloration; from *C. occidentalis*, Willist., and *C. hoodiensis*, Bigot, by the light-coloured pile of the mesonotum; and from *C. lasiophthalma*, Willist., by the facial profile.

3. *Chilosia sororcula*, sp. n., ♂.

Eyes bare. Frontal triangle not swollen, shining black, with an impressed line and black pile. Antennæ red; third joint rounded, not large; arista pubescent. Face shining black, bare, save on the narrow orbits; whitish-pollinose, very thin below, more thickly near the antennæ; facial tubercle not more protuberant than the antennal tubercle. Mesonotum and scutellum deep shining black, with abundant black pile; the margin of the scutellum with longer hairs, scarcely differentiated as bristles; pleuræ with white pile. Abdomen shining, somewhat metallic, black, with white and dusky pile; second segment, except the small front angles and the narrow hind margin, and the third segment, save a large, triangular lateral spot and the narrow hind margin, opaque black. Legs black, with white pile; the tibiæ and the four anterior tarsi largely luteous-yellow. Wings greyish- or yellowish-hyaline; stigma pale yellow.

Length 6-9 millim.

Hab. MEXICO, Omilteme 8000 feet, Xucumanatlan 7000 feet, Sierra de las Aguas Escondidas 7000 feet, all in Guerrero (*H. H. Smith*).

This species may be easily distinguished from all other known American *Chilosia*; it is nearest related to *C. versipellis*, Willist.

4. *Chilosia frontosa*.

Cartosyrphus frontosus, Bigot, Ann. Soc. Ent. Fr. 1883, p. 553¹.

Hab. MEXICO¹.

MELANOSTOMA.

Melanostoma, Schiner, Wien. ent. Monatschr. iv. p. 213 (1860).

Synopsis of the recognized Central-American species.

1. Tibiæ of the males on the outer side with long hairs; pollen of the face with the ground-colour showing through in dots or ripples 2.
- Tibiæ of the males without such hairs or bristles; pollen of the face not dotted or rippled 3.
2. Face moderately projecting below, in profile distinctly receding below the tubercle *stegnum*, Say.
- Face markedly projecting below, not receding below the tubercle *fenestratum*, Macq.
3. Abdomen with yellow or yellowish markings 4.

- Abdomen without yellow markings; face in the middle with three or four parallel, transverse, delicate grooves. . . . 7.
4. Large species; abdomen oval, with four yellow spots in the male, and two smaller additional ones in the female . . . *bucephalus*, Wiedem. ~~*Xanthochrous*~~
- Species of smaller or ordinary size and elongate form . . . 5.
5. Antennæ elongated and separated at their base *catabombum*, sp. n.
- Antennæ short, the first joint not so long as the second; antennæ more nearly contiguous at their base 6.
6. Face lightly and uniformly pollinose *mellinum*, (Linn.)
- Face, on the sides and the lower part of the front, covered with dense yellow pollen ? *pruinoseum*, Bigot.
7. Antennæ black; abdomen mostly opaque black *melanocerum*, sp. n.
- Antennæ more or less yellowish; abdomen largely shining 8.
8. First joint of the antennæ not longer than the second *rugosonasmus*, sp. n.
- First joint of the antennæ as long as the other two joints together; wings with narrow brown clouds on the cross-veins *crenulatum*, sp. n.

1. *Melanostoma stegnum*.

Syrphus stegnus, Say, Journ. Acad. Phil. vi. p. 163¹; Complete Writings, ii. p. 358.

Melanostoma tigrina, Osten Sacken, Western Dipt., in Bull. U.S. Geol. & Geogr. Survey, iii. p. 323².

Melanostoma tigrinum, Willist. Synopsis N.-Am. Syrphidæ, p. 47, t. 3. f. 8³.

Hab. UNITED STATES, Washington³, California^{2,3}, Colorado³, Kansas, Arizona³.—MEXICO¹, Omilteme 8000 feet, Amula 6000 feet, Sierra de las Aguas Escondidas 7000 feet, all in Guerrero (*H. H. Smith*), Ciudad in Durango 8100 feet (*Forrer*), Orizaba (*H. H. Smith and F. D. Godman*).

Numerous examples. The males agree quite with specimens from the United States. The female, hitherto unknown, has the front broad above, pollinose, except on the upper part, and with black pile; the thorax more shining metallic blue; the tibiæ yellow; and on both the third and fourth abdominal segments there is a narrow shining stripe, bisecting the black, as in the fourth segment of the male. The male has some long black hairs on the outer side of the front and middle tibiæ, which are inconspicuous in the female. It is evident, from the light colour of the tibiæ, that Say's specimens were females.

2. *Melanostoma fenestratum*.

Syrphus fenestratus, Macq. Dipt. Exot. ii. 2, p. 103, t. 17. f. 6¹; Blanchard, in Gay's Hist. fis. y polit. de Chile, vii. p. 413²; Philippi, Verh. zool.-bot. Ges. Wien, xv. p. 746³.

Melanostoma fenestrata, Schiner, Reise der Novara, Diptera, p. 351⁴.

Hab. MEXICO, Omilteme 8000 feet (*H. H. Smith*), Ciudad in Durango 8100 feet (*Forrer*).—SOUTH AMERICA⁴, Chili^{1,2,3}.

I have not seen other specimens of this species, yet it seems probable that my determination is correct. At all events, the species seems to be the same as, or very closely allied to, the one described by Schiner under the name of *M. fenestratum*, from South America, the only discrepancy being in the pollen of the face, which is not "schwarz punktirt," but has elongate, ripple-like markings. The black of the third, or third and fourth abdominal segments is bisected, as in *M. stegnum*. The species forms, with *M. obscurum*, Say, *M. stegnum*, Say, and *M. punctulatum*, v. d. Wulp, a natural group, that might justly receive a generic name.

3. *Melanostoma bucephalus*.

Syrphus bucephalus, Wiedem. Aussereur. zweifl. Ins. ii. p. 126¹.

Melanostoma bucephalus, Willist. Trans. Am. Ent. Soc. xv. p. 264².

Hab. MEXICO, Amula 6000 feet, Xucumanatlan 7000 feet, Venta de Zopilote 2800 feet, Omilteme 8000 feet, all in Guerrero (*H. H. Smith*).—BRAZIL¹, Chapada².

Fourteen specimens. I have compared them with others from Chapada, Brazil, and find no differences. *M. euceratum*, Bigot, seems to be an allied species. *M. bucephalus*, as Wiedemann remarks¹, is allied to *M. hyalinatum* from Europe.

4. *Melanostoma mellinum*.

Musca mellina, Linn. Faun. Suec. p. 1821¹.

Melanostoma mellinum, Willist. Synopsis N.-Am. Syrphidæ, p. 49, t. 3. f. 9^{2*}.

Syrphus melliturgus, Meigen, Syst. Besch. iii. p. 329³; Macq. Dipt. Exot. 4^e Suppl. p. 152⁴.

Melanostoma (?) *cruciata*, Bigot, Ann. Soc. Ent. Fr. 1884, p. 81⁵.

Hab. EUROPE (*auct.*).—UNITED STATES, New England, Kansas, and Pacific States².—MEXICO⁵ (*H. H. Smith, Forrer*).—SOUTH AMERICA^{3 4}.

I have carefully compared the numerous Mexican specimens with others from the eastern United States, and find no differences, except minor colorational ones. I have little doubt of the synonymy of *M. cruciatum*, Bigot, notwithstanding the "thorax, écusson, presque noirs et luisants" and the small size.

5. *Melanostoma pruinsum*.

? *Melanostoma* (?) *pruinosa*, Bigot, Ann. Soc. Ent. Fr. 1884, p. 79¹.

Hab. UNITED STATES, California¹.—MEXICO, Sierra de las Aguas Escondidas 7000 feet (*H. H. Smith*).

A single, female, specimen. In such species as this, Bigot's descriptions are usually too vague for one to feel any degree of certainty in their determination. The Mexican insect may be thus described:—

* For fuller synonymy, see Willist. *loc. cit.*

Female. Closely allied to *M. mellinum*. Face on the sides densely yellow-pollinose, leaving a median stripe and the cheeks shining black, and extending on the front to an opaque black cross-band below the ocelli; the space immediately about the ocelli shining. Antennæ yellow, the third joint blackish above. Mesonotum brown, but little shining. Scutellum metallic green, shining. Abdomen subopaque, black, the first segment somewhat shining; second segment with a slender oblique spot, connected with the lateral margin; the third and fourth segments each with a pair of right-angled triangular spots, their apex directed backward, and that of the fourth connected with the lateral margins, and the fifth segment with a small triangular spot on each side in front, yellow. Legs yellow, the hind tarsi a little infuscated; hind metatarsi elongate, but scarcely thickened. Wings tinged with yellowish, and narrowly, but distinctly, clouded with blackish at the extremity.

Length 7 millim.

6. *Melanostoma catabombum*, sp. n., ♂ ♀.

Male. Sides of the frontal triangle and of the face thickly covered with uniform yellow pollen, leaving a spot in the middle above the antennæ and a broad median stripe below shining, somewhat metallic black; cheeks more or less shining. Antennæ red, the third joint largely blackish above; first joint about as long as the oval third joint, distinctly longer than the second. Frontal triangle with black pile. Mesonotum and scutellum shining bronze, with yellowish pile; pleuræ of a similar colour in the middle, more steel-blue below. Abdomen rather narrow, its greatest width at the distal end of the third segment; opaque black; the first segment and the hypopygium shining metallic; second segment on the lateral margin in front metallic; third and fourth segments each with a pair of moderately large, rounded yellow spots on the anterior part, touching the lateral margin; pile along the sides anteriorly long and light yellow. Legs yellow; four front femora towards their base somewhat brownish; four front tarsi, except part or all of the basal joint, blackish; hind legs brown, the tarsi black, the base of the tibiæ and the metatarsi yellow. Wings nearly hyaline; the stigma brown, a narrow cloud at the tip in front blackish.

Length 10-11 millim.

Female. Front and sides of the face whitish-pollinose; on the upper part of the former, below the ocelli, an opaque black cross-band, with a point projecting downwards in the middle. Thorax and scutellum moderately shining, greenish-blue; the mesonotum with three darker stripes, of which the median one is linear. Abdomen subopaque, black, the first and last segments more shining; the oval spots of the third and fourth segments not touching the lateral margin; the second segment with a yellow spot on each side in front.

Length 8-9 millim.

Hab. MEXICO, Omilteme 8000 feet, Amula 6000 feet, both in Guerrero (*H. H. Smith*).

Six males and three females.

I am not quite sure that these females belong to the males here described, by reason of their smaller size; they agree structurally, however, throughout.

7. *Melanostoma crenulatum*, sp. n., ♂ ♀. (Tab. I. figg. 5, ♀; 5 a, head in profile; 5 b, head from in front.)

Male. Allied to *M. scitulum*, Willist., but with the first joint of the antennæ as long as the other two joints together. Frontal triangle opaque black above, shining below, with black pile. Antennæ elongate, slender, remote at their base; first joint as long as the following two joints together, yellowish or reddish; second and third joints of about equal length; third joint black, more than twice as long as wide, obtusely pointed. Face shining black; running from the inner side of each antenna, with a gentle outward curve, to the oral margin, is a slender white line of pollen; running transversely across the space contained within these lines are three or four narrow, shallow, grooves; three small spots of white pollen along the orbital margin, the lowest one extended diffusely to the oral margin. Mesonotum moderately shining,

dark bronze, with three ill-defined stripes; pile yellow; pleuræ and scutellum more steel-blue. Abdomen shining, subopaque, brownish-black, the first segment and the anterior angles of the following ones shining metallic. Legs black; tips of the femora, the four anterior tibiæ, the base of the hind tibiæ, all the metatarsi, and the second joint of the four posterior tarsi, yellow, the remainder of the tarsi brown or blackish; hind metatarsi elongate, but not thickened. Wings nearly hyaline; stigma elongate, yellow; narrow brown clouds on the anterior cross-vein and across from the origin of the third vein to the vein at the base of the last posterior cell.

Female. Front subshining, black or steel-blue, with an opaque black cross-band above composed of two coalescent oval spots. Mesonotum black or bluish-black. Abdomen black or bluish-black, with a large opaque or subopaque triangle on the second segment.

Length 8-9 millim.

Hab. MEXICO, Xucumanatlan 7000 feet, Omilteme 8000 feet, both in Guerrero (*H. H. Smith*).

Fifteen examples. This species is very much like *M. scitulum*, Willist., in structure, differing chiefly in the more elongate first antennal joint. The markings of the face and wings are quite similar, as are the facial grooves. In immature specimens the second abdominal segment may be largely yellowish at the base.

8. *Melanostoma rugosonatus*, sp. n., ♀.

Front, below, moderately shining, submetallic black; above, with a black opaque cross-band below the ocelli. Antennæ red, the upper part of the third joint blackish; first two joints of about equal length, the third joint as long as the first two together, about twice as long as broad. Face shining black, partly concealed beneath whitish pollen, which, on the sides, is faintly striate; in the middle, with five, well-marked, slender transverse grooves. Mesonotum moderately shining, brownish-steel-blue, with three darker, not conspicuous, stripes; scutellum steel-blue. Abdomen shining metallic bluish; second, third, and fourth segments each with a posterior black band, extending more or less forward in the middle. Legs: first two pairs reddish- or brownish-yellow, with the base of the femora and the tarsi blackish; hind femora black; hind tibiæ and tarsi brown, except the base of the former, which is reddish-yellow; hind metatarsi elongate. Wings tinged with yellowish; stigma yellow.

Length 9 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

A second specimen, from Xucumanatlan, differs in having fewer transverse wrinkles on the face; the face in profile very gently concave below the antennæ (instead of straight); the abdomen more uniformly black, and not distinctly banded; the legs black and brown, with the knees and the base of the tibiæ yellow; and the wings with a large brownish spot; I am inclined to think that it belongs to a distinct species.

9. *Melanostoma melanocerum*, sp. n., ♀.

Front opaque black above, black-pilose. Antennæ black, the third joint slightly reddish below; third joint oval, about as long as the first two joints together. Face shining black, on the sides with a broad stripe of pollen running from the orbit to the oral margin; in the middle with four parallel grooves. Mesonotum black, with a slight bronze reflection, but little shining. Abdomen opaque black, the anterior angles of the third and fourth segments somewhat reddish. Legs black, the distal end of the four anterior femora,

their tibiae and the basal joints of their tarsi, and the extreme base of the hind tibiae, reddish-yellow.
Wings tinged with yellowish; stigma yellow.

Length 9 millim.

Hab. COSTA RICA, Rio Sucio (*Rogers*).

Two specimens.

The following species described by M. Bigot are unknown to me:—

Melanostoma (?) *anthracoides*, Bigot, Ann. Soc. Ent. Fr. 1884, p. 82.—Panama.

— (?) *annuliferum*, Bigot, loc. cit. p. 84.—Mexico.

— (?) *quadrinotatum*, Bigot, loc. cit. p. 77.—Mexico.

— *cyaneocinctum*, Bigot, loc. cit. 1885, p. 251.—Mexico.

As regards *M. anthracoides*, the yellow scutellum and coloured wings render the location in this genus doubtful; it is, more likely, an *Ocyptamus*. *M. annuliferum* cannot be a *Melanostoma*. *M. quadrinotatum* is apparently a true *Melanostoma*, but I do not recognize it amongst our specimens; there is a discrepancy of importance between the diagnosis and the description.

EUPEODES.

Eupeodes, Osten Sacken, Western Dipt., in Bull. U.S. Geol. & Geogr. Survey, iii. p. 328 (1877).

1. *Eupeodes volucris*.

Eupeodes volucris, Osten Sacken, Western Dipt., in Bull. U.S. Geol. & Geogr. Survey, iii. p. 329¹;

Willist. Synopsis N.-Am. Syrphidæ, p. 65, t. 3. figg. 14, 14 a².

Syrphus perpallidus, Bigot, Ann. Soc. Ent. Fr. 1884, p. 90³.

Hab. NORTH AMERICA³, Washington², California^{1 2}, Nevada^{1 2}, Utah^{1 2}, Kansas², Colorado^{1 2}, New Mexico², Arizona².—MEXICO, Northern Sonora (*Morrison*), Mexico City (*H. H. Smith*).

SYRPHUS.

Syrphus, Fabricius, Syst. Ent. p. 762 (1775).

Scæva, Fabricius, Syst. Antl. p. 248 (1805).

Ischyrosyrphus, Bigot, Bull. Soc. Ent. Fr. p. lxxviii (1882).

Syrphus, as now restricted, is, I believe, pre-eminently a European and North-American genus. Many species have been described from South America, but I believe they will be mostly found of heterogeneous forms when they shall have been studied in the light of modern dipterology. I am acquainted with several species which have to be placed in the genus at present, though wanting in the homogeneity that characterizes most of those now placed there. I have, however, seen a *Syrphus*, in the

strictest sense, from Brazil. In the present collections there are representatives of nine species, some of them identical with those of the United States. It is of interest to note that all the Central-American specimens of typical *Syrphus* are from a considerable altitude. Both the species of the nearly allied genus *Didea*, hereinafter mentioned, are likewise from the "tierra templada."

Synopsis of the Central-American species.

- | | |
|---|------------------------------------|
| 1. Three principal bands of the abdomen entire | <i>americanus</i> , Wiedem. (♀). |
| Three principal bands of the abdomen interrupted; eyes bare | 2. |
| First cross-band interrupted, the others entire | 4. |
| 2. Elongate species; face in profile not prominent below, narrowed below; cheeks very narrow; abdominal spots small, round. | Sp. (no. 8). = <i>notatus</i> Coq. |
| Abdomen oval; face prominent below | 3. |
| 3. Face without black stripe | <i>eupeltatus</i> , Bigot. |
| Face with a black stripe | Sp. (no. 4). p. 16 |
| 4. Eyes pilose; second and third abdominal bands bilaterally oblique, and all separated from the lateral margin | <i>lotus</i> , Willist. |
| Eyes bare | 5. |
| 5. Femora yellow at the base; abdomen elongate, narrow; second, third, and fourth segments each with a slender, triangular, lateral, anterior spot and a complete band, the latter with its posterior margins bilaterally oblique | <i>decipiens</i> , sp. n. |
| Femora black or blackish at the base; abdomen with three simple bands | 6. |
| 6. The second and third abdominal bands not quite reaching the margin | <i>americanus</i> , Wiedem. (♂). |
| The second and third abdominal bands reaching quite to the margin | 7. |
| 7. Bands straight, not emarginate behind, attaining the lateral margins in their full width; abdomen with subparallel sides | <i>diversus</i> , sp. n. |
| Bands more or less sinuous or emarginate, or attenuated before reaching the lateral margins | 8. |
| 8. Third joint of antennæ rounded | <i>ribesii</i> , Linn. |
| Third antennal joint elongate, straight on the upper border, and obtusely pointed; hind metatarsi yellow | <i>bisinuatus</i> , sp. n. |

1. *Syrphus americanus*.

Syrphus americanus, Wiedem. Aussereur. zweifl. Ins. ii. p. 129¹; Osten Sacken, Proc. Bost. Soc. Nat. Hist. xviii. 145²; Willist. Synopsis N.-Am. Syrphidæ, p. 82³.

Hab. NORTH AMERICA¹, British Possessions^{2,3}, Montana³, New England^{2,3}, New York², Delaware², Virginia², Michigan², Texas².—MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Two specimens, male and female, agreeing quite with others from the eastern United States.

2. *Syrphus lotus*.

Syrphus lotus, Willist. Synopsis N.-Am. Syrphidæ, p. 75¹.

Hab. UNITED STATES, Arizona¹.—MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Two female specimens, agreeing well with the description.

3. *Syrphus eupeltatus*.

Syrphus eupeltatus, Bigot, Ann. Soc. Ent. Fr. 1884, p. 91¹.

Hab. MEXICO¹, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

I feel pretty sure of the identification of this species, notwithstanding that the thorax is not "noir," but dark olivaceous-green, and not shining. The face is unusually prominent, the upper oral margin projecting even beyond the large rectangular tubercle. The author makes no mention of this, the most striking characteristic of the species; still the identity is not doubtful. Eight specimens.

4. *Syrphus* — ?

Saussurii Giphio-Tos

Hab. GUATEMALA, San Gerónimo (*Champion*).

Quite like *S. eupeltatus* in structure, but with a large black spot in the frontal triangle, a broad black facial stripe, and a darker mesonotum, with less yellow on the margins; the pleuræ are shining blue-black (instead of chiefly yellow), the legs are browner, and the size is smaller (about 10 millim.).

5. *Syrphus diversus*, sp. n., ♂ ♀. (Tab. I. figg. 6, ♀; 6 a, head.)

Male. Face light amber-yellow, golden-pollinose on the sides, clothed, like the front, with black pile. Frontal triangle large, not shining; blackish above, below with a small, rounded, shining black spot. Vertical triangle small, black. Antennæ small, red; third joint blackish above, orbicular. Eyes bare. Mesonotum opaque dark olivaceous-green, with light-coloured pile; a spot at the outer end of the suture and the postalar callosities yellow. Scutellum light yellow, with black pile. Pleuræ subshining blue-black, yellowish in the middle, and with yellow pile. Abdomen with nearly parallel sides, opaque black; first segment small, shining, yellow at the sides; second segment with two large triangular yellow spots, leaving a moderately broad interval between the points; the three following segments each with a moderately broad, gently arcuate yellow band, situated towards the front, not interrupted or emarginate, and attaining the margins in their full or increased width; pile black. Legs black, the coxæ, the distal portion of the four anterior femora, the hind knees, and the broad base of the four anterior tibiæ yellow; the four anterior tibiæ for the rest, and their tarsi, blackish or brownish. Wings clouded with brownish, more deeply so on the anterior border distally.

Female. Front dark opaque olivaceous-green above, with black pile. Fifth abdominal segment two-thirds as long as the fourth; the sixth segment with a small yellow spot on the anterior angles. The four anterior legs yellow, with the base of the femora black, or with a black spot, and the tarsi blackish. Length 11–12 millim.

Hab. MEXICO, Omilteme 8000 feet, Xucumanatlan 7000 feet, both in Guerrero (*H. H. Smith*).

One male, three females.

Nearest allied to *S. diversipes*, Macq.

6. *Syrphus ribesii*.

Musca ribesii, Linn. Fauna Suecica, p. 1816. (For the remainder of synonymy, see Willist. Synopsis N.-Am. Syrphidæ, p. 77¹.)

Hab. EUROPE.—NORTH AMERICA, Atlantic, Middle and Pacific States¹.—MEXICO, Sierra de las Aguas Escondidas in Guerrero 9000 feet (*H. H. Smith*).

A male specimen from Western Mexico presents most of the essential characters of this species, but with certain differences. The pile of the face is black, not yellow, and the yellow spots of the second abdominal segment are distinctly separated from the margin. Length 9 millim. A female specimen from the same locality is a little larger and has the yellow spots of the second segment broadly contiguous with the margin, the femora yellow at the base (the middle femora very narrowly black), the hind femora with a broad brown ring, and the hind tibiæ and tarsi brown. Length 11 millim.

7. *Syrphus bisinuatus*, sp. n., ♀.

Front much narrowed above, shining metallic black near the ocelli and in the middle below, on the sides yellow-pollinose, the black extending to the antennæ; pile black. Antennæ red, the first two joints brownish above; the third joint broadly black on the upper part, in shape obtusely pointed, between two and three times as long as broad, its upper border straight, the lower border convex. Face and cheeks yellow, with yellow pile. Mesonotum opaque olivaceous-green, with yellow pile; scutellum light yellow, with black pile. The yellow spots of the second abdominal segment extend forward to the lateral margin; the bands of the second, third, and fourth segments are not very broad, reaching the lateral margins in their full, or nearly their full, width—on their anterior side convex in the middle, and with a considerable concavity on each side, on their posterior side there is a broad shallow emargination or concavity; fourth segment narrowly yellow behind, forming a band with the yellow of the anterior angles of the fifth segment. Legs light yellow, the narrow base of all the femora black; the hind legs in large part brownish, with the knees broadly, and the base of the metatarsi yellow. Wings hyaline; stigma yellow. Length 10–12 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*); COSTA RICA, Volcan de Irazu 6000 to 7000 feet, Rio Sucio (*Rogers*).

Seven specimens.

8. *Syrphus* — ? , ♂. = *notatus* Coq.

Syrphus gastrotractus, Willist. Trans. Am. Ent. Soc. xv. p. 264 (nec Wiedem.)¹.

Face much narrowed below; light yellow, on the sides opaque white; clothed with white pile. Cheeks very narrow, black. Antennæ black; third joint nearly orbicular. Frontal triangle yellow, with a large triangular black spot, reaching acutely to the suture; clothed with black pile. Eyes bare. Mesonotum anteriorly with a conspicuous light yellow ruff; in colour dark shining bronze, with black pile. Scutellum

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blackish-green, with an oval yellow spot on each lateral margin. A small spot on the outer end of the suture and another on the postalar callus yellow. Pleuræ blue-black, whitish-pollinose. Abdomen narrow, elongate, with nearly parallel sides; the first segment, the margins of the following ones, the fifth segment, and the hypopygium shining black; for the rest opaque black, with three pairs of small yellow spots. Legs: two anterior pairs yellow and brown, the distal three joints of the tarsi blackish; hind pair black, the knees somewhat yellowish, the first three joints of their tarsi light yellow. Wings subhyaline, the costal cell lightly clouded, the subcostal cell brown.

Length 10–11 millim.

Hab. MEXICO, Venta de Zopilote in Guerrero 2800 feet (*H. H. Smith*).—BRAZIL, Chapada¹.

Five specimens.

I have compared these with the ones mentioned by me¹ from Brazil, as perhaps belonging to *S. gastrostactus*, Wiedem., and find them identical. These male specimens bear a remarkable resemblance to the females of *Ocyptamus trigonus*, known only from that sex; and I suspect that they belong to the same species, notwithstanding the marked differences (compare Schiner, *Reise der Novara*, Diptera, p. 347).

9. *Syrphus decipiens*, sp. n., ♂.

Frontal triangle opaque yellowish-green, yellow below; pile black. Antennæ red; third joint orbicular, brownish above. Face and cheeks yellow, the former with yellowish pile and white pollen on the sides. Mesonotum glaucous-green, a little shining, with yellow pile. Scutellum yellow, with long black pile. Abdomen narrow, elongate, with parallel sides; first segment shining blue-black, with the sides yellow; second segment opaque black, the hind margin shining, and before the middle with two yellow triangles meeting at their points in the middle to form a cross-band; third segment with a pair of slender triangles on the front margin, not meeting in the middle, more or less coalescent on the sides with an entire cross-band, the black in front of the cross-band forming a slender crescent—the posterior margins of the yellow band oblique, angulated in the middle, the black behind it as that before, opaque, except on the hind margin; fourth segment similar, the crescent smaller, the angle behind more acute, the shining portion extending forward acutely in the middle; fifth segment with a large yellow spot on each side: hypopygium shining black. Legs yellow; hind femora broadly blackish in the middle; hind tibiæ black, except at the base; distal joints of the hind tarsi blackish. Wings nearly hyaline; costal cell yellow; subcostal cell brown; the costa with a blackish cloud distally.

Length 10–11 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Fifteen specimens.

DIDEA.

Didea, Macquart, *Hist. Nat. Dipt.* i. p. 508 (1834).

Enica, Meigen, *System. Besch.* vii. p. 140 (1838).

1. *Didea laxa*.

Didea laxa, Osten Sacken, *Bull. Buffalo Soc.* iii. p. 66¹; *Cat. Dipt.* 2nd ed. p. 245, note 212; Willist. *Synopsis N.-Am. Syrphidæ*, p. 90, t. 4. figg. 4, 4a².

Hab. UNITED STATES, New Hampshire^{1 2}, Maine¹, Michigan¹, Washington²,

N.B. Unimaculatus was described from ♂ and female specimens of wings!

Oregon², California², New Mexico.—MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

A single female specimen from Guerrero, differing from the more typical examples only in the femora having less black, and the wings being more yellowish.

2. **Didea coquilletti**, sp. n., ♂ ♀. (Tab. I. figg. 9, ♂; 9a, head.)

Eyes bare; third longitudinal vein deeply sinuous. The abdominal bands reach quite to the lateral margins. Face, front, and cheeks wholly light yellow, shining, except the golden-pollinose orbital margins; in the female the upper part of the front blackish, with yellow pollen. Antennæ red; third joint black above, obtusely oval, smaller than in *D. lava*. Mesonotum shining bronze-green, the lateral margins yellow, clothed with yellow pile. Pleuræ chiefly yellow, with yellow pile; for the rest shining blue-black, as is also the pectus. Scutellum translucent yellow, with black pile. Abdomen opaque black, with yellow cross-bands; first band interrupted, the oblique spots reaching the margins broadly; second and third bands narrowed before reaching the margins, emarginate in the middle behind; fifth segment with a yellow band in front. Legs yellow, the tip of the hind metatarsi blackish, the remaining joints black; hind tibiæ sometimes brownish. Wings nearly hyaline; stigma brownish-yellow; third vein strongly curved into the first posterior cell.

Length 9–12 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Three males and three females. Dedicated to Mr. D. W. Coquillett.

ALLOGRAPTA.

Allograpta, Osten Sacken, Bull. Buffalo Soc. iii. pp. 49, 63 (1877).

1. *Allograpta obliqua*.

Scæva obliqua, Say, Journ. Acad. Phil. iii. p. 89¹; Complete Writings, ii. p. 78².

Syrphus obliquus, Say, Amer. Ent. t. 11. fig. 2³; Complete Writings, i. p. 23⁴; Wiedem. Aussereur. zweifl. Ins. ii. p. 138⁵; Schiner, Reise der Novara, Diptera, p. 353⁶.

Allograpta obliqua, Osten Sacken, Bull. Buffalo Soc. iii. p. 49⁷; Cat. Dipt. 2nd ed. p. 126⁸, and note 214; v. d. Wulp, Tijdschr. v. Ent. xxvi. p. 1, t. 1. f. 1⁹; Willist. Synopsis N.-Am. Syrphidæ, p. 96¹⁰.

Syrphus securiferus, Macq. Dipt. Exot. ii. 2, p. 100, t. 16. fig. 10¹¹; 1^{er} Suppl. p. 139¹².

Syrphus bacchides, Walker, List. Dipt. iii. p. 594¹³.

Syrphus signatus, v. d. Wulp, Tijdschr. v. Ent. x. p. 144, t. 4. f. 12¹⁴.

Hab. NORTH AMERICA^{1 3 5 7 8 11 12 14}, Washington¹⁰, New Hampshire¹⁰, Connecticut¹⁰, Colorado¹⁰, Kentucky¹⁰, Florida¹³, California¹⁰.—MEXICO, Amula 6000 feet, Chilpancingo 4600 feet, Xucumanatlan 7000 feet, Cuernavaca (*H. H. Smith*), Mexico city (*H. H. Smith, Schumann*).—SOUTH AMERICA⁶, Argentine Republic⁹.

Fifteen specimens from Mexico, agreeing with others from New England.

2. *Allograpta fracta*. — *exotica*

Allograpta fracta, Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Surv. iii. p. 331¹;
Willist. Synopsis N.-Am. Syrphidæ, p. 97².

? *Allograpta exotica*, v. d. Wulp, Tijdschr. v. Ent. xxvi. p. 2, t. 1. f. 2³ (nec Wiedem.?).

Hab. UNITED STATES, California^{1 2}.—MEXICO, Xucumanatlan 7000 feet, Venta de Zopilote 2800 feet, both in Guerrero (*H. H. Smith*), Ciudad in Durango (*Forrer*).—ANTILLES, Guadaloupe³.

Four specimens from Mexico, differing chiefly from *A. obliqua* in the presence of a deep black facial stripe. The first abdominal segment is as in *A. obliqua*, and the band of the second segment is not interrupted.

3. *Allograpta* — ?

? *Syrphus exoticus*, Wiedem. Aussereur. zweif. Ins. ii. p. 136¹.

Hab. MEXICO, Xucumanatlan 7000 feet, Omilteme 8000 feet, Amula 6000 feet (*H. H. Smith*).—BRAZIL¹.

Differs markedly from the two preceding species in the mesonotum being opaque dark green in both sexes. The black stripe of the face is broader than in *A. fracta*, the hind legs and abdomen darker. The third joint of the antennæ is largely black. Four specimens.

SPHÆROPHORIA.

Sphærophoria, St.-Fargeau & Serville, Encycl. Méthod. x. p. 513 (1825).

Melithreptus, Loew, in Oken's Isis, 1840, p. 573.

The genus *Sphærophoria* is, at present, one of much difficulty, inasmuch as it requires often numerous specimens, from different localities, to determine the limits of variational differences. The black markings of the face and front, and of the legs, and the markings of the abdomen are all more or less variable, and one should not place too much dependence upon them. All the species which I have so far seen from Central America have a small hypopygium and incomplete lateral thoracic stripes. Bigot has, however, described species with the normal hypopygium. Even where the hypopygium is minute, one can scarcely mistake the generic relationships, as presented in the structure of the head and face, and the elongate abdomen.

Synopsis of the recognized Central-American species.

1. Fifth segment of the abdomen with four elongated spots or stripes. 2.
- Fifth segment of the abdomen with a transverse band 4.
2. Fourth abdominal segment with an uninterrupted arcuate yellow band 3.
- Fourth abdominal segment with rectangular and oblique markings. Sp. (no. 3).

3. Legs entirely or in great part yellow *picticauda*, Bigot.
 Legs for the most part black *micrura*, O. Sacken.
4. Bands of the abdomen broad and nearly straight Sp.
 Bands of the abdomen narrower, bilaterally oblique on their
 posterior margins Spp. (nos. 5 & 6).

1. *Sphærophoria picticauda*.

Sphærophoria picticauda, Bigot, Ann. Soc. Ent. Fr. 1884, p. 102¹.

Hab. MEXICO¹, Omilteme 8000 feet, Sierra de las Aguas Escondidas 9500 feet, and Acaguizotla 3500 feet, all in Guerrero, Teapa in Tabasco (*H. H. Smith*).

Bigot's vague description would leave one very much in doubt, save for the peculiarly marked fifth abdominal segment, which he recognizably describes. As the species seems to be very variable, I give here a full description, based upon about twenty-five specimens:—

Male. Face in profile more prominent than in *S. cylindrica*, with a greater concavity on the upper part. Face yellow, with a median black stripe, which is often almost wholly obsolete, leaving only a brownish streak, or a small spot on the tubercle. Frontal triangle with a shield-shaped black spot, sometimes leaving only a narrow orbital yellow margin, at other times small. Antennæ black with the third joint yellow below, sometimes red with the third joint black above. Mesonotum dark green or greenish-black, sometimes distinctly bronze-coloured, but little shining; the yellow lateral stripe truncate at the suture; a small yellow spot on the postalar callosities. Pleuræ shining blue-black, with two or three yellow or yellowish spots. Scutellum yellow, or reddish-yellow, sometimes with a darker cloud across the disc. Abdomen opaque black; first segment, except the lateral yellow spots, shining, somewhat metallic, black; second, fourth, and fifth segments narrowly in front and behind, and the sixth in great part, shining black; second segment with a yellow transverse band, wider at the sides, sometimes dissolved in two triangles; third and fourth segments each with a gently arcuate band; fifth segment with two median streaks or comma-like spots, and two larger lateral ones. Hypopygium small, black. Legs often yellow, with the hind legs chiefly, and all the tarsi, brownish; usually the four anterior legs are in great part brownish, and the hind pair is darker; coxæ chiefly brownish or black. Wings sometimes nearly hyaline; usually very distinctly tinged with brownish.

Female. Front shining black, with the orbits on the lower two-thirds yellow. Legs usually lighter-coloured, light yellow, except the hind tarsi; coxæ yellow.
 Length 7–9 millim.

2. *Sphærophoria micrura*.

Sphærophoria micrura, Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Survey, iii. p. 330¹; Willist. Synopsis N.-Am. Syrphidæ, p. 107².

Hab. UNITED STATES, California^{1 2}.—MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

A single male specimen from Omilteme, agreeing well with the descriptions. The black facial stripe reaches quite to the antennæ, and the second and third abdominal bands are gently arcuate. The postalar callosities have no yellow spot; there is no yellow on the pleuræ; and the legs are darker than in *S. picticauda*. Bigot. The two species are suspiciously alike.

3. *Sphærophoria* — ?

Female. Front shining black, on the lower two-thirds yellow along the orbits. Antennæ reddish-yellow, black on the upper border of the third joint. Face yellow; sometimes a brownish spot on the tubercle. Mesonotum shining bronze-green; the yellow of the margins truncate at the suture; postalar callosities yellow. Scutellum yellow, somewhat reddish on the disc. Pleuræ and metanotum shining blue, with three or four yellow spots. Abdomen black; the sides of the first segment, a straight band on the second segment, and a gently arcuate band on the third segment yellow; the yellow of the fourth segment consists of two slender rectangular spots, bordering the front margin, and separated by a narrow space along the middle—within the rectangular space an oval oblique spot, contiguous with the posterior ramus; fifth segment with four longitudinal spots, more or less blended in front. Legs light yellow, the hind tibiæ at the base and tip, and the hind tarsi light brownish. Wings nearly hyaline.

Male. Frontal triangle with a shield-shaped black spot. The oblique spots of the fourth abdominal segment larger, and more broadly blended with the posteriorly directed stripe, the whole partly or entirely separated from the basal yellow interrupted band. Hypopygium small.

Length 6–8 millim.

Hab. MEXICO, Omilteme 8000 feet, Amula 6000 feet, and Acaguizotla 3500 feet, all in Guerrero, Cuernavaca (*H. H. Smith*).

Two males and six females.

4. *Sphærophoria* — ?

Male. Face and frontal triangle yellow, the former with a black stripe, the latter with a small black spot. Mesonotum deep green, but little shining; lateral stripe truncate at the suture; a yellow spot on the postalar callosities. Pleuræ shining blue-black, with a yellow spot above. Abdomen opaque black; the margins of the incisures, except of the first, shining; first segment with yellow sides; second segment with an interrupted band, connected on the lateral margins with the yellow of the first segment; third and fourth segments each with a broad, nearly straight, yellow band; fifth segment yellow, save a transverse shining black spot behind. Hypopygium small. Legs yellow; coxæ black; hind femora with a broad brown ring; hind tibiæ, except the base, and the hind tarsi brown. Wings nearly hyaline.

Female. Face and front yellow, the latter black on the upper part. First abdominal band not interrupted by a slender line.

Length 8 millim.

Hab. MEXICO, Xucumanatlan 7000 feet (*H. H. Smith*), Ciudad in Durango, 8100 feet (*Forrer*).

Two specimens.

I feel confident that the male and female specimens here described are of the same species, notwithstanding the absence of the black facial stripe in the latter. How great other variations may be, I, of course, cannot say, but I suspect that a large number of specimens may show not a few.

5. *Sphærophoria* — ?

Female. Face yellow, with a broad black stripe. Antennæ brown, the third joint largely yellowish-red. Front black, the sides on the lower half yellow; rather broad above. Mesonotum dark green, but little shining; lateral stripe truncate at the suture; a spot on the postalar callosities. Scutellum yellow, the extreme edge brown. Abdomen opaque black, with the incisures shining; sides of the first segment, an interrupted band on the second, and a complete band on the third, fourth, and fifth segments yellow; the three posterior bands have the hind margin bilaterally oblique, straight, and angulated

in the middle. Legs black or blackish; the four anterior femora, except the base, and their tibiæ brownish-yellow.

Length 10 millim.

Hab. MEXICO, Orizaba (*H. H. Smith*).

6. *Sphærophoria* — ?

Hab. MEXICO, Ciudad in Durango (*Forrer*).

A single specimen (female) differs from the preceding in the face being without a black stripe (there is a minute crescentic spot above the oral margin), in having the first two joints of the antennæ more broadly red, the front narrower above, the legs wholly yellow, and, perhaps, in the narrow interruption of the fourth abdominal band.

A second female specimen, agreeing otherwise perfectly with this, has a blackish stripe in the middle of the face.

I am unable to identify any of the following species of *Sphærophoria* described by Bigot:—

Sphærophoria rostrata, Bigot, Ann. Soc. Ent. Fr. 1884, p. 102.—Mexico.

— *nasuta*, Bigot, loc. cit. 1884, p. 103.—Mexico. = *B. nasuta*

— *nasuta*, Bigot, loc. cit. 1888, p. 253.—Mexico *. = *B. nasuta*

— *trilimbata*, Bigot, loc. cit. 1888, p. 253.—Mexico.

— *pachypyga*, Bigot, loc. cit. 1884, p. 104.—Mexico. = *S. pachypyga*

— *fulvicauda*, Bigot, loc. cit. 1884, p. 104.—Mexico. = *S. fulvicauda*

It is not impossible that *S. rostrata* belongs to the species described above under no. 3, and that some of these names do not indicate different species.

* Bigot has several times made this error of using the same specific name in a genus for different species. I have also observed the following:—

Eristalomyia calomera, Bigot, Ann. Soc. Ent. Fr. 1880, p. 229—South America; id. op. cit. 1883, p. 337—South America.

Orthonevra varipes, Bigot, op. cit. 1880, p. 150—Persia; id. ibid. 1885, p. 249—Mt. Caucasus.

Ocyptamus fuscicolor, Bigot, op. cit. 1884, p. 116—New Caledonia; id. ibid. 1885, p. 252—New Caledonia.

Sargus pallipes, Bigot, op. cit. 1879, p. 222—Ceylon; id. ibid. 1887, p. 28—North America, Mt. Hood. (The name in both cases is preoccupied.)

MESOGRAMMA.

Toxomerus, Macquart, Dipt. Exot. 5° Suppl. p. 92 (1855).

Mesogramma, Loew, Centur. vi. p. 47 (1865); Berl. ent. Zeitschr. 1865, p. 157.

Mesograptia, Loew, Centur. x. p. 290 (1872); Berl. ent. Zeitschr. 1872, p. 114.

I have restored the name *Mesogramma* in place of *Mesograptia*, as the change was arbitrarily made by Loew on the plea that *Mesogramma* had been used for a genus of plants. As zoologists admit no conflict between zoological and botanical terms, the change cannot be consistently accepted.

The remarks under *Sphærophoria* are yet more applicable here. I do not wish to add to the confusion already unnecessarily increased by Bigot, and so refrain from adding new names for others to puzzle over.

Synopsis of the recognized Central-American species.

- | | |
|---|-------------------------------|
| 1. Scutellum yellow | 2. |
| Scutellum black, with or without a yellow border | 5. |
| 2. Abdomen with a yellow lateral margin | <i>marginatum</i> , Say. |
| Abdomen not margined with yellow | 3. |
| 3. Second, third, and fourth abdominal segments with the anterior margin, a median stripe, and a pair of oblong, sometimes confluent, spots, yellow. (8-9 millim.) | <i>politum</i> , Say. |
| Abdomen not so marked | 4. |
| 4. Abdominal bands straight, uniform | Sp. (no. 8). |
| Abdominal bands irregular | ? <i>mutuum</i> , Say. |
| 5. Lateral margins of the mesonotum with a complete yellow stripe | 6. |
| Humeri, and sometimes the postalar callosities, only, yellow | 8. |
| 6. Larger species (8-9 millim.); fourth abdominal segment with a narrow anterior margin and median stripe, and a slender oblique spot, contiguous with the lateral margin, yellow | <i>saphiridiceps</i> , Bigot. |
| Smaller species. (5-7 millim.) | 7. |
| 7. Mesonotum deep shining black, with cinereous line and lateral stripe | Sp. (no. 6). |
| Mesonotum olivaceous or reddish, subopaque—between the cinereous line and the lateral stripe | <i>pallipes</i> , Bigot. |
| 8. Second abdominal segment shining black (♂) | Sp. (no. 4). |
| Second abdominal segment with an opaque black spot | Sp. (no. 5). |

1. *Mesogramma saphiridiceps*.

Mesograptia (?) *saphiridiceps*, Bigot, Ann. Soc. Ent. Fr. 1884, p. 105¹.

Hab. MEXICO¹, Xucumanatlan 7000 feet, Omilteme 8000 feet (*H. H. Smith*).

This striking species is readily recognizable from Bigot's description. The front and middle tarsi are yellow at the base, and the hind pair is black; the hind femora and tibiae are in great part brownish. The face may wholly want the dark spot, and the front of the female has no purple. The male vertical triangle is elongate and narrow, shining purple behind.

2. *Mesogramma politum*.

Scæva polita, Say, Journ. Acad. Phil. iii. p. 88¹; Complete Writings, ii. p. 77².

Syrphus politus, Say, Amer. Ent. i. t. 11. f. 8³; Complete Writings, i. p. 24⁴; Wiedem. Aussereur. zweifl. Ins. ii. p. 132⁵.

Mesograptæ polita, Willist. Synopsis N.-Am. Syrphidæ, p. 98⁶; Riley & Howard, Insect Life, i. p. 4⁷.

Syrphus cingulatus, Macquart, Dipt. Exot. 4^o Suppl. p. 155⁸.

Syrphus hecticus, Jænnicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 398⁹.

Hab. UNITED STATES^{1 3}, Pennsylvania⁵, Connecticut⁶, Georgia⁶, North Carolina⁶, Kansas⁶, Illinois⁹, Florida⁸.—MEXICO, Acaguizotla 3500 feet, Amula 6000 feet, Chilpancingo 4600 feet, Hacienda de la Imagen 4000 feet, Venta de Zopilote 2800 feet, Tierra Colorada 2000 feet, and Dos Arroyos 1000 feet, all in Guerrero, Teapa in Tabasco (*H. H. Smith*), Temax in North Yucatan (*Gaumer*).—CUBA⁶.

Seventy-five examples. They agree closely with specimens from the United States.

3. *Mesogramma marginatum*.

Scæva marginata, Say, Journ. Acad. Phil. iii. p. 92¹; Complete Writings, ii. p. 80².

Syrphus marginatus, Wiedem. Aussereur. zweifl. Ins. ii. p. 146³.

Mesograptæ marginata, O. Sacken, Cat. Dipt. 2nd ed. p. 125⁴; Willist. Synopsis N.-Am. Syrphidæ, p. 100⁵.

Syrphus quintus, Walker, Ins. Saunders., Dipt. p. 239⁶.

Mesograptæ (?) circumdata, Bigot, Ann. Soc. Ent. Fr. 1884, p. 107⁷.

Hab. NORTH AMERICA^{1 3 6}, Atlantic, Southern, Middle, and Pacific States⁵, Atlantic States and California⁴.—MEXICO⁷, Amula 6000 feet, Omilteme 8000 feet, Chilpancingo 4600 feet, Mexico city, Cuernavaca in Morelos, Teapa in Tabasco (*H. H. Smith*), Orizaba (*H. H. Smith and F. D. Godman*).

Fifteen specimens. Three males have the scutellum black in its middle. The vertical triangle is unusually large in this species.

4. *Mesogramma* ^{*licentata*} — ?

Male. Face, frontal triangle, and antennæ yellow; cheeks black. Vertical triangle large, broad, elongate, shining purple. Mesonotum somewhat bluish or bronze-black, more shining towards the sides; median line whitish; margins without yellow stripe; a round spot on the humeri, and rarely an indistinct one on the postalar callosities, yellow. Scutellum shining metallescent black, without yellow. Abdomen elongate; first two segments shining black; the other segments brown and red, sometimes darker, sometimes

more yellowish with feebly indicated markings. Legs rather stout, variable in colour, the four anterior femora often largely black, the hind femora usually in great part black; tibiæ and tarsi brown and yellow.

Female. Front narrow above, shining blue-black, the sides below yellow. Face with a broad black stripe. Abdomen shining black; second segment with two small yellow spots; third, fourth, and fifth segments each with a pair of oblique yellow spots on the anterior half. Legs yellow; four anterior tarsi brownish; hind femora with a preapical brown ring; hind tibiæ with a sub-basal and a preapical brown ring; hind tarsi brown.

Length 5-6 millim.

Hab. MEXICO, Acaguizotla 3500 feet, Chilpancingo 4600 feet, Tepetlapa 3000 feet, Medellin near Vera Cruz, Teapa in Tabasco (*H. H. Smith*), Orizaba (*H. H. Smith and F. D. Godman*).

I am not quite sure that the females here described belong to the same species as do the males, but I think so. An additional female has the abdomen wholly, and the hind legs in great part, black. Still another has the sides of the second abdominal segment yellow, and the hind legs in great part black. The tip of the scutellum is rarely somewhat yellowish.

5. *Mesogramma* — ?

Male. Very similar to the preceding species, but differing in the more prominent face, the narrower vertical triangle, the black of the hind legs confined to a preapical ring, the less elongate abdomen, and the second segment with a large oval opaque spot.

Female. Abdomen shining blue-black; second segment with an opaque black band, not reaching the lateral margins, in front of which there is a narrow, broadly interrupted yellow band; third, fourth, and fifth segments each with three yellow spots or stripes, not reaching the hind margin—the middle one of which is more slender, wanting on the fourth, and separated by two linear opaque black stripes,—and on each side laterally with a larger, rounded, opaque black spot. Face more brownish in the middle; front narrow above.

Length 5 millim.

Hab. MEXICO, Dos Arroyos 1000 feet, Tepetlapa 3000 feet, both in Guerrero, Vera Cruz, Atoyac and Medellin in Vera Cruz, Teapa and Frontera in Tabasco (*H. H. Smith*), Orizaba (*H. H. Smith and F. D. Godman*).

6. *Mesogramma* — ?

Male. Vertical triangle very long, narrow, shining purple behind the ocelli. Frontal triangle and face small, yellow, the latter prominent; antennæ yellow; cheeks black. Mesonotum deep shining black, with a whitish median line and complete yellow lateral stripes. Scutellum shining black, with the margin broadly yellow. Pleuræ shining blue, with a vertical stripe on the meso- and sterno-pleuræ yellow. Abdomen shining yellow and black; first segment narrowly black behind; second segment with the posterior third black; third and fourth segments yellow in front and black behind, the demarcation between the yellow and the black irregular and variable in outline; the black on the fifth segment forming three stripes; hypopygium rather large, shining black. Legs yellow; hind femora with a preapical, and the hind tibiæ with a median, black ring. Abdomen elongate oval, somewhat narrowed on the second segment. Alulæ rudimentary.

Female. Front unusually narrow; shining purple behind the ocelli, with a median black stripe in front. Length 6-7 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

7. *Mesogramma mutuuum*.

Syrphus mutuus, Say, Journ. Acad. Phil. vi. p. 164¹; Complete Writings, ii. p. 358.

Male. Frontal triangle and face small, yellow, the latter prominent; antennæ yellow; cheeks black. Vertical triangle of moderate width, rather shining behind. Mesonotum olivaceous-green, opaque; lateral yellow stripe complete. Scutellum yellow, the disc somewhat reddish or brownish. Pleuræ deep shining blue, with two or three yellow spots. Abdomen narrow, broadest posteriorly; shining blue-black, more or less opaque in the proximity of the yellow bands; first segment largely yellow in front and on the sides; second segment with a slender median stripe, uniting posteriorly with a median yellow band; third and fourth segments each with an anterior band and a slender median stripe, the band sometimes including two approximated opaque black spots; at other times the narrow anterior band shows five posterior prolongations—the median stripe, the lateral margins, and two oval marks projected towards or blended with the median stripe; fifth segment black, with an irregular interrupted band in front. Legs yellow; hind femora and tibiæ with brownish rings; hind tarsi brown. Alulae of wings rudimentary.

Female. Front narrow, shining black, with the sides below yellow; the linear stripes of the abdomen more or less obsolete.

Length 5-7 millim.

Hab. MEXICO¹, Mexico city, Cuernavaca (*H. H. Smith*), Orizaba (*H. H. Smith and F. D. Godman*), Patzcuaro (*F. D. Godman*).

Twenty-eight specimens.

I believe that this is Say's *Syrphus mutuus*, but I have thought it worth while to give a fuller description. It is possible, however, that the following (8) may be the true *M. mutuuum*.

8. *Mesogramma* — ?

Very similar to the preceding species, and perhaps not really distinct from it. It differs distinctly, however, in the abdomen being shorter and more oval, and with broad straight yellow bands, leaving narrow posterior brown or brownish bands, and indefinite brownish spots corresponding to the opaque black spots of the preceding species.

Length 5-7 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

Three other specimens, from Acaguizotla, Tepetlapa, and Orizaba, differ still further in the abdomen having broad straight yellow bands, leaving only narrow brown or blackish bands between them.

9. *Mesogramma pallipes*.

Mesograptus (?) *pallipes*, Bigot, Ann. Soc. Ent. Fr. 1884, p. 106¹.

Hab. MEXICO¹, Xucumanatlan 7000 feet, Tierra Colorada 2000 feet, both in Guerrero, Teapa in Tabasco (*H. H. Smith*).

A number of specimens, among which there may or may not be more than one species, agree sufficiently well with Bigot's description as regards the abdomen. The face, however, has a callosity, as in all the other species of the genus, though it is not so prominent as in some of them. The mesonotum is subopaque, with a median cinereous

stripe, and a sublateral reddish-olivaceous one, and a complete lateral yellow stripe. In only one specimen is the band of the second abdominal segment "ondulée"; in the others it is straight, and not at all interrupted.

The following species have also been described from Mexico:—

- Mesogramma ectypum*, Say, Journ. Acad. Phil. vi. p. 165; Complete Writings, ii. p. 359 (*Syrphus*).—Mexico.
 — *lineare*, v. d. Wulp, Tijdschr. v. Ent. xxvi. p. 5 (*Mesograptia*).—Mexico.
 — *bicinctum*, Bigot, Ann. Soc. Ent. Fr. 1884, p. 112 (*Mesograptia*).—Mexico.
 — *bistrigum*, Bigot, loc. cit. 1884, p. 110 (*Mesograptia*).—Mexico.
 — *heraldicum*, Bigot, loc. cit. 1884, p. 109 (*Mesograptia*).—Mexico.
 — *lacrymosum*, Bigot, loc. cit. 1884, p. 108 (*Mesograptia*).—Mexico, Brazil.
 — *maculatum*, Bigot, loc. cit. 1884, p. 111 (*Mesograptia*).—Mexico, Cuba, Brazil.
 — *mu*, Bigot, loc. cit. 1884, p. 105 (*Mesograptia*).—Mexico.
 — *trilobatum*, Bigot, loc. cit. 1884, p. 109 (*Mesograptia*).—Mexico.
 — *quinquecinctum*, Bigot, loc. cit. 1888, p. 254 (*Mesograptia*).—Mexico.
 — *quinquemaculatum*, Bigot, loc. cit. 1888, p. 254 (*Mesograptia*).—Mexico.

Certain specimens here considered as belonging to *M. mutuum* would agree well with the description of *M. ectypum*, save for the "tergum black, edged all round with yellow; second segment with two yellow dots."

SALPINGOGASTER.

Salpingogaster, Schiner, Reise der Novara, Diptera, p. 344 (1868).

Synopsis of the Central-American species.

1. Red and yellow species; legs in great part yellow 2.
 Black species; legs in great part black 3.
2. Legs wholly yellow (female) *pygophora*, Schiner.
 Tarsi and hind legs in part black *cothurnata*, Bigot.
3. Sides of the metanotum with a yellow spot; a projection of
 the brown anterior border running back over the cross-veins
 of the wings. Length 11 millim. *limbipennis*, sp. n.
 Sides of the metanotum without yellow spot; cross-veins not
 clouded. Length 15–16 millim. *nigra*, Schiner.

1. *Salpingogaster nigra*.

Salpingogaster niger, Schiner, Reise der Novara, Diptera, p. 344¹; Willist. Trans. Am. Ent. Soc. xv. p. 270².

Salpingogaster anchoratus, Bigot, Ann. Soc. Ent. Fr. 1883, p. 328³.

Hab. MEXICO³; GUATEMALA, San Gerónimo 3000 feet (*Champion*); PANAMA, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).—SOUTH AMERICA¹, Brazil².

Two specimens, agreeing perfectly with others from Brazil (Chapada). There can be no doubt of the synonymy of Bigot's species.

2. *Salpingogaster pygophora*.

? *Salpingogaster pygophora*, Schiner, Reise der Novara, Diptera, p. 344¹; Willist. Trans. Am. Ent. Soc. xv. p. 270².

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).—SOUTH AMERICA¹, Brazil².

A single female specimen from Bugaba seems to be of the same species as those mentioned by me from Brazil (*op. cit.*). It agrees quite with the male specimen, except that the scutellum is dark brown across its disc. The front has a median black stripe; the legs are wholly yellow, the abdomen red, &c.

3. *Salpingogaster limbipennis*, sp. n., ♂.

Face and frontal triangle sulphur-yellow on the sides; a deep blue-black stripe, beginning narrowly at the oral margin, extends broadly up and around the base of the antennæ, so as to nearly fill the frontal triangle. (Antennæ wanting.) Cheeks in front black; behind, as also the mentum, light yellow, and white-pollinose. Thorax nearly opaque black; a pair of whitish-dusted stripes in the middle of the mesonotum, not extending to the hind margin; the humeri, a narrow vertical stripe on the pleuræ, extending a short distance on the sides of the mesonotum, a spot on the postalar callosities, and a slender vertical stripe on the sides of the metanotum, sulphur-yellow. Scutellum black, with the base and margin narrowly yellow. Abdomen black, the second segment and the base of the third somewhat reddish, the hind margins of the following segments very narrowly yellowish; first segment, except the broad hind margin, light yellow. Legs blackish- and brownish-red, the tip and base of the tibiæ, and the tarsi, the two anterior pairs more distinctly, black; hind femora a little thickened, and with numerous short bristly points below. Wings pure hyaline; the anterior border to the tip dark brown, this colour filling the base of the second basal cell and extending across the cross-veins as a narrow projection to the base of the last posterior cell.

Length 11 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

Two specimens.

4. *Salpingogaster cothurnata*.

Salpingogaster cothurnatus, Bigot, Ann. Soc. Ent. Fr. 1883, p. 329¹.

Hab. MEXICO¹.

Unknown to me.

OCYPTAMUS.

Ocyptamus, Macquart, Hist. Nat. Ins. Dipt. i. p. 554 (1834).

1. *Ocyptamus funebris*.

Ocyptamus funebris, Macq. Hist. Nat. Ins. Dipt. i. p. 554¹; Dipt. Exot. ii. 2, p. 105, t. 19. f. 2²; Schiner, Reise der Novara, Diptera, p. 346³; Bigot, in Ramon de la Sagra's Hist. fis. polit. y nat. de Cuba, vii., Ins. p. 338⁴; v. d. Wulp, Tijdschr. v. Ent. xxvi. p. 9⁵; Willist. Trans. Am. Ent. Soc. xv. p. 265⁶.

Hab. MEXICO, Venta de Zopilote, Xucumanatlan, Amula, Acaguizotla, Tepetlapa, and Rio Papagaio, all in Guerrero, Cuernavaca in Morelos, Atoyac in Vera Cruz (*H. H. Smith*), Santiago Iscuintla in Jalisco (*Schumann*).—SOUTH AMERICA, Brazil^{1 3 5 6}; CUBA⁴; TENERIFFE^{1 2}.

Numerous specimens. This species differs from *O. fuscipennis* (Say) in the larger size, the more pure bronze of the thorax, and the more uniform blackish tinge of the wings, the latter with a less distinct hyaline space; the abdomen of the male is wholly shining, not black. From the description, one cannot feel assured that *O. infuscatus*, Bigot, is really distinct from *O. funebris*.

2. *Ocyptamus dimidiatus*.

Syrphus dimidiatus, Fabr. Spec. Ins. ii. p. 434¹; Ent. Syst. iv. p. 310²; Wiedem. Aussereur. zweifl. Ins. ii. p. 140³.

Scæva dimidiata, Fabr. Syst. Antl. p. 254⁴.

Ocyptamus dimidiatus, v. d. Wulp, Tijdschr. v. Ent. xxvi. p. 10⁵; Willist. Trans. Am. Ent. Soc. xv. p. 265⁶.

Baccha dimidiata, Willist. Synopsis N.-Am. Syrphidæ, p. 120, t. 5. f. 10⁷.

Hab. MEXICO, Tierra Colorada 2000 feet, Rio Papagaio 1200 feet, Venta de Zopilote 2800 feet, Acapulco, Rincon 2800 feet, all in Guerrero, Cuernavaca in Morelos, Atoyac in Vera Cruz, Teapa and Frontera in Tabasco (*H. H. Smith*), Temax in North Yucatan (*Gaumer*).—SOUTH AMERICA, Brazil⁶; WEST INDIES^{1 2 3 4}, San Domingo⁷, Guadeloupe⁵.

Numerous specimens. The males differ in having the outer part of the wings much less hyaline.

3. *Ocyptamus trigonus*.

Syrphus trigonus, Wiedem. Aussereur. zweifl. Ins. ii. p. 126¹.

Ocyptamus trigonus, Schiner, Reise der Novara, Diptera, p. 346²; Willist. Trans. Am. Ent. Soc. xv. p. 265³.

Baccha torva, Willist. Synopsis N.-Am. Syrphidæ, p. 124⁴.

Hab. UNITED STATES, Texas⁴.—MEXICO, Dos Arroyos 1000 feet, Xucumanatlan 7000

feet, Venta de Zopilote 2000 feet, all in Guerrero (*H. H. Smith*), Temax in North Yucatan (*Gaumer*).—SOUTH AMERICA, Colombia², Brazil^{1 3}.

Ten specimens, all females. It is not at all improbable that the hitherto unknown male will be found to be identical with those described on p. 17 as *Syrphus*, no. 8.

The following species have been described by Bigot:—

- Ocyptamus infuscatus*, Bigot, Ann. Soc. Ent. Fr. 1883, p. 324.—Mexico.
 — *fraternus*, Bigot, loc. cit. p. 324.—Mexico.
 — *fenestratus*, Bigot, loc. cit. 1885, p. 251.—Mexico.

BACCHA.

Baccha, Fabricius, Syst. Antl. p. 199 (1805).

Synopsis of the recognized Central-American species.

- | | |
|---|-------------------------------|
| 1. Alulæ small or rudimentary; slender species (except <i>luctuosa</i>) | 2. |
| Alulæ of the usual size | 8. |
| 2. Face in profile strongly projecting, forming nearly a straight edge with the front to the oral margin | <i>nasuta</i> , sp. n. |
| Profile of face receding | 3. |
| 3. Face in profile nearly straight and receding from the antennæ to the oral margin; not at all tuberculate | 4. |
| Face with a well-developed tubercle | 5. |
| 4. Thorax metallic black; small species | <i>gracilis</i> , sp. n. |
| Thorax in great part red | <i>rubida</i> , sp. n. |
| 5. Wings much shorter than the abdomen, hyaline, with a brown stigma; front of female with fine transverse wrinkles; abdomen very slender | <i>stenogaster</i> , Willist. |
| Front of female without transverse wrinkles | 6. |
| 6. Anal angle acuminate, with a concave basal border; pleuræ and pectus yellow | <i>attenuata</i> , sp. n. |
| Basal border of anal angle convex; pectus, at least, metallic blue-black | 7. |
| 7. Wings yellowish, with the anterior border indefinitely brown or brownish | <i>punctifrons</i> , sp. n. |
| Wings uniformly deep yellowish-brown; ocelli remote from vertex | <i>luctuosa</i> , Bigot? |
| Wings hyaline, with the anterior border definitely dark brown | <i>laudabilis</i> , sp. n. |

8. Antennæ elongate, the first joint longer than the third; front tarsi of female flattened *conjuncta*, Wiedem.
 First antennal joint short 9.
9. Yellowish species; front with a more or less pronounced antenniferous projection, marked with a round black spot; front of female narrow above; mesonotum (except the sides) with its ground-colour black, but the black more or less concealed beneath ochraceous pollen; legs yellow, the hind femora or tibiæ more or less brownish or blackish 10.
 Species in great part black 11.
10. Black stripes of mesonotum conspicuous; very large species; wings brownish-yellow *phæoptera*, Schiner.
 Black stripes of mesonotum inconspicuous, mostly concealed beneath light pollen; smaller species; wings more or less hyaline distally *livida*, Schiner.
11. Face, the four anterior tibiæ, and the hind metatarsi light yellow; wings brown along the costa; large species *dolosa*, sp. n.
 Species not so marked 12.
12. Face projecting, yellow, with a black stripe; wings hyaline, with the subcostal (and costal, $\frac{2}{3}$) cells brown *clavata*, Fabr.
 Face not projecting 13.
13. Tip of the hind metatarsi and the following joints yellowish-white; wings strongly blackish throughout (σ), or with the distal part behind subhyaline (ρ) *lugubris*, sp. n.
 Distal joints of hind tarsi not yellowish-white 14.
14. Third and fourth abdominal segments each with two pairs of yellow dots, the anterior ones remote, the posterior pair approximate; legs wholly black; wings brown at the base, hyaline (σ) or subhyaline distally (ρ) *adpersa*, Fabr.
 Species not so marked 15.
15. Wings somewhat brownish in front; abdomen with yellow bands; mesonotum metallic bronze-green *anea*, sp. n.
 Abdomen opaque and shining metallic, without yellow 16.
16. Wings hyaline, with the subcostal cell brown; second and third abdominal segments with a single triangular opaque spot, the fourth and fifth segments with three spots *concinna* (ρ), sp. n.
 Wings hyaline, with a narrow costal brown border reaching to the tip; second abdominal segment with a single spot, the third and fourth segments with two opaque spots *cærulea*, sp. n.
 Wings brownish in front, subhyaline behind; abdominal segments opaque, with the margins shining; hind metatarsi blackish, the following joints yellow *concinna* (σ), sp. n.

1. **Baccha conjuncta.**

Syrphus conjunctus, Wiedem. Aussereur. zweifl. Ins. ii. p. 116¹.

Baccha conjuncta, Willist. Trans. Am. Ent. Soc. xv. p. 267².

Hab. SOUTH AMERICA¹, Brazil².—MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

A single female specimen, agreeing well with one from Brazil.

2. **Baccha phæoptera.**

Baccha phæoptera, Schiner, Reise der Novara, Diptera, p. 342¹.

Baccha phæoptera, Willist. Trans. Am. Ent. Soc. xv. p. 267².

Hab. MEXICO, Venta de Zopilote 2800 feet, Xucumanatlan 7000 feet, and Amula 6000 feet, all in Guerrero, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).—SOUTH AMERICA¹, Brazil².

Twenty-five specimens, agreeing closely with others from Brazil. A single male example from Guatemala differs markedly from the rest in the shape of the abdomen, which is shorter and more spatulate, the second segment being only a little longer than the width of the third behind.

3. **Baccha livida.**

Baccha livida, Schiner, Reise der Novara, Diptera, p. 343¹.

Baccha livida, Willist. Trans. Am. Ent. Soc. xv. p. 268².

Hab. MEXICO, Venta de Zopilote in Guerrero 2800 feet, Atoyac in Vera Cruz (*H. H. Smith*), Temax in North Yucatan (*Gaumer*).—SOUTH AMERICA¹, Brazil².

Eight specimens, agreeing well with others from Brazil.

4. **Baccha clavata.**

Syrphus clavatus, Fabr. Ent. Syst. iv. p. 298¹.

Baccha clavata, Fabr. Syst. Antl. p. 200²; Wiedem. Aussereur. zweifl. Ins. ii. p. 94³; Willist.

Trans. Am. Ent. Soc. xv. p. 270⁴.

Baccha clavata, Schiner, Reise der Novara, Diptera, p. 341⁵.

Baccha babista, Walk. List Diptera, iii. p. 549⁶; Willist. Synopsis N.-Am. Syrphidæ, p. 117, t. 4. f. 9⁷.

Baccha facialis, Thomson, Eugen. Resa, Ins. p. 504⁸.

Spazigaster bacchoides, Bigot, Ann. Soc. Ent. Fr. 1883, p. 326⁹.

Hab. NORTH AMERICA⁹, Georgia⁶ ⁷, Florida⁷, Arizona⁷, California⁷.—MEXICO (*H. H. Smith*).—SOUTH AMERICA³ ⁵, Galapagos Is.⁸, Brazil⁴; WEST INDIES¹ ².

A widespread species that seems to occur everywhere throughout North and South America and the adjoining islands. There are about twenty specimens in the collection, from different regions of Mexico (*H. H. Smith*).

5. *Baccha adpersa*.

Baccha adpersa, Fabr. Syst. Antl. p. 200¹; Wiedem. Aussereur. zweifl. Ins. ii. p. 97²; Willist. Trans. Am. Ent. Soc. xv. p. 269³.

Baccha adpersa, Schiner, Reise der Novara, Diptera, p. 342⁴.

Hab. PANAMA, David in Chiriqui (*Champion*).—SOUTH AMERICA^{1 2 4}, Brazil³.

A single specimen, agreeing with specimens from Brazil.

6. *Baccha stenogaster*.

Baccha stenogaster, Willist. Trans. Am. Ent. Soc. xv. p. 266¹.

Hab. MEXICO, Rincon in Guerrero 2800 feet (*H. H. Smith*).—SOUTH AMERICA, Brazil¹.

A single female specimen from Mexico agrees pretty well with a male from Brazil, but it has the face wholly yellow (not chiefly metallic blue), the stigma dark brown (not brownish-yellow), and the hind tarsi brown. The front is shining metallic black, finely rugose.

7. *Baccha rubida*, sp. n., ♂ ♀. (Tab. I. figg. 8, ♂; 8 a, head in profile; 8 b, head from in front.)

Alulae rudimentary; last section of the fourth vein and the posterior cross-vein sinuous and oblique. Head hemispherical; front and face small, opaque black, covered with ochraceous pollen and light-coloured pile; front very narrow above in the female; face gently convex transversely, nearly straight and gently receding from the antennae to the oral margin. Antennae yellow, the third joint orbicular. Mesonotum shining red, the anterior part more or less black; pleurae yellowish-red; scutellum similar in colour to the mesonotum. Abdomen slender and elongate; second segment cylindrical, the abdomen gently spatulate beyond; reddish-brown, the base of the third and fourth segments yellow. Legs yellow; a preapical ring on the hind femora, the hind tibiae broadly in the middle, and the hind metatarsi brown; hind femora elongate, and gently thickened near the distal end. Wings subhyaline; subcostal cell beyond the auxiliary vein brown; narrow, but conspicuous, clouds across the anterior cross-vein and from the first vein to and over the vein at the base of the last posterior cell; a blackish cloud distally along the costa.

Length 12-14 millim.

Hab. MEXICO, Omilteme 8000 feet and Sierra de las Aguas Escondidas 9500 feet, both in Guerrero (*H. H. Smith*).

Six specimens.

8. *Baccha gracilis*, sp. n., ♂ ♀.

Face and frontal triangle of the male shining bronze-green, thickly covered (except along the middle of the triangle) with nearly white dust; in the female the colour is shining blue, concealed beneath nearly white dust, except a streak along the front and at the vertex. Face gently convex transversely, in profile nearly straight and gently receding from the antennae to the oral margin. Mesonotum shining bronze in the male, blue in the female. Scutellum blue. Abdomen: first segment coloured like the scutellum; second segment subopaque black, very slender, and of nearly uniform width; third segment brown or black, with

the base yellow, its width behind in the male scarcely a third of the length (in the female the third segment may have a yellow median stripe); fourth segment similar in colour to the third, usually with a more or less complete median yellow stripe; fifth segment of the female yellowish on the anterior angles; hypopygium small, shining black. Legs light yellow; a preapical blackish ring on the hind femora, and a brown or brownish ring on the hind tibiæ; hind metatarsi elongate, somewhat thickened and infuscated, the terminal joints also somewhat brownish. Wings nearly hyaline, the stigma lightly brownish.

Length 6-7 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*), Orizaba (*H. H. Smith* and *F. D. Godman*).

Four specimens.

An additional specimen from Omilteme (male) has the hind legs much more brownish, the hind tarsi brown, the wings tinged with brownish-yellow, the third abdominal segment narrower and more slender, and the fourth segment oval or spatulate in shape.

9. *Baccha nasuta*, sp. n., ♂ ♀.

Front of the female moderately broad above, opaque yellow on the sides, in the middle with a broad opaque-black stripe or spot acutely emarginate above and below; the vertex shining metallic, the lunula shining. Frontal triangle of the male opaque yellow, with a large opaque black spot. Face in profile forming nearly a straight line with the front to the oral margin; the cheeks long and oblique, the head in profile forming nearly an equilateral triangle. Face yellow, the carinate portion somewhat brownish. Mesonotum shining bronze; the sides, to the suture, the postalar callosities, scutellum, and pleuræ light yellow. Abdomen slender, the third segment cylindrical; brown, with an oblique lateral spot or V-shaped band on each segment. Legs yellow; tips of the hind femora and tibiæ and the hind tarsi brownish. Wings tinged with brownish-yellow, the distal portion of the subcostal cell darker, the tips of the marginal and submarginal cells blackish; alulæ small. Antennæ reddish-yellow; third joint oval, blackish above.

Length 9 millim.

Hab. MEXICO.

Two specimens.

This species has something of the facies of a *Mesogramma*, but the ocelli are not placed noticeably forward, and the slender abdomen locates it with *Baccha*.

10. *Baccha attenuata*, sp. n., ♂ ♀.

Face, frontal triangle, front of female, antennæ, and cheeks light yellow; front of female very narrow above; third joint of antennæ orbicular; a minute round black dot may be present in the female, just above the antennæ. Thorax light yellow; mesonotum, except on the lateral margins, bronze-black, with two broad whitish stripes, obsolete posteriorly; metanotum blackish, the sides of the pectus behind sometimes brownish. Abdomen slender, as long as the wings, brown and yellow, obscurely marked. Wings hyaline; costal cell yellowish, the subcostal cell dark brown; tip of marginal and the submarginal cells blackish; anal cell narrow, the sixth vein markedly concave; anal angle narrow basally, running to a very acute angle, the lower margin concave on the basal half. Legs yellow.

Length 8 millim.

Hab. MEXICO, Amula 6000 feet and Omilteme 8000 feet, both in Guerrero (*H. H. Smith*).

Three specimens.

The single male specimen has the whole anterior margin of the wing clouded, the subcostal cell less dark, and the scutellum dark above.

11. ***Baccha punctifrons***, sp. n., ♂ ♀.

Head yellow, a triangular brownish spot on the frontal triangle above; below, above the base of the antennæ, in both sexes, a round black spot; front of the female very narrow above, black at the vertex, and with a slender brown stripe, obsolete below. Third joint of the antennæ orbicular, somewhat blackish above. Mesonotum shining bronze, obsolete striped in the middle; the lateral margins, the scutellum, and a large part of the pleuræ yellow; the pleuræ elsewhere shining blue-black. Abdomen dark brown; third segment slender, cylindrical; second, third, and fourth segments each with an oblique yellow spot. Legs yellow; the hind femora with a brown or brownish preapical ring, and the hind tibiæ at the tip and the hind metatarsi more or less brown or brownish. Wings subhyaline, greyish or yellowish, the narrow costal border brown or blackish, more diffuse beyond the subcostal cell, more yellow in the costal cell; alulæ rudimentary, the anal angle convex on its lower border basally, and hence not remarkably acute.

Length 8-9 millim.

Hab. MEXICO, Amula 6000 feet, Omilteme 8000 feet, Xucumanatlan 7000 feet, and Sierra de las Aguas Escondidas 9500 feet, all in Guerrero (*H. H. Smith*).

Six specimens.

12. ***Baccha laudabilis***, sp. n., ♀.

Front narrow above, black, yellow on the sides below, and with two small yellow spots above the base of the antennæ. Antennæ nearly black; third joint orbicular. Face yellow, somewhat reddish in the middle; cheeks and mentum yellow. Mesonotum opaque black, with obscure narrow stripes in front; the narrow lateral margin and the margin of the scutellum yellow; scutellum elsewhere brown. Pleuræ blue-black, lightly whitish-pollinose; mesopleuræ with a small yellow spot. Abdomen black; second and third segments cylindrical; first segment on the sides light yellow; second, third, and fourth segments at the base on each side with an oblique reddish-yellow spot. Wings hyaline; the costal, subcostal, and marginal cells (save the base of the marginal) wholly dark brown, the brown extending beyond them and filling out the first basal cell to the false vein and the submarginal cell, except a long semioval space beyond the cross-vein. Alulæ rudimentary.

Length 9-10 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero 7000 feet (*H. H. Smith*).

One specimen.

A male example from Amula (alt. 6000 feet, *H. H. Smith*) has a large shield-shaped blackish spot on the front, brownish cheeks, brownish-yellow antennæ, the lateral yellow stripes of the mesonotum reaching only to the suture, a large yellow spot on the pleuræ, the terminal abdominal segments marked somewhat differently, and the brown of the wings confined to the costal and subcostal cells and the tip of the marginal and submarginal cells. I doubt its identity.

13. **Baccha dolosa**, sp. n., ♂ ♀. (Tab. I. figg. 7, ♂; 7 a, head in profile; 7 b, head from in front.)

Face pure light yellow. Frontal triangle black, the narrow orbital border opaque yellow, the pile black; front narrow above, opaque black, on either side a narrow orbital border; reaching nearly to the ocelli, opaque yellow, the pile black; ocelli situated well forward, beyond which the front is shining metallic. Sides of face whitish-pollinose. First two joints of the antennæ black; third joint dark brown, not twice as long as wide. Orbital cilia white; occiput white-pollinose. Thorax deep blue-black, but little shining, with four feebly apparent black stripes. Scutellum yellowish-brown, its base narrowly light sulphur-yellow; a row of depressed white hairs on the margin. Abdomen brown and black, with some bluish reflections: a spot on either side of the base of the second segment, and a basal fascia on the third, yellow; second segment elongate, its width distally a little more than half the width of the distal end of the next segment. Hypopygium and tip of female abdomen red. Legs deep brown or black; the four front tibiæ and the hind metatarsi and the following joint light yellow. Wings: in the male the subcostal cell and the tip of the marginal and submarginal cells brown; in the female the costal cell also, and the larger part of the marginal cell, extending across the third vein, at the base, brown; the wings elsewhere nearly hyaline.

Length 14-15 millim.

Hab. MEXICO, Omilteme 8000 feet, Xucumanatlan 7000 feet, and Amula 6000 feet, all in Guerrero (*H. H. Smith*); GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).

Five specimens.

14. **Baccha lugubris**, sp. n., ♂ ♀.

Male. Frontal triangle blue-black, somewhat shining, with black pile; lunule red, with a black spot in the middle. Antennæ brownish-black; third joint gently oval. Face in the middle steel-blue, on the sides yellow, covered with whitish pollen. Mesonotum shining bronze or brownish-bronze; scutellum coloured like the mesonotum or somewhat yellowish. Pleuræ shining blue, in the middle somewhat yellowish and covered with whitish pollen. Abdomen slender, the second segment cylindrical; opaque or subopaque black, the base or anterior angles of segments 2-4 red, the posterior margins of the second and third segments, and the first segment, more shining, often blue. Legs reddish-brown, the front pair and the base of the middle tibiæ more reddish or yellowish; the hind tibiæ and the basal two-thirds of the hind metatarsi black, the remainder of the hind tarsi light yellow. Wings strongly blackish, less intense on the posterior part.

Female. Front very narrow above, opaque or subopaque black, with the vertex and sides below shining blue; pile black. Abdomen less slender. Wings with a large subhyaline triangular space on the outer posterior part.

Length 11-14 millim.

Hab. MEXICO, Venta de Zopilote 2800 feet and Chilpancingo 4600 feet, both in Guerrero, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*).

Twenty-two specimens.

15. **Baccha ænea**, sp. n., ♂. (Tab. I. figg. 10, ♂; 10 a, head.)

Face shining bronze, clothed upon the sides with white pollen; frontal triangle shining black, on the margins covered with yellowish pollen. Antennæ red; third joint broadly black above, in shape elliptical, about twice as long as broad. Mesonotum and scutellum shining bronze-green; pleuræ more bluish-bronze, with white pollen in the middle. Abdomen: second and third segments opaque black, with the base and sides shining and the base red; fourth segment shining, the base with a red or yellow cross-band; fifth segment and hypopygium shining, somewhat metallic, black; second segment flattened-cylindrical, a little more

than twice as long as broad. Legs yellow; the hind femora, except the tip, and the hind tibiae, except the base and tip, brown. Wings subhyaline; the subcostal cell beyond the auxiliary vein brown; the distal part of the wing, especially before the third vein, clouded with blackish.

Length 10–12 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero 9500 feet (*H. H. Smith*).

Two specimens.

16. *Baccha cœrulea*, sp. n., ♂ ♀.

Female. Deep steel-blue, shining. Front moderately narrowed above, the vertex shining purple, this colour extending down as a slender median stripe; front elsewhere lighter metallic blue; pile black. Face bluish-black, with whitish dust; a small red spot on the sides below. Antennæ brownish-red; third joint a little longer than wide, broadly black above. Mesonotum bluish-black, feebly striped. Pleuræ with white pile. Abdomen only a little narrowed towards the base, the second and third segments of about equal length and about as broad as long; second segment with a semilunar cross-band, and the third and fourth segments each with a pair of large triangular spots, separated by a line, opaque black; dorsum with sparse, white, short, curved hairs. Wings hyaline; a narrow dark brown border extending from the base to the tip of the costal vein, a little broader in the submarginal cell, and with a slight projection at the origin of the third vein; the costal cell lighter-coloured. Legs: femora black or dark brown, their tips or distal parts and the four anterior tibiae and the metatarsi brownish-yellow, the tarsi, otherwise, and the hind tibiae brown; hind metatarsi lighter yellow, elongate and but slightly thickened.

Male. Eyes with the facets much larger above, a horizontal line near the middle. Frontal triangle somewhat bronze-coloured in the middle; pile black. Face without the red spot on the sides below. Mesonotum more brownish or bronze-coloured. Band of the second abdominal segment larger; the remainder of the abdomen opaque, save the narrow margins of the segments.

Length 7–9 millim.

Hab. MEXICO, Amula 6000 feet, Xucumanatlan 7000 feet, Omilteme 8000 feet, and Sierra de las Aguas Escondidas 9500 feet, all in Guerrero (*H. H. Smith*).

Four specimens.

17. *Baccha concinna*, sp. n., ♂ ♀.

Front of the female much narrowed above, shining blue-black, whitish-pollinose, shining black below. Face narrow, blue-black, the orbital margins narrowly yellow, whitish-pollinose. Antennæ red; third joint short ovate, obtusely pointed, black above. Frontal triangle blue-black, thinly pollinose. Mesonotum of the male deep blackish-brown, more shining bluish on the lateral margins; mesonotum of the female more shining blue, with two or four narrow brown stripes in front. Scutellum coloured like the mesonotum. Pleuræ more shining blue. Abdomen moderately narrowed at the base, not slender—in the male opaque black, with the first segment, the broad anterior angles of the second, third, and fourth segments, and the fifth segment and small hypopygium shining blue-black; in the female the opaque black forms a subtriangular spot on the second segment, a larger triangular one on the third, three spots on the fourth, and two or three streaks on the fifth. Legs blackish; the tip or distal part of the femora and the base of the hind tibiae yellow, the four anterior tarsi and the distal part of the four anterior tibiae somewhat brownish-yellow; hind tarsi of the male, except the basal two thirds of the metatarsi, yellow.

Wings hyaline or nearly so; in the male with the costal, subcostal, and the basal part of the marginal cells yellowish-brown; in the female with the subcostal cell only brown.

Length 8–9 millim.

Hab. MEXICO, Chilpancingo 4600 feet and Venta de Zopilote 2800 feet, both in Guerrero, Teapa in Tabasco (*H. H. Smith*).

One male and two females.

I describe the male and female specimens above as belonging to one species, but it is possible that they are distinct. In addition to the differences noted in the wings and hind tarsi, the female has the abdomen distinctly more slender basally, while the reverse should be the case; the abdomen in the female distally is covered with sparse recumbent short white hairs, while the covering of the male is black pile. The male also has the wings more yellowish.

The male differs from the same sex of *B. caerulea* chiefly in the eye-facets above not being enlarged, in the more spatulate abdomen, without the white hairs, in the absence of the clouds at the ends of the marginal and submarginal cells, and in the colour of the hind tarsi. The female is best distinguished by the very narrow front above.

18. *Baccha luctuosa*.

Baccha luctuosa, Bigot, Ann. Soc. Ent. Fr. 1883, p. 334¹.

Hab. MEXICO¹.

It is possible that a female specimen from Caché, Costa Rica (*Rogers*), may be of the same species as the male described by Bigot from Mexico. I therefore give a description of it:—

Front much narrowed above; black, on the sides below red; pile black. Antennæ red; third joint orbicular, brownish above. Face yellow. Mesonotum blackish-brown, with marked purple and bronze reflections, the lateral margins yellow. Pleuræ shining blue, largely yellow in front. Scutellum subtranslucent reddish-yellow. Abdomen deep blackish-brown, with marked purple reflections, only a little narrowed at the base; first segment yellow on the sides; second segment with a narrow band; third segment with a pair of small yellow triangles; fourth segment with a pair of yellow V-shaped spots, the angles of which are obtuse and the inner subparallel rami longer than the outer ones; fifth segment with two yellow stripes. Legs and coxæ light yellow; hind femora and tibiæ, save the knees, brown. Wings uniformly deep yellowish-brown; alulæ rudimentary.

Length 9 millim.

The ocelli are remote from the vertex, as in the genus *Mesogramma*, and the species otherwise is a rather aberrant *Baccha*.

The following species have also been recorded from within our limits:—

Baccha lineata, Macq. Dipt. Exot. 1^{er} Suppl. p. 139, t. 20. f. 5.—Texas or Yucatan.

— *marmorata*, Bigot, Ann. Soc. Ent. Fr. 1883, p. 333.—Mexico.

B. lineata may be synonymous with *B. livida*, Schiner.

MYIOLEPTA.

Myiolepta, Newman, Ent. Mag. v. p. 373 (1838).

Xylotæja, Rondani, Dipt. Ital. Prodr. ii. p. 96 (1857).

1. ***Myiolepta auricaudata***, sp. n., ♂ ♀. (Tab. I. figg. 11, ♂; 11 *a*, head; 11 *b*, hind leg.)

Male. Allied to *M. strigilata*, Loew. Body clothed with sparse white or yellow tomentum, this being longer, dense, and brassy on the terminal abdominal segments. Vertical triangle long, opaque white in front; contiguity of the eyes short. Face and front clothed with dense white pollen and some golden tomentum on the frontal triangle; a broad, shining, bare spot above the base of the antennæ; a transverse band on the face, extending down on the tubercle, and the cheeks also, bare and shining black. Tomentum of the mesonotum golden-yellow, arranged in indistinct rows. Second abdominal segment and the anterior part of the third with the tomentum more sparse, apparently bare in certain lights; on the posterior part of the third segment and on the fourth the tomentum is longer, dense, bright brassy-yellow, concealing the ground-colour. Legs black; the base of the middle and hind tibiæ, the middle metatarsi, and the hind metatarsi in part, light yellow or white; femora thickened and with spinules below. Wings subhyaline, clouded with brownish distally.

Female. Front black, with sparse white tomentum and two small, oval, white-pollinose spots on each side; face shining black, with an infra-antennal band and a narrow stripe from the eye to the oral margin white-pollinose. Tomentum of the mesonotum more white.

Length 6-7 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet, Cuernavaca in Morelos (*H. H. Smith*).

Two specimens.

Apart from the striking difference of the tomentum on the abdomen, this species differs from *M. strigilata* (female) in the front being narrower above, and in the darker antennæ, the absence of facial spot, darker legs, &c.

RHINGIA.

Rhingia, Scopoli, Ent. Carniol. p. 358 (1763).

1. ***Rhingia nigra***.

Rhingia nigra, Macq. Dipt. Exot. 1^{er} Suppl. p. 133, t. 11. f. 10¹.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Colombia¹.

PHALACROMYIA.

Phalacromyia, Rondani, Studi Ent. p. 67 (1848).

Synopsis of the recognized Central-American species.

1. A distinct transverse impression before the tip of the scutellum 2.
- Scutellum convex throughout 3.
2. Light-coloured species; scutellum with strong bristles on the lateral margins *virescens*, sp. n.

- Dark-coloured small species *bellula*, sp. n.
3. Epistoma much produced; proboscis longer than the femora 4.
Epistoma but little produced; proboscis not longer than the
femora; greenish species *vaga*, Wiedem.
4. Yellowish-red species; mesonotum without black *pulchra*, sp. n.
Yellow species; abdomen banded with black; mesonotum with
black stripes *pica*, Schiner.

1. *Phalacromyia pulchra*, sp. n., ♂ ♀.

Phalacromyia pulchra, Verrall, in litt.

Translucent amber-coloured. Front narrow; pile black. Antennæ about one third the length of the face, red; the third joint broader at its base, and with a long shallow emargination beyond, less dilated at the base in the female; arista thinly plumose. Face projecting strongly forwards into a long slender cone; the line of the cheeks below forms a gentle curve, and is about as long as the hind femora; in colour more yellowish; on either side a brownish stripe running from the eye to the oral margin. Proboscis long, with long labella. Mesonotum shining red, thinly yellowish- and blackish-pilose; pleuræ a little lighter-coloured; pectus black. Sides of the mesonotum and margin of the scutellum with well-developed bristles. A narrow band on the posterior margin of the second abdominal segment and a broader one on the hind part of the third, due to short black hairs, and more conspicuous in certain lights; the short pile elsewhere is reddish-yellow; the second and third segments have a very narrow brownish hind margin, not due to hair. Legs reddish-yellow; hind tibiæ with a brownish ring. Wings strongly tinged with brownish-yellow, with darker clouds on the cross-vein; marginal cell wide open. Eyes pilose.

Length 11-12 millim.

Hab. COSTA RICA, Rio Sucio (*Rogers*).

This insect is evidently closely allied, both in structure and in coloration, to *P. pica* (*picta*?), Schiner, from Colombia, and I at first felt disposed to identify it with that species. The abdomen is short and broad, and has the first and fourth segments very short: it is possible that Schiner may have mistaken the hair-bands for fasciæ of the ground-colour. The length of his four specimens is given at about 8 millim., whereas in these Costa-Rican examples it is nearly 12, and, counting the epistoma, over 13 millim. The proboscis is much shorter than the length of the body; there is no black on the thorax, save on the pectus; and the mesonotum especially is not clothed with "dichte, fuchsröthliche Behaarung."

2. *Phalacromyia pica*, ♂.

? *Phalacromyia pica*, Schiner, Reise der Novara, Diptera, p. 355, t. 4. figg. 6, 6 a (*picta*)¹.

Very like *P. pulchra*, but the colour is light honey-yellow; the mesonotum has three black stripes, the lateral ones interrupted; the second abdominal segment has a narrow black stripe behind, the third segment a broad stripe connected in the middle with the black of the second, and the fourth segment has a deep black diamond-shaped spot extending to the front margin. The wings are light yellow, with a large blackish cloud at the distal end and brown clouds on the cross-veins. The legs are light yellow, with a black ring on the hind tibiæ.

Length 9 millim.

Hab. MEXICO, Misantla (*F. D. Godman*).—SOUTH AMERICA, Colombia¹.

BIOL. CENTR.-AMER., Dipt., Vol. III., December 1891.

3. *Phalacromyia bellula*, sp. n., ♂.

In structure like *Volucella vesiculosa*, Fabr., or *V. pallens*, Wiedem., except that the marginal cell is narrowly open. Eyes pilose, with enlarged facets above. Face and front obscure yellowish-red; cheeks with a narrow brownish stripe. Antennæ luteous or reddish-yellow. Mesonotum deep brown, with metallic purple and bluish reflections and a yellowish translucency; pile black. Abdomen small, flat, deep brownish-black, the base somewhat yellowish-translucent. Legs brown or brownish-black; hind metatarsi yellow. Wings tinged with brownish-yellow.

Length 6-7 millim.

Hab. MEXICO, Temax in North Yucatan (*Gaumer*).

Two specimens.

A female from Teapa (*H. H. Smith*) has narrow clouds in the central cross-veins of the wings, the face and antennæ rather darker-coloured, and the bristles of the thorax and scutellum more strongly developed.

4. *Phalacromyia vaga*.

Volucella vaga, Wiedem. Aussereur. zweifl. Ins. ii. p. 205¹.

Phalacromyia vaga, Schiner, Reise der Novara, Diptera, p. 355.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).—SOUTH AMERICA, Brazil¹.

A female specimen from Xucumanatlan I believe to be of this species, though there are certain differences from the description. The front is green rather than yellow; the tip of the scutellum is only a little blackish, and has no impression (as one would infer is the case from Schiner's remarks); the femora are not "grünlich;" and there are narrow brown clouds on the cross-veins at the middle of the wing. Another female specimen, while agreeing closely with the foregoing in other respects, has the front and median facial stripe deep black; it is from Irazu, Costa Rica (*Rogers*).

5. *Phalacromyia virescens*, sp. n., ♀.

Face and front light yellowish-green; cheeks more yellow, with a narrow brown stripe. Front narrow; the crescentic spaces very narrow. Antennæ more than a third of the length of the face, light reddish-yellow; third joint not excised; arista well plumose, more than twice the length of the third joint. Face projecting downward and forward, resembling that of *Volucella pallens*, Wiedem.; strongly concave below the antennæ, with a rounded prominent tubercle. Thorax yellow; the mesonotum tinged with grassy-green; pile of mesonotum short, black; scutellum more strongly green, grooved before its apex; sides of the scutellum and postalar callosities with black bristles; the bristles of the thorax elsewhere light-coloured. Tegulæ with black cilia. Abdomen short, flat, in colour strongly grass-green, the basal segments more translucent yellowish. Legs: femora, except their brownish tip, light greenish-yellow; tibiæ and tarsi brown or brownish-yellow, the terminal joints of the tarsi blackish. Wings tinged with greenish-yellow, more strongly so in front; a small brown stigmatic spot; cross-vein near the base of the discal cell.

Length 9 millim.

Hab. GUATEMALA, El Tumbador, 2500 feet (*Champion*).

One specimen.

The following species have been described by Bigot :—

- Phalacromyia vicina*, Bigot, Ann. Soc. Ent. Fr. 1883 (*Phalacromyia*).—Mexico.
 — *melanorhina*, Bigot, loc. cit. p. 86 (*Phalacromyia*).—Mexico.
 — ? *volucelloides*, Bigot, loc. cit. p. 548 (*Glaurotricha*).—Mexico.

The generic distinctions between *Glaurotricha* and *Phalacromyia* are, to say the least, very doubtful, and for the present I believe the name *Glaurotricha* should be held in abeyance.

VOLUCELLA.

- Volucella*, Geoffroy, Hist. des Ins. envir. de Paris, p. 540 (1762).
Cenogaster, Duméril, Zool. Analyt. p. 282 (1806) ; Dict. des Sciences nat. Strasbourg, vii. p. 368 (1817).
Temnocera, St.-Fargeau & Serville, Encycl. Méth. x. 786 (1825) ; Macquart, Dipt. Exot. ii. 2, p. 26 (1842).
Ornidia, St.-Fargeau & Serville, Encycl. Méth. x. p. 786 (1825).
Atemnocera, Bigot, Bull. Soc. Ent. Fr. 1882, p. cxiv.

Synopsis of the recognized Central-American species.

- A. Large, inflated species ; face, in profile, descending, without distinct concavity above or tubercle below ; antennæ small ; scutellum without bristles ; second longitudinal vein not sinuous at its extremity ; abdomen clothed with short, recumbent, bristly hairs.
- a.* Wings with a large dark brown spot 4. *quadrata*, sp. n.
aa. Wings with small brown clouds on the cross-veins.
b. Black and deep red species ; abdomen not banded 1. *castanea*, Bigot.
bb. Largely yellow or reddish-yellow species ; abdomen with black bands.
c. Red or reddish-yellow species ; head of male very large ; wings strongly infuscated on the basal portion ; very large species 2. *lata*, Wiedem.
cc. Light yellow species ; mesonotum and abdomen largely black ; wings not strongly infuscated at the base 3. *isabellina*, Willist.
- B. Medium-sized species ; second longitudinal vein, near its extremity, distinctly sinuous, bending into the submarginal cell ; no prescutellar bristles.
- a.* Margin of the scutellum without bristles.
b. Mesonotum thickly yellow-pilose ; second abdominal segment with a pair of slender crescentic spots 10. *ornata*, sp. n.

- bb.* Mesonotum not thickly yellow-pilose; second abdominal segment not so marked.
- c.* Thorax wholly black; wings hyaline, with narrow dark brown clouds on the cross-veins, and similarly coloured spots in the marginal and submarginal cells 8. Sp.
- cc.* Wings not so marked.
- d.* Legs black, with the first three tarsal joints light yellow.
- e.* Wings distinctly fasciate; pleuræ with one or two yellow spots 6. *picta*, Wiedem.
- ee.* Wings indistinctly fasciate; pleuræ with five or six yellow spots 7. *fasciata*, Macq.
- dd.* Legs black, with the base of the tibiæ yellowish 5. *avida*, O. S.
- aa.* Margin of the scutellum with distinct bristles.
- f.* Wholly deep metallic blue species; face short, deeply concave below the antennæ 13. *obesa*, Fabr.
- ff.* More or less yellow species; face gently concave below the antennæ.
- g.* Face without median black stripe; abdomen reddish-yellow 12. *mellea*, Jaenn.
- gg.* Face with a median black stripe; abdomen chiefly black.
- h.* Mesonotum thickly yellow-pilose 11. *cesariata*, sp. n.
- hh.* Mesonotum thinly pilose; abdominal segments 2-4 banded 9. *fraudulenta*, sp. n.
- C. Second longitudinal vein regular; scutellum without bristles; no prescutellar row of bristles; wholly deep metallic species.
- a.* Face perpendicular and nearly straight in profile; wings pure hyaline 15. *comstocki*, Willist.
- aa.* Face concave and tuberculated; basal costal half of the wings deep brown; large species 14. *esuriens*, Fabr.
- D. Second longitudinal vein regular; scutellum with bristles; a prescutellar row of bristles present; face concave and tuberculate.
- a.* Epistoma strongly projecting, porrect, and acutely conical; third antennal joint markedly emarginate above 16. *haagi*, Jaenn.
- aa.* Epistoma produced but moderately or not all forwards; third antennal joint feebly or not at all emarginate.
- b.* Face with a brown median stripe; abdomen light yellow, with black bands 20. *comastes*, sp. n.
- bb.* Face without median stripe.
- c.* Wings without distinct spots; abdomen chiefly or wholly deep black or violet.
- d.* Wings pure hyaline 19. *chætophora*, Willist.
- dd.* Wings infusate; abdomen deep violet, with the base light yellow 21. *amethystina*, Bigot.

- cc. Wings spotted.
- e. Wings with a quadrate brown spot; abdomen more or less metallic posteriorly 18. *macula*, Wiedem.
- ee. Wings with narrow brown clouds on the cross-veins and near the end 17. *opinator*, sp. n.
- E. Small, thinly pilose species; second vein regular, the marginal cell closed near the costa or narrowly open; anterior cross-vein situated near the base of the discal cell; the first posterior cell long; frontal triangle small; the male eyes with enlarged facets above; face concave and tuberculate, conical; scutellum with bristles, often impressed before its tip; no prescutellar bristles.
- a. Scutellum yellow, with a preapical impression and a blackish spot at the tip; base of the abdomen light translucent yellow.
- b. Mesonotum, except the sides, deep blue-black.
- c. Face with a median black stripe 27. *lugens*, Wiedem.
- cc. Face without median black stripe 24. Sp.
- bb. Mesonotum wholly reddish-yellow.
- d. Wings with a conspicuous triangular blackish spot near the tip in front 22. *tympanitis*, Fabr.
- dd. Wings yellowish-hyaline, with a minute stigmatic spot. 23. Sp.
- aa. Scutellum without noticeable black spot at the tip.
- e. Scutellum with a rough, flattened, opaque spot on each side; an impression before the apex 26. *fuscipennis*, Macq. ?
- ee. Scutellum convex, without flattened opaque surface; no preapical impression.
- f. Mesonotum deep black, or metallic violet, with the lateral margins yellow 28. *purpurifera*, Bigot.
- ff. Mesonotum wholly yellow or reddish-yellow 25. *pallens*, Wiedem.

1. *Volucella castanea*.

Volucella castanea, Bigot, Ann. Soc. Ent. Fr. 1875, p. 476¹.

Hab. MEXICO, Oaxaca (coll. Bigot¹), Jalisco (Schumann).

A single specimen from Jalisco, the determination of which does not seem doubtful.

2. *Volucella lata*.

? *Volucella lata*, Wiedem. Aussereur. zweifl. Ins. iii. p. 195¹.

Volucella (Temnocera) megacephala, Willist. Synopsis N.-Am. Syrphidæ, p. 146² (nec Loew).

A very large, thick-set, yellowish species. Face gently convex and receding, without tubercle, produced but little downward; light brownish-yellow, clothed with short, chiefly white, hairs; cheeks of the same colour. Antennæ very small; the third joint scarcely three times as long as wide, almost imperceptibly emarginate in the male, not at all in the female; arista loosely plumose, not twice as long as the joint. Frontal triangle very small, of the colour of the face; eyes of the male contiguous for a long distance, their upper facets markedly larger than the lower ones. Front of the female long, convex, of the colour

of the face, very thinly clothed with hair. Thorax reddish-yellow; pectus black; pile of the same colour, not abundant, on the posterior part of the mesonotum more or less intermixed with black; just in front of the scutellum, in the middle, a short row of small black bristles. Scutellum a little lighter than the thorax, subtranslucent; pile chiefly black; margin without bristles. Abdomen large, broad, yellow and red; the posterior part of the second, third, and fourth segments more or less black, the black greatest in extent on the third segment; anterior angles of the segments with some yellowish pile, but the dorsum is almost wholly clothed with very short recumbent black bristly hairs. Venter black posteriorly and in the middle in front. Legs almost uniformly yellowish-red, the coxæ black. Wings hyaline, brownish-yellow along the costa and at the base; the cross-veins of the middle clouded with black.

Length 16-19 millim.

Hab. UNITED STATES, Arizona².—MEXICO^{1,2}, Temax in Northern Yucatan (*Gaumer*), Atoyac in Vera Cruz (*Schumann*).

Six specimens, including both sexes.

This species is mentioned in my Synopsis (p. 146) as perhaps being the same as *V. (Temnocera) megacephala*, Loew, but I am fully satisfied that this cannot be the case. Apart from the size and other striking differences, the species has neither of the characters of *Temnocera*. In the two northern specimens, which are also somewhat larger, the mesonotum shows indications of brown stripes, wholly wanting in the others. The species is remarkable for the very large tabanoid head of the male, its very small antennæ, and large size.

3. *Volucella isabellina*.

Volucella isabellina, Willist. Synopsis N.-Am. Syrphidæ, p. 140¹.

Hab. UNITED STATES, Arizona¹.—MEXICO, Northern Sonora (*Morrison*).

A single specimen from Sonora agrees well with the description, but is somewhat smaller than the size there given.

4. *Volucella quadrata*, sp. n., ♀. (Tab. I. figg. 12, ♀; 12 *a*, head; 12 *b*, antenna.)

Allied to *V. decora*, *V. castanea*, *V. lata*, &c. Head light yellow, a brown band at the upper part of the front, and a similarly coloured stripe on the cheeks; front broad. Face in profile gently receding, forming a long, moderate convexity, not tuberculate or concave, produced downward but little. Pile of the front blackish, that of the face light yellow, short. Proboscis black, short. Antennæ very small, red; third joint gently widened at the base, and briefly emarginate before the tip; arista thinly plumose. Mesonotum dark brown, with two faint pollinose stripes in front; the lateral margins, and a large quadrate spot behind, light yellow; pile moderately abundant, yellow. Pleuræ black, a large light yellow spot on the mesopleuræ, covered with dense yellow pile. Scutellum translucent reddish-yellow, without bristles. Abdomen yellow and red, with the posterior part of the segments black; covered with short recumbent black hair. Legs brown or blackish-brown, the knees and the base of tibiæ somewhat lighter. Wings nearly as in *V. esuriens*; a dark brown subquadrate spot at the middle in front, hyaline beyond, and brownish on the basal part.

Length 14 millim.

Hab. MEXICO, Chilpancingo in Guerrero (*H. H. Smith*).

One specimen.

5. *Volucella avida*.

Volucella avida, Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Surv. iii. p. 333¹; Willist. Synopsis N.-Am. Syrphidæ, p. 139, t. 6. figg. 12, 12 b².

Hab. UNITED STATES, California^{1 2}.—MEXICO, Jaral in Guanajuato (*Schumann*).

A single female specimen from Jaral presents a number of minor variations from the descriptions. The cheeks are not wholly black; there are two oval, rather remote, spots in front of the scutellum. I see no black hairs on the margin of the scutellum; the median stripe of the second abdominal segment is not expanded anteriorly; and the basal joints of the tarsi are deep red.

6. *Volucella picta*.

Volucella picta, Wiedem. Aussereur. zweifl. Ins. ii. p. 201¹; Rondani, Studi Ent. p. 65²; Schiner, Reise der Novara, Diptera, p. 358³; Willist. Trans. Am. Ent. Soc. xv. p. 275⁴.

Volucella pulchripes, Bigot, Ann. Soc. Ent. Fr. 1875, p. 480⁵.

Hab. MEXICO⁵, Omilteme 8000 feet, Dos Arroyos 1000 feet, Venta de Zopilote 2800 feet, and Tierra Colorada 2000 feet, all in Guerrero (*H. H. Smith*), Orizaba (*H. H. Smith* and *F. D. Godman*), Temax in Northern Yucatan (*Gawner*).—SOUTH AMERICA, Brazil^{1 2 3 4}.—WEST INDIES, Cuba.

Twenty specimens, which I confess myself unable to refer positively to this species, though I have compared them with examples from Brazil. As mentioned by me in the paper referred to above⁴, there is great variation in the markings. If all these Mexican representatives are referable to *V. picta*, as I believe they are, then it would seem very probable that the name *V. pusilla*, Macq., is synonymous. In structure the specimens are all quite alike, and there is no noteworthy variation in the markings of the wings. I group the principal varieties as follows:—

- (a) *Male*. Cheeks, median facial stripe, and frontal triangle deep black. Thorax wholly deep blue-black, save a small spot below the humeri and another in front of the scutellum; usually, also, a small vittula above the base of the wings. Scutellum reddish-yellow, without black pile. Abdomen black, with obscure reddish spots on the sides of the second and third segments. Legs deep black, the knees narrowly yellowish, the base of all the tarsi reddish-yellow, the base of the hind femora narrowly reddish. Humeri often yellowish.

This is evidently the same as *V. pulchripes*, Bigot.

- (b) *Male*. Like *a*, but the facial stripe brown, the scutellum with black pile, the humeri and a vittula above the wings yellow.
- (c) *Male*. Face and frontal triangle light yellow; sides of the mesonotum yellow, enclosing a black spot posteriorly; scutellum light yellow, with dark red pile; a large yellow spot on the mesopleuræ; two yellow spots in front of the scutellum; base of the abdomen light yellow; a large yellow spot on the sides of the second and the third segments.

This variety agrees quite with some of the specimens from Brazil, and seems to be the true *V. picta*.

- (d) *Female*. Face with a brownish stripe; front yellow; sides of the mesonotum less yellow than in *c*; mesopleuræ with a small spot; prescutellar spots confluent; scutellum with black pile; second abdominal segment with a light yellow broad band.

7. *Volucella fasciata*.

Volucella fasciata, Macq. Dipt. Exot. ii. 2, p. 22, t. 5. f. 2¹; Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Survey, iii. p. 334²; Willist. Synopsis N.-Am. Syrphidæ, p. 145, t. 6. f. 4³.

Hab. UNITED STATES, Kansas³, Colorado^{2 3}, Carolina^{1 3}, Texas^{2 3}.—MEXICO³.

I have seen specimens of this species from Northern Mexico.

8. *Volucella* — ?

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*).

A single specimen, apparently of a new species, but injured, is so characteristically marked that I believe it will be recognized from the particulars given in the synopsis and the following:—The abdomen and legs as in *V. picta*; the thorax wholly black, somewhat metallic, with black and yellow pile; the face dark red; the brown spots of the wings forming two incomplete fasciæ, the one extending from the subcostal to the submarginal, the other from the marginal to the first posterior cell. Length 8 millim.

9. *Volucella fraudulenta*, sp. n., ♂ ♀. (Tab. I. figg. 13, ♀; 13 *a*, head; 13 *b*, antenna.)

Male. Face yellow, with a broad median stripe, and the cheeks broadly, shining black; in profile straight and perpendicular below the small antenniferous process to the lower third, where it is gently receding. Frontal triangle black in the middle, on the sides yellow; pile long and black. Antennæ nearly black; narrow, elongate, the third joint not dilated at the base; a little less than half the length of the face; arista not longer than the third joint, somewhat abundantly plumose. Eyes densely black-pilose along the middle, less so behind. Mesonotum shining black; the humeri, a vittula above the wings, and two dots or spots in front of the scutellum, yellow; pile rather abundant and long, but not obscuring the ground-colour. Pleuræ black, with yellow pile; a vertical yellow spot on the mesopleuræ. Scutellum light translucent-yellow, chiefly, rather abundantly and long, black-pilose; along its margin about twelve thin bristles, approximated in the middle. Abdomen black, with abundant, erect pile, obscuring the ground-colour but little; the pile on the hind margins of the second and third segments and on the small hypopygium black, elsewhere yellowish, longer on the fourth segment; on each side of the second segment an elongate, narrow, oblique yellow spot, the posterior margin of the segment more deeply black; third segment with an anterior narrow band, widened on the margin and emarginate or interrupted in the middle, yellow; fourth segment with the anterior margin laterally yellow. Legs black, the first two joints of the tarsi red. Wings subhyaline; clouded distally, and with narrow brown clouds on the cross-veins; second vein markedly sinuous at the tip. Tegulæ white, white-ciliate.

Female. Third joint of the antennæ broader at the base and longer, distinctly more than half the length of the face. Front with a black stripe, and well-marked crescentic grooves. Pile of the thorax and abdomen shorter. Crescentic spots of the second abdominal segment larger and less widely interrupted, and the lateral margins of the same segment yellow.

Length 9–10 millim.

Hab. MEXICO, Venta de Zopilote in Guerrero 2800 feet (*H. H. Smith*), Temax in Northern Yucatan (*Gaumer*).

Five specimens.

10. *Volucella ornata*, sp. n., ♂.

Frontal triangle and face light yellow, the former with a small black spot, the latter with a broad black stripe on either side, extending from the eyes to the oral margin, and a narrower median one, obsolete above. Cheeks yellow, blackish posteriorly. Face, in profile, projecting downward and but little forward, with a long concavity above and a small, well-marked tubercle below. Antennæ about one-half of the length of the face; brownish-red or blackish; arista thinly plumose, not much longer than the third joint. Eyes densely and long, in most reflections whitish, pilose. Mesonotum thickly light reddish-yellow-pilose; metallic black, the sides, and a geminate spot behind, as also the scutellum, honey-yellow. Pleuræ black, with abundant light-coloured pile; a yellowish spot on the mesopleuræ and another above the middle coxæ. Abdomen brownish-black; pile yellow; second segment with the lateral margins, more broadly so in front and contiguous behind with the outer extremity of an interrupted band, composed of two shallow crescents, yellow; third segment with two similarly-coloured narrow bands—one on the front margin, entire, the other near the middle, straight and interrupted; the second and third segments have a fringe of yellow pile behind; the fourth segment has a broad transverse groove, or, rather, a large, rounded, shallow V-shaped ridge. Legs yellowish-red or red, the basal joints of the middle tarsi and the distal ones of the hind tarsi lighter-coloured; pile yellow and black, especially abundant on the hind tibiæ. Wings with brownish clouds; second longitudinal vein strongly sinuous at its extremity; third vein in front of the first posterior cell not straight.

Length 10–12 millim.

Hab. MEXICO, Jalapa (*F. D. Godman*).

Three specimens.

11. *Volucella cæsariata*, sp. n., ♂.

Face on the sides light yellow, a broad median stripe, and the cheeks broadly, black; frontal triangle black, with black pile. Face, in profile, nearly perpendicular, with a shallow concavity above and a small tubercle below the middle. Antennæ black, nearly half the length of the face; third joint gently excised; arista but little longer than the joint. Mesonotum and scutellum thickly clothed with reddish-yellow pile, obscuring the ground-colour; the former metallic bronze-black, with the sides broadly and a large posterior emargination honey-yellow, as is also the scutellum; lateral margins and the whole border of the scutellum with well-developed black bristles. Pleuræ black, with black and whitish pile, somewhat intermixed with fulvous above. Abdomen brownish-black, with abundant, not very long, mostly yellow pile; second segment with an oblique lateral spot, and the narrow base of the third segment, yellow or yellowish. Legs black, the knees narrowly yellow; the first three joints of all the tarsi light reddish-yellow. Wings clouded with blackish distally; cross-veins of the disc with dark brown clouds; second vein markedly sinuous at its tip.

Length 12 millim.

Hab. MEXICO, Orizaba (*H. H. Smith*).

One specimen.

12. *Volucella mellea*.

Volucella mellea, Jaenicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 396¹.

Hab. MEXICO¹, Jaral in Guanajuato, Mexico city (*Schumann*).

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Two specimens, easily recognizable from the description. The pile of the mesonotum can hardly be said to be "sehr kurz"; the peculiar dots on the fourth abdominal segment are only visible in the female example.

13. *Volucella obesa*.

Syrphus obesus, Fabr. Syst. Ent. p. 763¹; Ent. Syst. iv. p. 282²; Syst. Antl. p. 227³.

Volucella obesa, Wiedem. Aussereur. zweifl. Ins. ii. p. 199⁴; Macq. Hist. Nat. Dipt. i. p. 494⁵;

Dipt. Exot. ii. 2, p. 21⁶; Schiner, Reise der Novara, Diptera, p. 356⁷; Willist. Synopsis N.-Am.

Syrphidæ, p. 143, t. 5. f. 9⁸; Trans. Am. Ent. Soc. xv. p. 272⁹.

Ornidia obesa, St.-Fargeau & Serville, Encycl. Méth. x. p. 786¹⁰.

Hab. UNITED STATES, New Mexico⁸, Florida⁸.—MEXICO⁸ (*H. H. Smith*); GUATEMALA (*Champion*); COSTA RICA (*Van Patten*); PANAMA (*Boucard*).—SOUTH AMERICA^{5 7 10}, Colombia⁶, Guiana⁶, Surinam⁶, Brazil^{4 6 9}, Chili⁶; WEST INDIES³, Cuba⁶, San Domingo⁸, Guadaloupe⁶.—BOURBON⁶; ISLE OF FRANCE^{6 10}; EAST INDIES⁶.

In the Central-American collections before me there are one hundred and twelve examples of this brilliantly-coloured, cosmopolitan insect, from numerous collectors and localities. The most interesting thing in connection with these specimens is the very great variation in size—the smallest measuring only 9 millim. in length, while the largest are 16 millim.

14. *Volucella esuriens*.

Syrphus esuriens, Fabr. Syst. Ent. iv. p. 281¹; Syst. Antl. p. 226².

Volucella esuriens, Wiedem. Aussereur. zweifl. Ins. ii. p. 197³; Schiner, Reise der Novara, Diptera, p. 356⁴.

Volucella violacea, Say, Journ. Acad. Phil. vi. p. 166⁵; Complete Writings, ii. p. 360⁶.

Volucella mexicana, Macq. Dipt. Exot. ii. 2, p. 25, t. 5. f. 3⁷; Schiner, Reise der Novara, Diptera, p. 356⁸; Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Survey, iii. p. 332⁹.

Volucella dispar, Macq. Dipt. Exot. 1^{er} Suppl. p. 123, t. 11. f. 2¹⁰.

Volucella maximiliani, Jaenicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 395¹¹.

Volucella metallifera, Walker, List Dipt. iii. p. 636¹².

Volucella esuriens mexicana, Willist. Synopsis N.-Am. Syrphidæ, p. 137, t. 6. figg. 5, 5 a¹³.

Hab. UNITED STATES, California^{9 13}, Arizona¹³, Texas⁹, Florida¹³.—MEXICO^{5 6 7 9 11 12}, Omilteme, Xucumanatlan, Amula, Mexico city (*H. H. Smith*), Jaral, Atoyac (*Schumann*); GUATEMALA (*Champion*).—SOUTH AMERICA⁴, Colombia¹⁰, Venezuela¹²; WEST INDIES^{1 2 3}.

Thirty-four specimens. *V. mexicana* is probably inseparable from *V. esuriens*, and I have so given the synonymy; but should there be good ground for distinguishing it, the name *violacea*, Say, ought to be used.

15. *Volucella comstocki*.

Volucella comstocki, Willist. Synopsis N.-Am. Syrphidæ, p. 138, t. 6. f. 9¹.

Hab. UNITED STATES, Arizona¹, New Mexico¹.—MEXICO, Northern Sonora (*Morrison*).

A single specimen, agreeing well with the description.

16. *Volucella haagi*.

Volucella haagi, Jaenicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 397¹; Willist. Synopsis N.-Am. Syrphidæ, p. 147, t. 5. f. 8².

Temnocera setigera, Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Survey, iii. p. 334³; v. d. Wulp, Tijdschr. v. Ent. xxv. p. 126, t. 10. f. 10⁴.

Hab. UNITED STATES, New Mexico^{2 3}, Arizona^{2 4}.—MEXICO¹, Northern Sonora (*Morrison*), Amula in Guerrero (*H. H. Smith*), Jaral in Guanajuato (*Schumann*).

Four specimens, agreeing well with the descriptions.

17. *Volucella opinator*, sp. n., ♀. (Tab. I. figg. 14, ♀; 14 *a*, head; 14 *b*, antenna.)

Face and front shining yellow, the former narrow, with black pile; antennæ nearly of the same colour; cheeks with a faint stripe. Antennæ not a third of the length of the face; third joint rather broad, scarcely three times as long as wide; arista thinly plumose, much longer than the third joint. Face, in profile, projecting well downward and forward, considerably concave below the antennæ, and with an elongate, obtuse tubercle. Thorax yellow; pectus black; mesonotum, except the sides and a quadrate spot behind, brownish-red, subvittate, with violaceous reflections. Scutellum somewhat reddish above, flattened before its tip. Mesopleuræ, sides of mesonotum, and the margin of the scutellum with conspicuous black bristles, those on the scutellum moderately remote at the apex; also a transverse row of bristles in front of the scutellum. Abdomen yellow, posteriorly more reddish or brownish-yellow; posterior margin of the second and third segments with a narrow blackish band, due, in part, to the ground-colour, in part to the short recumbent black hairs; fourth segment with a transverse streak, and the hind margin, blackish, perhaps variable. Legs brownish-red; tips of the tarsi blackish; distal end of the middle femora posteriorly with short black bristles. Wings nearly hyaline; central cross-veins, anterior cross-vein, stigma, tip of marginal cell, and outer cross-veins with dark brown clouds; marginal cell at tip almost imperceptibly widened.

Length 12 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

One specimen.

18. *Volucella macula*.

Volucella macula, Wiedem. Ausserneur. zweif. Ins. ii. p. 200¹; Macq. Dipt. Exot. ii. 2, p. 24, t. 4. f. 1²; Willist. Trans. Am. Ent. Soc. xv. p. 272³.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Brazil^{1 2 3}.

A single male specimen from Teapa, agreeing closely with others from Brazil.

19. **Volucella chætophora.** (Tab. I. figg. 15, ♂; 15 a, head; 15 b, antenna.)
Volucella chætophora, Willist. Synopsis N.-Am. Syrphidæ, p. 149¹.

Hab. MEXICO, Acapulco in Guerrero (*H. H. Smith*), Isthmus of Tehuantepec (*coll. Riley*¹), Temax in Northern Yucatan (*Gaumer*).

Two specimens. The front is black-pilose, not "black, pilose." There is some shorter whitish pile on the mesonotum, and the legs may be deep red or reddish-black, and the abdomen deep blue. There are violaceous reflections on the mesonotum.

20. **Volucella comastes**, sp. n., ♀.

Front brown, yellow at the vertex and on the sides below; pile black. Face light yellow, with a broad brown stripe; in profile nearly perpendicular, with an obtuse tubercle. Cheeks with a broad blackish stripe. Antennæ at least a third of the length of the face, dark brown, the basal joints more reddish; third joint gently widened at the base; arista not thinly plumose. Mesonotum shining blue-black, the sides yellow and reddish, and with a light yellow geminate spot in the middle behind. Pleuræ brownish-black; a light yellow spot on the mesopleuræ. Margin of scutellum, postalar callosities, and lateral margins of mesonotum with black bristles; a transverse row of bristles in front of the scutellum. Scutellum translucent brownish-yellow, yellow at the base and margin. Abdomen: first segment more or less brown; second segment very light translucent-yellow, with a narrow posterior dark brown or black band; third segment black, with an interrupted yellow band in front. Legs brownish-black; the distal end of the femora, basal part of the tibiæ, and basal joints of the tarsi reddish. Wings nearly hyaline, clouded on the anterior part, the clouds forming two darker spots—one near the tip, the other, the larger, at the middle. Length 9 millim.

Hab. MEXICO, Orizaba (*H. H. Smith* and *F. D. Godman*).

Two specimens. One might suspect this to be *V. variegata*, Bigot, save for the abdominal markings and the size.

21. **Volucella amethystina.**

Volucella amethystina (sic), Bigot, Ann. Soc. Ent. Fr. 1875, p. 479¹.

Hab. MEXICO¹, Presidio (*Forrer*).

This striking species is easily recognizable from Bigot's description. The head is rather broad, the face produced acutely downward; the third antennal joint of the female is not at all coarctate; the scutellum is not impressed before its apex, the bristles at the tip are remote, and there is an inconspicuous row of them before the scutellum.

22. **Volucella tympanitis.**

Syrphus tympanitis, Fabr. Syst. Antl. p. 226¹.

Volucella tympanitis, Wiedem. Aussereur. zweifl. Ins. ii. p. 200²; Willist. Trans. Am. Ent. Soc. xv. p. 275³.

Hab. MEXICO, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*); PANAMA, Bugaba (*Champion*).—SOUTH AMERICA^{1 2}, Brazil³.

Eight specimens, agreeing closely with others from South America.

23. *Volucella* — ?

Hab. GUATEMALA, Cubilguitz in Vera Paz (*Champion*).

A single male specimen from Cubilguitz shows a remarkable resemblance to *V. tympanitis* in almost everything, except as regards the colour of the wings and legs. The conspicuous brown spot at the tip of the wings is entirely wanting, and the stigmatic spot is smaller; the tibiæ and tarsi are largely brown; the latter are yellowish at the base, blackish at the tips; the scutellum is more impressed at the tip, and the brown spot is darker; and the black bands on the abdominal segments are narrower. The species is certainly distinct.

24. *Volucella* — ?

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Two specimens from Bugaba, male and female, bear a remarkable resemblance to *V. musta*, Willist., from Brazil, and were, at first sight, deemed identical. A more careful examination, however, discloses important differences. The third joint of the antennæ is longer and more slender; there are no black spots on the hypo- (not "meso-") and sternopleuræ, the thorax being entirely yellow, save the mesonotum, which (except the lateral margins) is deep violet-black; the second abdominal segment has a broader hind margin; and the third and fourth segments are black, save a large lateral spot*. Both species, like the preceding one (no. 23), are conspicuous for the brown- or blackish-tipped scutellum, which is impressed before its apex and has the bristles separated at the tip by a broad interval. That either this or *V. musta* is conspecific with *V. vaga*, Wiedem., which must resemble them in markings, is doubtful. Apart from the fact that both species have the marginal cell briefly petiolate, the colour is yellow and not at all greenish. That one or the other may be referable to *V. parva*, Rondani, is possible.

25. *Volucella pallens*.

Volucella pallens, Wiedem. Ausseur. zweif. Ins. ii. p. 204¹; Willist. Trans. Am. Ent. Soc. xv. p. 275².

Volucella sexpunctata, Loew, Wien. ent. Monatschr. v. p. 38³; Centur. vi. no. 37, in Berl. ent. Zeitschr. 1865, p. 151⁴; Willist. Synopsis N.-Am. Syrphidæ, p. 141, t. 6. f. 2⁵.

Hab. UNITED STATES, Florida⁵.—GUATEMALA, Dueñas (*Champion*).—SOUTH AMERICA, Brazil^{1 2}; WEST INDIES, Cuba^{3 4}.

* Since writing the above I have found an additional female example, in which the black of the dorsum is much narrower, there is a black spot on the sternopleuræ, and the yellow has a somewhat greenish cast. I much suspect that the Vera Paz insect (*Volucella*, no. 23), notwithstanding the entire absence of the strikingly deep metallic colour of the thorax, belongs to the same species.

A single male specimen from Dueñas, agreeing well with others from South America and the United States.

26. *Volucella fuscipennis*. ?

Volucella fuscipennis, Macq. Dipt. Exot. ii. 2, p. 24, t. 4. f. 2¹; Willist. Trans. Am. Ent. Soc. xv. p. 276².

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*), Temax in Northern Yucatan (*Gaumer*).—SOUTH AMERICA, Brazil^{1 2}.

A dozen specimens from Southern Mexico show only minor differences from an example identified as this from Brazil. The colour is lighter, more reddish; the violet reflections of the mesonotum are feebler; and the legs are chiefly reddish-brown, with the tarsi more or less yellow, especially the hind metatarsi. The face seems somewhat less acuminate, and the lateral roughened opaque surface on the scutellum somewhat larger. In the Brazilian specimen the marginal cell is narrowly open; in all the Mexican ones it is closed at the tip. The female has a rounded elevation in the middle of the front.

A single female from Presidio, Mexico (*Forrer*), has the structure of the others, but is yellow, with the pectus, lateral scutellar spots, front, narrow abdominal bands, and the base of the femora black; the mesonotum with a trace of violet stripes.

27. *Volucella lugens*.

? *Volucella lugens*, Wiedem. Aussereur. zweifl. Ins. ii. p. 206¹.

Hab. GUATEMALA, Lanquin in Vera Paz (*Champion*).—SOUTH AMERICA, Brazil¹.

A single male example from Lanquin agrees very well with the description. The legs and markings of the abdomen are brown, rather than black. A comparison with Brazilian specimens is needed to determine with certainty the identity.

28. *Volucella purpurifera*.

Volucella purpurifera, Bigot, Ann. Soc. Ent. Fr. 1875, p. 477¹.

Volucella tricineta, Bigot, loc. cit. p. 477².

Volucella varians, Bigot, loc. cit. p. 481³, & 1883, p. 63.

Hab. MEXICO³, Oaxaca^{1 2}.

Bigot has expressed the opinion that all three of the above names pertain to one species, a view that does not seem improbable from the descriptions. Two male specimens from Amula (*H. H. Smith*) may belong to the same. As the descriptions are insufficient to decide the question with certainty, I give a more complete one from these specimens:—

Face and frontal triangle greenish-yellow, more yellowish below, the former with a brownish stripe in the

middle, the latter small; cheeks with a dark brown stripe in front; in profile the face is deeply concave above, with a well-marked tubercle. Antennæ reddish-yellow, small, not a third of the length of the face, the third joint scarcely three times as long as wide; arista well plumose, more than twice as long as the joint. Thorax yellow, the pectus black; the mesonotum, except the lateral margins, deep metallic purple, more yellowish posteriorly. Scutellum yellow, somewhat purplish, with black pile, and the margin with black bristles, the latter only a little remote at the apex; no preapical depression. Abdomen light yellow at the base, the posterior margins of the second, third, and fourth segments black, the third and fourth segments, otherwise, more obscure yellowish- or brownish-red. Legs brown, blackish, and obscurely yellow; the hind metatarsi lighter yellow. Wings subhyaline, the marginal cell closed in the costa or narrowly open.

Length 7 millim.

The following species have also been described by Bigot from within our limits:—

- Volucella variegata*, Bigot, Ann. Soc. Ent. Fr. 1875, p. 478.—Mexico.
- *nigrifacies*, Bigot, loc. cit. p. 479.—Mexico.
- *viridula*, Bigot, loc. cit. p. 481.—Mexico.
- *tristis*, Bigot, loc. cit. p. 482.—Mexico.
- *fulvicornis*, Bigot, loc. cit. 1883, p. 84.—Panama.
- *tau*, Bigot, loc. cit. p. 84; Willist. Synopsis N.-Am. Syrphidæ, p. 143.—Mexico, California.

OPHROMYIA, gen. nov.*

Male. Allied to *Volucella*, but differing in the structure of the head. Eyes pilose, broadly separated at the vertex. Antennæ inserted low down, nearly as low as the lower border of the eyes. Front swollen and remarkably broad, of the full width of the face to just below the ocelli, where it becomes suddenly narrowed to about half its previous width. Face short, small, conical, projecting downward, compressed before its tip so as to form a small, rounded snout. Antennæ slender, two-thirds as long as the face; second joint with a projection on the inner side, overlapping the base of the third joint. Arista loosely plumose, but somewhat peculiar in that the plumosity extends quite to the tip, the individual hairs becoming successively longer, and curved backward. Thorax with bristles. Wings as in *Volucella*; anterior cross-vein toward the base of the discal cell.

The two specimens from which this description is drawn were not suspected to be males from the structure of the head.

1. *Ophromyia nasica*, sp. n., ♂. (Tab. II. figg. 1, ♂; 1 a, head; 1 b, antenna.)

Front and face oily-, or subtranslucent-yellowish-, white, the cheeks with a brown line. Nearly opposite the base of the antennæ, close to the eyes, there is a small silvery spot, with a minute brown dot above and below, the lower one at the extremity of a suture running horizontally from the base of the antennæ. Front, above, clothed with thick, short, whitish pile. Antennæ brownish-red. Mesonotum deep blue, with violet reflections, the lateral margins obscurely yellowish; pile short, not abundant, whitish; lateral margins with stout bristles, and a row of more slender bristles before the scutellum. Pleuræ yellow and black. Scutellum deep purplish black, with three stout bristles on each lateral margin. Abdomen light yellow, subtranslucent; obscurely brownish distally; second and third segments with a narrow dark band posteriorly, due in part to the ground-colour, in part to short black hairs. Wings lightly tinged with

* 'Οφρὺς, brow; μυία, fly.

yellow; distinctly clouded distally. Legs light yellow; the immediate base of the femora brownish; front and middle tibiae, except their base, and their tarsi, black, the corresponding parts of the hind legs more brown.

Length 9 millim.

Hab. MEXICO, Acaguizotla in Guerrero (*H. H. Smith*).

Two specimens.

COPESTYLUM.

Copestylum, Macquart, Dipt. Exot. 1^{er} Suppl. p. 124 (1846).

1. *Copestylum marginatum*.

Volucella marginata, Say, Journ. Acad. Phil. vi. p. 167¹; Complete Writings, ii. p. 360²; Osten Sacken, Western Diptera, in Bull. U.S. Geol. & Geogr. Survey, iii. p. 333³.

Copestylum marginatum, Osten Sacken, Cat. N.-Am. Dipt. 2nd ed. p. 130⁴; Willist. Synopsis N.-Am. Syrphidæ, p. 151, t. 7. figg. 1, 1 *a*, 1 *b*⁵.

Copestylum flaviventris, Macq. Dipt. Exot. 1^{er} Suppl. p. 125, t. 10. f. 16⁶.

Hab. UNITED STATES, Texas^{3 4 5}, Arizona⁵, California⁵, Montana⁵, Colorado.—MEXICO^{1 2 4}, Northern Sonora (*Morrison*), Tepetlapa in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).—SOUTH AMERICA, Colombia⁶, Venezuela⁶.

Central-American specimens are of the variety with light antennæ, as described by me, and show no differences from the description, and only minor differences among themselves.

2. *Copestylum limbipenne*. (Tab. II. figg. 2, ♀; 2 *a*, head; 2 *b*, antenna.)

Copestylum limbipennis, Willist. Synopsis N.-Am. Syrphidæ, p. 152¹.

Hab. MEXICO, Venta de Zopilote, Acapulco (*H. H. Smith*), Isthmus of Tehuantepec¹.

The females agree with the description; the antennæ are somewhat lighter coloured, and the lateral margins of the abdomen are yellow. The males have smaller, more slender antennæ, longer pile throughout, and are without the yellow spots and vittulæ of the mesonotum, or have only yellowish indications of them. The abdomen is frequently more brown than black.

ERISTALIS.

Eristalis, Latreille, Hist. Nat. Crust. et Ins. xiv. p. 363 (1805).

Eristalomya, Rondani, Dipt. Ital. Prodr. ii. p. 40 (1857).

Eristalinus, Rondani, loc. cit.

Synopsis of the recognized Central-American species.

1. Mesonotum with one or more ashy or shining transverse bands; arista bare 11.

ERISTALIS.

- Mesonotum otherwise marked or uniform in colour; eyes
 pilose 2.
2. Mesonotum uniform in colour, or with feeble markings . 3.
 Mesonotum conspicuously opaque-black and ashy . . . 9.
3. Large, black species; all the tarsi and the four anterior
 tibiæ light yellow *persa*, sp. n.
 Tibiæ and tarsi not so marked 4.
4. Arista plumose; thickly fulvous-pilose; abdomen of the
 male for the most part red, of the female black . . . *circe*, sp. n.
 Arista bare 5.
5. Hind tibiæ compressed and densely ciliate; large species;
 thorax densely fulvous-pilose 6.
 Hind tibiæ not compressed and ciliate 7.
6. Front below and frontal triangle wholly light yellow-
 pilose; abdomen light yellow-pilose, with opaque black
 and metallic green cross-bands *obsoletus*, Wiedem.
 Front, frontal triangle, and abdomen chiefly black-pilose,
 the latter in great part shining black; wings with a
 brown spot *pachypoda*, Bigot.
7. Mesonotum shining greenish-black, clothed with yellow
 or yellowish pile; second abdominal segment with a
 posterior, velvety black, interrupted or subinterrupted
 cross-band *latifrons*, Loew.
 Mesonotum otherwise coloured; no shining black on the
 second abdominal segment 8.
8. Head and thorax yellow or brownish-yellow, the meso-
 notum not shining *ochraceus*, Willist.
 Head and thorax black *bellardi*, Jaenn.
9. Mesonotum with four opaque black stripes, the median
 pair in the shape of a tuning-fork *furcatus*, Wiedem.
 Mesonotum not striped 10.
10. Mesonotum, behind the suture, with three opaque black
 spots—the median one suboval, the lateral ones
 triangular *trigonus*, sp. n.
 Mesonotum opaque black behind the suture, with two
 median, oval ashy spots, and a similarly coloured
 lateral, oblique one *cosmius*, Schiner.
11. A shining or opaque grey band in front of the scutellum . 15.
 Mesonotum opaque black behind the suture to the
 scutellum; eyes pilose 12.
12. Pile of frontal triangle light yellow or white, of the front
 black above only; hind femora but little thickened . 13.
 Pile of the frontal triangle and the front below more or
 less black 14.
13. A black band before the ashy sutural band; second

- segment of the abdomen light yellow, with a narrow black stripe not quite reaching the hind margin *albifrons*, Wiedem. (♂). 62
- The whole anterior part of the thorax ashy; second abdominal segment with a broader interval between the side-spots *tricolor*, Jaenn.
14. The yellow side-spots of the second abdominal segment approximate or contiguous anteriorly; the ashy thoracic band interrupted or subinterrupted; hind femora only moderately incrassate Sp. (no. 14). 63 = *tricolor* ^{Wiedem.}
- The yellow spots of the second segment not approximate in front; the ashy sutural band entire; hind femora considerably thickened *fasciatus*, Wiedem.
15. Mesonotum with a shining, steel-blue band in front of the scutellum; eyes pilose at the top only *scutellaris*, Fabr.
- Mesonotum with an ashy band in front of the scutellum 16.
16. Grey clouds in the marginal and submarginal cells 17.
- Marginal and submarginal cells pure hyaline; smaller species 18.
17. Pile of frontal triangle, and the front below, light yellow; hind tibiæ compressed and ciliate *vinetorum*, Fabr.
- Pile of frontal triangle and front chiefly black *æmulus*, sp. n.
18. Very small species (6-7 millim.); hind femora considerably thickened; spots of the second abdominal segment broadly separated *minutalis*, sp. n.
- Moderate-sized species; hind femora moderately thickened 19.
19. Frontal triangle and front below white-pilose 20.
- Frontal triangle and front below largely black-pilose 21.
20. Second and third abdominal segments yellow and red, or with the middle brownish *rufiventris*, Macq.
- Second segment with a median stripe, and the rest of the abdomen (except sometimes the narrow anterior angles of the third segment), black *albifrons*, Wiedem. (♀). 62
21. Third and fourth abdominal segments opaque, with a complete shining band Sp. (no. 18).
- Third and fourth abdominal segments more or less yellow or red Sp. (no. 21).

1. ***Eristalis persa***, sp. n., ♀.

Allied to *E. circe*. Face shining black, thinly yellowish-dusted on the sides, and with abundant, long, yellowish-white pile. Front opaque brownish, with long and abundant black and yellowish pile. Eyes long and abundantly light-pilose. First two joints of the antennæ reddish-yellow (third joint wanting). Mesonotum opaque brownish-grey in front, more blackish behind; pile moderately abundant, in front light yellowish, behind black. Scutellum shining black, with abundant black pile. Pleuræ shining black; pile chiefly black. Abdomen deep black, with moderately abundant black pile; second segment opaque velvety, with an interrupted shining cross-band, the spots wider on the margin; third segment shining, with a bisinuate

posterior opaque band; remainder of the abdomen shining. Legs black; the immediate tip of all the femora, tip of hind tibiae, four anterior tibiae, and all the tarsi light yellow; hind femora slender. Wings brownish.

Length 12-13 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero 9000 feet (*H. H. Smith*).

One specimen.

2. *Eristalis circe*, sp. n., ♂ ♀. (Tab. II. figg. 3, ♂; 3 a, head.)

Male. Face and frontal triangle shining black, the former sometimes somewhat reddish upon the sides; clothed with long and abundant yellow pile. First two joints of the antennae blackish; third joint reddish-yellow; arista (for an *Eristalis*) markedly plumose. Eyes densely and long, light reddish-yellow, pilose. Mesonotum opaque dark ochraceous, clothed with abundant light reddish-yellow pile. Scutellum yellowish-red, with similarly-coloured pile. Pleurae shining black, in the middle thickly clothed with yellow pile. Abdomen bright yellowish-red, with long and abundant yellowish-red pile; first segment, a large triangular or triradiate spot on the second, and a small one on the third segment, black. Wings tinged with yellow. Legs black; four anterior tibiae, for the larger basal part, the base of the hind femora, and the four anterior tarsi more or less, yellow; hind femora moderately thickened.

Female. Front opaque brownish, with long reddish-yellow pile. Pile of thorax shorter. Abdomen shining black, with very short, not abundant, black pile, except in the middle of the second segment, where it is longer and reddish-yellow; second, third, and fourth segments each with a narrow, successively more broadly interrupted, opaque, black band; anterior margin of the second segment also opaque black. Pile of the legs less abundant, and wholly black; hind femora not thickened.

Length 12-13 millim.

Hab. MEXICO, Ciudad in Durango (*Forrer*), Omilteme in Guerrero 8000 feet (*H. H. Smith*), Jalapa (*F. D. Godman*).

Twenty specimens.

3. *Eristalis obsoletus*.

Eristalis obsoletus, Wiedem. Aussereur. zweifl. Ins. ii. p. 175¹; Schiner, Reise der Novara, Diptera, p. 261²; Willist. Trans. Am. Ent. Soc. xv. p. 279³.

Eristalis testaceicornis, Macq. Dipt. Exot. 4^e Suppl. p. 138⁴.

Eristalis thoracica, Jaenicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 399⁵.

Hab. MEXICO^{4 5}, Omilteme 8000 feet, Chilpancingo 4600 feet, Amula 6000 feet, Hacienda de la Imagen 4000 feet, Xucumanatlan 7000 feet, Acapulco, all in Guerrero, Cuernavaca, Vera Cruz, Atoyac (*H. H. Smith*), Jalapa (*F. D. Godman*), Temax in Northern Yucatan (*Gaumer*).— SOUTH AMERICA², Brazil^{1 3}.

Twenty-five specimens.

There is some variation in the colour of the legs, and the spots of the second abdominal segments may be decidedly yellow. I have compared the Mexican examples with others from Brazil, so that there can be no question of the identity. Except that Bigot seems to know this species, I should be much in doubt from his description of *E. pachypoda* as to whether he meant it for this or the following.

4. *Eristalis pachypoda*.

Eristalis pachypoda, Bigot, Ann. Soc. Ent. Fr. 1880, p. 224¹.

Hab. MEXICO¹; COSTA RICA, Volcan de Irazu 6000 to 7000 feet, San Francisco 4500 feet, Caché (*Rogers*).

It is impossible to say with certainty whether this or the preceding species is the one described by Bigot, as his description applies about equally well to both. The present one differs from *E. obsoletus*, in the male sex, in the frontal and vertical triangles being black-, not yellow-, pilose; in the broader, more deeply black abdomen, clothed chiefly with black, not yellow pile; in the rather darker legs, larger size, and more distinct brown spot on the wings. The females may be best distinguished by the pile of the front being mostly black in *E. pachypoda*, light yellow in *E. obsoletus*.

5. *Eristalis latifrons*.

Eristalis latifrons, Loew, Centur. vi. no. 65, in Berl. ent. Zeitschr. 1865, p. 169¹; Willist. Synopsis N.-Am. Syrphidæ, p. 164².

Eristalis stipator, Osten Sacken, Western Dipt., in Bull. U.S. Geol. & Geogr. Survey, iii. p. 336³; Willist. Proc. Am. Phil. Soc. xx. pp. 319, 322⁴.

Hab. UNITED STATES, Kansas^{2 4}, Colorado^{2 3 4}, New Mexico^{2 3 4}, Arizona², Texas², California^{2 3 4}.—MEXICO, Matamoros (*Osten Sacken*¹), Northern Sonora (*Morrison*), Amula in Guerrero (*H. H. Smith*).

Twenty specimens, agreeing well with northern ones.

6. *Eristalis ochraceus*.

Eristalis ochraceus, Willist. Trans. Am. Ent. Soc. xv. p. 279¹.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Brazil¹.

A single female example from Teapa agrees well with a type-specimen from Brazil. The pile of the thorax is very short. The abdomen is red, each segment with a slender black band preceding the narrow yellow hind margin; the fifth segment is shining black, except the anterior margin, which is opaque grey, like the first segment; the second segment has a lateral triangle, the third and fourth a complete band, shining.

7. *Eristalis bellardi*.

? *Eristalis bogotensis*, Macq. Dipt. Exot. ii. 2, p. 52¹.

Eristalis bellardii, Jaenicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 400².

Eristalis rufoscutata, Bigot, Ann. Soc. Ent. Fr. 1880, p. 221³.

Hab. MEXICO^{2 3}, Ciudad in Durango (*Forrer*).—COLOMBIA, Bogota¹.

Twelve specimens.

These vary in length from less than 10 to 13 millim. The third segment of the

abdomen has an interrupted or subinterrupted, the fourth an entire, shining cross-band. In the female the black of the second abdominal segment is somewhat greater in extent, the red of the third segment is confined to the anterior angles, and the fourth and fifth segments are wholly black, except the yellow hind margin. Macquart's description of *E. bogotensis*¹, from Santa Fé de Bogota, applies excellently well to the female; v. d. Wulp's remarks (Tijdschr. v. Ent. xxv. p. 129), however, not so well.

8. ***Eristalis trigonus***, sp. n., ♂ ♀. (Tab. II. figg. 4; 4 a, head.)

Male. Face amber-coloured, a median stripe, to above the tubercle, shining, above and on the sides densely yellowish-pollinose and yellow-pilose; cheeks shining black. Frontal triangle blackish in the middle, the pollen brownish and yellowish, the pile chiefly black. Antennæ yellowish-red; arista bare. Eyes densely pilose. Mesonotum, before the suture, opaque brownish-grey; behind the suture opaque grey, with three large opaque velvety-black spots—the median one elongate oval or suboval, the lateral ones in the shape of a right-angled triangle, with the hypotenuse gently concave. Pile of the mesonotum yellowish-brown. Pleuræ densely grey-pollinose, blackish in the middle above; pile yellow. Scutellum opaque reddish-brown, more blackish at the base. Abdomen: first segment grey; second segment yellow, with a large T-shaped opaque black marking, the stem broad, and extending laterally to the margin posteriorly as a narrow brownish band; third segment with a median opaque black stripe and a narrow brown or blackish posterior band; fourth segment reddish or brown, with a narrow shining cross-band; second, third, and fourth segments each with a narrow light yellow hind margin; hypopygium shining black. Legs: femora, except the tip, tip of four anterior tarsi, and the hind tarsi, black; elsewhere red; hind femora thickened. Wings hyaline, sometimes tinged with yellow on the basal anterior part.

Female. Front narrowed above, with an opaque black band below the ocelli and black pile. Abdomen shining black; second, third, and fourth segments each with a narrow yellow hind margin and a posterior opaque black band; second segment with an anterior band, connected broadly in the middle with the posterior one, the third segment with an anterior oval spot, and the fourth and fifth segments each with an anterior, narrow band, opaque black.

Length 9–11 millim.

Hab. MEXICO, Xucumanatlan 7000 feet, Omilteme 8000 feet, both in Guerrero (*H. H. Smith*).

Four specimens.

9. ***Eristalis cosmius***.

Eristalis cosmius, Schiner, Reise der Novara, Diptera, p. 362¹.

Hab. MEXICO, Jalapa (*M. Trujillo*).—SOUTH AMERICA¹.

A single male specimen from Jalapa seems to belong to this species. It differs from the description in the tip of the scutellum being shining, not "schiefergrau," in the abdomen being distinctly pilose, in the red spots of the fourth segment being very small, and in the femora being black, not "pechschwarz."

10. ***Eristalis furcatus***.

Eristalis furcatus, Wiedem. Zool. Mag. Kiel, i. 3, p. 51¹; Aussereur. zweifl. Ins. ii. p. 176²;

Schiner, Reise der Novara, Diptera, p. 362³; v. d. Wulp, Tijdschr. v. Ent. xxv. p. 131⁴;

Willist. Trans. Am. Ent. Soc. xv. p. 279⁵.

Eristalis femoratus, Macq. Dipt. Exot. ii. 2, p. 40, t. 9. f. 6⁶.

Hab. MEXICO, Acaguizotla 3500 feet, Chilpancingo 4600 feet, Amula 6000 feet, Rio Papagaio 1200 feet, Rincon 2800 feet, Tierra Colorada 2000 feet, Tepetlapa 3000 feet, Dos Arroyos 1000 feet, all in Guerrero, Atoyac in Vera Cruz, Teapa and Frontera in Tabasco (*H. H. Smith*), Orizaba (*H. H. Smith and F. D. Godman*), Temax in Northern Yucatan (*Gaumer*).—SOUTH AMERICA, Colombia³, Brazil^{3 5}, Bahia^{1 2}, Rio Janeiro⁶, Monte Video^{1 2}, Argentine Republic⁴.

Ninety-six specimens, agreeing exactly with Brazilian ones.

11. *Eristalis albifrons*.

Eristalis albifrons, Wiedem. Aussereur. zweifl. Ins. ii. p. 189¹; Röder, Stett. ent. Zeit. 1885, p. 341²; Willist. Trans. Am. Ent. Soc. xv. p. 283³.

Eristalis albiceps, Macq. Dipt. Exot. ii. 2, p. 56⁴; Willist. Synopsis N.-Am. Syrphidæ, p. 172⁵.

Eristalis seniculus, Loew, Centur. vi. no. 63, in Berl. ent. Zeitschr. 1865, p. 168⁶.

Hab. UNITED STATES, Carolina⁴, Florida⁵.—MEXICO, Frontera in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Brazil^{1 3}; WEST INDIES, Cuba⁶, Porto Rico², San Domingo⁵.

Fourteen male and two female specimens, agreeing well with others from South America. The female differs markedly from the male in having a prescutellar ashy band.?

12. *Eristalis tricolor*.

Eristalis tricolor, Jaenicke, Neue exot. Dipt., in Abh. Senck. Ges. vi. p. 400¹.

Hab. MEXICO¹, Amula 6000 feet, Rincon 2800 feet, Chilpancingo 4600 feet, Acaguizotla 3500 feet, all in Guerrero, Teapa in Tabasco (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*), Orizaba (*H. H. Smith and F. D. Godman*), Temax in Northern Yucatan (*Gaumer*).

Forty specimens.

A striking, easily recognized species.

13. *Eristalis fasciatus*.

Eristalis fasciatus, Wiedem. Zool. Mag. Kiel, i. 3, p. 51¹; Aussereur. zweifl. Ins. ii. p. 173²;

Macq. Dipt. Exot. ii. 2, p. 57³; Rondani, Studi Ent. p. 68⁴.

Eristalis podagra, Macq. Dipt. Exot. ii. 2, p. 38⁵; Willist. Trans. Am. Ent. Soc. xv. p. 281⁶.

Eristalis bifasciatus, Macq. Dipt. Exot. 5° Suppl. p. 87⁷.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Paraiso (*Champion*).—SOUTH AMERICA³, Brazil^{1 2 4 5 6 7}.

Fifteen specimens, agreeing exactly with others from Brazil. The grey clouds in the marginal and submarginal cells may be wanting, and the third joint of the antennæ is usually dark reddish-brown.

14. *Eristalis* — ?= *triacuminis* H. T.? *Eristalis*, sp., Willist. Trans. Am. Ent. Soc. xv. p. 281¹.*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith, Schumann*), Fortin in Vera Cruz, Teapa in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Brazil¹.

Ten specimens, quite similar, as well as I can recollect, to those mentioned by me from Brazil (*op. cit.*). I cannot find any description which will apply to them. They differ from *E. fasciatus*, especially, in the lighter coloured antennæ, in the broad interruption of the sutural ashy band, and in the spots of the second abdominal segment being approximated or subcontiguous anteriorly. The femora seem somewhat less incrassate. The species comes yet nearer to *E. tænia*, Wiedem., but seems distinct from it, apart from the interruption of the sutural band, by the almost entire absence of the ashy colour on the anterior part of the dorsum. The dorsum is opaque black, with a pointed spot on each lateral suture. The females have a yellow or red spot on each side of the third and fourth segments, usually wanting in *E. fasciatus*.

15. *Eristalis scutellaris*.*Milesia scutellaris*, Fabr. Syst. Antl. p. 190¹.*Eristalis scutellaris*, Wiedem. Aussereur. zweifl. Ins. ii. p. 159²; Macq. Dipt. Exot. ii. 2, p. 41³;Schiner, Reise der Novara, Diptera, p. 364⁴; Willist. Trans. Am. Ent. Soc. xv. p. 279⁵.*Palpada scutellata*, Macq. Hist. Nat. Dipt., Suites à Buffon, i. p. 513⁶.*Eristalis scutellatus*, Macq. Dipt. Exot. ii. 2, p. 38⁷.*Priomerus scutellatus*, Bigot, Ann. Soc. Ent. Fr. 1883, p. 222⁸.? *Doliosyrphus scutellatus*, Bigot, loc. cit. p. 342⁹ (nec Macq.).*Priomerus bimaculatus* (Macq.), Bigot, loc. cit. p. 222¹⁰.? *Eristalis fascithorax*, Macq. Dipt. Exot. 4^e Suppl. p. 139¹¹.*Doliosyrphus rileyi*, Willist. Synopsis N.-Am. Syrphidæ, p. 178, t. 8. f. 8¹².

Hab. UNITED STATES, New Mexico¹².—MEXICO, Acapulco, Venta de Zopilote, Atoyac, Teapa (*H. H. Smith*); PANAMA⁹, Bugaba (*Champion*).—SOUTH AMERICA¹⁴, Cayenne³⁷, Brazil²⁵⁶.

Eight specimens.

The females agree in all respects with an example of the same sex from Brazil. The two males are distinctly smaller (11 millim.) than the Brazilian examples of the same sex which I have for comparison; one of them has the tibiæ and tarsi reddish-yellow.

16. *Eristalis vinetorum*.*Syrphus vinetorum*, Fabr. Ent. Syst., Suppl. p. 562¹.*Eristalis vinetorum*, Fabr. Syst. Antl. p. 235²; Wiedem. Aussereur. zweifl. Ins. ii. p. 163³; Macq.Dipt. Exot. ii. 2, p. 41⁴; Willist. Synopsis N.-Am. Syrphidæ, p. 171, t. 7. f. 8a⁵; Trans.Am. Ent. Soc. xv. p. 280⁶.

Eristalis trifasciatus, Say, Journ. Acad. Phil. vi. p. 165⁷; Complete Writings, ii. p. 359⁸.
Eristalis warum, Walk. List Diptera, iii. p. 623⁹.

Hab. NORTH AMERICA⁴, Pennsylvania⁵, Indiana⁵, Georgia⁵, Florida⁵.—MEXICO^{5 7 8}
 (H. H. Smith, &c.); GUATEMALA (*Champion*).—SOUTH AMERICA, Guiana⁴, Brazil^{3 5 6};
 WEST INDIES^{1 2}, Cuba^{4 5}, Jamaica⁹.

Sixty-five specimens, from numerous localities and collectors.

17. *Eristalis æmulus*, sp. n., ♂ ♀. (Tab. II. fig. 5, ♂.)

Male. Face densely white-pollinose, with white pile; a median stripe and the cheeks shining black. Antennæ reddish-brown. Frontal triangle elongate, shining black, with black pile, whitish-pollinose on the sides. Mesonotum with three complete, broad, ashy bands, the first two more or less confluent. Scutellum wholly light reddish-yellow. Abdomen conical; opaque black; fourth segment with a subinterrupted metallic band; second segment with very large light yellow spots, leaving the black **II**-shaped, extending narrowly along the lateral margins; third segment with a quadrate yellow spot in front on each side, narrowly separated from the lateral margins; hind margins of the second, third, and fourth segments narrowly yellow. Legs black, the four anterior tibiæ at the base yellowish; hind femora considerably thickened. Wings hyaline; grey clouds in the marginal, submarginal, and first posterior cells.

Female. Front narrowed above, chiefly opaque brown, shining below; pile black. The yellow spots of the second abdominal segment smaller, leaving a broader posterior band; third and fourth segments shining metallic anteriorly, opaque black before the yellow hind margin; third segment with a rounded opaque spot in the middle in front.

Length 10–13 millim.

Hab. MEXICO, Rio Papagaio 1200 feet, Chilpancingo 4600 feet, Rincon 2800 feet, Venta de Zopilote 2800 feet, all in Guerrero (H. H. Smith); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Bugaba (*Champion*).

Thirteen specimens.

This species is closely allied to the one mentioned by me from Brazil (Trans. Am. Ent. Soc. xv. p. 280) as possibly being *E. agrorum*. It differs, however, in the contiguity of the male eyes being considerably less in extent, in the spots of the second and third segments not reaching quite to the margins, and in the hind femora being less thickened.

18. *Eristalis* — ?

Hab. MEXICO, Teapa in Tabasco (H. H. Smith).

A single female specimen of a species allied to *E. æmulus*. It is smaller, the hind femora are but little thickened, the tibiæ are more red, the outer cells of the wings are without grey clouds, the spots of the second abdominal segment are mostly shining metallic, and the remaining segments are opaque, with a narrow, shining metallic, complete band.

19. *Eristalis minutalis*, sp. n., ♂ ♀. (Tab. II. figg. 6, ♀; 6a, head.)

Face densely, nearly white-, pollinose and pilose. Checks, a median facial stripe, and a small spot on the frontal triangle shining black. Frontal triangle black-pilose. Eyes narrowly contiguous. Antennæ

reddish-yellow; first two joints blackish. Mesonotum opaque black, with three complete ashy bands. Scutellum black, with a rounded yellow spot at the apex (variable?). Pleuræ ashy-pollinose. Abdomen opaque black; a narrow, interrupted or entire, band on the third and fourth segments, shining; second segment with two oval spots, broadly separated; the anterior angles of the third segment, and the narrow hind margins of the second, third, and fourth segments, yellow. Legs black; base of the four anterior tibiae, and the base of the middle tarsi, yellow; hind femora much thickened. Wings hyaline. Front moderately narrowed above, with an opaque black band below the middle, narrowly extending down a short distance in the centre. Fifth abdominal segment like the fourth.

Length 6-7 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

Five specimens.

In only one of the three females is the scutellum as in the males; in the others it is yellow, with the base narrowly black. This female with the scutellum like that of the males has no yellow on the anterior angles of the third abdominal segment. The front tarsi may be yellowish at the base. From *E. pusio* and *E. pygmaeus*, the species may be easily distinguished by the incrassate hind femora.

20. *Eristalis rufiventris*.

Eristalis rufiventris, Macq. Dipt. Exot. 1^{er} Suppl. p. 129¹; Willist. Trans. Am. Ent. Soc. xv. p. 282².

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Colombia¹, Brazil².

A number of examples, both male and female, agree so well in every respect, save in the colour of the second abdominal segment, with a male specimen from Brazil identified as *E. rufiventris*, that I believe they belong to the same species. The second segment does not have a distinct black interval in the middle, but is narrowly brownish.

21. *Eristalis* — ? = *cubensis* Macq. (apud *Hines*, 1814)

Hab. MEXICO, Teapa and Frontera in Tabasco (*H. H. Smith*).

One hundred and twenty specimens.

It is not at all impossible that this species has been described, but, belonging as it does to a very difficult group, I cannot identify it. It has three ashy thoracic bands, separated by opaque black; the antennæ yellowish-red; the frontal triangle with black pile. The abdomen in the male is red or yellowish-red, the second segment with an opaque black stripe, expanded posteriorly, the third and fourth segments with a narrow shining band, that of the third often obsolete; the hypopygium shining black. In the female, the third and fourth abdominal segments are black in the middle, and, sometimes, behind. The hind femora are only a little thickened. Length 8-10 millim.

There are also the following described species from within our limits :—

- Eristalis diminutus*, Walk. List Diptera, iii. p. 622.—Mexico.
- *expictus*, Walk. Trans. Ent. Soc. Lond. new ser. v. p. 290.—Mexico.
- *familiaris*, Walk. loc. cit.—Mexico.
- *mexicanus*, Macq. Dipt. Exot. 2° Suppl. p. 75.—Mexico.
- *fulvipes*, Bigot, Ann. Soc. Ent. Fr. 1880, p. 225.—Mexico.
- *sackenis*, Bigot, loc. cit. p. 224.—Mexico.

LYCASTRIRHYNCHA.

Lycastirrhyncha, Bigot, Rev. et Mag. Zool. 1859, p. 307.

1. *Lycastirrhyncha nitens*.

? *Lycastirrhyncha nitens*, Bigot, Rev. et Mag. Zool. 1859, p. 307¹.

Hab. MEXICO, Vera Cruz (*H. H. Smith*).—SOUTH AMERICA, Amazons¹.

This very peculiar Eristalid is, I believe, entitled to generic rank. The epistoma is produced into a conical, elongate snout, quite like that of *Rhingia*. The male is dichoptic and the hind femora are thickened. The eyes are bare. As the diagnosis given by Bigot is inadequate to determine the species with certainty, I here give a brief description of our specimens :—

Male. Face thickly yellowish-dusted, in the middle and on the upper part of the snout metallic black. Antennæ red. Front opaque black across the middle, shining above and below. Mesonotum metallic bluish-black, with a broad, interrupted, lateral, posteriorly geminate stripe, and four slender median stripes, coalescent in two pairs posteriorly, opaque black. Scutellum opaque black at the base, the apex shining. Abdomen opaque black; a spot on the posterior margin of the third segment, and the cylindrical fourth segment, except three equidistant round opaque black spots, and the hypopygium, shining metallic; second segment on each side with a large, the third with a smaller, spot, yellow. Legs black; knees, base of femora, and middle metatarsi yellow. Wings hyaline.

Female. Front on each side with an opaque spot. Third, fourth, and fifth abdominal segments shining metallic, the two former each with three equidistant opaque black spots and a narrow yellow hind margin.

Length, including snout, 8–9 millim.

This description, it will be seen, differs materially from Bigot's diagnosis; but it will be time enough to name our form when its specific distinction shall be shown.

PTEROPTILA.

Plagiocera, Macquart, Dipt. Exot. ii. 2, p. 59 (1842) (nec Klug).

Pteroptila, Loew, Centur. vi. no. 59, in Berl. ent. Zeitschr. 1865, p. 165.

1. *Pteroptila crucigera*.

Milesia acuta, Fabr. Syst. Antl. p. 189¹; Wiedem. Aussereur. zweifl. Ins. ii. p. 110 (translation from Fabricius)².

Milesia cruciger, Wiedem. Aussereur. zweifl. Ins. ii. p. 105³.

Plagiocera cruciger, Macq. Dipt. Exot. ii. 2, p. 60, t. 10. f. 7⁴.

Pteroptila crucigera, Willist. Synopsis N.-Am. Syrphidæ, p. 180, t. 8. figg. 1, 1a-c⁵.

Mallota millesiformis, Macq. Hist. Nat. Dipt. i. p. 500⁶.

Hab. UNITED STATES, Georgia^{3 4 5}, Carolina^{1 2}, Florida⁵, Texas⁵.—MEXICO, Northern Sonora (*Morrison*), Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*), Yucatan⁶ (*Gaumer*).—CUBA^{4 6}.

A male specimen from Teapa agrees throughout with the detailed description given by me, though it is only twelve millim. in length. A female from Atoyac has the facial stripe almost wholly red, the black mesonotal stripes mostly wanting, the scutellum lighter, and the hind femora almost entirely black. A male from Yucatan has the face and front wholly reddish, the mesonotal stripes wanting, the scutellum red, and the second abdominal segment largely red. Two other examples, both males, from Sonora and Teapa, agree with the last-mentioned specimen in the colour of the head and thorax; but they have the abdomen almost wholly red and reddish-brown—the first segment and a narrow stripe at the base of the second opaque black, and the hind femora almost entirely black; these specimens measure 14–15 millim. in length. I believe that they all belong to one species, though showing a variation not previously suspected.

2. *Pteroptila zonata*.

Pteroptila zonata, Loew, Centur. vi. no. 60, in Berl. ent. Zeitschr. 1865, p. 165¹; Willist. Synopsis N.-Am. Syrphidæ, p. 182 (translation).

Hab. MEXICO¹, Xucumanatlan 7000 feet, and Omilteme 8000 feet, both in Guerrero (*H. H. Smith*).

I may add to Loew's description, which applies well to the three specimens received, that, between the white tomentose spots of the anterior part of the thorax, the black is velvety, as is also the second abdominal segment before the yellow cross-band. In the female the front is black, the femora are black, except their tips, and the four front tibiæ are black at the distal end.

A single, female, specimen from Volcan de Chiriqui (*Champion*) differs in its larger size (16 millim.), and in having the pile of the sides of the thorax and of the first abdominal segment brassy-yellow; the legs darker (all the tarsi and the ends of the hind tibiæ being blackish) and with yellow pile; and the costal cell dark brown, not nearly hyaline. I believe that it belongs to a distinct species; at all events, the variety is a well-marked one, and may be known as *P. loewi*.

HELOPHILUS.

Elophilus, Meigen, in Illiger's Magazin, ii. p. 274 (1803).

Aemosyrphus, Bigot, Bull. Soc. Ent. Fr. 1882, p. cxxviii, and Ann. Soc. Ent. Fr. 1883, p. 288.

1. *Helophilus latifrons*.

Helophilus latifrons, Loew, Centur. iv. no. 73, in Berl. ent. Zeitschr. 1863, p. 313¹; Osten Sacken, Western Dipt., in Bull. U.S. Geol. & Geogr. Survey, iii. p. 337²; Willist. Synopsis N.-Am. Syrphidæ, p. 188³.

Hab. NORTH AMERICA, Red River, Washington³, Wyoming³, Oregon³, Montana³, Nebraska¹, Massachusetts³, Connecticut³, Western Kansas³, California².—MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

Five specimens, which present no noteworthy differences from those of the United States.

2. *Helophilus mexicanus*.

Helophilus mexicanus, Macq. Dipt. Exot. ii. 2, p. 64, t. 11. f. 2¹; Osten Sacken, Cat. Dipt. 2nd ed. pp. 134, 267²; Willist. Synopsis N.-Am. Syrphidæ, p. 186, t. 8. f. 7³.

Helophilus polygrammus, Loew, Centur. x. no. 55, in Berl. ent. Zeitschr. 1872, p. 85⁴; Osten Sacken, Western Dipt., in Bull. U.S. Geol. & Geogr. Survey, iii. p. 338⁵.

Aemosyrphus bicolor, Bigot, Ann. Soc. Ent. Fr. 1883, p. 350⁶.

Aemosyrphus oculiferus, Bigot, loc. cit. p. 350⁷.

Aemosyrphus flavicaudatus, Bigot, loc. cit. p. 351⁸.

Aemosyrphus nigroscutatus, Bigot, loc. cit. p. 351⁹.

Hab. UNITED STATES, Washington³, California^{3 4 5 7}.—MEXICO^{1 2 6 7 8}, Omilteme 8000 feet, Chilpancingo 4600 feet, Xucumanatlan 7000 feet, Tepetlapa 3000 feet, all in Guerrero (*H. H. Smith*), Jalisco (*Schumann*), Mexico city (*F. D. Godman*), Orizaba (*H. H. Smith and F. D. Godman*).

Thirty-seven specimens. These show colorational variations, and it is hard to say whether the differences are of varietal or specific value. In length they vary from seven to nearly twelve millim. In the shape and colour of the head there are no appreciable differences.

Seven specimens, including both sexes, from Mexico city and Jalisco, have the mesonotum of a distinctly olivaceous-greenish appearance, with a metallic lustre, and the pile wholly yellow. The remainder, from Mexico city, Jalisco, and the other places mentioned, have the mesonotum opaque cinereous, without apparent metallic or greenish lustre; in all, the oblique line on the outer posterior part may be wanting. The three males of the first-mentioned variety have the abdomen red, with the first segment, and a triangular spot on the second, black, the fourth segment with a lunule; these specimens must be very similar to those described by Bigot under the name of *Aemosyrphus bicolor*. The remaining males, eleven, with opaque mesonotum, are all nearly uniform in length (about seven millim.), and agree in having the second abdominal segment opaque black, with two grey lunules; the third segment with the posterior and lateral margins broadly red, leaving an oval, opaque, black portion, upon which partly rest two much curved grey lunules; the fourth segment with two small

black spots in front. The females of the first variety agree pretty well with the description given in my 'Synopsis' ³. Those of the second variety have the abdomen wholly black, save the narrow hind margin of segments 2-4, with three pairs of grey lunules; the second segment narrowly shining on the sides, the third more broadly on the sides and behind, the fourth wholly, except the small spots in front of the lunules. The legs in the first variety, in both male and female, have the hind tibiæ wholly red, thus agreeing with *H. bicolor* (Bigot); those of the second have the tip somewhat darker.

Now, of the four forms which Bigot had, the first (*H. bicolor*) is represented by the first variety; the second (*H. oculiferus*) by that described by me in the 'Synopsis' ³; the third (*H. flavicaudatus*) by the second variety; and the fourth (*H. nigroscutatus*, the locality for which is not given by Bigot ⁹) presents such slight differences that it is scarcely worth mentioning. Of all these, *H. flavicaudatus* alone is, I think, entitled to a name, whether varietal or specific. Macquart's original *H. mexicanus* seems to be the same as Loew's *H. polygrammus* and Bigot's *H. oculiferus*.

The generic characters given by Bigot for *Asemosyrphus* are very inadequate; at the same time, he overlooked the only really important structural variation that the species presents, viz. the remoteness of the ocelli from each other. That Bigot mistook the sex of his specimens is surprising; the hypopygium is not at all concealed.

MALLOTA.

Mallota, Meigen, Syst. Besch. iii. p. 377 (1822).

Synopsis of the Central-American species.

- | | |
|---|---------------------------|
| 1. Third joint of the antennæ elongate oval | <i>championi</i> , sp. n. |
| Third joint of the antennæ as broad as long | 2. |
| 2. Abdomen shining red, with similarly coloured pile | <i>smithi</i> , sp. n. |
| Abdomen deep black | 3. |
| 3. Abdomen clothed with black pile throughout | <i>sackeni</i> , Willist. |
| Terminal abdominal segments with bright orange or yellow pile . . . | <i>margarita</i> , sp. n. |

1. *Mallota* (?) *championi*, sp. n., ♂.

Eyes pilose; third joint of the antennæ twice as long as wide; abdomen shining bronze, with yellow pile; wings brown in front. Eyes narrowly contiguous. Frontal triangle and face shining black, the former with black, the latter with yellow, pile. Antennæ brownish-red; third joint elongate oval, obtusely pointed. Mesonotum subopaque blackish-brown, clothed with moderately long, abundant, light yellow pile, which, however, does not obscure the ground-colour; a tuft of bright, sulphur-yellow pile on the outer end of the suture and upper part of the pleuræ. Pleuræ black, nearly bare. Scutellum obscure yellowish, with yellow pile. Abdomen shining metallic bronze; second segment, except the sides and hind margin, and a very small spot on the front of the third segment, opaque black; clothed with abundant, erect, light yellow pile. Legs yellow; femora, except the tip, black; hind femora moderately incrassate; hind tibiæ curved and compressed. Wings nearly hyaline; brown along the fore part, the costal cell and the base of the marginal cell more yellow.

Length 11 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

One specimen.

This species is not a true *Mallota*, by reason of the form of the third antennal joint, but I know not where else to place it.

2. *Mallota sackeni*.

Mallota posticata, Osten Sacken, Western Dipt., in Bull. U. S. Geol. & Geogr. Survey, iii. p. 338¹ (nec Fabr.).

Mallota sackeni, Willist. Proc. Am. Phil. Soc. xx. p. 324²; Synopsis N.-Am. Syrphidæ, p. 204, t. 8. fig. 14³.

Hab. UNITED STATES, Washington^{2 3}, California¹, Texas³.—MEXICO, Jaral in Guana-júato (*Schumann*).

A single, injured, specimen.

3. *Mallota margarita*, sp. n., ♂ ♀. (Tab. II. figg. 7, ♀; 7*a*, head; 7*b*, hind leg.)

Deep black, with long and abundant, deep black pile, save on the terminal abdominal segments, where it is bright orange-red or light yellow. Eyes bare; in the male narrowly separated below the ocelli. Face whitish-pollinose on the sides, shining black elsewhere. Antennæ black, the third joint dark reddish-brown; arista red. Front of the female opaque black, shining below. Mesonotum, as seen through the pile, shining in the middle behind. Abdomen opaque black, the black concealed by the pile; the last one or two segments with yellow- or orange-red pile; hypopygium bare, large, subshining. Legs densely black-pilose; all the tarsi yellowish-red; hind femora moderately thickened; hind tibiæ dilated. Wings dark brown, subhyaline distally and along the narrow posterior border.

Length 14–16 millim.

Hab. MEXICO, Xucumanatlan 7000 feet, Omilteme 8000 feet, both in Guerrero (*H. H. Smith*).

Eight specimens.

A very striking species, respectfully dedicated to Mrs. H. H. Smith, the indefatigable companion of her husband in his travels.

4. *Mallota smithi*, sp. n., ♂ ♀. (Tab. II. figg. 8, ♀; 8*a*, head; 8*b*, hind leg.)

Thorax thickly fulvous-pilose; abdomen shining red; wings subhyaline, with a brown spot. Eyes bare, in the male narrowly separated below the ocelli. The triangles and the female front mostly opaque, clothed with black pile. Antennæ black; third joint and arista reddish-brown or brownish-red. Face, on the sides, thickly clothed with yellowish-white pollen and pile; in the middle, and the cheeks, shining black. Thorax clothed thickly with long and abundant, reddish-yellow pile, obscuring the opaque black ground-colour; scutellum similarly clothed, itself red. Abdomen shining red throughout, clothed with short, yellowish-red and some black pile. Legs black; middle femora at the base, the hind femora largely, and a ring on the hind tibiæ, sometimes red; front and middle femora with long yellow pile behind, the hind femora with black and yellow pile; hind femora considerably thickened; hind tibiæ curved and dilated. Wings subhyaline, a large diffuse, brownish spot near the middle.

Length 10–12 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Fourteen specimens.

A species scarcely less striking in appearance than the preceding. Respectfully dedicated to Mr. Herbert H. Smith.

XYLOTA.

Xylota, Meigen, Syst. Besch. iii. p. 211 (1822).

Micraptoma, Westwood, Intr. to the Modern Class. of Ins. ii., Syn. Gen. Brit. Ins. p. 136 (1840).

Synopsis of the Central-American species.

- | | |
|--|------------------------------|
| 1. Abdomen and legs red | <i>rufipes</i> , sp. n. |
| Abdomen and legs for the most part black | 2. |
| 2. Second abdominal segment and the anterior metatarsi light yellow | <i>pauvilla</i> , sp. n. |
| Second abdominal segment with or without a small yellow spot | 3. |
| 3. Hind coxæ of male without spur | <i>brachygaster</i> , sp. n. |
| Hind coxæ of male with spur; abdomen contracted basally | <i>stenogaster</i> , sp. n. |

1. *Xylota rufipes*, sp. n., ♂ ♀.

Male. Abdomen, except the first segment, and the legs, red. Vertical triangle elongate, shining black; eyes narrowly contiguous. Frontal triangle and face black, thinly whitish-pollinose, variable in different reflections. First two joints of the antennæ black; third joint large, brownish-red or reddish-brown. Thorax and scutellum black, feebly shining. Abdomen red; first segment shining black. Legs of the colour of the abdomen; coxæ black; four front femora at the base, and the tip of the hind tibiæ, blackish; four front tarsi more yellowish, with their tips blackish; hind tarsi black; hind femora moderately thickened, setulose below; hind coxæ with a spur. Wings tinged with yellow, the stigma brown; third vein gently concave before the first posterior cell.

Female. Front shining black, with a narrow pollinose band; an indication of an opaque stripe on the second abdominal segment; no spur on the hind coxæ.

Length 10–11 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Four specimens.

This species is nearest allied to *X. bicolor*, Loew, but may be distinguished by the red legs and coxal spur of the male.

2. *Xylota pauvilla*, sp. n., ♂ ♀. (Tab. II. figg. 9, ♂; 9a, head; 9b, hind leg.)

Male. Face black, in profile much receding, covered with a variable whitish dust, the oral margin in front reddish; frontal triangle with a large shining spot. Antennæ black; third joint large, a little elongate, about twice as long as wide; arista yellowish. Vertical triangle slender, acute in front, greyish-dusted. Mesonotum black, moderately shining, clothed, in large part, with short, dense, erect yellow pile, which, in some reflections, gives a yellowish colour to the surface. Scutellum and pleuræ black. Abdomen: first segment subshining metallic black; second segment yellow, with an anterior triangular and posterior crescentic opaque black band; third segment opaque black, shining bronze on the sides; fourth segment shining bronze, clothed on the posterior part with dense, recumbent, yellow pile. Legs black; the base of all the tibiæ and the first two joints of the four anterior tarsi light yellow; the first two

or three joints of the hind tarsi yellowish-brown; hind femora much thickened, the hind tibiæ correspondingly curved; hind coxæ unarmed. Wings tinged with brownish, more strongly so distally.

Female. Front shining metallescent black, with a pollinose band across the middle. Second abdominal segment with a median brown linear stripe.

Length 10 millim.

Hab. MEXICO, Omilteme 8000 feet, Xucumanatlan 7000 feet, both in Guerrero (*H. H. Smith*).

Four specimens.

This species has a markedly coarctate abdomen in the male, less so in the female. It is nearest allied to *X. angustiventris*, Loew (*elongata*, Willist.).

3. *Xylota stenogaster*, sp. n., ♂ ♀.

Male. Face black or brownish-black, whitish-pollinose, variable in different reflections. Antennæ blackish-brown; third joint large, oval; arista yellow. Frontal triangle with a large shining spot. Mesonotum opaque blue-black, with two narrow, purplish stripes. Pleuræ blue-black, with white pile. Scutellum somewhat shining. Abdomen deep shining steel-blue; second and third segments each with a posterior opaque black band; second segment moderately narrowed, with concave sides. Legs brownish-black (or black), the tarsi darker, except the middle metatarsi; hind femora considerably thickened; hind coxæ with a slender, sharp spur. Wings on the basal half and behind subhyaline, on the distal half in front blackish.

Female. Front shining black, with an obscure pollinose band. Second abdominal segment but little contracted, opaque, broadly shining on the sides, only a little contracted. Legs black.

Length 10-11 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*); GUATEMALA, Purula in Vera Paz (*Champion*).

4. *Xylota brachygaster*, sp. n., ♂.

Frontal triangle and face black, rather densely covered with white pollen, the checks and a spot above the antennæ bare and shining. Antennæ black; third joint more brown, scarcely longer than broad; arista yellow. Mesonotum opaque brownish-black, somewhat metallescent. Scutellum bronze. Abdomen rather short and broad, with parallel sides; opaque black; first segment coloured like the scutellum; second and third segments each with a yellow spot on the lateral margin. Legs black, the knees yellowish; first joint of the four anterior tarsi and the base of the second yellow; hind femora moderately thickened; hind coxæ unarmed. Wings with the front border brown; subhyaline behind.

Length 12 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

One specimen.

CRIOPRORA.

Crioprora, Osten Sacken, Cat. Dipt. 2nd ed. p. 251, note 241 (1878); Williston, Synopsis N.-Am. Syrphidæ, p. 217.

Romaleosyrphus, Bigot, Ann. Soc. Ent. Fr. 1883, p. 356.

1. *Crioprora villosa*.

Romaleosyrphus villosus, Bigot, Ann. Soc. Ent. Fr. 1883, p. 356¹.

Hab. MEXICO¹.

SYRITTA.

Syritta, St.-Fargeau & Serville, Encycl. Méthod. x. p. 808 (1825).

Coprina, Zetterstedt, Ins. Lapp. p. 584 (1840).

Planes, Rondani, Archiv. per la Zool. iii. p. 9 (1864).

1. *Syritta vagans*.

Xylota vagans, Wiedem. Aussereur. zweifl. Ins. ii. p. 101¹.

Planes vagans, Rond. Archiv. per la Zool. iii. p. 9².

Syritta americana, Schiner, Reise der Novara, Diptera, p. 367³; Willist. Trans. Am. Ent. Soc. xv. p. 285⁴.

Syritta mexicana, Bigot, Ann. Soc. Ent. Fr. 1883, p. 539⁵.

Hab. MEXICO⁵, Atoyac in Vera Cruz (*H. H. Smith*); COSTA RICA, Caché (*Rogers*).
—SOUTH AMERICA³, Brazil^{1 4}.

Four specimens, agreeing closely with those from Brazil mentioned by me in the above-cited paper⁴. Bigot's description applies well.

CERIOGASTER.

Ceriogaster, Williston, Trans. Am. Ent. Soc. xv. p. 285 (1888).

The generic description given by me will only require some minor modifications to include the Mexican species described below. In *C. auricaudata* the face is obtusely carinate, nearly straight in profile; the scutellum is small, but not thinned; the hind femora are only a little thickened; and the front tarsi are but feebly dilated.

1. *Ceriogaster auricaudata*, sp. n., ♂ ♀. (Tab. II. figg. 10, ♀; 10 a, head.)

Face and cheeks shining black, the former with a lateral, oblique, yellowish-pollinose stripe. Frontal triangle yellowish-grey-pollinose on its margins, shining black in its middle; front of the female opaque black, shining below. Antennæ brownish-red; third joint trapezoidal in shape. Thorax opaque brownish-black; along the suture on each side a narrow opaque velvety-black spot; pile very short, yellowish. Abdomen: first segment deep opaque velvety-black, shining on the sides, narrowly fringed with yellow pile behind; second segment with a narrow band in front, and a large triangle posteriorly, opaque black, the sides, and in front of the triangle, shining metallic, the posterior margin with a narrow fringe of yellow pile; third segment opaque brownish-black, with a broader margin behind of yellow pile; fourth segment shining, but its surface mostly concealed beneath the recumbent, light sulphur-yellow pile. Legs black; knees yellow. Wings in front brown; behind, including the anal angle and cell, and the discal and posterior cells, except the anterior part of the first posterior cell, nearly hyaline.

Length 12-13 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Two specimens.

SPILOMYIA.

Spilomyia, Meigen, in Illiger's Magazin, ii. p. 273 (1803).

Mixtemyia, Macquart, Hist. Nat., Dipt. i. p. 491 (1834).

BIOL. CENTR.-AMER., Dipt., Vol. III., May 1892.

1. *Spilomyia pallipes*.

Spilomyia pallipes, Bigot, Ann. Soc. Ent. Fr. 1883, p. 352¹.

Hab. MEXICO¹.

2. *Spilomyia pleuralis*.

Spilomyia pleuralis, Willist. Synopsis N.-Am. Syrphidæ, p. 247¹.

Hab. MEXICO¹.

3. *Spilomyia* (*Mixtemyia*) *ephippium*.

Mixtemyia ephippium, Osten Sacken, Bull. Buffalo Soc. iii. p. 70¹; Cat. Dipt. 2nd ed. p. 254, note 255².

Spilomyia (*Mixtemyia*) *ephippium*, Willist. Synopsis N.-Am. Syrphidæ, p. 249³.

Hab. MEXICO^{1 2 3}.

MILESIA.

Milesia, Latreille, Hist. Nat. Crust. et Ins. xiv. p. 361 (1805).

Sphixea, Rondani, Dipt. Ital. Prodr. ii. p. 68 (1857).

1. *Milesia pulchra*, sp. n., ♂. (Tab. II. figg. 11, ♂; 11 *a*, head in profile; 11 *b*, head from in front; 11 *c*, hind leg.)

In structure, like *M. ornata*, Fabr. Vertical triangle elongate, golden-pollinose before the ocelli. Face and frontal triangle light opaque yellow; a small blackish spot just above the base of the antennæ, and a black facial stripe, reaching about halfway to the antennæ; cheeks shining black. Antennæ black; third joint brownish-red or reddish-brown. Mesonotum brownish-black, nearly opaque, with light yellow opaque markings as follows:—a pair of narrow median stripes, gently divergent posteriorly, and terminating acutely either in a transverse band in front of the scutellum, or near it, and united at the suture on either side with a narrow transverse spot from the root of the wing; in front, distinct from a round spot on each humerus. Pleuræ with two similarly coloured spots, as in *M. ornata*; in addition, behind them, there is a yellowish triangular spot, terminating acutely on the middle coxæ. Scutellum black, with a yellow border, as in *M. ornata*. Abdomen: a spot on each side of the first segment, and the fourth segment, behind the yellow cross-band, shining metallic bluish-black; first segment yellow on the sides; second segment opaque black, with a shining yellowish cross-band posteriorly, and an opaque yellow one anteriorly; third segment similar to the second, the yellow side-spots with less rounded inner ends, the shining band a little wider; fourth segment with a broader yellow band in front, the posterior margin of which is oblique and sinuous, opaque black in the interruption; pile on the yellow parts yellow, elsewhere black, longer than in *M. ornata*. Legs: femora reddish-yellow and black; middle tibiæ and tarsi wholly light yellow; front tibiæ yellow, black distally; hind tibiæ black, with the base yellow; front and hind tarsi black. Wings brownish-yellow in front, posteriorly nearly hyaline toward the base, clouded distally.

Length 18–20 millim.

Hab. GUATEMALA, Purula and Senahu in Vera Paz (*Champion*).

Three specimens

CERIA.

Ceria, Fabricius, Ent. Syst. iv. p. 277 (1794) (nec Scopoli, 1763).

Sphiximorpha, Rondani, Ann. Soc. Ent. Fr. ii. p. 212 (1850).

Synopsis of the recognized Central-American species.

1. Antenniferous process slender, as long as the first joint of the antennæ 2.
Antenniferous process distinctly shorter than the first joint of the antennæ 4.
2. Wings dark brownish-black, with a subhyaline space at the outer posterior part *nigripennis*, Willist.
- Wings hyaline, with the anterior part brown or brownish 3.
3. Very large red species, with yellow markings *superba*, Willist.
- Moderately large, black and yellow species, the yellow predominating *verralli*, sp. n.
4. Antenniferous process almost wholly wanting; first joint of the antennæ nearly as long as the following two joints together *signifera*, Loew.
- Antenniferous process at least one-fourth of the length of the first joint of the antennæ 5.
5. Second abdominal segment as broad as long (♂), the fourth segment shorter than the third; black, less slender species *meadei*, sp. n.
- Second abdominal segment more or less cylindrical 6.
6. Thorax wholly black *bergrothi*, sp. n.
- Thorax more or less yellow 7.
7. Sides of the metanotum with a conspicuous yellow spot 8.
- Metanotum wholly black 9.
8. A large trapezoidal yellow spot in front of the scutellum *scutellata*, Willist.
- Two small, oblique spots in front of the scutellum *schnablei*, sp. n.
9. Fourth abdominal segment markedly longer than the third *nigra*, Bigot.
- Fourth abdominal segment a little shorter than the third *pedicellata*, Willist.

1. *Ceria nigripennis*.*Ceria nigripennis*, Willist. Synopsis N.-Am. Syrphidæ, p. 263¹.*Hab.* MEXICO¹.**2. *Ceria superba*.***Ceria superba*, Willist. Synopsis N.-Am. Syrphidæ, p. 264¹.*Hab.* MEXICO¹.**3. *Ceria verralli*, sp. n., ♂.**

Face light sulphur-yellow, a stripe on the cheeks, and a narrow one on the facial tubercle, extended as a light greenish or brownish stripe to the antennæ, black; on either side, above, a small brown spot within a larger, oblique, light greenish one. Vertical and frontal triangles coloured like the face; at the base of the antennæ, a black spot extending out towards the orbit. Antenniferous process brownish-red; slender, longer than the first joint of the antennæ. First joint of the antennæ reddish-brown, slightly longer than the second; second and third joints yellowish-red; third joint a little shorter than the second. Thorax yellow, like the face; mesonotum with three opaque black stripes, the median one dividing Y-like behind the suture to blend with the posterior end of the lateral stripes; in front of the scutellum

an elongate black spot, leaving the yellow in the shape of a **V** or **U**; a small black spot above the root of the wings, and in the bottom of the suture; between the black stripes the yellow is opaque; pectus, sutures, and metanotum shining black, the latter covered with dense yellow pollen. Abdomen slender, black; first segment yellow on the sides; second segment with the base and the broad posterior margin yellow; third and fourth segments with a broad, biarcuate, narrowly interrupted, median band, and the broad hind margin, and the remainder of the abdomen wholly, yellow; fourth segment a little longer than the third. Legs light yellow, the femora with black streaks; hind femora considerably thickened. Wings brownish in front, nearly hyaline behind.

Length 14 millim.

Hab. PANAMA, David (*Champion*).

One specimen. One of the handsomest species of the genus.

4. *Ceria signifera*.

Ceria signifera, Loew, Neue Beiträge, i. p. 18¹; Willist. Synopsis N.-Am. Syrphidæ, p. 262².

Hab. UNITED STATES, Texas², Florida².—MEXICO¹.

5. *Ceria meadei*, sp. n., ♂. (Tab. II. figg. 12, ♂; 12 a, head in profile; 12 b, head from in front.)

Frontal triangle and face shining black; a narrow stripe on either side of the middle, running to the oral margin, a small spot near the orbits, and the narrow orbital margins of the frontal triangle, yellow. Antenniferous process about one-half the length of the first joint of the antennæ, in colour obscure reddish-yellow. Antennæ black, the third joint narrowly red at the base; second and third joints of about equal length, both shorter than the first; style slender, silvery. Thorax subopaque, black; mesonotum scrobiculate; humeri with a small or minute yellow spot; the sutures very narrowly golden-pollinose. Abdomen short, stout, the second segment only moderately narrowed in front; fourth segment distinctly shorter than the third; second segment with a slender yellow hind margin; third and fourth segments with a broad yellow hind margin, the third, before the yellow band, with a biarcuate golden-pollinose band, the fourth with a broad golden-pollinose band, leaving the black as a slender anterior margin, and a slender band behind; hypopygium yellow. Legs black, the knees very narrowly yellow; hind femora but little thickened. Wings brown in front, hyaline behind.

Length 10–12 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

Three specimens.

6. *Ceria scutellata*.

Ceria scutellata, Willist. Synopsis N.-Am. Syrphidæ, p. 265¹.

Hab. MEXICO, Isthmus of Tehuantepec¹.

7. *Ceria schnablei*, sp. n., ♂.

Face and cheeks ferruginous-red; an oblique stripe on either side running to the oral margin, the cheeks behind, and the orbital margins of the frontal triangle, yellow. Antenniferous process fully half as long as the first antennal joint, red. First joint of the antennæ reddish-black, but little longer than the second; second joint red, black at the base; third joint red, not more than half as long as the second. Thorax deep red; mesonotum finely roughened; a stripe on either side from the suture nearly to the scutellum, two small oblique spots in front of the scutellum and one on the humeri, yellow; on the inner side of the vittulæ, a black space. Pleuræ with two slender vertical stripes and a large spot on the

sides of the metanotum, yellow. Scutellum yellow, with a black band across the middle. Abdomen dark red, the base of the second segment and the narrow hind margin of the second and third segments yellow; second segment cylindrical in front, broad behind; fourth segment longer than the third. Legs brownish-red, the anterior tarsi more yellow, the hind tarsi blackish; hind femora much thickened, the thickening greater on the basal half. Wings brown in front; behind, toward the base, yellowish, distally hyaline.

Length 14 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

Two specimens.

This species is allied to *C. sackeni*, Willist., from Brazil, but differs in the structure of the antennæ and abdomen, as well as in the markings.

8. *Ceria nigra*.

Sphyrinomorpha nigra, Bigot, Ann. Soc. Ent. Fr. 1883, p. 317¹.

Hab. MEXICO¹, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

9. *Ceria pedicellata*.

Ceria pedicellata, Willist. Synopsis N.-Am. Syrphidæ, p. 264¹.

Hab. MEXICO, Jaral in Guanajuato (*Schumann*), Isthmus of Tehuantepec¹.

A single male specimen from Jaral merely differs from the description of *C. pedicellata*, Willist. (the type is not in my possession), in the lighter-coloured antennæ, the first two joints of which are yellow, and in the colour of the legs, which are yellow and red throughout, instead of reddish-brown and black. The second joint of the antennæ, if anything, is longer than the first. The third and fourth segments of the abdomen are subequal in length and both shorter than the second. The relationship with *C. sackeni* is very marked, but a comparison with the type shows the following specific differences:—The antenniferous process is slightly shorter, and the first joint of the antennæ is proportionately a little longer, as also the third joint. The mesonotum in *C. sackeni* has a golden-pollinose, interrupted band, and yellow supra-alar vittulæ, wanting in the present species. The markings of the face are also distinctly different.

10. *Ceria bergrothi*, sp. n., ♂.

Antennæ brownish-black, the third joint red; first and second joints of nearly equal length; antenniferous process short, about one-fourth the length of the first joint of the antennæ. Face and frontal triangle shining black, the former with a lateral oblique stripe, the latter with two small spots, yellow. Thorax wholly deep shining black, markedly roughened. Abdomen deep shining black, the second segment yellow proximally at the sides; second segment slender, its width posteriorly scarcely more than one-half its length; third and fourth segments of nearly equal length. Legs deep brownish-red, the tarsi somewhat yellowish. Wings deep brown in front, save at the distal part, where the colour is perceptibly lighter; nearly hyaline behind.

Length 13 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

One specimen.

There are also the following described species from within our limits:—

- Ceria rufibasis*, Bigot, Ann. Soc. Ent. Fr. 1883, p. 318 (*Sphyximorpha*).—Mexico.
 — *arietis*, Loew, Neue Beiträge, i. p. 17.—Mexico.
 — *cacica*, Walk. Trans. Ent. Soc. Lond. n. ser. v. p. 288.—Mexico.

Most of the following species of Syrphidæ, described from, or referred to, Central America, are of more or less doubtful generic position; others have been inadvertently omitted from the lists on the preceding pages:—

- Pipiza divisa*, Walk. Trans. Ent. Soc. Lond. new ser. iv. p. 156.—Vera Cruz.
Lepidomyia cincta, Bigot, Ann. Soc. Ent. Fr. 1883, p. 345.—Mexico.
Syrphus colludens, Walk. op. cit. v. p. 293.—Mexico.
 — *delineatus*, Macq. Dipt. Exot. 1^{er} Suppl. p. 139, t. 11. f. 13.—Mexico.
Volucella aperta, Walk. op. cit. v. p. 292.—Mexico.
 — *postica*, Say, Journ. Acad. Phil. vi. p. 166; Complete Writings, ii. p. 360.—Mexico.
 — *tibialis*, Macq. Dipt. Exot. 1^{er} Suppl. p. 123.—Yucatan, Merida.
Temnocera unilecta, Walk. op. cit. v. p. 292.—Mexico.
 — *viridula*, Walk. op. cit. v. p. 292.—Mexico.
Eristalis lateralis, Walk. Trans. Linn. Soc. xvii. p. 347; List of Diptera, iii. p. 622.—Mexico, Guiana, Brazil, Chili, Jamaica.
 — *semicirculus*, Walk. Ins. Saund., Dipt. i. p. 249.—Honduras.
Helophilus formalis, Walk. List of Diptera, iii. p. 603.—Mexico.
Doliosyrphus hirtipes, Bigot, Bull. Soc. Ent. Fr. 1882, p. cxxi; Ann. Soc. Ent. Fr. 1883, p. 343.—Panama.
Xylota arquata, Say, Journ. Acad. Phil. vi. p. 162; Complete Writings, ii. p. 357.—Mexico.
 — *subcostalis*, Walk. Trans. Ent. Soc. Lond. new ser. v. p. 291.—Mexico.

ADDENDA.

RHOPALOSYRPHUS.

Rhopalosyrphus, Giglio-Tos, Bollett. dei Musei di Zool. ed Anat. comp. della R. Univ. di Torino, vi. no. 108, p. 3, figg. (Sept. 1891).

This genus, of which the type-species, from Mexico, is not yet described, is closely allied to *Mixogaster*, as it is accepted in the present work, but differs from it in the prominence at the lower part of the face.

OMEGASYRPHUS.

Omegasyrphus, Giglio-Tos, Bollett. dei Musei di Zool. ed Anat. comp. della R. Univ. di Torino, vi. no. 108, p. 4, figg. (Sept. 1891).

This genus apparently includes such species as *Microdon coarctatus*, Loew, and *M. baliopterus*, Loew. The type-species, from Mexico, is not yet described or indicated.

MEGAMETOPON.

Megametopon, Giglio-Tos, Bollett. dei Musei di Zool. ed Anat. comp. della R. Univ. di Torino, vi. no. 108, p. 5, figg. (♂ ♀) (Sept. 1891).

Phromyia, Williston, antea, p. 55, Tab. II. figg. 1, 1 a, b (Dec. 1891).

Dr. Giglio-Tos's paper, containing the description of this genus, was not received until too late to change the name in the preceding pages, but his name has priority. The species described by me will be known as *M. nasicum*, inasmuch as the type of *Megametopon* has not yet been described. If the species are the same, Giglio-Tos's figures of the male front and of the arista are not quite correct.

Fam. CONOPIDÆ*.

CONOPS.

Conops, Linnæus, Fauna Svecica, p. 467 (1761).

Leopoldius, Rondani, Nuovi Ann. Scienze Nat. Bologna, x. p. 35 (1843).

Conopæjus, Rondani, Mag. Zool. 1845, Gen. Ital. Conop. p. 4.

Brachiglossum, Rondani, Dipt. Ital. Prodr. i. p. 56 (1856).

Sphyrnosoma, Rondani, loc. cit.

Conopilla, Rondani, loc. cit.

Synopsis of the Central-American species. of Conopidæ

- | | |
|--|----------------------------|
| 1. Third joint of the antennæ distinctly shorter than the second . . . | 2. |
| Third joint of the antennæ at least as long as the second . . . | 3. |
| 2. First posterior cell hyaline; pleural pollinose stripe indistinct above . | <i>discalis</i> , sp. n. |
| First posterior cell in large part clouded; pleural pollinose stripe | |
| distinctly limited above | <i>anthreas</i> , sp. n. |
| 3. Face black | Sp. (no. 4). |
| Face yellow | 4. |
| 4. Cheeks yellow | 5. |
| Cheeks brown; large species | <i>sequax</i> , sp. n. |
| 5. First posterior cell hyaline, except at its base, the submarginal cell | |
| also partly hyaline | <i>sylvosus</i> , Willist. |
| First posterior cell brown along the whole anterior part | Sp. (no. 5). |

* By S. W. WILLISTON.

1. *Conops discalis*, sp. n., ♂ ♀.

Male. Antennæ black, or dark reddish-brown; first joint about one-half, the third joint about two-thirds, the length of the second; style slender at its tip. Face blackish, in the depression yellowish, on the orbits yellowish- or white-glistening-pollinose. Front black, somewhat shining. Proboscis not twice the length of the head. Thorax black, a little shining; a yellowish-pollinose spot on the inner side of each humerus. Pleuræ lightly pollinose, without distinct vertical pollinose stripe. Abdomen black, the third segment yellow at its base; third and fourth segments each with a narrow yellow- or yellowish-pollinose, opaque hind margin; the fifth and sixth segments, for the greater part, light yellow-pollinose. Legs dark brown or black, the base of all the tibiæ yellow. Wings brown in front of the third longitudinal vein, subhyaline behind; a narrow cloud before the fifth vein.

Female. Face yellow; cheeks brown. Fifth abdominal segment with a large process below.
Length 9-10 millim.

Hab. MEXICO, Amula and Omilteme in Guerrero, Teapa in Tabasco (*H. H. Smith*).

2. *Conops anthreas*, sp. n., ♂ ♀.

Antennæ red or dark reddish-brown, the third joint in great part red; first joint about one-half, the third joint almost two-thirds, the length of the second joint, the latter slender. Face light yellow, on the sides with a silvery or slightly golden sheen, the grooves more or less brownish or blackish at the bottom. Front opaque, nearly black; a more shining space above and below; the orbital margins, below, narrowly silvery; the black extends down a little distance on each side of the antennæ. Proboscis nearly black, about twice the length of the head. Thorax dark reddish-brown, the dorsum nearly black, its posterior margin yellowish-pollinose; a golden-pollinose spot at the inner side of each humerus; pleural stripes complete and with well-defined margins above. Abdomen black, the base of the third segment reddish or yellowish; third, fourth, and fifth segments each with a narrow, golden, opaque posterior margin; fifth segment golden-pollinose behind. Legs brownish-red or reddish-brown, the tip of the metatarsi and the following joints black, the base of all the tibiæ yellow. Wings brown in front of the third longitudinal vein; the first posterior cell, save behind the streak corresponding to the spurious vein of the Syrphidæ, and a large semioval space in the outer posterior part, all brown; a narrow brown streak in front of the fifth vein; elsewhere the wing is hyaline or subhyaline.

Length 8-10 millim.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Acapulco and Rincon in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*).

Five specimens. This species differs from all the known American members of the genus, save *C. brachyrhynchus* and *C. discalis*, in having the third joint of the antennæ distinctly shorter than the second.

3. *Conops sequax*, sp. n., ♀.

Face reddish-yellow; orbits with a golden sheen; cheeks brown. Front black, moderately shining. Antennæ black; first joint more than half as long as the second; third joint longer than the second, gradually tapering from near the base; style slender, bristle-like on the distal half of the third joint, the second joint not at all prominent. Proboscis about twice the length of the head. Thorax black, but little shining; humeri lightly whitish-pollinose above; pleural stripe indistinct above. Abdomen black; second and third segments with a narrow golden-pollinose band behind; sixth segment for the most part covered with whitish pollen; ventral process of the fifth segment very large. Legs dark brown or brownish-black; base of all the tibiæ yellow; basal joints of all the tarsi yellow or yellowish. Wings brown in front of the third vein and in the first posterior cell as far as the streak corresponding to the spurious vein of the Syrphidæ; in front of the last section of the fourth vein a subhyaline space.

Length 15 millim.

Hab. MEXICO, Amula and Omilteme in Guerrero (*H. H. Smith*).

Two specimens. In this species the outer section of the fourth vein is nearly parallel with the great cross-vein. A male from Temax, Northern Yucatan (*Gaumer*), differs in having the pleural stripe distinctly limited above, the yellow abdominal bands absent, the legs more reddish-brown, the tarsi in large part yellow, and the third joint of the antennæ proportionately a little shorter. It is probable that these differences are specific.

4. *Conops* — ?

Hab. MEXICO, Temax in Northern Yucatan (*Gaumer*).

A single female specimen, much resembling the male from Yucatan mentioned above under *C. sequax*, but with the face entirely black, instead of light yellow. It is not improbable that it may prove to be conspecific with that example; if so, the species must be distinct from *C. sequax*. The face of this female has a silvery sheen, variable in different aspects. The specimen is in a bad state of preservation.

5. *Conops* — ?

Hab. MEXICO, Chilpancingo in Guerrero (*H. H. Smith*), Jalisco (*Schumann*).

Two indifferently preserved, male and female, specimens represent a species distinct from the other *Conops* here mentioned. It differs from *C. sylvosus*, the only other species in our collection with yellow cheeks, in lacking the hyaline cross-band before the tip of the wing, the brown of the whole submarginal cell being nearly uniform in colour. Length 10 millim.

6. *Conops sylvosus*.

Conops sylvosus, Willist. Trans. Conn. Acad. iv. p. 329, and vi. p. 390¹.

Hab. UNITED STATES, Massachusetts¹, Connecticut¹, Kansas¹.—MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

Six examples, agreeing well with the types and the description. The face is often blackish, and the proboscis is longer than the last two joints of the antennæ taken together. The specimens vary in length from 6–9 millim.

PHYSOCEPHALA.

Physocephala, Schiner, Wien. ent. Monatschr. v. p. 137 (1861); Fauna Austr., Diptera, i. p. 375;

Williston, Trans. Conn. Acad. vi. p. 388.

BIOL. CENTR.-AMER., Dipt., Vol. III., May 1892.

m

Physocephala

Synopsis of the Central-American species.

- | | |
|---|-----------------------------------|
| 1. Face black | 2. |
| Face yellow | 3. |
| 2. Thorax and abdomen shining black, not pollinose | <i>carbonaria</i> , Willist. (♂). |
| Thorax and abdomen opaque, more or less yellowish pollinose | <i>nigrifacies</i> , Bigot. |
| 3. Deep black, shining species; cheeks brown | <i>carbonaria</i> , Willist. (♀). |
| Red or black, opaque, more or less pollinose species | 4. |
| 4. Cheeks wholly black | <i>sororcula</i> , sp. n. |
| Cheeks brown, with a yellow spot | 5. |
| 5. Prevailing colour red; dorsum of thorax with confluent black stripes | <i>ochreiceps</i> , Bigot. |
| Prevailing colour black; thorax black | <i>xanthops</i> , sp. n. |

1. *Physocephala carbonaria*, ♂ ♀. (Tab. II. figg. 13, ♀; 13 a, profile.)

? *Conops carbonarius*, Bigot, Ann. Soc. Ent. Fr. 1887, p. 42¹.

Male. Head wholly black, except the facial depression, which is somewhat yellowish; the narrow facial orbits with a silvery or somewhat golden sheen. Antennæ brownish-black, the first and third joints somewhat reddish; third joint more than half the length of the second; style with a short bristly extremity, its second joint prominent. Thorax pitchy-black, moderately shining; humeri lightly pollinose above; no distinct pleural pollinose stripe. Abdomen black, shining, slenderly pedicellate. Legs: coxæ with a silvery or golden sheen; trochanters yellow; femora dark brown, sometimes more or less reddish, especially the hind pair; tibiæ lighter brown, sometimes yellowish, with the base of the hind pair yellow; tarsi yellowish-red, the hind pair more brownish-red; middle tibiæ on the outer side with a silvery sheen. Wings dark brown in front, nearly hyaline behind; the brown extends to the fourth vein, and, over the greater portion of the discal cell, to the fifth vein; costal cell and a spot in front of the last section of the fourth vein subhyaline.

Female. Face light yellow; cheeks brown; coxæ and base of the femora reddish-yellow; ventral process of the fifth segment small.

Length 13-19 millim.

Hab. MEXICO¹, Atoyac in Vera Cruz (*H. H. Smith*).

Six specimens. It seems very probable that these belong to the species described by Bigot under the name of *Conops carbonarius*, especially so from the remarkable sexual peculiarity of the colouring of the face. Bigot, however, describes the hind femora as only slightly thickened at the base; I believe that he is in error in this statement, but, until this is shown, the species may be known as *P. carbonaria*, Willist. The second abdominal segment often has a yellowish hind border.

2. *Physocephala nigrifacies*, ♂.

Conops nigrifacies, Bigot, Ann. Soc. Ent. Fr. 1887, p. 40¹.

Male. Head black, the face somewhat reddish in the depression; the front, except the vertical callosity, the cheeks, and the face covered with a yellowish dust, variable in different reflections. Antennæ black, the first joint and the under part of the third somewhat reddish; third joint of the style very briefly acute. Thorax black, lightly yellowish- and whitish-dusted throughout; a more pronounced spot of golden dust at the inner side of each humerus; no distinct pleural pollinose stripe. Abdomen opaque black, the

second, fourth, and fifth segments yellowish-pollinose; third, fourth, and fifth segments narrowly bordered behind with opaque yellow. Wings brown in front, nearly hyaline behind; the brown fills out the first posterior cell (save an oval space in front of the last section of the fourth vein), and the basal two-thirds of the discal cell, extending narrowly along the front of the fifth vein to the great cross-vein. Legs brown or black; basal portion of the tibiae, especially of the hind pair, and the basal joints of the tarsi, yellow or yellowish; coxæ and tibiae with the usual silvery sheen.

Length 11-12 millim.

Hab. MEXICO¹, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Three specimens. This species is peculiar in having the face distinctly golden-pollinose throughout. Because of the black face, I believe the species to be the same as that described by Bigot under the name *Conops nigrifacies*; I deem it worth while, however, to give a description of our specimens.

3. *Physocephala sororecula*, sp. n., ♂ ♀.

Front and face yellow; the former with an opaque, black, shallowly V-shaped band in front of the red vertex, connected in the middle by a slender line with an inverted V-shaped mark about the base of the antennæ. Cheeks deep black, in front with a golden sheen. Antennæ black; the first joint, and the second and third joints near their articulation below, yellowish-red; third joint of style not elongate, the second joint slender. Thorax opaque black; a golden-pollinose spot at the inner side of each humerus; in front of the scutellum diffusely golden-pollinose; pleural stripe not sharply limited. Abdomen opaque black, slender; the third and following segments diffusely yellowish-pollinose above; the third and fourth segments in the female, the third, fourth, and fifth in the male, with an opaque golden band posteriorly. Legs reddish-brown, the base of all the tibiae yellow; basal joints of the tarsi yellowish. Wings brown in front, nearly hyaline behind; the outer part of the discal cell hyaline, save for a streak in front of the fifth vein; a subhyaline space in the first posterior cell in front of the last section of the fourth vein.

Length 10-11 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

Three specimens.

4. *Physocephala xanthops*, sp. n., ♂ ♀.

Vertex obscurely red; below the callosity a transverse opaque black band, narrowly connected in the middle with a slender, inverted, V-shaped mark about the base of the antennæ. Lower part of the front and the face sulphur-yellow; cheeks brown, with an oval yellow spot in the middle. Prevailing colour of the antennæ red, the first joint somewhat, the second for its greater part, and the third joint above, black; third joint of the style short, without bristly extremity, scarcely longer than the slender second joint. Thorax opaque black, thinly whitish-pollinose; a silvery- or golden-pollinose spot at the inner side of each humerus; the white vertical pollinose pleural stripe not diffuse above. Abdomen opaque black; second segment distally, and the posterior segments above, whitish-pollinose; third, fourth, and fifth segments each with a narrow, opaque, light yellow posterior margin. Legs reddish-brown, the tibiae more distinctly red, their basal portion, and the basal joints of the tarsi, yellow or yellowish. Wings brown in front the distal portion of the discal cell, and a spot in front of the last section of the fourth vein, hyaline.

Length 10-11 millim.

Hab. MEXICO, Venta de Zopilote in Guerrero 2800 feet, Teapa in Tabasco (*H. H. Smith*).

5. *Physocephala ochreiceps*.

Conops ochreiceps, Bigot, Ann. Soc. Ent. Fr. 1887, p. 39¹.

Hab. UNITED STATES, New Mexico (*coll. Willist.*).—MEXICO¹, Tepetlapa in Guerrero 3000 feet (*H. H. Smith*).

A single specimen from Tepetlapa, agreeing well with Bigot's description¹. *P. ochreiceps* is nearest allied to *P. texana*, Willist., differing chiefly in the presence of the lateral thoracic stripes. It is not at all improbable that the names may prove to be synonymous.

TROPIDOMYIA.

Tropidomyia, Williston, *Canad. Entom.* xx. p. 11 (1888).

1. *Tropidomyia bimaculata*.

Tropidomyia bimaculata, Willist. *Canad. Entom.* xx. p. 11¹.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).—SOUTH AMERICA, Brazil¹.

A single male specimen from Xucumanatlan, agreeing well with the types and with the description.

ZODION.

Zodion, Latreille, *Précis des caract. gén. des Ins.* (1796).

1. *Zodion pygmæum*.

Zodion pygmæum, Willist. *Trans. Conn. Acad.* vi. pp. 381, 392¹.

Hab. UNITED STATES, California¹, Colorado¹.—MEXICO, Xucumanatlan 7000 feet, Omilteme 8000 feet, both in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*), Orizaba (*H. H. Smith & F. D. Godman*).

Six specimens, agreeing well with the types.

2. *Zodion* —?

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet, Atoyac in Vera Cruz (*H. H. Smith*).

A number of specimens from the above-named localities evidently represent a distinct, hitherto unnamed, species. It is closely allied, however, to *Z. pygmæum*, Willist., differing chiefly in the larger size (5–6 millim.). The thorax has, usually, six velvety-black stripes. The abdomen varies not a little in the markings, the three or four pairs of velvety-black triangles often coalescing to form single triangles, especially on the third segment.

3. *Zodion fulvifrons*.

Zodion fulvifrons, Say, *Journ. Acad. Phil.* iii. p. 83 (1823)¹; *Complete Writings*, ii. p. 74²; *Wiedem. Aussereur. zweif. Ins.* ii. p. 241³; Willist. *Trans. Conn. Acad.* vi. pp. 380, 392⁴.

Zodion abdominalis, Say, Journ. Acad. Phil. iii. p. 84⁶; Complete Writings, ii. p. 74⁶.

Zodion abdominale, Wiedem. Aussereur. zweifl. Ins. ii. p. 242⁷.

Zodion flavipenne, Bigot, Ann. Soc. Ent. Fr. 1887, p. 204⁸.

Hab. UNITED STATES, New England States⁴, Maryland¹, Pennsylvania¹³⁷, California⁴, Washington⁴, Kansas⁴, Arizona⁴.—MEXICO⁸, Venta de Zopilote 2800 feet, Chilpancingo 4600 feet, both in Guerrero (*H. H. Smith*).

Seven specimens. In size, and colour of the abdomen, these Guerrero examples vary not a little. Some of them agree well, however, with others from Kern Co., California, and Connecticut, in my collection.

4. ***Zodion auricaudatum***, sp. n., ♂ ♀. (Tab. II. figg. 14, ♀; 14 a, profile.)

Front, on the upper two-fifths, opaque black; on the lower part, opaque yellow or reddish-yellow. Antennæ reddish-brown or brownish-red, on the underside yellow; third joint a little more than half the length of the second. Face lighter yellow than the front; cheeks dark brown. Thorax opaque black; dorsum with two slender whitish lines, separating three deep black, velvety, opaque stripes—the middle one slender, the lateral ones oval. Abdomen opaque black, the anterior segments with a whitish pruinosity; third segment with the posterior margin, and two oblique spots, contiguous with the posterior band posteriorly, and forming an interrupted band, opaque golden-yellow; fourth and fifth segments each golden-yellow, with or without an interrupted black band; sixth segment wholly opaque yellow. Legs black; base of all the tibiae, and all the tarsi, save the distal joints, yellowish. Wings almost uniformly smoky.

Length 7–8 millim.

Hab. MEXICO, Chilpancingo and Tepetlapa, both in Guerrero (*H. H. Smith*).

Three specimens. The one from Tepetlapa differs from the others in having the yellow of the abdomen of a lighter colour, the third segment with a spot only on each side, and the fourth and following segments wholly yellow, save two small black spots on the fourth segment. The abdomen evidently varies in the extent of the yellow opaque markings.

5. ***Zodion splendens***.

Zodion splendens, Jaenn. Neue exot. Dipt., in Abhandl. Senckenb. Ges. vi. p. 405, t. 44. fig. 12¹.

Zodion leucostoma, Willist. Trans. Conn. Acad. vi. p. 380².

Hab. UNITED STATES, Kansas², Montana², Arizona².—MEXICO¹.

Although I have not seen a specimen of this species from Central America, I believe that the above synonymy will be found to be correct.

6. ***Zodion zebrinum***.

Zodion zebrinum, Bigot, Ann. Soc. Ent. Fr. 1887, p. 204¹.

Hab. MEXICO¹.

ONCOMYIA.

Occemyia, Robineau-Desvoidy, Dipt. des environs de Paris, Myodaires, p. 50 (1853).

Thecophora, Rondani, Dipt. Ital. Prodr. i. p. 58 (1856).

Oncomyia, Loew, Centur. vii. no. 73, nota, in Berl. ent. Zeitschr. 1866, p. 41.

1. *Oncomyia abbreviata*.

Oncomyia abbreviata, Loew, Centur. vii. no. 73, in Berl. ent. Zeitschr. 1866, p. 41¹; Willist. Trans. Conn. Acad. vi. pp. 97, 393².

Hab. UNITED STATES, New England States², California², Washington^{1 2}.—MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

A single specimen from Durango, which I cannot separate from others from Connecticut. I must confess, however, that I am not satisfied with the characters used to distinguish the American species of this genus.

2. *Oncomyia loraria*.

Oncomyia loraria, Loew, Centur. vii. no. 74, in Berl. ent. Zeitschr. 1866, p. 41¹; Willist. Trans. Conn. Acad. vi. pp. 98, 393².

Hab. UNITED STATES, New Hampshire¹, New England States², California².—MEXICO, Xucumanatlan 7000 feet, Amula 6000 feet, both in Guerrero (*H. H. Smith*).

Two examples from Guerrero, agreeing well with the description, and with specimens from Connecticut and California.

Fam. PIPUNCULIDÆ*.

PIPUNCULUS.

Pipunculus, Latreille, Hist. Nat. Crust. et Ins. iii. p. 463 (1802).

Synopsis of the Central-American species.

1. Last section of the fourth longitudinal vein with a stump of a vein; third antennal joint obtuse beneath; femora with spinous bristles below *elegantulus*, sp. n.
2. Last section of the fourth longitudinal vein sinuous, without stump 2.
2. Small cross-vein distinctly beyond the tip of the auxiliary vein; penultimate section of the fourth longitudinal vein not twice the length of the antepenultimate section; femora in part black, without bristly spines below *flavitaris*, sp. n.
- Small cross-vein before or opposite the tip of the auxiliary vein;

* By S. W. WILLISTON.

- penultimate section of the fourth vein at least twice the length of the antepenultimate section 3.
3. Legs yellow 4.
 Femora, at least, in large part black; third joint of the antennæ with a bristle-like projection below *subopacus*, Loew.
4. Third joint of the antennæ with a bristle-like projection below *aculeatus*, sp. n.
 Third joint of the antennæ more or less acute below, but not drawn out into a bristle-like projection 5.
5. Abdomen shining black *xanthopodus*, sp. n.
 Abdomen opaque coffee-brown, with interrupted, pollinose cross-bands *flavicornis*, sp. n.

1. *Pipunculus elegantulus*, sp. n., ♂.

Frontal triangle and face black, silvery-pubescent. Antennæ black; third joint silvery-pubescent, obtusely pointed below; arista black, thickened at its base. Dorsum of thorax and scutellum deep brown, moderately shining, distinctly pilose; pleuræ and metanotum black, grey-pollinose. Abdomen deep black, shining, whitish-pilose; first segment and the posterior angles of the following segments opaque grey-pollinose; hypopygium large, black, moderately shining, reddish below, thinly pollinose. Legs yellow; all the femora more or less broadly blackish in the middle; distal joints of all the tarsi blackish; femora stout, on their under distal side with two rows of short black spines. Wings nearly hyaline; stigma yellowish; anterior cross-vein nearly opposite the tip of the auxiliary vein; last section of the fourth vein angulated, and with a stump; penultimate section of the fourth vein more than twice the length of the antepenultimate section.

Length $4\frac{1}{2}$ millim.

Hab. MEXICO, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

One specimen. This species is nearest allied to *P. cingulatus*, Loew, but it lacks the cineraceous bands of the abdominal segments and has the legs of a lighter colour.

2. *Pipunculus flavitarsis*, sp. n., ♂.

Face and frontal triangle black, silvery-pubescent. Antennæ black; third joint in large part yellow, acute, but not produced below; arista black. Thorax black; dorsum and scutellum brownish-pollinose; pleuræ grey-pollinose. Abdomen blackish-brown, subopaque; the first segment and the hind angles of the following segments opaque grey. Legs black; extreme tip of the femora, tibiæ for the greater part, and the tarsi, save their tip, yellow; femora not markedly thickened nor with spines below. Wings nearly hyaline; stigma yellow; anterior cross-vein situated beyond the tip of the auxiliary vein; last section of the fourth vein sinuous, without stump; penultimate section of the fourth vein scarcely twice the length of the antepenultimate section.

Length 4 millim.

Hab. MEXICO, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

One specimen.

3. *Pipunculus xanthopodus*, sp. n., ♂.

The small frontal triangle and the face black, densely silvery-pubescent. Antennæ: basal joints black, or blackish; third joint light yellow, in shape acutely pointed below; arista black, thickened at its base. Dorsum of thorax brown; pleuræ and metanotum silvery-grey-pollinose. Abdomen shining black, the

lateral margins in part yellowish; the first and second segments entirely, and the successively narrower sides of the third, fourth, and fifth segments, grey-pollinose, opaque. Legs, including the coxæ in part, light yellow; femora stout, distally with a double row of short spines below. Wings nearly hyaline; anterior cross-vein nearly opposite the tip of the auxiliary vein; ultimate section of the fourth vein sinuous, without stump; penultimate section about three times the length of the antepenultimate section.

Length 5 millim.; of the wings, 7 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero (*H. H. Smith*).

Two specimens.

4. *Pipunculus subopacus*.

Pipunculus subopacus, Loew, Dipt. Centur. vi. no. 74, in Berl. ent. Zeitschr. 1865, p. 176¹.

Hab. UNITED STATES, Washington¹.—MEXICO, Chilpancingo in Guerrero, 4600 feet (*H. H. Smith*).

A single female example from Mexico agrees so closely with the description of *P. subopacus*, Loew, that I believe it belongs to that species. Almost the only discrepancy that the specimen shows is in the colour of the abdomen, which is deep coffee-brown, with whitish-pollinose markings. The femora have no spinous bristles on the underside, and the tibiæ are not "fusco-annulated."

5. *Pipunculus aculeatus*, sp. n., ♀.

Face black, densely silvery-pubescent. Front black, lightly pollinose. First two joints of antennæ black; the third joint light yellow, produced below into a slender point. Thorax black, brownish-pollinose on the dorsum, grey-pollinose on the pleuræ. Abdomen shining black; first segment and the lateral margins of the following segments opaque grey-pollinose; ovipositor reddish. Legs wholly light yellow, the femora without bristly spines below. Wings nearly hyaline; penultimate section of the fourth vein more than twice the length of the antepenultimate section.

Length 3 millim.; of the wings, 4 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

One specimen.

6. *Pipunculus flavicornis*, sp. n., ♀.

Front very narrow, the sides unusually convergent above; the ground-colour black, but covered, like the face, with silvery pubescence, less distinctly so above. Antennæ light yellow; third joint obtusely pointed below, ovate; arista black. Thorax black, the dorsum dark brown-pollinose; pleuræ silvery. Abdomen opaque coffee-brown; segments 2-6 broadly opaque silvery-grey on the sides, an interrupted posterior band, more brownish in colour, extending across them; first segment grey, narrowly brown in front; ovipositor yellowish-red. Legs light yellow, including the coxæ, excepting only the terminal joint of the tarsi, which is blackish; the minute black spines, arranged in longitudinal rows, are conspicuous. Wings nearly hyaline; penultimate section of the fourth vein more than twice as long as the antepenultimate section; small cross-vein opposite the tip of the auxiliary vein.

Length 5 millim.; of the wings, 6 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

One specimen.

Fam. PLATYPEZIDÆ *.

CALLOMYIA.

Callomyia, Meigen, Klassif. und Beschr. der Europ. zweifl. Ins. i. 2, p. 311 (1804).

1. *Callomyia bella*, sp. n. †, ♀.

Front shining black, very broad above. Antennæ black, the basal joints somewhat reddish; third joint elongate-conical, acute, shorter than the arista; base of the arista thickened. Dorsum of thorax resplendent blue, the pleuræ black or brown; scutellum blue, its margin with four strong bristles. Abdomen shining luteous-yellow and dark brown, towards the base with blue reflections. Legs lutescent-yellow, the distal extremity of the femora, the proximal portion of the tibiæ, and the distal joints of all the tarsi more or less blackish; hind femora and tibiæ only moderately thickened; all the tarsi slender, the penultimate joint of the hind pair with its external angle pointed. Wings pure hyaline; third and fourth longitudinal veins parallel.

Length 3 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

One specimen.

The following species of Syrphidæ and Conopidæ from Mexico have been described since the publication of the preceding pages:—

SYRPHIDÆ.

Aemosyrphus olivaceus, Giglio-Tos, Boll. Mus. Torino, vii. no. 123, p. 6 (1892).—Mexico.

— *griseus*, Giglio-Tos, loc. cit. no. 123, p. 6.—Mexico.

— *impurus*, Giglio-Tos, loc. cit. no. 123, p. 6.—Mexico.

Baccha spatulata, Giglio-Tos, loc. cit. no. 132, p. 4.—Mexico.

Chilosia aurotecta, Giglio-Tos, loc. cit. no. 132, p. 4.—Mexico.

Copestylum parvum, Giglio-Tos, loc. cit. no. 123, p. 2.—Mexico.

— *simile*, Giglio-Tos, loc. cit. no. 123, p. 2.—Mexico.

Crioprora arctophiloïdes, Giglio-Tos, loc. cit. no. 123, p. 7.—Mexico.

Eristalis bombusoides, Giglio-Tos, loc. cit. no. 123, p. 4.—Mexico.

— *trilimbatus*, Giglio-Tos, loc. cit. no. 123, p. 5.—Mexico.

— *præclarus*, Giglio-Tos, loc. cit. no. 123, p. 5.—Mexico.

— *clarissimus*, Giglio-Tos, loc. cit. no. 123, p. 5.—Mexico.

* By S. W. WILLISTON.

† The description of this species was originally published in May 1892, the incomplete page 89 being now reprinted, with the Index, &c.

- Eristalis sallei*, Giglio-Tos, loc. cit. no. 123, p. 5.—Mexico.
 — *triangularis*, Giglio-Tos, loc. cit. no. 123, p. 6.—Mexico.
 — *sumischrasti* (sic), Giglio-Tos, loc. cit. no. 132, p. 1.—Mexico.
 — *atropos*, Giglio-Tos, loc. cit. no. 132, p. 1.—Mexico.
 — *ornatus*, Towns. Ann. & Mag. Nat. Hist. (6) xix. p. 21 (1897).—Mexico.
Melanostoma elegans, Giglio-Tos, loc. cit. no. 132, p. 2.—Mexico.
 — *bellum*, Giglio-Tos, loc. cit. no. 132, p. 3.—Mexico.
Mesogramma rhombicum, Giglio-Tos, loc. cit. no. 132, p. 3.—Mexico.
 — *diversum*, Giglio-Tos, loc. cit. no. 132, p. 3.—Mexico.
 — *ciliatum*, Giglio-Tos, loc. cit. no. 132, p. 3.—Mexico.
 — *comma*, Giglio-Tos, loc. cit. no. 132, p. 4.—Mexico.
Microdon aquilinus, Giglio-Tos, loc. cit. no. 123, p. 2.—Mexico.
Mixogaster dimidiata, Giglio-Tos, loc. cit. no. 123, p. 1.—Mexico.
Platynochætus niger, Giglio-Tos, loc. cit. no. 123, p. 6.—Mexico.
Salpingogaster nova, Giglio-Tos, loc. cit. no. 123, p. 7.—Mexico.
Sphærophoria syrphica, Giglio-Tos, loc. cit. no. 132, p. 2.—Mexico.
Syrphus lautus, Giglio-Tos, loc. cit. no. 132, p. 2.—Mexico.
 — *saussurii*, Giglio-Tos, loc. cit. no. 132, p. 2.—Mexico.
Ubristes chrysopyga, Giglio-Tos, loc. cit. no. 123, p. 1.—Mexico.
Volucella omochroma, Giglio-Tos, loc. cit. no. 123, p. 2.—Mexico.
 — *furens*, Giglio-Tos, loc. cit. no. 123, p. 2.—Mexico.
 — *craverii*, Giglio-Tos, loc. cit. no. 123, p. 2.—Mexico.
 — *flavissima*, Giglio-Tos, loc. cit. no. 123, p. 3.—Mexico.
 — *minima*, Giglio-Tos, loc. cit. no. 123, p. 3.—Mexico.
 — *dichroica*, Giglio-Tos, loc. cit. no. 123, p. 3.—Mexico.
 — *trigona*, Giglio-Tos, loc. cit. no. 123, p. 3.—Mexico.
 — *hyaloptera*, Giglio-Tos, loc. cit. no. 123, p. 3.—Mexico.
 — *hirsuta*, Giglio-Tos, loc. cit. no. 123, p. 3.—Mexico.
 — *hispida*, Giglio-Tos, loc. cit. no. 123, p. 4.—Mexico.
 — *volucris*, Giglio-Tos, loc. cit. no. 123, p. 4.—Mexico.
 — *hystrix*, Giglio-Tos, loc. cit. no. 123, p. 4.—Mexico.
 — *brevis*, Giglio-Tos, loc. cit. no. 123, p. 4.—Mexico.
 — *obesoides*, Giglio-Tos, loc. cit. no. 123, p. 4.—Mexico.
 — *cordiæ*, Towns. Ann. & Mag. Nat. Hist. (6) xx. p. 27 (1897).—Mexico.
 — *rafaelana*, Towns. loc. cit. p. 28.—Mexico.
 — *nautlana*, Towns. loc. cit. p. 28.—Mexico.
 — *opalina*, Towns. loc. cit. p. 29.—Mexico.
 — —, v. *splendens*, Towns. loc. cit. p. 29.—Mexico.
 — *viridana*, Towns. loc. cit. p. 30.—Mexico.
 — *toltec*, Towns. Trans. Am. Ent. Soc. xxii. p. 45 (1895).—Mexico.

Nausigaster meridionalis, Towns. Ann. & Mag. Nat. Hist. (6) xix. p. 20 (1897);
xx. p. 25.—Mexico, Brazil.

CONOPIDÆ.

Conops ocellatus, Giglio-Tos, Boll. Mus. Torino, vii. no. 132, p. 5 (1892).—Mexico.

Physocephala maxima, Giglio-Tos, loc. cit. no. 132, p. 5.—Mexico.

Stylogaster stylosa, Towns. Ann. & Mag. Nat. Hist. (6) xix. p. 24 (1897).—Mexico.

— *ethiopa*, Towns. loc. cit. p. 26.—Mexico.

— *minuta*, Towns. loc. cit. p. 27.—Mexico.



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[Names in small capitals refer to Families, &c.; those in roman type to the chief reference to each species included in the work; those in italics to species incidentally mentioned, synonyms, &c.]

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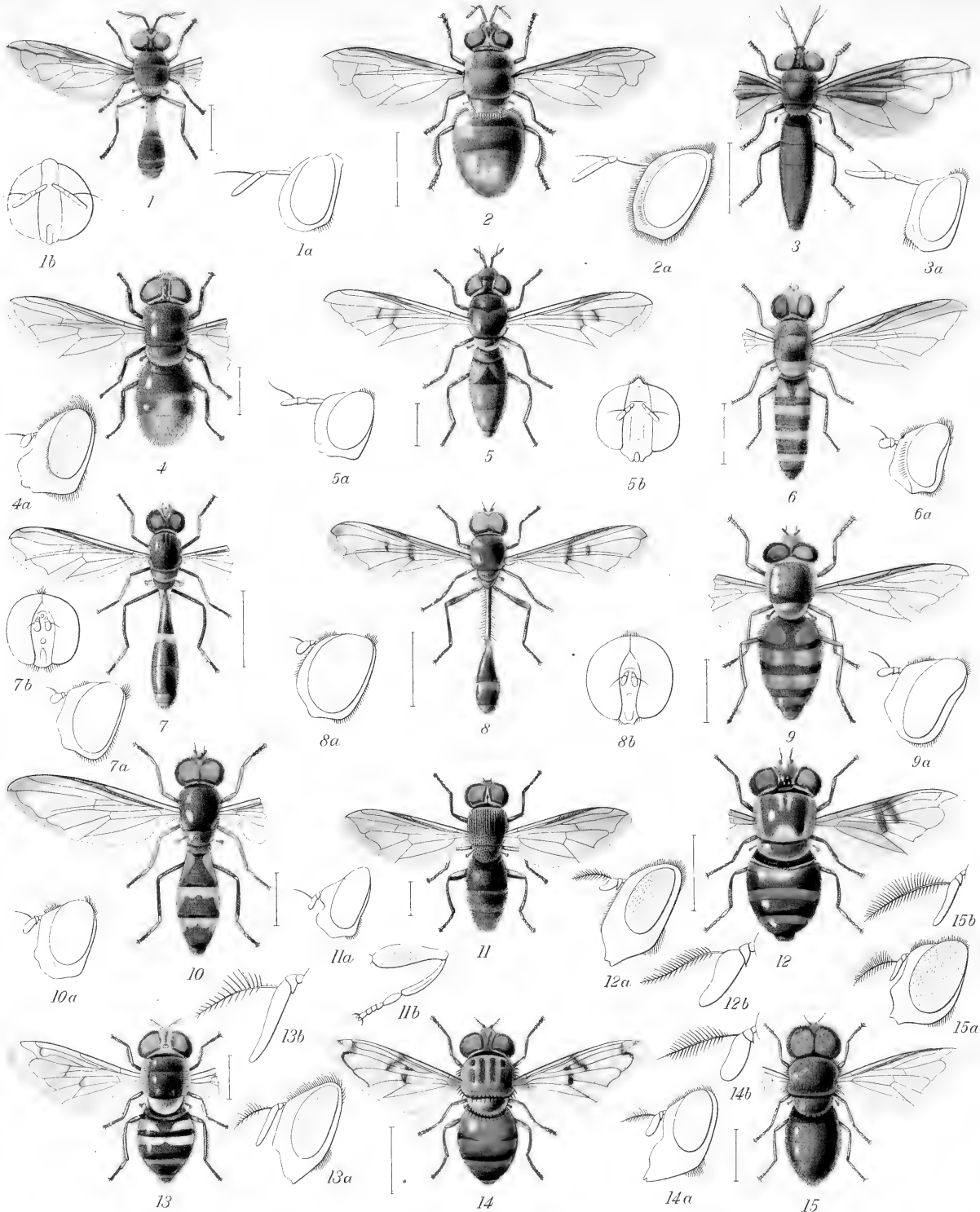
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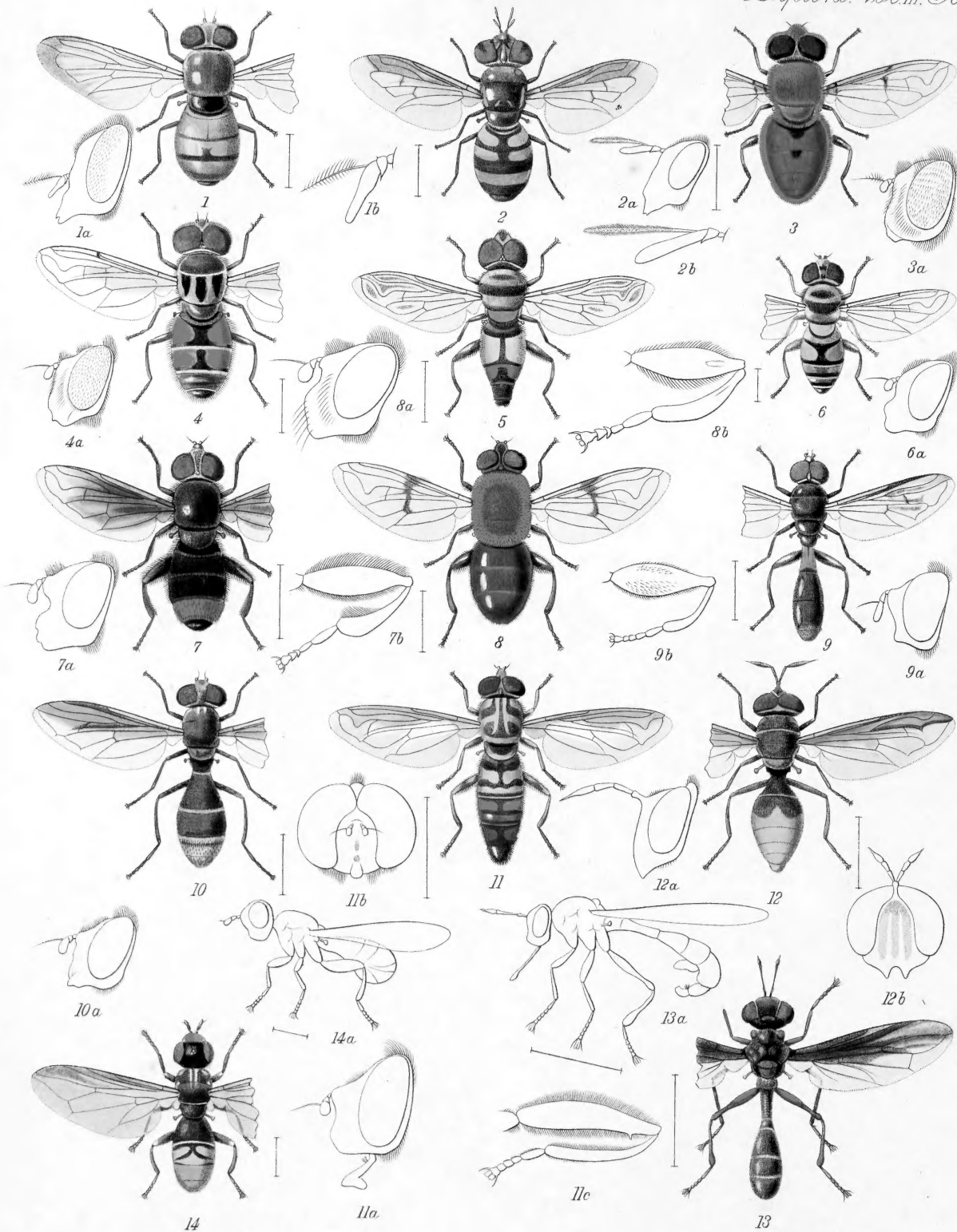
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| 2, 2a ♂ MICRODON AURIFEX. | 7, 7a, b ♂ BACCHA DOLOSA. | 13, 13a, b ♀ " FRAUDULENTA. | 14, 14a, b ♀ " OPINATOR. |
| 3, 3a ♂ " NIGER. | 8, 8a, b ♂ " RUBIDA. | 15, 15a, b ♂ " CHÆTOPHORA. | |
| 4, 4a ♀ CHILOSTIA CHRYSOCHLAMYS. | 9, 9a ♂ DIDEA COQUILLETII. | | |
| 5, 5a, b ♀ MELANOSTOMA CRENULATUM. | 10, 10a ♂ BACCHA ÆNEA. | | |



1, 1a, b ♂ OPHROMYIA NASICA.
 2, 2a, b ♀ COPESTYLUM LIMBIPENNE.
 3, 3a ♂ ERISTALIS CIRCE.
 4, 4a ♂ " TRIGONUS.
 5 ♂ " AMULUS.

6, 6a ♀ ERISTALIS MINUTALIS.
 7, 7a, b ♀ MALLOTA MARGARITA.
 8, 8a, b ♀ " SMITHI.
 9, 9a, b ♂ XYLOTA PAUXILLA.

10, 10a ♀ CERIOGASTER AURICAUDATA.
 11, 11a-c ♂ MLESIA PULCHRA.
 12, 12a, b ♂ CERIA MEADEI.
 13, 13a ♀ PHYSOCEPHALA CARBONARIA.
 14, 14a ♀ ZODION AURICAUDATUM.

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