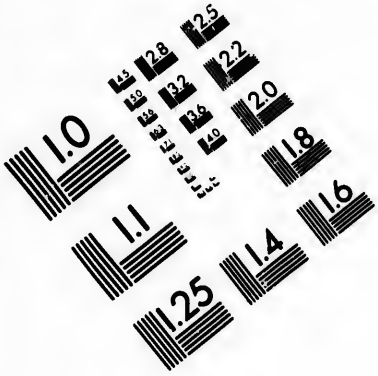

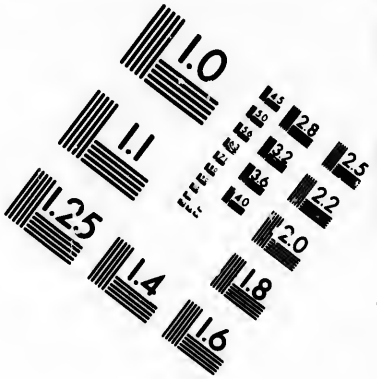

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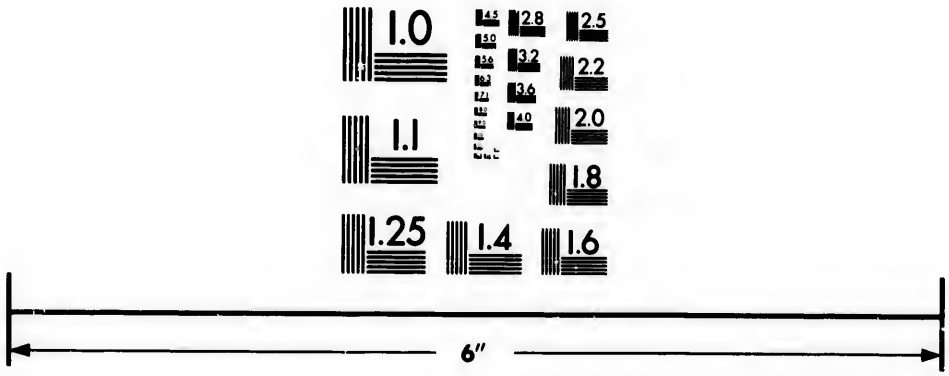

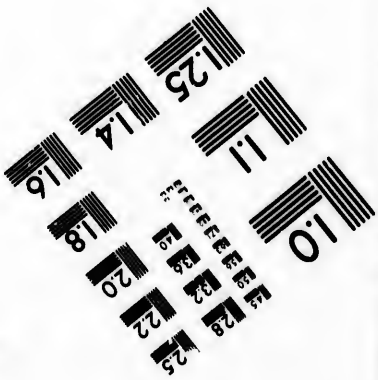

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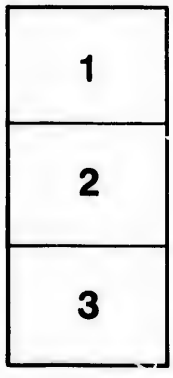

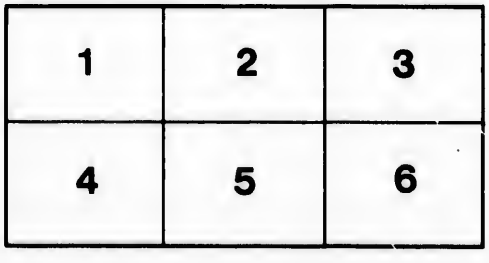

Syrphidæ, by Dr. S. W. Williston," was presented through the Secretary, with a letter from the author, dated New Haven, Yale College Museum, May 12, 1882.

"The Classification of the Ungulate Mammalia" was read by Prof. Cope.

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The President reported that he had forwarded a memorial to the President of the New York Senate, in favor of the com-

ERRATUM.

Page 474, line 24, after *Meles*, insert *Helictis*.

Page 474, line 25, omit *Helictis*.

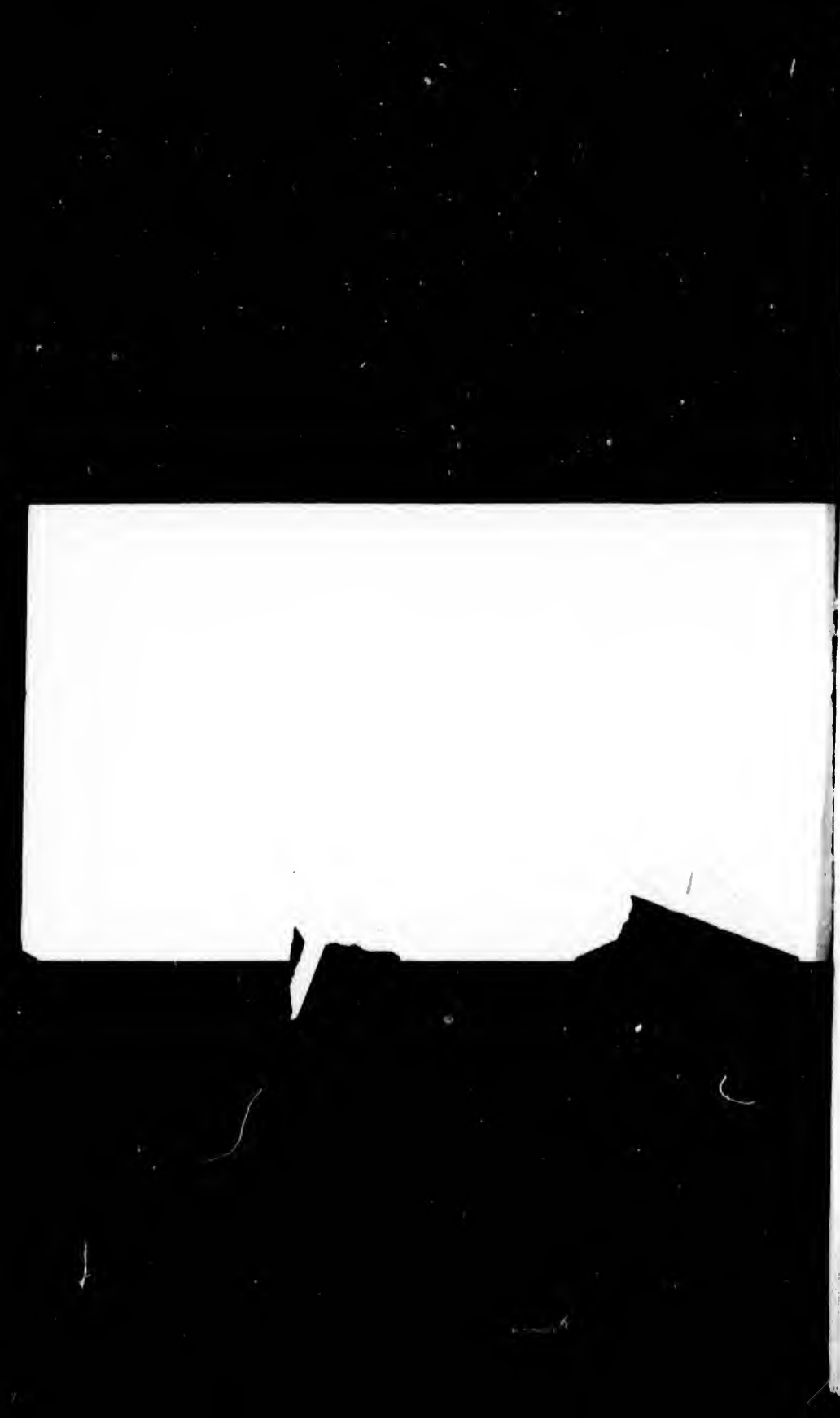
Page 474, line 27; remove *Æluropoda* and *Hyænarctos* from ÆLURIDÆ, and insert under URSIDÆ (line 28) the names *Æluropoda* and *Hyænarctos*.

Page 475, foot-note, for vig. read Vig.

Syrphidæ
classify. Although,
and forty described genera, they present no characters that will decisively distinguish any considerable number. As a natural result many genera have been loosely formed and more loosely described, and the difficulty in identifying species without the aid of numerous types has become extremely great. The present paper is the result of many hours tedious labor in identifying a considerably large amount of material wholly without the aid of types. Prepared two or three years ago it has been rewritten and changed many times; that it is free from error yet I do not presume to hope, but from my own experience in the difficulties that are met with in working with the aid of books alone, I believe that it will materially aid in the study of our species.

In Osten Sacken's catalogue of American Diptera—a work indispensable to all entomologists—fifty-seven genera are recorded as having been creditably recognized from North America. *Toxomerus* of Macquart I have

PROC. AMER. PHILOS. SOC. XX. 112. 2L. PRINTED AUGUST 3, 1882.



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The President reported that he had forwarded a memorial to the President of the New York Senate, in favor of the completion of the Palæontology of New York.

Power was given to the Hall Committee to procure a copy of the portrait of Dr. Geo. B. Wood; and the President was empowered to fill the vacancy caused by the death of Sol. W. Roberts, a member of that Committee.

Authority was given the Librarian to purchase Vols. I–XII Transactions of the American Philological Association.

And the meeting was adjourned.

Contribution to a Monograph of the North American Syrphidæ. By Dr. S. W. Williston.

(Read before the American Philosophical Society, May 19, 1882.)

The Syrphidæ form one of the most difficult families of Diptera to classify. Although composed throughout the world of about one hundred and forty described genera, they present no characters that will decisively distinguish any considerable number. As a natural result, many genera have been loosely formed and more loosely described, until the difficulty in identifying species without the aid of numerous types has become extremely great. The present paper is the result of many hours tedious labor in identifying a considerably large amount of material wholly without the aid of types. Prepared two or three years ago it has been rewritten and changed many times; that it is free from error yet I do not presume to hope, but from my own experience in the difficulties that are met with in working with the aid of books alone, I believe that it will materially aid in the study of our species.

In Osten Sacken's catalogue of American Diptera—a work indispensable to all entomologists—fifty-seven genera are recorded as having been creditably recognized from North America. *Toxomerus* of Macquart I have

resuscitated, and have also recognized an interesting new species of *Senogaster* Mac., hitherto known only from South America. Since the publication of the catalogue four new genera have been described by M. Bigot and the writer, making in all sixty-two genera now known from North America. As regards the distribution of these genera twelve are peculiar to our fauna, viz: *Eupeodes, Copestylum, Hadromyia, Eugeniamyia, Eurhinamallota, Teuchocnemis, Pterallastes, Polydonta, Crioprora, Somula, Merapioidus,* and *Mixogaster.* The first four of these, with *Catabomba,* have never yet been found in the Eastern States, while the following are not yet known west of the one hundredth meridian, viz: *Triglyphus, Pyrophæna, Doros, Ocyptamus, Rhingia, Teuchocnemis, Pterallastes, Senogaster, Somula, Temnostoma,* and *Milesia.* Of these no doubt the distribution will yet be found more extensive. Indeed the wide distribution of species and genera of the family over our continent will not readily be paralleled by any other family of insects.

In the present paper I have given a list of all the described species known west of the one hundredth meridian. These with the species described as new, reach yet but eighty-six; of them fifty-four are known only from the West, while thirty-two, or over one-third, are distributed from the Atlantic to the Pacific regions.

Five genera, of one or two species each, namely: *Triglyphus, Pyrophæna, Copestylum, Arctophila,* and *Pterallastes,* are unknown to me; their systematic positions have in consequence been wholly drawn from descriptions and figures. They, together with such species as are unknown to me, are preceded by an asterisk. An exclamation point indicates that the locality, or localities, preceding it are given from specimens that I have examined. It has not been deemed necessary to repeat any of the bibliographical references or synonomy that are given in Osten Sacken's catalogue, except such as will facilitate the identification of species. The specimens which I have examined in the preparation of this paper, from Washington Territory, Oregon, and Kern County, California, were collected by Mr. H. K. Morrison; from Mendocino county, California, by Mr. O. T. Baron, and from Wyoming, Colorado, and Kansas, by Mr. E. W. Guild and myself. The species that I have identified, or described, or that have been previously recorded from the West, are printed in small capitals.

I desire to express my thanks to Mr. W. H. Patton and Drs. G. H. Horn and H. A. Brous, for kind favors in the preparation of this paper. To Baron C. R. von Osten Sacken, of Heidelberg, I am much indebted for his kindly interest and advice.

The following table of generic groups is based essentially upon that of Schiner's in his Austrian Diptera. It seems impossible to improve its general features so far as our American genera are concerned.

Table of groups of genera.

J.—**Small cross-vein of the wing distinctly before the middle of the** discal cell, usually straight and rectangular. Hind femora usually slender, not thickened; the third longitudinal vein rarely much bent into the first posterior vein, usually straight or very gently curved.

1—Antennæ longer than the head..... **I.**

2—Antennæ as long or shorter than the head.

a—Marginal cell open, *i. e.*, the second longitudinal vein terminates in the border of the wing.

a—Face not tuberculate, nor distinctly carinate; not excavated below the antennæ in profile; hyperstoma not produced. (Small, nearly bare species, with short oval abdomen)..... **II.**

aa—Face tuberculate, or hyperstoma produced.

*—Abdomen in outline, linear or oval, never narrowed toward the base, or club-shaped. (Tegulæ of usual size.)

†—Body uniform metallic green, or metallic green and black; abdomen oval or elongate, never slender; femora not thickened, nor facial tubercle dissimilar in male and female **III.**

††—Black with luteous, reddish or yellow, when uniformly black the hind femora thickened.....**IV.**

†††—Black or greenish black, with yellow or yellowish stripes or bands, or face more or less yellow.

§—Face black, abdomen slender, with yellow or greenish yellow interrupted cross-bands.....**V.**

§§—Face partly or wholly yellow, abdominal markings yellow.

π—Dorsum of thorax with yellow lateral stripes....**VI.**

ππ—Dorsum of thorax without yellow lateral stripes.**VII.**

—Abdomen contracted toward the base, more or less club-shaped **VIII.

aa—Marginal cell closed and petiolate.....**IX.**

JJ—**The small cross-vein at or beyond the middle of the discal cell,** *i. e.*, the discal section of the fourth longitudinal vein beyond the small cross-vein, is but little longer or much shorter than the section before it; small cross-vein nearly always oblique, the posterior femora frequently thickened.

a—Antennæ with a distinctly dorsal bristle.

β—Third longitudinal vein bent deeply into the first posterior cell

γ—Marginal cell closed and petiolate.....**X.**

γγ—Marginal cell open.....**XI.**

β,β—Third longitudinal vein gently curved.

δ—Arista plumose.

ε—Marginal cell closed.....**IX.**

εε—Marginal cell open.....**XII.**

δδ—Arista bare or pubescent.....**XIII.**

aa—Antennæ with a subterminal bristle or terminal style.....**XIV.**

I.

J.—Small cross-vein before the middle of the discal cell.

1. Antennæ longer than the head.

A.—Scutellum flattened, with two obtuse points; face evenly rounded, pubescent, without tubercle; eyes separated in both sexes, narrowly in the male; first posterior cell with a stump of a vein from the third longitudinal; dark or black species, unrelieved by light markings..... **Microdon.**

MICRODON sp. nov. ? Washington Territory, California !

This is the first time this genus has been recorded from the Pacific coast; eight or nine species are known from the eastern part of the continent.

AA.—Scutellum without points; third antennal joint elongate; face produced downward, obtusely tuberculate, yellow with black median stripe; dorsum of thorax with lateral, yellow, interrupted stripes; abdomen oval, arched, with yellow bands; eyes pubescent, **Chrysotoxum.**

This is one of those genera of Syrphidæ, whose species are hard to distinguish and require much material to satisfactorily study.

CHRYSOTOXUM (?) DERIVATUM Walk., Washington Territory; Mt. Hood, Oregon. Apparently a common species. The femora are mostly black, and the lateral margins of the abdomen yellow, otherwise it agrees with *C. laterale* Lw., Cent. v, 42.

II.

A.—Small cross-vein before the middle of discal cell.
1.—Antennæ as long or shorter than the head.
a.—Marginal cell open.
a.—Face without turbercle or hyperstoma not produced.

B.—Abdomen of only four apparent segments; very small species (2–5 mm.) black or greenish black, the ground color unrelieved by lighter spots, stripes or bands.....***Triglyphus.**

BB.—Abdomen of from five to seven segments; third joint of antennæ oblong.

C.—Face evenly rounded, not at all projecting in outline (hind femora moderately swollen); face dark without yellow.....**Pipiza.**

A single species of this genus is recorded by Osten Sacken (West. Dipt. p. 322) from Sonoma Co., Cal. In Europe the species are very numerous.

CC.—Face slightly carinate below, partly or wholly yellow, eyes pilose, in life usually with bright stripes (small, mostly finely punctulate; abdomen oval, obtusely rounded behind, black or black and red, not banded).....**Paragus.**

The species of this genus like the preceding are very difficult to satisfactorily distinguish. Three species are recorded from the Eastern States and I have at least three more yet unnamed from the Pacific regions.

PARAGUS DIMIDIATUS Lw., Cent. iv, 63. Western Kansas, Colorado !

III.

A.—Small cross-vein before the middle of discal cell.
1.—Antennæ as long or shorter than the head.
a.—Marginal cell open.
aa.—Face tuberculate, or hyperstoma produced.
*.—Abdomen oval, never narrowed toward the base, or club-shaped.
†.—Uniform metallic green, metallic green and black, or black species; hind femora never swollen.

D.—False vein of wing usually indistinct or absent; front in ♀, or face also (♂♀) with transverse wrinkles; hind border of scutellum sharp; small, oval, metallic, nearly bare species.....**Chrysogaster.**

a.—Outer posterior angle of first posterior cell obtuse. *Chrysogaster.*
aa.—Outer posterior angle of first posterior cell rectangular or acute.....*Orthoneura.*

The character given is that usually taken as the distinction between the two genera, but is very unreliable and misleading, and, moreover, separates closely related species; the length of the antennæ is equally unreliable; I place all the species in Meigen's genus. There are sufficient plastic characters to render the tabulation and identification of our species a comparatively easy matter. At all events, it is evident that *Orthoneura* cannot be used in Loew's or Schiner's sense even as a sub-genus for the North American species.

Our species may be tabulated as follows:

a.—Third joint of antennæ ovate or orbicular.....*b.*
—Third joint of antennæ elongate.....*e.*
b.—Third joint of antennæ ovate.....*c.*
—Third joint of antennæ orbicular.....*d.*
c.—Dorsum of thorax opaque black (♂).....**nigripes.*
—Dorsum of thorax not black opaque, with dark stripes; finely punctulate; tip of fourth vein bent inwards.....*nigrovittatus.*
d.—Outer posterior angle of first posterior cell not obtuse.....*latus.*
—Outer posterior angle of first posterior cell obtuse.....*ustulatus.*
e.—The ultimate section of fourth longitudinal vein joins the third beyond the tip of second vein, the dark clouds not continuous nor in the same line; second joint of antennæ nearly as long as third; eyes with distinct linear markings; posterior borders of second and third abdominal segments brown.....*nitidus.*
—Ultimate segment of fourth vein joins the third opposite or before tip of second, abdomen not fasciate.....*f.*
f.—Cloud from tip of second vein continuous or in same line with ultimate section of fourth vein; eyes with markings; second joint of antennæ nearly as long as third.....*bellulus,* sp. nov.
—Second joint of antennæ considerably shorter than third, abdomen shining brassy on the sides, the disc more or less opaque; eyes nearly unicolorous; stigma brown.....*g.*
g.—Second joint of antennæ half as long as third; the third joint somewhat narrowed beyond the middle.....*pictipennis.*
—Antennæ not longer than the face, second joint short....*stigmatus,* sp. nov.

CHRYSOGASTER STIGMATUS, sp. nov.

♂♀. Antennæ black, not longer than the face, first joint short, second joint twice as long, about one-fourth as long as third. Face deep green, shining, nearly smooth, with sparse pile, and a silvery white triangular

spot on each side near the eye above; hyperstoma much projecting. Frontal triangle (♂) swollen, distinctly fossulate, front (♀) with well marked lateral grooves. Eyes uniform. Thorax and scutellum shining green, finely punctulate, with obscure pile. Abdomen broad, black, with short appressed white pile, but little shining, in the male the entire margin with the hypopygium shining brassy green, the venter shining like the border. Wings fuscous, stigma brown, outer anterior angle of first posterior cell obtuse. Legs black. Long. corp. 6–7 mm. California.

CHRYSOGASTER BELLULUS, sp. nov.

♂♀. Antennæ reddish-brown, a little longer than the face, second joint a little shorter than third. Face green black, lightly rugose, white pilose, hyperstoma moderately produced downward. Frontal triangle (♂) not swollen, front (♀) with well marked lateral rugosities, eyes with irregular narrow linear markings. Thorax and scutellum bright green, scabrous, with four narrow coppery stripes. Abdomen oval, a little darker green, more shining on the borders, punctulate. Legs black, base and tips of all the tibiæ, and first joints of tarsi yellowish-red. Wings nearly hyaline, slightly clouded in the outer cells, stigma brownish, last section of fourth vein straight, rectangular, joining the third nearly at right angles opposite the tip of second vein, clouded with brown, the cloud either extending across to tip of second vein or more or less interrupted in front of the third. Long. corp. 6–7 mm., Washington Territory, California.

Differs from *C. nitidus* Wied., which it closely resembles, in its larger size, the second joint of antennæ proportionately a little shorter, and the concavity of lower part of face being less, in the absence of abdominal fasciæ, and in the termination of the fourth vein.

CHRYSOGASTER NIGROVITTATUS Lw., Zeit. f. Ges. Naturw. 1876, p. 323. Colo., Washington Terr. ! Calif.

DD.—Face and front without transverse wrinkles; false vein always present, the fourth vein never bent inwards toward the tip; face usually with distinct tubercle, third joint of antennæ never elongate. Small or medium sized species, more or less pilose, abdomen never slender. **Cheilosia.**

This genus, a very large one in Europe, has hitherto consisted of but seven described species, none of them from west of the Rocky Mountains. I describe here five additional ones from the Western regions, two of them belonging to the division with pilose eyes hitherto undescribed in this country.

Three or four of Dr. Loew's species are unknown to me, but this writer's familiarity with the genus enables his species to be placed with a good deal of certainty from the descriptions alone. In the identification of species described in but one sex, it should be remembered that in the female the pilosity of the eyes is less, the antennæ usually lighter colored, and the third joint larger.

a.—Eyes distinctly pilose.....*b.*
—Eyes bare.....*c.*
b.—Third joint of antennæ (♂) small, oval, blackish; face with sparse long pile; wings not lighter toward the base....*occidentalis*, sp. nov.
—Third joint of antennæ (♀) larger, subquadrate, reddish; wings lighter toward the base.....*lasiophthalmus*, sp. nov.
c.—Scutellum with bristly hairs on its border.....*d.*
—Scutellum without bristly hairs on its border.....*h.*
d.—Humeri, scutellum, and lower part of the face, luteous; face strongly excavated above; arista pubescent.....*e.*
—Black shining; arista pilose (except in *tristis*).....*f.*
e.—All the femora except the apex black.....**leucopæa*
—Hind femora, except base and apex, black.....**pallipes.*
f.—Legs black, knees, base and apex of tibiæ and more or less of the tarsi, luteous.....*g.*
—Anterior legs luteous, posterior blackish with the base and apex of femora and tibiæ and last joints of tarsi luteous.....*plumata.*
g.—Second and third segments of abdomen, except anterior angles, opaque (♂).....*tristis.*
—Second and third segments of abdomen wholly shining (♂).....*cyanescens.*
h.—Abdomen with distinct, entire cross-bands, legs, except the posterior femora, red.....*rufipes*, sp. nov.
—Abdomen without metallic bands.....*i.*
i.—Second and third segments of abdomen opaque (♂).....*j.*
—Abdomen wholly shining.....*k.*
j.—Legs black.....*nigripennis*, sp. nov.
—Legs luteous, femora black.....**capillata.*
k.—Legs black.....*comosa.*
—Legs in large part luteous.....*parca*, sp. nov.

CHEILOSIA TRISTIS Lw., Cent. iv, 71. British America. Three male specimens from Oregon and Washington Territory agree so closely with the description of this species, that I believe it to be the same. I have no other specimens with which to compare them.

CHEILOSIA COMOSA Lw., Cent. iv, 66. Colorado! Red River of the North. The previous remarks will apply equally well to this species.

CHEILOSIA OCCIDENTALIS, sp. nov.

♂.—Frontal triangle black, with black pile, swollen with a depression; antennæ black, third joint somewhat brownish, nearly orbicular, small, arista with scarcely perceptible pubescence. Face shining black with sparse lutescent pile, scarcely concave from base of antennæ to tip of tubercle, deeply and shortly concave below the latter. Eyes thickly pilose, lutescent below, fuscous above. Thorax deep green black, with brown or blackish pile, intermingled with shorter lutescent. Abdomen oval, not at all slender, deep, somewhat metallic green, shining, pile lutes-

cent, longer than in the thorax, especially on the sides of the anterior segments, the dorsum in the middle nearly bare. Legs black with black and lutescent pile, tibiæ reddish at base and extreme tips. Tegulæ light yellow, halteres yellow. Wings smoky brown, darker in front and at the root. One specimen. California. Long. corp. 11 mm.

An additional species from California has larger, more reddish subquadrate third joint of antennæ, arista short pilose, no pile that I can distinguish in the face, and the pile of the body shorter.

CHEILOSIA LASIOPHTHALMUS, sp. nov.

♂.—Frontal triangle moderately swollen, with an impressed longitudinal line, and light yellowish pile. Antennæ brownish red, third joint rather large, nearly square, arista bare, black. Face deep black, shining with yellowish pubescence, slightly excavated below the antennæ, considerably produced below the eyes, a well-marked groove begins at the base of the antennæ, runs obliquely outward to the eye, and then curves downward near the eye into the cheek. Posterior orbits below broadly dusted with yellow. Eyes thickly reddish-yellow pilose. Thorax metallic green, shining, thickly covered with light yellow pile, on the pleuræ bushy. Abdomen broad oval, shining black, with abundant pile like that of the thorax. Tegulæ light yellow. Legs black with yellow pile, femora at the tips, base and tips of tibiæ, and basal joints of intermediate tarsi, yellow or luteous. Wings subhyaline, with an indistinct brownish spot near the middle, basal part yellowish. Long. corp. 10–11mm. Four specimens. Colorado.

Female specimens that may belong to this species from California have the pile much shorter and more grayish. They are too badly preserved, however, for me to determine with any degree of assurance.

CHEILOSIA RUFIPES, sp. nov.

♀.—Front and face shining black, the former on the sides and the latter except the tubercle lightly covered with minute gray pubescence. Antennæ blackish, third joint twice as long as wide, reddish on the under side, arista bare. Thorax metallic green, lightly punctulate, pile very short, whitish; scutellum with an indistinct, transverse groove. Abdomen black, with a metallic reflection, smooth, shining, elongate oval, with a small tuft of whitish pile on the side of the second segment, and very short, elsewhere; second segment with large oval spots in front, narrowly separated; third segment with broad cross-bands in front, attenuated in the middle; the fourth segment with similar but less attenuated; the fifth segment partly or wholly, bluish green. Legs red, posterior femora annulate near the middle, or almost wholly brown or blackish, terminal joints of tarsi infuscated. Wings hyaline, stigma dilutely yellow. Long. corp. 8–9 mm. Washington Territory, California. Five specimens.

The abdomen is not sufficiently fasciated to place it among the *Melanostomæ*; in everything else it presents the characters of *Cheilosia*.

CHEILOSIA NIGRIPENNIS, sp. nov.

♂.—Deep black, eyes bare. Frontal triangle and face shining black, the former fossulate, the latter very slightly excavated below the antennæ. Antennæ small, basal joints black, third joint reddish-brown or brown, rounded. Thorax black, nearly opaque, with short black pile above and longer on the pleuræ and scutellum, the latter shining. Abdomen short, broadly oval, depressed, opaque black with a bluish cast, pile on the sides of the anterior segments, reddish-yellow, anterior angles of third and fourth segments, shining metallic. Tegulæ with blackish border, and a fringe of black pile. Legs black. Wings blackish in front, clearer behind, veins black. Long. corp. 7–8 mm. Three specimens from Mt. Hood, Oregon.

CHEILOSIA PARVA, sp. nov.

♀—Shining greenish-black, with a brassy reflection. Eyes bare. Front and face shining, the former with short, fuscous pile, the latter moderately excavated below the antennæ, tubercle broad, obtuse. Antennæ black, third joint oval, somewhat reddish below. Thorax and abdomen with short, lutescent pile, sparse on the latter, which is elongate oval. Legs luteous; the anterior femora toward the base, rings of the tibiæ, and terminal joints of tarsi and the posterior legs except the ends of femora, base and tips of tibiæ, brown or blackish. Wings lutescent, veins black. Long. corp. 5–6 mm. Mt. Hood, Oregon.

IV.

1.—Small cross-vein before the middle of the discal cell.
2.—Antennæ shorter than the head.
aa.—Face tuberculate or hyperstoma produced.
*.—Abdomen linear or oval, never club-shaped.
††—Black with luteous, reddish or yellow; if uniformly black, the hind femora thickened.

E.—Hyperstoma produced into a long, slender porrected snout; femora slender (the third longitudinal vein joins the costa beyond the tip). **Rhingia.**

The single American species of this genus *R. nasica* Say, is very common in the Eastern States, but I have never seen a *Rhingia* from beyond the Mississippi.

EE.—Face not produced into a snout like hyperstoma, femora more or less thickened.
F.—Face not produced, extending but little beyond the eyes, in ♂ much more tuberculate than in ♀; hind femora usually with spines below, abdomen oval. Mostly black species or with luteous markings at base of abdomen, scutellum, humeri, cheeks, etc..... **Myiolepta.**

Four species have been described from Eastern North America, and the genus is now recorded for the first time from the West.

PROC. AMER. PHILOS. SOC. XX. 112. 2M. PRINTED AUGUST 3, 1882.

MYIOLEPTA VARIPES LW., Cent. ix, 79. Virginia.

Specimens very closely allied to this species, if not the same, I have from Washington Territory and Kern county, California. The lateral margins of the second segment and basal parts of the tarsi are luteous. In the male the facial tubercle is prominent, though small.

MYIOLEPTA BELLA, sp. nov.

♀.—Black, shining. Front with very short black pile above; face bare, much produced, in profile briefly convex in the middle of the concavity between antennæ and tip. Antennal basal joints nearly black, third joint large, orbicular, red, arista black. Thorax with short, black pile, somewhat intermixed with yellowish, longer on the border of the scutellum. Abdomen very shining with short, whitish pile, longer and bushy on the sides of the second segment. Halteres light yellow. Legs black with black pile. Wings smoky or brownish toward the end. Stigma brown. Long. corp. 7-8 mm. Three specimens, Washington Territory; Mt. Hood, Oregon.

FF.—Face more or less produced, extending considerably below the eyes. Either wholly or in large part luteous or reddish, the arista frequently pubescent or pilose.

G.—Face carinate, abdomen oval.....**Brachyopa.**

Our species may be tabulated as follows:

a.—Arista distinctly pubescent; face and antennæ yellow or yellowish-red .....*b.*

—Arista bare.....*c.*

b.—Dorsum of abdomen brown.....**ferruginea.*

—Dorsum of abdomen yellowish-red, with brown incisures, and a brownish median line.....*notata.*

c.—Face and front brownish, densely clothed with grayish pollen, abdomen mostly brown.....*cæca.*

—Face yellow, upper part of front (♀) brownish-black, antennæ yellow, third joint large; abdomen reddish-yellow with brownish incisures.....*media*, sp. nov.

BRACHYOPA? NOTATA O. S., Cat. Dipt. 247. White Mts., N. H. (O. Sacken); Mt. Hood, Oregon; Washington Territory!

BRACHYOPA VACUA O. S. Canada (O. S.); Kern Co. California!

A single female specimen from this locality agrees so closely with Baron Osten Sacken's description that I believe it to be the same species. The legs and antennæ are, however, more reddish than brownish, and the wings are quite hyaline, more so than the preceding.

BRACHYOPA MEDIA, sp. nov.

♀.—Face and lower part of front reddish-yellow, the latter projecting rather more than *notata;* antennæ the same color or a little lighter, the third joint very large, arista brown, yellowish at the base, front in the upper two-thirds black, grayish pollinose. Dorsum of thorax nearly

black, with short white pile and thick gray pollen, leaving three darker stripes, scutellum red; abdomen yellow, the segments with narrow posterior brownish lines. Legs reddish-yellow, the hind tibiæ somewhat brownish, terminal joints of tarsi fuscous, or black, hind femora a little incrassate. Wings hyaline with a slightly yellowish tinge; first posterior cell briefly petiolate, the base of second posterior cell is an obtuse angle, about midway between the two preceding species. Long. corp. 6–7 mm. One specimen, Kern county, California.

GG.—Face more produced, obtusely tuberculate; abdomen long (xylotiform); with scutellar, postalar, dorsopleural and mesopleural bristles. All the femora thickened and irregularly spinose. . . . **Eugeniamyia** Wlstn.

Eugeniamyia rufa Wlstn., Canada Entomologist, Vol. xiv, p. 80. California!

V.

1.—Small cross-vein, before the middle of the discal cell.
2.—Antennæ shorter than the head.
a.—Marginal cell open.
aa—Face tuberculate.
*.—Abdomen elongate, not club-shaped.
†††.—Black or greenish-black, with yellow or yellowish or ferruginous interrupted abdominal cross-bands.
§.—Face black.

H.—"Wings not longer than the abdomen; ocellar tubercle large, prominent; abdomen depressed, long, elliptical, somewhat narrowed at the base, the lighter markings ferruginous or orange-yellow" (Schiner) . . . . . *Pyrophæna.

HH.—Wings longer than the abdomen; ocellar tubercle not unusually large, abdomen more slender, the cross-bands yellow, or greenish-yellow.

I. Anterior tibiæ and metatarsi of male dilated. . . . . **Platycheirus.**

Platycheirus quadratus Say. Washington Territory, Kern Co., California!

I cannot distinguish specimens from these localities from our Eastern ones; the color of the hind legs vary much as they do in the East.

? Platycheirus hyperboreus Staeger.

Another species from Washington Territory does not differ in any noteworthy degree from a female specimen of *hyperboreus* identified by Baron Osten Sacken, but the male's tibiæ are not dilated. I am strongly inclined to believe that the dilatation is nothing more than a specific character, and that the name *Platycheirus* should be given up as misleading, and all the species placed under *Melanostoma*. *P. quadratus*, is variable, and only a large amount of material will settle the question whether they are a group of closely allied species, or merely varieties; in the former case, the genus should be retained, in the latter, it should be united with *Melanostoma*.

II.—Anterior tibiæ and tarsi of male not dilated.....**Melanostoma.**

MELANOSTOMA TIGRINA O. S., West Dipt. 323, Washington Territory, California! common.

MELANOSTOMA SCALARIS Meigen; Schiner, Fauna Austr. Dipt., 291, Colorado! Europe and North America.

VI.

J.—Small cross-vein before the middle of the discal cell.
2.—Antennæ short.
a.—Marginal cell open.
aa.—Face tuberculate, hyperstoma not produced.
*.—Abdomen oval or elongate, not club-shaped.
†††.—Black or greenish-black, with yellow markings.
§§.—Face wholly or in part yellow.
π.—Dorsum of thorax with yellow lateral stripes.

J.—Abdomen with seven visible segments, the hypopygium unusually large.....**Sphærophoria.**

I have numerous specimens of this genus from the Western regions, among which there are probably four or five species. I recognize, however, only one species, viz:

SPHÆROPHORIA MICRURA O. S., West Dipt., 330, California!

* SPHÆROPHORIA SULPHURIPES Thomson, Eugen. Resa, 501 (*Syrphus*), O. S., l. c., Calif.

JJ.—Abdomen not showing more than six segments, hypopygium not unusually large.

K.—Eyes of male with an area of enlarged facets above; abdomen rather slender, fourth segment with yellow median stripes and oblique side spots.....**Allograpta.**

* ALLOGRAPTA FRACTA O. S., West Dipt., p. 331. Santa Monica, Cal.

KK.—Eyes of male without area of enlarged facets (fourth segment of abdomen fasciate).

L.—Thorax with a median, dorsal, cinereous line; ocellar tubercle remote from vertex; slender species.

M.—Posterior femora enlarged and bent.....**Toxomerus.**

TOXOMERUS GEMINATUS (Say). Washington Territory! California, Eastern States.

Scæva geminata Say, Compl., Wr. ii, 80.

Toxomerus notatus Macq., Dipt. Exot., 5 Suppl., 93.

Mesograpta geminata Schiner, Novara Exped. O. S. Cat. Dipt. p. 125, West. Dipt., p. 330.

MM.—Posterior femora simple.....**Mesograpta.**

MESOGRAPTA MARGINATA (Say). O. S., Kern Co. Cal.! Atlantic States, common.

LL.—Thorax without median dorsal cinereous stripe, ocellar tubercle as usual; abdomen more oval.

N.—Head obtusely conical, front plane, face receding, third joint of antennæ orbicular.....**Doros.**

NN.—Front more rounded, face less receding, third joint of antennæ large, elliptical.....**Xanthogramma.**

a.—Bands of abdomen entire or sub-interrupted.....*felix.*

b.—Bands of abdomen broadly interrupted:

XANTHOGRAMMA DIVISA, sp. nov.

♂♀.—Face and cheeks yellow, or reddish-yellow. Front metallic greenish-black, continued as a broad stripe to the base of the antennæ, somewhat expanded below, on the sides yellowish. Antennæ black, somewhat reddish below on the sides of the second and third joint near the base, third joint oval obtuse as in *felix*, but a little smaller. Dorsum of thorax deep metallic green with yellow lateral stripes, pleuræ yellowish with white pile. Scutellum a somewhat translucent yellow, its base narrowly black. Abdomen: first segment with a small yellow spot on each side just under the halteres, second segment with an oval spot on each side, somewhat attenuated toward the middle, third and fourth with large rectangular spots, separated by nearly their own width; fifth with an anterior fascia narrower in the middle and encroaching slightly upon the preceding segment. Legs yellow, anterior and middle femora sometimes narrowly brown annulate near the base, posterior legs mostly brownish or blackish, except the base of femora and knees. Wings hyaline, with a smoky tinge, stigma yellowish. Long. corp. 9–11mm. Eight specimens. Washington Territory.

VII.

J.—Small cross-vein before the middle of the discal cell.

2.—Antennæ short.

a.—Marginal cell open.

aa.—Face tuberculate, hyperstoma not produced.

*.—Abdomen oval.

†††.—Black, or greenish-black, with yellow markings.

§§.—Face wholly, or in part, yellow.

ππ.—Dorsum of thorax uniform, without lateral stripes.

O.—Thickly pilose species; abdomen quite oval, broader beyond the middle; face perpendicular, somewhat projecting below and reaching far back under the eyes. (Basal portion of abdomen yellow, terminal portion black, wings with dark spot. *L. lucorum*).....**Leucozona.**

LEUCOZONA LUCORUM (Linné), Schiner—Meig. Beschr. iii, 313; Tab. 30, f. 27 (*Syrphus*); Mt. Hood, Oregon! Europe; North America.

OO.—Rather bare species; abdomen with yellow bands, either all entire, or one or all interrupted.

P.—Eyes of male with an area of enlarged facets above; front very convex; hypopygium very small.....**Catabomba.**

CATABOMBA PYRASTRI (Linné), O. S. Meig., System Beschr. iii (*Syr-*

phus.) Europe and Western America. Very abundant in the Pacific regions.

PP.—Eyes of male without area of enlarged facets above; front moderately convex; hypopygium not very small.

Q.—Sixth abdominal segment of male as long as two preceding together, but narrower, somewhat tubular, unsymmetrical; on underside of seventh segment two long linear sub-parallel appendages, arcuate, bidenticulate at end, embedded in grooves when at rest. In the female fifth segment half as long as preceding. Scutellum much raised, exposing metanotum.....**Eupeodes.**

EUPEODES VOLUCRIS O. S., West Dipt., 329. Washington Territory, Kern county, California.! Nevada, Utah, Colorado, common.

QQ.—Hypopygium without slender appendages, sixth segment of male not peculiar; fifth segment of female one-third or one fourth as long as preceding.

R.—Third longitudinal vein with a distinct sinuosity; third joint of antennæ elongate-oval.....**Didea.**

Table of Species:

a.—Third joint of antennæ obtusely pointed; third longitudinal vein, with a considerable sinuosity. Abdominal cross-band of second and third abdominal segments broader towards, but not quite reaching, the lateral margin.....*fuscipes.*

aa.—Third joint of antennæ more evenly oval; the third longitudinal vein less sinuous;

b.—Abdominal cross-bands attenuated at outer ends, and usually quite meeting the lateral margins:

DIDEA LAXA O. S., Cat. Dipt. 245. White Mts.; Mt. Hood, Oregon; Washington Terr.!

bb.—Abdominal cross-bands nearly obsolete:

? DIDEA ALCIDICE.

Syrphus Alcidice Walker, List, etc., iii p. 579. Hudson Bay Terr.; Osten Sacken Cat. Dipt., 2d Ed., p. 244, note 205.

A single specimen from Mt. Hood, Oregon, resembles *D. laxa* very much, but the two small ovai yellow spots of the second segment, the remaining segments being dark metallic green with an opaque, black longitudinal line, seem to indicate a distinct species, and apparently Walker's *Alcidice*. The generic differences of both these species, however, from some species of *Syrphi* (*e.g.*, *S. lapponicus*), are feeble.

RR.—Third longitudinal vein straight or gently curved; third joint of antennæ short oval.....**Syrphus.**

This genus appears to be a prominent one in the Western regions; many of the Eastern species appear, and others have strong resemblances. Two species which present well marked characters, I describe as new. The following table contains, with the exception of *dimidiatus*, *tarsatus*, and *fumipennis*, all of the known species north of Mexico. It is composed

of the two tables given by Osten Sacken (Proc. Bost. Soc. N. H., 1875, p. 138, and West. Dipt., p. 325), united, with the addition of the species herein described.

SYRPHUS.

a.—Second and third cross bands of abdomen never interrupted.....*b.*
—Three principal cross-bands broadly interrupted.....*i.*
b.—First cross-band broadly and distinctly interrupted in both sexes....*c.*
—First cross-band narrowly interrupted in the male; not interrupted in the female.....*h.*
c.—Abdomen elongated, narrow, linear.....*diversipes.*
—Abdomen oval.....*d.*
d.—Femora black at the base.....*e.*
—Femora yellow at the base.....*ribesii* ♀, *protritus.*
e.—Abdominal cross-bands do not reach the lateral margins.....*g.*
—Abdominal cross-bands reach quite the lateral margins.....*f.*
f.—Eyes pubescent.....*torvus.*
—Eyes glabrous.....*ribesii* ♂.
g.—Cross bands attenuated on the sides.....*opinator.*
—Cross-bands reach the sides in nearly their full width; not attenuated near the ends.....*Lesueurii.*
h.—Face yellow.....*abbreviatus.*
—Face with brown stripe.....*americanus.*
i.—Abdomen elongated, narrow, linear.....*j.*
—Abdomen oval.....*l.*
j.—Eyes pubescent.....*celutinus*, sp. nov.
Eyes glabrous.....*k.*
k.—Antennæ inserted on yellow ground.....*umbellatarum.*
—Antennæ inserted on black ground.....*geniculatus.*
l.—Eyes pubescent.....*m.*
—Eyes glabrous.....*o.*
m.—Abdominal spots straight.....*n.*
—Abdominal spots coaretate in the middle, sometimes broken in two; face conspicuously brown or black in the middle.....{ *amalopis.* / *intrudens.*
n.—Face yellow; third longitudinal vein straight.....*contumax.*
—Facial stripe and front black.....*celutinus*, sp. nov.
o.—Abdominal spots lunate, face with black on the tubercle..*lapponicus.*
—Abdominal spots straight, face without black....*disjunctus*, sp. nov.

SYRPHUS LAPPONICUS Zett., Dipt., Scand. ii, 701, 3. Wyoming Terr., Kansas, Oregon, Southern California, New England! Greenland, Europe. Specimens taken in Connecticut, late in October, have the sinuosity of the third vein as strongly marked as in any Western ones. The species is widespread and common.

SYRPHUS OPINATOR O. S., West. Dipt., 327, Oregon, Washington Terr.,

California! Apparently a common species, as twenty-five specimens are in my collection.

Syrphus ribesii Linné, O. S., Pr. Bos. Soc. Nat. Hist., 1874, 139. Oregon, California, New England! Europe. Male specimens with the basal portion of the femora black, agree quite with Eastern specimens.

*Syrphus protritus O. S., West. Dipt., 328 Marion Co., California. Unknown to me.

Syrphus Lesueurii Macq., O. S., Pr. Bos. Soc. Nat. Hist., 1875, 143. Washington Terr.! A single specimen agrees closely with those from New England.

*Syrphus intrudens O. S., West. Dipt., 326. California. Unknown to me.

Syrphus americanus Weid., O. S., Pr. Bos. Soc. Nat. Hist. 1875, p. 145. Female specimens agree quite with New England ones, and I have little doubt of their identity. Calif., Oregon!

*Syrphus fumipennis Thomson, Eugenies Resa, 490, California.

Syrphus velutinus, sp. nov.

♂♀.—Eyes distinctly pubescent. Face obscurely yellow, with a broad median black stripe, extending to the oral margin; antennæ deep black. Frontal triangle brassy black, extending to the base of the antennæ. Front (♀) black, brassy in the middle. Thorax greenish-black, with a metallic lustre, and rather abundant rufous pile, pleuræ white pollinose, the pile more whitish. Scutellum black in the basal part, subtranslucent yellowish at the margin. Abdomen long (shaped nearly like *Platycheirus*) nearly parallel on the sides towards the end of the fourth segment; the color opaque black with short black pile and three interrupted cross-bands; the first pair of spots in the second segment, broad, nearly square, separated by less than half their width, whitish-yellow, second and third pairs narrow, rectangular, separated by about their own width, not attenuated before the lateral margins, bluish-white. Legs black, terminal half of anterior and middle femora, anterior and middle tibiæ, except brownish rings beyond the middle, yellow. Wings hyaline, stigma brown. Long. corp. 11–12 mm. Two specimens. Mt. Hood, Oregon.

Syrphus disjunctus, sp. nov.

♂.—Eyes bare. Frontal triangle blackish, with a brassy reflection; face reddish-yellow with a bluish reflection, without any stripe or spot on the tubercle, cheeks black, the oral border behind, yellow. Antennæ brownish-black, the basal half of third joint yellowish-red. Thorax metallic green black, with short reddish pile, longer on the scutellum; scutellum bluish opalescent, black at the base. Abdomen black, with three pairs of bright yellow spots, the first pair small oval, second and third pairs nearly square, rather broader on the outer sides, separated by a very distinct black space from the lateral margins, fifth segments on the anterior corners, yellow. Legs sordid yellow, anterior and middle femora toward the base, and posterior legs except more or less of the tip of femora

and base of tibiæ brown or brownish-black. Wings tinged with brownish, the stigma darker, third longitudinal vein very slightly curved. Long. corp. 9–10 mm. Four specimens. Washington Ter.

VIII.

J.—Small cross-vein before the middle of the discal cell.
2.—Antennæ short.
a.—Marginal cell open.
aa.—Face tuberculate or hyperstoma produced.
**.—Abdomen contracted toward the base, more or less club-shaped.

S.—Posterior femora slender; wings usually with brown; face tuberculate; hyperstoma retreating; longer, more slender species..... **Bacha** (*Ocyptamus*).

The differences between these two genera I cannot satisfactorily make out. I have two species of *Bacha* from California, both of which seem different from:

*Bacha lemur O. S., West Dipt., 331. Cal., New Mexico and:

*Bacha angusta O. S., West Dipt., 332, California.

SS.—Posterior femora swollen; hyperstoma produced; short, small species.
T.—Hyperstoma produced anteriorly, in profile deeply concave from antennæ to tip; third joint of antennæ nearly orbicular; the fourth longitudinal vein joins the third in a right or acute angle.. **Sphegina.**

Three species from Washington Territory and Oregon correspond pretty well with S. lobata Lw., S. infuscata Lw. and S. rufiventris Lw., but in the absence of better material in this genus, I will not venture to describe them.

TT.—Hyperstoma produced more downward, in profile very slightly concave from antennæ to tip, the fourth longitudinal vein joins the third in nearly a right or obtuse angle..... **Ascia.**

Ascia metallica, sp. nov.

♂♀.—Front and face metallic bronze black, shining, the latter white pollinose. Antennæ black, third joint brownish-black below, near the base red. Thorax metallic-green black, finely punctured. Abdomen like the thorax, the third segment, in the female, with two, small or indistinct, spots near the front; in the male the front half except the angles red. Legs with the anterior and middle femora, except the base and ends, the posterior coxæ, femora, except the basal fourth, tibiæ, except the basal third and tips, and the posterior metatarsi black, other parts light yellow. Wings hyaline. Long. corp. 4–5 mm.

Three specimens, Mt. Hood, Oregon.

Proc. Amer. Philos. Soc. xx. 112. 2N. Printed August 8, 1882.

The black of the legs, in one specimen, includes a larger part, with a portion of the anterior and middle tarsi.

IX.

A.—Small cross-vein before the middle of discal cell.
2.—Antennæ shorter than the head.
aa.—Marginal cell closed and petiolate.

U.—Second and third joints of antennæ elongate; arista very densely plumose, appearing like a solid mass.....***Copestylum.**

* COPESTYLUM MARGINATUM (Say), O. S. Say, Compl. Wr. ii, 360 (*Volucella*). Mexico, Texas.

UU.—Third joint of antennæ elongate; arista feathery plumose..... **Volucella, Temnocera.**

* VOLUCELLA AVIDA O. S., West Dipt., 333. California. Mexico.

VOLUCELLA SATUR O. S., l. c., Colorado. Utah!

VOLUCELLA FASCIATA Macq., Dipt. Exd., ii. 2, 21, 1. Western Kansas! Texas, Colorado, Mexico.

VOLUCELLA FACIALIS, sp. nov.

♂♀. Closely related to *V. erecta* Walk., but differs in the face being quite yellow, with yellow pile, and the dorsum of thorax and pleuræ being covered with black pile.

Face yellow, yellow pilose, cheeks black, shining, bare. Antennæ: first two joints brownish-black, third joint red, or reddish-brown, arista darker, black plumose Front in female yellow, darker at the vertex, yellow pilose; frontal triangle (♂) black, or brown with shorter yellow pile, vertex with tuft of long yellow pile. Thorax black, shining, the dorsum broadly black pilose, in front and behind and on the sides with longer yellow pile, pleuræ with black pile. Abdomen black, shining, second segment except the middle third or half, and narrow posterior border, light yellow, the narrow posterior part of third, the fourth and fifth segments conspicuously red pilose, other parts of abdomen with shorter black pile. Legs black, black pilose, basal portion of tibiæ and all the tarsi dark red. Wings hyaline, the veins with brown clouds, a brown spot opposite the small cross-vein. Long. corp. 14–15 mm. Three specimens. California.

The posterior part of the abdomen in *V. erecta* is usually black pilose without any trace of the red, but rarely in some specimens the abdomen is marked precisely like *facialis*, and hence it is quite probable that specimens of the California species may sometimes lack the rufous pile. The black pile of the thorax will at once distinguish the species or variety if it should prove to be such, as in a large number of specimens of *erecta* I have never found any with such thoracic pile. However, as regards its specific distinction, see *Eristalis flavipes melanostomus* Lw.

The genus *Temnocera* is an unsatisfactory one, and I believe ought to be suppressed. The characters relied upon are the more slender third joint of antennæ, and the presence of bristles on the scutellum.

I do not know either of the following species :

*Temnocera setigera O. S., West Dipt., 334, New Mexico.
*Temnocera megacephala Lw., Centur. 15, 57. California.

X.

JJ.—The small cross-vein at or beyond the middle of the discal cell, oblique.
α.—Antennæ with a distinctly dorsal bristle.
β.—Third longitudinal vein deeply sinuous.
γ.—Marginal cell closed and petiolate.

V.—Thorax never with yellow spots ; wings hyaline or with a dark spot ; face obtusely tuberculate.....**Eristalis.**

Eighteen species of Eristalis are recognized by Baron Osten Sacken as having been described from America, north of Mexico. More than twice as many names have been given, chiefly by Walker and Macquart, but the facilities enjoyed by Osten Sacken, together with his well-known accuracy and faithfulness, render it unnecessary to any further discuss the most of them at present.

Since the publication of this catalogue two species have been published by Bigot in the *Annales des Soc. Ent. de France*, 1880, 216-217. *E. parens* is given below in part ; *E. zonatus* = *E. transversus* Wied.

I have endeavored to tabulate below all of the species known to me, and have added the diagnoses, or descriptions, of all the remaining, with the addition of what I identify as *E. Meigenii* Wied., a South American species = *E. androclus* O. S. (non Walker, undescribed, see catalogue, etc.), together with two new ones. The genus though large, and especially predominating in America, is readily defined, showing comparatively little structural variation. The eyes are contiguous, or sub-contiguous, usually pilose, although in some species, as *tenax*, occupying only a spot in the middle ; in *æneus* they are nearly bare, being sparsely pilose near the top. The third joint of the antennæ is sub-quadrate, thus at once distinguishing it from *Volucella* and *Temnocera*. The face is never produced, in nearly all of the species with a not very prominent tubercle, with a median stripe and cheeks black, bare, and shining. From *Milesia* and *Pteroptila* it may readily be distinguished by the absence of distinct yellow spots or stripes on the dorsum of the thorax, which is, however, sometimes distinctly fasciate or vittate with dull gray or olivaceous ; from the latter genus also by the absence of pubescence on the wing, though, indeed, this character is only relative. There is a tendency to differences of coloration and markings between the male and female, sometimes so striking as to cause one to doubt their relationship. Such differences may consist in the absence of yellow upon the abdomen, or in the presence of stripes of the

thorax. The wings show scarcely any variation ; the third longitudinal is deeply bent into the first posterior cell, and the marginal cell is closed, the latter character separating it from all other North American genera except the ones previously mentioned.

ERISTALIS.

1.—Arista naked or indistinctly pubescent.....2.
—Arista pilose or distinctly pubescent (near the base).....3.

2.—Scutellum of the same color as thorax, abdomen without light markings, shining, eyes nearly bare, spotted in life, dorsum of thorax in female distinctly vittate.....*æneus.*
—Scutellum yellowish translucent, lighter than the thorax ; abdomen unicolorous, shining blackish, with indistinct or subobsolete side spots on second segment, pile of eye mostly confined to an elongated vertical elliptical line. Size and appearance of a honey-bee....*tenax.*

3.—Thorax with thick or long pile, posterior border of third segment not velvety black, wings mostly with a brown spot.....4.
—Thorax and abdomen nearly bare, or with short, not wooly pile, the abdominal segments usually with lighter hind borders. Less *Bombus*-like.....8.

4.—Tarsi red, large species ; humble bee-like.....5.
—Tarsi dark, smaller species.....6.

5.—Thorax wholly yellow pilose above.....*flavipes.*
—Thorax with black pile in the middle when seen from the side.....
flavipes var. *melanostomus.*

6.—Abdomen with yellow or reddish on the sides of the second segment only, thickly mostly black pilose elsewhere, posterior half of third, and the fourth segment shining ; legs black.....*Bastardi.*
—Third segment with yellow or red, the pile of the abdomen almost wholly yellowish, and long.....7.

7.—Abdomen mostly reddish-yellow with a nearly equal median black stripe ; eyes barely meeting in the male ; legs black.*montanus*, sp. nov.
—Third segment with a smaller reddish-yellow spot in the side, second segment velvety black, third with a triangular velvety expansion in front.....*occidentalis*, sp. nov.

8.—Third abdominal segment with a posterior velvety black cross-band *not interrupted* in the middle.....9.
—Third abdominal segment with a distinctly interrupted band, or else wholly shining. Not with a complete band.....13.

9.—Thorax with transverse olivaceous fasciæ, front narrow above (♀).10.
—Thorax without such fasciæ.....11

10.—Hind femora not swollen, second segment of abdomen with large spots, third segment in the male, with anterior rectangular spots wanting in the female, and hind borders of second, third and fourth segments yellow. Legs varying from almost wholly yellow with black on tips of hind femora and tibiæ, to black with yellow knees...
transversus.

—Hind femora distinctly swollen, bands of thorax conspicuous, third segment of abdomen in female often with red or yellow side spots, otherwise resembling the previous species very much, and like it quite variable ..... *cinctorum.*

11.—Third segment of abdomen broadly and conspicuously yellow, joining the yellow of the second segment in front, the velvety fascia of third segment abbreviated on the sides; thorax with indistinct stripes; eyes of male touching each other very slightly..... *? Meigenii* Wied.

—Third segment of abdomen without yellow, eyes of male broadly contiguous..... 12

12.—Front of female narrow. Deep bluish-black, scutellum scarcely different, the abdomen with dull or obsolete triangular spots, the hind borders of the segments indistinct or absent, conical; tips of femora, the posterior at the base especially in the female, basal half of tibiæ, and more or less of basal joints of anterior and middle tarsi, light yellow. Wings with a dark spot..... *auxorum.*

—Front of female broad. Lighter markings of abdomen (the lateral triangles and posterior borders) usually quite distinct, sometimes nearly obsolete; third and fourth segments with a velvety median triangular expansion with its base in front; tips of femora, anterior and middle tibiæ, except tips and basal half of posterior tibiæ yellow. Wings sometimes with a distinct brown spot..... *hirtus.*

13.—Third segment without (or with very minute) velvety markings, abdomen mostly shining, second, third, and fourth segments with fringe of white pile..... 14.

—Third segment of abdomen with an anterior spot, and a posterior interrupted velvety black fascia, second segment with sub-obsolete triangular yellow spots, posterior border of segments narrow or indistinct; basal half of all the tibiæ yellowish-white. Wings pure hyaline..... *dimidiatus.*

14.—Second segment of abdomen with yellow triangles, and a posterior uninterrupted or subinterrupted velvety cross-band, posterior margin of segments 2–4 yellowish-white, with a fringe of pale golden yellow hairs. (Length 9–13 mm.)..... *stipator.*

—Second segment except the metallic side spots that extend the whole length of the segment, velvety black; third segment with a velvety triangle in front, the fourth with similar, but very small; the yellowish-white hind borders fringed less conspicuously with light colored pile..... *Brunsii*, sp. nov.

Eristalis inornatus Lw., Centur. vi, 68. Red River.

Diagnosis, translation. ♀. "Sub-brassy black, shining, clothed with rather long lutescent pile ('pube'); front broad, near the eyes black pilose, but the vertex itself with luteous pile; eyes pilose; antennæ reddish ferruginous, the first two joints black, the arista pilose; face, except the usual stripes yellow, with dilutely lutescent pile and pollen; scutel-

lum wholly testaceous; each segment of the abdomen except the first with a black posterior fascia, second and third emarginate and velutinous, the following sub-shining and in the posterior margin, very narrowly yellow. Feet black, extreme apex of the femora, the basal half of anterior and posterior tibiæ, the middle tibiæ except the apical third and the first joint of the middle tarsi, pallid yellowish; 'alæ hyalinæ, vena disci colore subfusco late circumfusis.'" Long. corp. 6¼ lin., Long. al. 4⅞ lin.

Eristalis obscurus Lw., l. c. 67. Red River.

Diagnosis, translation. "♀. Brassy black shining, clothed with rather long dilutely lutescent cinerous pile; front broad, above black pilose; eyes pilose, antennæ reddish ferruginous, first two joints black, arista pilose, face except the usual stripes yellow testaceous, white pollinose and white-pilose; scutellum brown, black near the base; each abdominal segment except the first with a posterior black fascia, not emarginate and with a very slender posterior yellow margin; feet black, apex and base of all the femora, the basal third of anterior and posterior tibiæ, intermediate tibiæ except the apex, and the first two joints of all the tarsi pallid yellowish; wings pure hyaline, veins of the disc clouded with fuscous. Long. corp. 5–5½ lin., long. al., 4⅓–4⅔ lin.

Eristalis latifrons Lw., l. c. 65. Matamoras, Texas, Iowa.

Diagnosis, translation. "♂♀. Black, moderately shining, wholly pallidly pilose; antennæ fuscous, setæ bare, luteous; scutellum testaceous; second segment of the abdomen with two sub-triangular testaceous spots, posterior margin pallid, posterior margins of the following segments pallid, in front pallidly pollinose; feet black, the knees, tibiæ, except the apex, and the base of the intermediate tarsi, pallid flavescent; eyes of the male contiguous, in the female by the front broadly separated. Long. corp. 5¼–5⅓ lin., long. al. 4⅛–4½ lin.

Eristalis atriceps Lw., l. c. 64. White Mts., Canada.

Diagnosis, translation. "♂. Black, shining; head wholly concolorous, antennæ obscurely rufous, arista bare; scutellum and two spots of the second abdominal segment brown; posterior margin of the second, third, and fourth abdominal segments pallid yellow; wings hyaline, costa except the apical third fuscous-clouded. Long. corp. 4⅓–4⅔ lin., long al. 3⅝ lin."

Eristalis pilosus Lw., l. c. 70. Greenland.

Diagnosis, translation. "♂♀. Black, thickly clothed with long yellow pile; eyes black pilose; antennæ black, arista bare; face black; thorax unicolorous, opaque; scutellum luteous; first two abdominal segments opaque, secured on each side with a dilutely lutescent spot; third segment black, with two opaque spots, confluent in an abbreviated fascia; two ultimate segments brassy [metallic], black, shining, with a minute triangular spot, opaque; pile of the dorsum lupinous, on the sides of the middle

black, remainder yellow; wings pure hyaline, veins fuscous black, in the female with blackish spots.—Long. corp. 5½–6½ lin., long. al. 4⅞–5½ lin."

Eristalis æstriformis Walker, List, etc., iii, 573 (*Syrphus*). Hudson's Bay Territory.

"Mas. Niger, thoracis pilis anticis nigris pootecis fulvis, scutello fulvo, abdomine pilis albis nigris fulvisque fasciato, antennis piceis, pedibus nigris, alis limpidis fusco unimaculatis.

"Body black; head clothed with dull tawny hairs, shining and prominent in front; mouth pitchy; feelers pitchy; bristle ferruginous, downy; eyes pitchy, each with a broad stripe of short black hairs; all the facets very small; chest clothed with short black hairs, and on the hinder part with pale tawny hairs; scutcheon tawny, very thickly clothed with pale tawny hairs; abdomen nearly oval, broader and a little longer than the chest, clothed with white hairs at the base, with black hairs in the middle, and with bright tawny hairs towards the tip; legs black, clothed with short black hair; knees pitchy; shanks and feet clothed beneath with tawny down; hind feet tawny; claws and foot cushions tawny; tips of claws black; wings colorless; large dark brown spot in the disk; wing ribs pitchy; veins black, ferruginous towards the base and along the free borders; poisers ferruginous. Length of the body 7 lines; of the wings [spread] 14 lines."

Eristalis albiceps Macq., Dipt. Exot. ii, 2, 56, 41, Carolina.

"Ater. Thorace antice duabus fasciis transversus albidis. Abdominis primo, secundo tertioque segmentis maculis lateralibus flavis. Facie frontique albis. Long. 4 l. ♂."

"Face testacie; a duvet blanc et bande nue, luisante. Partie antérieure du front a duvet et poils blancs. Antennes testacées. Yeux nus. Thorax d'un noir velonté: la seconde bande transversale sur la suture; ecusson fauve. Abdomen, les taches latérales laissant un espace etroit entrélles; celles du troisième segment n'atteignant pas le sord posterieur; incisions jaunes; quatrième à petits poils noire. Cuisses noires, à genoux fauves; jambes jaunes, à extremité braune; tarses noirs. Balanciers jaunes. Ailes hyalines; à base un peu jaunatre; cellule basilaire externe s'étendant jusqu'à la moitié de la discoidale."

Eristalis parens Bigot, Dipt. Nouv. xxi, Annal Ent. Soc. Fr., 1878, 216. Diagnosis, translation. ♂. Eyes pilose, arista at the base briefly pilose (similar to *E. arbustorum*); antennæ reddish-brown; face black, on the sides obscurely cinereous pilose; thorax black, densely fulvous pilose; scutellum fulvous; tegulæ testaceous; abdomen, second segment, on each side, with a broad spot, triangular, fulvous, third with similar, but narrower, spots, narrowly margined with yellow; femora obscurely reddish-brown, knees and tibiæ pallid testaceous; apex broadly reddish-brown, tarsi obscurely red, apex slightly infuscate; wings nearly hyaline, base and external border, dilutely and very pallidly infuscated. Long. 13mm. North America.

Eristalis tenax (Linné), Meig. Atlantic and Middle States, Washington Territory! Europe, Asia, Africa. A single specimen from the Pacific coast agrees in every respect with Eastern ones. The distribution of this species is remarkable; although at present very abundant in the region of New England, it was never observed or known to collectors longer ago than 1874!

Eristalis flavipes, var melanostomus Lw., Centur. vi., 69. I have a single female specimen from Oregon that I doubtfully refer to this species. While the dorsum of the thorax is black pilose the yellowish pile of the abdomen is confined to the terminal segments. I have collected large numbers of *flavipes* in Connecticut, and among them I have found *typical* specimens of *melanostomi* and others agreeing quite with the specimen from Oregon, while still others have the yellowish pile of the abdomen more or less intermixed with black. A typical *melanostomus* presents a very different appearance from *flavipes*, and yet from the collection I have, I doubt the specific distinction. The name *melanostomus* may be retained, however, to express the difference, more particularly of the dorsal thoracic pile.

Eristalis stipator O. S., West. Dipt., 336. Colorado, Western Kansas! New Mexico, California.

Eristalis hirtus Lw., Cent. vi, 66; O. S. West. Dipt., 335. Wash. Terr., Oregon, California, Colorado! A very common species, over thirty specimens are in my collection. They show a considerable variation as observed by Osten Sacken (l. c.).

Eristalis (?) Meigenii Wied., Ans. Zwei. Ins. ii, 177, 35, pl. x., fig. 15. (*E. androclus* O. S.), Brazil (Wied.) New England! Utah, Alaska (see O. Sacken. West. Dipt, 337). This species agrees so closely with Wiedman's figure and description of *Meigenii* from Brazil, that I believe it to be the same. I shall, however, send specimens for comparison with South American ones.

Eristalis montanus, sp. nov.

♂.—Eyes thickly pilose, sub-contiguous; front and face reddish-black with yellow pile, the facial stripe and cheeks black, shining, antennæ brownish-black, arista bare. Thorax black, densely covered with yellow pile, the scutellum yellow. Abdomen reddish-yellow, with thick reddish-yellow pile, first segment black; second segment in the middle opaque black, narrowed behind, in the third segment the black is confined to a broad median stripe, opaque in front, shining behind; fourth segment similar, wholly shining, hypopygium black. Legs black with black pile, all the tibiæ at the base yellowish-red. Wings hyaline with a brown spot. Long. corp. 12 mm. One specimen. Wyoming Territory.

Eristalis occidentalis, sp. nov.

♂♀.—Eyes pilose, front (♀) brownish-black, dusted with yellow on the sides, face on the sides thickly covered with same colored dust, and

whitish-yellow pile, median stripe and cheeks shining black; antennæ reddish-brown, arista red pubescent. Thorax black, with rather short, thick, yellow pile; scutellum sub-translucent yellow with longer pile. Abdomen black, thickly covered with yellow pile more or less intermixed with black at the incisures, second segment on the sides broadly yellow, in the middle wholly opaque; third segment on the sides with smaller reddish spots, extending one-half or two-thirds of the way back, and a broad, shining cross-band narrowly interrupted in the middle; fourth segment shining, with a small opaque spot in front. Legs black with black pile, knees and basal third of all the tibiæ yellow. Wings hyaline with a small dark brown spot. Long. corp. 10–12 mm. Four specimens. Washington Territory.

Eristalis Brousii, sp. nov.

♀.—Eyes with short whitish pile; front brownish-black in the middle, thickly covered with red dust on the sides, pile below yellowish, black near the ocelli, face with whitish pile and yellowish-white dust, narrowly shining black in the middle, cheeks black, shining; antennæ brownish-black, arista brownish-yellow, sparsely pilose. Thorax on the dorsum brownish-olivaceous, somewhat brassy on the sides; in the middle forming two rather broad stripes, inclosing a narrow black stripe that is broadest beyond the suture; pleuræ black with longer whitish pile, the pile of the dorsum rather short reddish-yellow; scutellum reddish-brown. Abdomen black, sub-metallic shining, with very short whitish pile, posterior margins of second, third and fourth segments broadly whitish-yellow, the velvety black occupies the whole of the middle of the second segment, expanding narrowly outward in front of the whitish posterior margin; third segment has the velvety black confined to a triangle on the anterior part, extending narrowly backward; fourth segment with a small spot in front. Legs black with white pile, tips of femora and basal third of all the tibiæ yellow. Wings hyaline with an indistinct brownish spot. Long. corp. 10–12 mm. Three specimens. Massachusetts, July 3.

For some time I was inclined to consider this the female of what I identify as *E. Meigenii* Wied.

VV.—Wings covered with minute pile, brown on anterior portion; thorax often with yellow spots.....**Pteroptila.**

Pteroptila crucigera (Wied.), Aus. Zwei. ii, 105, ♀. Georgia! Florida, Texas, Central America.

XI.

JJ.—Small cross-vein at or beyond the middle of discal cell.

α.—Arista dorsal.

β.—Third longitudinal vein deeply sinuous.

γγ.—Marginal cell open; posterior femora swollen.

W.—Face carinate.....see XIII.
WW.—Face tuberculate, or rounded, not carinate.
X.—Face of male less tuberculate than in female, body uniformly black, without markings.
Y.—Hind tibiæ of male with a strong projecting spine in middle. **Teuchocnemis.**
YY.—Hind tibiæ of male without such spine.....***Pterallastes.**
XX.—Face alike in both sexes, abdomen in male at least (except *Mallota*) not uniform.
Z.—Hind coxæ with spur, duller in the female, hind femora with triangular protuberance, hind tibiæ with terminal spur (♂ abdomen mostly red, ♀ nearly black).....**Polydonta.**

Polydonta curvipes (Wied.), Aus. Zwei. ii, 149, 3. O. S. West. Dipt., 338. New England! California. The probability is that the species somewhat doubtfully referred to this by Osten Sacken, l. c., is the same.

ZZ.—Hind legs without such spurs or protuberances.
a.—Third joint of antennæ broad, face concave below the antennæ (thorax not vittate, thickly pilose) abdomen without bands.....**Mallota.**

Mallota Sackeni, sp. nov.

Mallota posticata O. Sacken, West. Dipt., 338.

♂. Differs from *M.* (?) *posticata* of the Eastern States in a dark brown spot on the wing, in the marginal cell being closed in the border, and in the eyes of the male not being contiguous, otherwise quite like the Eastern species.

Frontal triangle and face gray with yellow pile, broad facial stripe and cheeks deep black, shining; antennæ black, third joint more or less brownish. Dorsum of thorax and pleuræ with long dense yellow pile, scutellum yellow, similarly pilose, abdomen deep shining black, nearly bare, legs deep black, with black pile, middle and posterior tarsi brownish-red, posterior femora very much thickened. Wings hyaline with a large brown spot, reaching from the origin of the third vein to the small cross-vein, the second longitudinal enters the costa at tip of the first, not at some distance beyond, as in the specimens I have of the Eastern species. Long. corp. 14mm. Washington Territory. Two specimens.

aa.—Third joint of antennæ ovate, face excavated or not below the antennæ, thorax, or at least abdomen, with markings....**Helophilus.**

Helophilus latifrons Lw., Cent. iv, 73. Wyo.! Northern States, Nebraska, California.

Helophilus mexicanus Macq. (*H. polygrammus* Lw. Cent. x, 55. See also O. Sacken, Catalogue, Errata.) Apparently a very common species. I have seventeen specimens from Washington Territory and California.

Helophilus, sp. A small species from Wyoming, apparently undescribed.

XII.

JJ.—Small cross-vein at or beyond the middle of discal cell.
a.—Arista dorsal.
β,*β*.—Third longitudinal vein gently curved.
δ.—Arista feathery plumose.
ε.—Marginal cell open.

b.—Thickly pilose; abdomen without bands, short, thick, arched; hind femora strongly thickened, tibiæ much bent; face straight, extending back under the eyes, conical, pointed; wings with a brown spot.....***Arctophila.**

*Arctophila flagrans O. S., West. Dipt., 335. Colorado Mountains.

bb.—Less pilose; abdomen with bands; hind femora slender; face truncate.....**Sericomyia.**

Sericomyia chalcopyga Lw., Cent. iii, 20. Washington Territory, Mt. Hood, Oregon! Sitka. A dozen specimen from the two former localities, I have no doubt belong here; the male not described by Loew, differs in having the third segment wholly opaque.

XIII.

JJ.—Small cross-vein at or beyond the middle of discal cell.
a.—Arista dorsal.
β,*β*.—Third longitudinal vein gently curved.
εε.—Arista bare or pubescent.

c.—Marginal cell closed; thorax with yellow markings; abdomen fasciate; antennæ short.....**Milesia.**
cc.—Marginal cell open.
d.—Long, slender, abdomen narrower toward the base (wings more or less brownish).....**Ocyptamus** (Bacha).
dd.—Abdomen never linear or club-shaped.
e.—Face distinctly carinate, convex or nearly perpendicular in profile, hyperstoma not produced, eyes bare, hind femora incrassate, with a triangular protuberance.....**Tropidia.**

Tropidia quadrata (Say). Compl. Wr. 1, 14 (*Xylota*). Washington Terr., California, New England!

ee.—Face without a distinct median ridge or carina, or if somewhat carinated, the hyperstoma produced.
f.—"All the femora strongly thickened and spinose below; tarsi crassate. Face tuberculate; antennæ short, third joint as long as two preceding. Small cross-vein subnormal; first posterior cell acute at outer anterior angle, rounded on outer posterior part, the section of vein at distal end of cell, sinuate. Body proportionately short and broad, bare, with minute squamæ." Loew, Century v, 38. Small species.....***Lepidomyia.**
ff.—All the femora not strongly thickened and spinose below. Mostly large species.
g.—Nearly bare species, especially on the abdomen, the pile never long nor dense; eyes bare.

h.—Face descending but very little below the eyes, arched or subcarinate, never tuberculate.

i.—Third segment of abdomen in male very much contracted, cylindrical, the hind femora much swollen, with bifid spine below at the tip. Eyes very large, face small.....**Senogaster** Macq., Hist. Nat. Dipt. 2.

Senogaster Comstocki, sp. nov.

♂.—Head globular, large, composed almost wholly of the eyes which meet in front for a short distance above the antennæ, the vertical triangle narrow, long; a small but very distinct area of enlarged facets on each side above the antennæ. Frontal triangle and face small, the latter arched, subcarinate, short, concave from antennæ to tip, yellow with silvery glisten, and a brownish median stripe. Cheeks narrow, antennæ reddish-yellow, first joint very short, second nearly equilaterally triangular, third joint oval, arista bare. Thorax black, with four narrow, but conspicuous olivaceous stripes, the outer pair extending from the more reddish, somewhat swollen humeri. Pleuræ black, with a conspicuous broad white-dusted vertical patch; scutellum black, yellow at the tip; abdomen brownish-black; first segment as broad as thorax, nearly black, yellow on the sides; second segment elongate, scarcely half as wide behind, with two silvery elongate spots; third segment of the same length, narrow, cylindrical, yellow in front; fourth segment as long as preceding, with the globular hypopygium forming a spheroidal mass. Legs yellow, hind femora much swollen, arcuated, black, becoming red at the tip, below at the end with slender process, and beyond a smaller tooth-like one, hind tibiæ arcuated with a triangular projection at the end, hind tarsi brownish, wings nearly hyaline, third longitudinal vein gently curved. Long. corp. 12 mm., long. al. 8 mm., N. Y., Cornell University. Prof. J. H. Comstock.

The present species is a very interesting addition to our fauna. Hitherto, so far as I can learn, but one species is known, *S. exvulescens* Mac., l. c. and Dipt. Exot. II, 2, 72, Tab. 13, f. 3, from Guiana, South America. I take much pleasure in dedicating it to Prof. Comstock, whose work in Entomology is so favorably known.

ii.—Hind femora more or less swollen with spines or bristles below, abdomen elongated, somewhat flattened, not contracted in the middle. Thorax without distinct yellow markings.

j.—Hind femora very much swollen; small cross-vein at right angles to longitudinal veins.....**Syritta.**

Syritta pipiens Linné. Meigen Zweifl. Ins. iii, 213. Europe. Common apparently over all of North America.

jj.—Hind femora never remarkably swollen, hind coxæ often with a spinous process, small cross vein of wing always oblique...**Xylota.**

Xylota obscura Lw., Cent. vi, 55. Mt. Hood, Oregon; Wash. Terr. Calif. ! Red River of the North. Specimens from the former localities

agree so closely with Loew's description that I believe them to be the same.

XYLOTA EJUNCIDA Say. Compl. Wr. 1, 15; Pl. 8, fig. 4. Wash. Terr., Calif. ! New England. Numerous specimens from these localities resemble so closely the Eastern ones, that I scarcely doubt their identity. The third joint of the tarsi varies from yellowish to quite black, and the spine or tubercle of the hind coxæ is quite distinct; the antennæ vary somewhat is color. Is *X. quadrimaculata* Lw. really a distinc species? Observe the discrepancy between the diagnosis and description as regards the male coxæ.

XYLOTA PIGRA (Fab.) Meigen. Oregon, Wash. Terr., Calif. ! Europe and North America. Common.

XYLOTA, sp. nov. Colorado.

Ditlers from *S. bicolor* Lw. in the presence of long coxal spines; in all the tarsi except the last two joints, the anterior and middle tibiæ, and the posterior tibiæ at base and tips being yellowish-red.

hh.—Face descending more or less below the eyes, often obtusely tuberculate. Thorax either with distinct spots or abdomen banded.

k.—The sixth vein beyond the junction of the posterior basal cross-vein, extends forwards subparallel to the border, the discal cell rounded on its posterior angle, hind femora swollen (and with a triangular protuberance below on outer part; anterior part of wings more or less clouded).

l.—Second joint of antennæ, elongate; antennæ about as long as head.....**Mixtemyia.**

ll.—Second joint of antennæ not elongated, the antennæ shorter than head.....**Spilomyia.**

SPILOMYIA INTERRUPTA, sp. nov.

♂♀.—Very closely allied to *S. longicornis*, but seems to show a constant difference in that the first, third and fifth cross-bands are distinctly though narrowly interrupted, and that the last section of the sixth longitudinal vein is distinctly shorter, scarcely more than half as long as the posterior basal cross-vein. The posterior side of the hind femora are in some specimens quite black. Washington Territory.

The generic differences between our species of Mixtemyia and Spilomyia are very trivial.

kk.—The last section of the sixth vein short, running directly into the border of the wing, hind femora not swollen, nor with spines or projection below.

m.—Antennæ inserted high up on a conical projection, front very short, face much produced directly downwards, obtusely tuberculate, antennæ shorter or longer than the head.....**Sphecomyia.**

SPHECOMYIA VITTATA (Wied.) O. S., Wied. Aus. Zwei., ii, 87, and 91 (*Psarus ornatus*). Eastern States ! Colorado.

*SPHECOMYIA BREVICORNIS O. S., West. Dipt., 341. California.

SPHECOMYIA PATTONII, sp. nov.

♂ ♀. Antennæ reddish-black, very short, joints nearly of the same length; the first cylindrical, the second sub-triangular, the third rounded, reddish below; arista reddish. Face golden yellow, with a black stripe reaching from the antennæ to the oral margin, cheeks black; front in female black with a golden spot on each side. Thorax black, a large spot on the pleuræ and a smaller one under it, humeri and basal part of scutellum yellow. Abdomen black; first segment with a narrow posterior border, second segment with two narrow yellow cross-bands; the anterior one near the middle of the segment broadly interrupted, the posterior marginal one entire; third and fourth segments similar, the middle cross-bands successively a little wider and less broadly interrupted; fifth segment nearly all yellow. Femora brownish-black at the base, becoming reddish at the end, especially on the posterior pair. Anterior tibiæ, except the base and tarsi, quite black, middle and posterior tibiæ and tarsi, except the last two joints, reddish-yellow. Wings tinged with brownish along the veins, hyaline in the middle of the cells. Long. corp. 13–14 mm. Two specimens. Washington Territory.

This species is very like *Sphecomyia brevicornis* O. S., but differs in the antennæ being still shorter, and the picture of the abdomen different.

mm.—Antennæ short, situated low down, near the middle of head in profile, the projection less prominent; face not much produced, not longer than the front..... .....**Temnostoma.**

gg.—Larger pilose species, the abdomen always with short, furry pile; dorsum of thorax never with yellow markings other than on the humeri.

n.—Scutellum, margin and pleura of thorax with bristly hairs; face distinctly tuberculate; femora slender; abdomen uniform metallic, not banded.....**Chrysochlamys.**

The following table of the North American species I reproduce from Osten Sacken (West. Dipt., 340), without change:

Arista black.....*croesus.*

Arista reddish.

Leg entirely reddish-yellow.....*dives.*

Anterior femora at base and tips of all the tarsi black....*buccata.*

All the femora brown; tibiæ likewise infuscated.....*nigripes.*

CHRYSOCHLAMYS CROESUS O. Sacken. West. Dipt., 341. Washington Terr., California! Utah.

nn.—Thorax without any bristly hairs.

o.—Face short, not produced, extending but very little below the eyes, shorter than the front, concave from antennæ to tip, not tuberculate, transversely arched, hind femora more or less thickened.

p.—Abdomen elongate, hind femora with short spinous bristles below.....**Brachypalpus.**

BRACHYPALPUS PULCHER Wlstn. Can. Entomologist, vol. xiv, p. 78. Oregon, Washington Terr. Readily recognized by the abdominal segments being broadly banded and bordered behind by brilliant brassy or bronze, the fourth segment in the male wholly so. The first segment in the male with a narrow posterior border extending across from its side spots.

pp.—Abdomen very broad, thorax densely pilose, very large species..... **Hadromyia** Wlstn, l. c.

HADROMYIA GRANDIS Wlstn., l. c. Washington Terr. The present species is the largest Syrphid of which I have any knowledge; it measures nearly an inch in length by a third of an inch in width across the abdomen.

oo.—Face produced, longer than the front.

q.—Face produced forwards, pointed, concave from antennæ to tip, not tuberculate, subcarinate, eyes of male contiguous or nearly so in front of ocellar tubercle, hind femora thickened, usually with bristly points below, abdomen without yellow markings. **Crioprora.**

A.—Dorsum of thorax beset with thick or yellowish or yellowish-rufous pile, on the pleura black; wings with brownish clouds along the veins.

a.—Front in female broad, beset with yellow pile.....**alopex* O.S.

b.—Front in female narrow, beset with black pile. *femorata*, sp. nov.

B.—Dorsum of thorax beset with long grayish or whitish pile, above on pleuræ yellowish-white, abdomen dark bluish-metallic (in the male with black opaque second segment, and a black opaque cross-band on third)..... { *cyanella* O. S. / **cyanogaster* Lw.

I have never seen a specimen of *cyanogaster*; it is probably distinct from *cyanella*, although the description applies quite well to my female *cyanella*. A comparison is needed of specimens from the Atlantic and Pacific States in order to make the description of Loew's species more complete.

*CRIOPRORA ALOPEX O. S., West Dipt., 338 (*Pocota*). California.

CRIOPRORA CYANELLA O. S., l. c., 339. California. Osten Sacken's description, as usual, is quite accurate.

CRIOPRORA FEMORATA, sp. nov.

♂♀. Everywhere deep shining black. Front in female narrower than in *cyanella*, with black pile, eyes in male less contiguous than in *cyanella*; the face a little less produced and more obtusely pointed. Antennæ reddish-brown, arista yellow. Thorax and scutellum with rather abundant yellow pile, black on the pleuræ. Abdomen with a brassy reflection, black pilose, intermingled with longer yellow on the sides of the second segment. Legs wholly black pilose, the anterior tibiæ and tarsi with golden pubescence. Hind femora in the male much thickened in the male and bent with a row of short spinous tubercles below, posterior coxæ obtusely

tuberculate, and tibiæ in lower third strongly bent; in female the femora and tibiæ not bent, the former swollen but the tubercles indistinct. Wings with brown clouds along the vein and a very dark spot near the tip of auxiliary, the inner portion of the cells hyaline. Long. corp. 15–16 mm. Washington Territory.

pp.—Face, not evenly concave, tuberculate; hind femora slender.
g.—Face produced downwards and forwards, proboscis long; eyes of male well separated, abdomen uniformly black, short, broad..... **Eurhinamallota** Big.

Bul. Soc. Ent. Fr. Apr. 1882, No. 6, p. 78, *Brachymyia* Williston, Can. Entomologist, Vol. xiv, p. 76, May, 1882.

Eurhinamallota lupina, Wlstn., l. c. California.

Eurhinamallota nigripes Wlstn., l. c. Northern and Southern California. I know this species only in the female; should the male's eyes be found to be contiguous in front of the ocellar tubercle, I know of no other character to separate it from *Eriophora*, Phillipi Ver. Zool. Bot. Gesells. Wien., 15, 735, 1865, pl. 26, fig. 36.

qq.—Face produced directly downward, more or less arched or tuberculate in the lower part.
r.—Eyes of male separated by the ocellar tubercle. Antennal prominence very conical, abdomen with 3–4 pairs of large oval, oblique yellow side spots..... **Somula decora.**
rr.—Eyes of male more or less contiguous in front of the ocelli; antennal prominence conical..... **Criorrhina.**

Table of species.

a.—Abdomen wholly black..... **armilata.*
b.—Three basal segments and base of fourth black, remainder yellow.... *analis.*
c.—Second segment with triangular lateral spots; in female the anterior margins of third and fourth in the sides with yellow spots; humeri yellow..... *humeralis*, sp. nov.
d.—Second segment with an interrupted cross-band, third and fourth with entire cross-band, attenuated in the middle behind and on the sides.. *scitula*, sp. nov.

Criorrhina humeralis, sp. nov.

♂ ♀.—Face yellow, shining with a semi-translucency; cheeks black; front in female on upper half, black; whitish pollinose on the sides below the vertex, frontal triangle in male like the face; antennæ yellow, somewhat infuscated on the first two joints and on upper part of third; thorax black, with short thin yellow pile; scutellum black, the edge luteous; abdomen black, with recumbent, not abundant yellow pile; second segment with triangular yellow spots, in the female the third and fourth, with rectangular yellow spots on the anterior margins, fifth mostly yellow except a narrow median line and the tip; legs yellow, front and middle, and a ring on distal part of posterior femora, posterior tibiæ in middle,

posterior metatarsi, and three last joints of all the tarsi brown; wings hyaline. Long. corp. 10–11 mm. Two specimens. Washington Territory.

I suspect that the male may also show in some degree the abdominal markings other than the spots on second segment, and that the coloration of the legs may be variable.

CRIORRHINA SCITULA, sp. nov.

♂♀. Face yellow, in profile with a well marked obtuse tubercle; cheeks black; front in female black on upper three-fourths, with grayish-red club and short black pile; frontal triangle in male yellow; eyes contiguous for a longer distance than in *analis*, the antennal protuberance not so great. Antennæ yellowish-brown or blackish-brown, the second joint sometimes yellow with black above, third joint always of a lighter color below; thorax black, shining, dorsum with blackish pile, yellowish on the borders; humeri yellow with smaller confluent yellow pleural spots; mesopleuræ gray pilose and pollinose; scutellum black, the edge sometimes narrowly luteous; abdomen black; second segment with two large yellow spots rather narrowly separated, with rounded heads and narrowed toward the margins; third segment with a yellow cross-band on the anterior margin, doubly convex behind, the greatest convexity being toward the middle, with sharp median angular incision, and attenuated nearly to a point on the sides of the abdomen; fourth segment similar in female, in male wholly black or with triangular spots on anterior margin and reddish behind; hypopygium red or yellow. Anterior coxæ white pollinose in front, femora black except the extreme tips, anterior and middle tibiæ and metatarsi, yellow or reddish-yellow; posterior tibiæ yellow at the base and tip; terminal joints of anterior and middle tarsi black; posterior tarsi fuscous or black; wings nearly hyaline, rather more clouded toward the front. Long. corp. 11–13 mm. Eight specimens. Washington Territory, Oregon.

This species has the face in profile similar to that of *Milesia notata* Wied. ("Genus novum" O. S. Catalog. p. 138) as figured by Macquart.

XIV.

⌟⌟.—Small cross-vein beyond the middle of discal cell, oblique.
aa.—Antennæ with a subterminal bristle or terminal style.

s.—Third joint of antennæ produced above into a long conical process, inclined forward and terminating in the thickened arista; abdomen oval black, with three interrupted metallic cross-bands; third longitudinal-vein straight.....**Merapioidus** Bigot.

Merapioidus villosus Bigot., Bul. Soc. Ent. Fr. 1879, p. 64. Georgia!

ss.—Antennæ longer than the head, second and third joints swollen, terminating in a short thickened style; third longitudinal vein strongly angulated, emitting a stump of a vein into the first posterior cell.....**Ceria.**

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Table of species :

a.—Antennal projection of the front very short ; first joint of antennæ nearly as long as last two together.....* *signifera*.
—Antennal projection nearly as long as first joint of antennæ, the latter scarcely longer than the second joint.
b.—Second, third and fourth segments of abdomen each with two yellow spots and posterior margin.....* *pictula*.
—Abdomen without such spots, banded.
c.—Second segment of abdomen much shorter than the third ; front of female black with yellow spots.....*abbreviata*.
—Second segment of abdomen nearly as long as third ; front of female yellow below, black above.....*tridens*.

CERIA TRIDENS LW., Cent. x, 57. Loew's description applies very well to a single male specimen from Southern California, except that the cheeks are wholly black, and the hind tarsi yellow at the base. Other specimens from Washington Territory, however, that are apparently of the same species, have the anterior and middle femora black, except the extreme tips, the posterior black, except at the base, the tibiæ fuscous near the outer ends, one of the pleural spots and the supra-alar vittula entirely wanting. The female differs in the front being black on the upper two-thirds ; the second and third segments of the abdomen strongly marked with whitish pollen, and the legs almost wholly yellow, the anterior femora being blackish in front, the posterior lightly fuscous near the tip. A female *abbreviata* taken with a male at New Haven, has its legs yellow also with fuscous markings of the femora ; the front is black with four small yellow spots.

Stated Meeting, June 16, 1882.

Present, 4 members.

President, Mr. FRALEY, in the Chair.

A letter accepting membership was received from C. E. Rawlins, dated Rockmount, Ramhill, England, May 12, 1882.

Mr. P. H. Law accepted his appointment to prepare an obituary notice of the late Mr. Vaux, by letter dated May 23, 1882.

A request for exchanges (to be dated back at least to 1875) was received from the Société Zoologique de France, No. 7 Rue des Grands Augustins, Paris, in a letter dated May 27, and signed H. Pierson, Sec. Adjt. On motion the Librarian was