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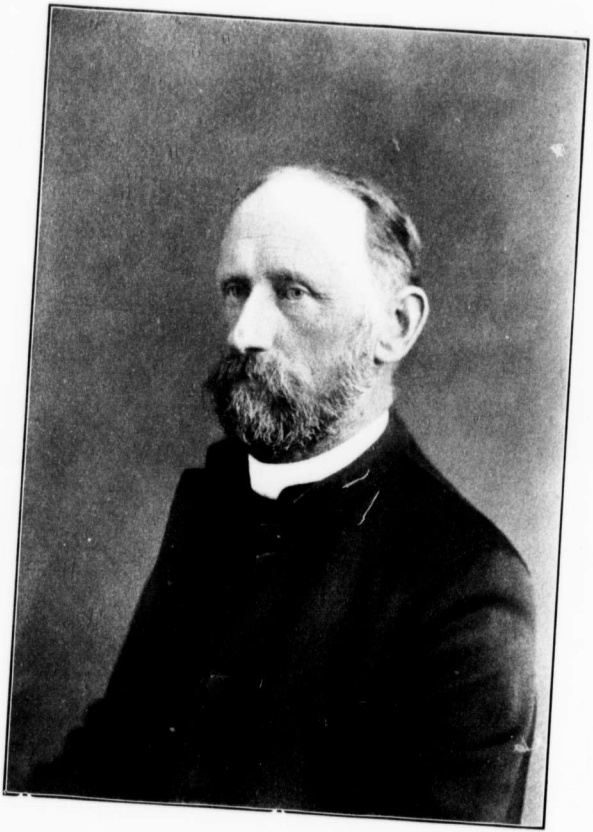

REV. GEORGE WILLIAM TAYLOR, F. R. S. C., F. E. S., F. Z. S.

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THE REV. GEORGE WILLIAM TAYLOR, F.R.S.C., F.E.S., F.Z.S.

The readers of the Canadian Entomologist will be pleased, we feel sure, to see the good portrait given herewith of the Rev. G. W. Taylor, who, during the last twenty years, has done such excellent work in almost all lines of Natural History in British Columbia. Born in 1854, in Derby, England, where he received his education, Mr. Taylor, after leaving school, studied mining engineering, but in 1882 came out to Canada and went at once to British Columbia, where he had relatives. Although engaged for a short time in farming, he began almost immediately to study for the ministry, and in 1884 was ordained by the Bishop of Columbia. Since that time, with the exception of two years, from September, 1848, to August, 1890, which he spent in Ottawa as rector of the joint parishes of St. Barnabas and Holy Trinity, he has been in charge of parishes in British Columbia, and at the present time is rector of the Church of England at Wellington, B. C. From boyhood Mr. Taylor has been keenly interested in Natural Science, and from his enthusiasm and industry has accomplished much, not only in doing original work of importance in several lines of Zoology and Palæontology, but in constantly encouraging and assisting others with whom he came in contact, to take up and enjoy with him his favourite studies.

Mr. Taylor has for many years been a Fellow of the Entomological and Zoological Societies of London, England, and in 1884 was elected a Fellow of the Royal Society of Canada in recognition of his eminent services to science, particularly in connection with his investigations in Canadian Conchology and Entomology. In 1887 he was appointed Honorary Provincial Entomologist of the British Columbian Department of Agriculture, and sent out a circular letter to farmers, drawing their attention to the losses caused by insects and asking their co-operation. Owing to his removal to eastern Canada in 1888, this work was relinquished before any report was issued. Several important papers have appeared from his pen in the Transactions of the Royal Society of Canada, the Canadian Entomologist, the Ottawa Naturalist and the Nautilus. Many

new species have been discovered by this energetic worker, and several have been named after him. Among insects, species which have been mentioned in this magazine are *Melitæa Taylori*, Edw. *Anthelia Taylorata*, Hulst, *Ichneumon Taylori*, Harrington, *Trichiosoma Taylori*, Provencher, and *Adranes Taylori*, Wickham. All orders of insects, however, have been studied, and several other species in different orders from those named have been or are being named after the subject of this sketch. Some of Mr. Taylor's best work has been done on the Mollusca, and naturally several new species have been called after him; among those which occur to us are *Pristoloma Taylori*, Pilsbury, *Modiolaria Taylori*, Dall, and *Phyllaphysia Taylori*, Dall; in addition a new species of sponge, *Leucandra Taylori*, Lambe, may be mentioned.

Enormous and valuable collections of British Columbian specimens of various kinds have been made, and generally sent off to specialists in all parts of the world. Mr. Taylor, possesses himself the largest private collection of Limpets (Patellidæ and allied families) in the world; also the most complete collection of Unionidæ in Canada, and one of the largest general collections of land and water shells (7,000 species) in Canada.

A constant collector of insects, Mr. Taylor has also amassed valuable collections in several orders, notwithstanding the fact that he has made a practice continually of giving away to specialists any specimens which were required for study. His cabinets contain a wealth of representative specimens of inestimable value to the many beginners who have been stirred up by his enthusiasm to investigate the insect fauna of our Pacific Coast Province. At the present time he is devoting all his energies to the working up of the North American Geometridæ, paying particular attention to northern species which are likely to occur in Canada. Since the death of the Rev. G. D. Hulst, this important family of moths has been somewhat neglected by American students. Mr. Taylor's methods of work are systematic and thorough. First securing all the literature on the subject under consideration, he then strives to acquire types for study from the original localities, compares them with the descriptions, and then with extensive series of specimens from as wide an area as possible. He is an indefatigable collector and generous correspondent, who considers no trouble too much to make observations or secure specimens when specially desired. In his parish work he is painstaking, gentle and self-denying, always ready to help; a clear and forcible preacher, and an earnest liver who shows in his works that religion is not an accessory of everyday life, but an integral part of it.

J. F.

OTTAWA FIELD-NATURALISTS' CLUB.

The 25th anniversary of the foundation of this active and useful organization was celebrated in the large assembly hall of the Normal School on Tuesday evening, December the 15th, and proved of much interest to the large audience present. The inaugural address of the president, Mr. W. T. Macoun, dealt with the present work of the Club, and of projects for the future. Principal White, of the Ottawa Normal School, in a concise and well-expressed address of welcome, attested to the public appreciation of the efforts of the Club, and the important work they were engaged in in connection with the educational institutions of the city. All the speakers were members of the first Council of the Club in 1879.

Lieut.-Col White, C. M. G., the first president of the Club, spoke upon Natural History at Ottawa before the formation of the Club, giving many pleasing reminiscences of former workers, and the difficulties under which they laboured.

Mr. Robert B. Whyte spoke upon "Botanical Conditions around Ottawa twenty-five years ago." He went carefully over the old hunting-grounds, many of which are now covered with buildings, and recalled with pleasure the finding of special rarities, and the companionship of friends bound together by ties of mutual scientific interest. He spoke particularly of the delight of the Honourable Joseph Martin, who at that time was an enthusiastic student of botany, when he found his first plant of the Showy Lady's Slipper.

Dr. Fletcher dealt with "Ottawa as a Natural History locality twenty-five years ago." He reviewed in order the old localities which were most productive for the naturalist, mentioning some of the rarer objects found, and drew attention to the changes which had obliterated some of these since the Club started; but pointed out that there was still much to be done close to, or even within the city limits, in the different branches of Natural History. Reference was made to the great stimulus given to scientific work in Ottawa by the advent of the Geological Survey of Canada.

Lieut.-Col. Anderson gave an address upon the "Workers in Natural History at Ottawa twenty-five years ago," paying a tribute to the good work done, and to the constancy with which the enthusiasm had been kept up. A striking feature was the encouragement which had always been given to beginners by the leaders.

Dr. H. B. Small's subject was, "What the Ottawa Field Naturalists' Club has accomplished." He recalled many interesting characters and

incidents connected with the foundation of the Club, showing how it had developed from a mere bond, holding a few enthusiasts together, into an active and influential organization, taking an important part in the educational development of the country. In addition to having in a large measure effected its prime object of working up the local natural history of the Ottawa district, it had provided opportunities for delightful recreation and improvement to the many hundreds, or even thousands, of lovers of the country and of natural history, who had, during the twenty-five years, attended the excursions and evening meetings where the popular presentation of science had always been kept well to the front.

The meeting ended with short and appropriate speeches by Dr. Robert Bell, the director of the Geological Survey, and Prof. Macoun, the eminent botanist. A vote of thanks was proposed by Mr. W. H. Harrington, and seconded by Mr. James Ballantyne, in a happy manner.

A NEW FOOD-PLANT FOR THE COMMON SPRING BLUE.

Cyaniris ladon, Cramer, *a. lucia*, Kirby.

This is the new name for our old friend, *Lycæna pseudargiolus*, var. *lucia*. An interesting observation was made on the oviposition of this species by Mr. C. H. Young, of Ottawa. On June 4th, when at Meech Lake, Que., noticing a female *lucia* fluttering around a patch of the common Ox-eye Daisy, *Chrysanthemum leucanthemum*, L., he watched it carefully and saw that it was laying eggs upon the buds of this plant. In no case was a full-blown flower visited, the eggs being invariably laid on the small buds, which were from a quarter to three-eighths of an inch in diameter. After watching the insect for some time, the three last buds visited were gathered and the eggs secured. The operation of egg-laying was, as is usually the case with this species, as follows: Settling on the top of a flower, the female crawled to the edge of the bud, and then turning her abdomen down beneath it thrust the egg as far out of sight as possible, just at the base of the bracts, where there is a slight swelling which hides them to a certain extent. The only plants belonging to the Compositæ recorded by Dr. Scudder as food-plants of *Cyaniris ladon (Pseudargiolus)* are *Verbesina helianthoides* and *Actinomeris squarrosa*, neither of which occurs in Canada. The other plant inadvertently stated by Dr. Scudder as belonging to the Compositæ, *Dimorphanthus mantchuricus*, is a member of the Ginseng family, Araliaceæ.—J FLETCHER.

CLASSIFICATION OF THE FOSSORIAL, PREDACEOUS AND PARASITIC WASPS, OR THE SUPERFAMILY VESPOIDEA.

BY WILLIAM H. ASHMEAD, M. A., D. SC., ASSISTANT CURATOR, U. S. NATIONAL MUSEUM.

(Paper No. 18.—Continued from Vol. XXXV., p. 332.—Conclusion.)

SUBFAMILY II.—Ephutinæ.

This subfamily is readily separated from the *Mutillinæ* by the difference in the abdomen, both sexes having the first segment much narrowed, or petioliform, and separated from the second by a more or less distinct constriction or furrow; it is never broadly sessile with the second as in the *Mutillinæ*.

The group is based upon the genus *Ephuta*, Say, as I have restricted it, but not as defined by André. Say, in his original brief description, designated no type for the genus, but placed under it *three* species, namely, *Mutilla erythrina*, Klug; *M. scrupea*, Say, and *M. gibbosa*, Say. When I recognized the genus I designated as the type *E. scrupea*, Say, the only species I knew in both sexes. As I was the first to designate a type for it, my views should prevail; in fact, must prevail under the rules of zoological nomenclature.

The genus *Rhoptromutilla*, André, is *Ephuta*, Say, as I defined it under a new name.

Of my genus *Allomutilla* Mr. André says: "Ce genre a été fondé par Ashmead sur le ♂ de *D. melicerta*, a Smith, qui d'après l'auteur cité, présenterait cette particularité d'avoir les deux nervures récurrentes recues par la seconde cellule cubitale, or cette assertion est erronée, car chez le ♂ en question dont j'ai pu examiner plusier examplaires, les nervures recurrentes sont recues comme d'ordinaire, par le 2e et 3e cellules cubitales."

My definition is correct, and André's several examples of *M. melicerta*, Smith, probably represent some other species. Radoszkowski, in Horæ Soc. Ent., Rossicæ, Vol. VI., 1869, Pl. 10, Fig. 4, gives a good figure of *M. melicerta*, Smith, and if Mons. André will consult this figure he will see that *the second cubital cell receives both recurrent nervures*, as I have stated. Another species figured by Radoszkowski, *Mutilla egregia*, Klug, also has the same venation and will fall into *Allomutilla*, Ashmead.

The subfamily *Ephutinæ* is divided into two tribes as follows:

Table of Tribes.

Eyes never rounded or hemispherical, but always ovate, obovate or ellipsoidal, not polished, and distinctly facetted, as in the tribe *Mutillini*.....Tribe I., Ephutini.

Eyes rounded or hemispherical, very prominent and highly-polished, not facetted, or the facets very indistinctly defined, as in the tribe *Photopsidini*.....Tribe II., Sphaerophthalmini.

Tribe I.—Ephutini.

Table of Genera.

Males.....1.

Females.....9.

1. Eyes distinctly emarginate within.....2.

Eyes *not* emarginate within.....4.

2. Metathorax with the hind angles normal, not dentate; scutellum normal, not spined.....3.

Metathorax with the hind angles dentate, clothed with a dense silvery-white pubescence; scutellum bispined. (North and South America).....Ephutopsis, Ashm., gen. nov.

(Types E. trinidadensis, Ashm., and M. odontophora, Cam.)

3. Second and third cubital cells each receiving a recurrent nervure.

Scape bicarinate beneath, the first and second flagellar joints transverse, or not longer than thick; first segment of abdomen petioliform, as wide at base as at apex. (North and South America.).....Ephuta, Say.

=Rhoptromutilla, André.

(Type E. scrupea, Say.)

Scape (?) not bicarinate beneath; first segment of the abdomen narrowed anteriorly, nodiform posteriorly. (Africa.).....Rhopalomutilla, André.*

(Type R. clavicornis, André.)

Second cubital cell receiving both recurrent nervures; scape normal.....Allomutilla, Ashmead.

(Type Mutilla melicerta, Smith.)

4. Front wings with *three* cubital cells, or the third partially formed...5.

Front wings with *two* cubital cells, the third entirely absent.....6.

*I have not seen a specimen of this genus, and am not positive of its position in this tribe.

5. Middle and posterior tibiæ *not* spinous; second ventral segment with a longitudinal impresssion on each side filled with a dense pubescence. (Europe, Africa and Asia.).....Stenomutilla, André.
(Type Mutilla argentata, Villiers.)
Middle and posterior tibiæ spinous; second ventral segment normal. (Europe, Africa and Asia.).....Dasylabris, Radoszowski.
(Type Mutilla arenaria, Fabr.)
6. Head normal, unarmed.....7.
Head abnormally large, quadrate, armed on each side beneath with a tooth or spine, the hind angles acute or straight.....8.
7. Stigma in front wings indistinct; mesonotum *without* furrows, or the furrows only slightly indicated; first joint of the flagellum shorter than the second.....Dasylabris, Radoszk. (partim.)
Stigma in front wings well developed; mesonotum *with* distinct furrows. (Europe and North Africa.).....Cystomutilla, André.
(Type Mutilla ruficeps, Smith.)
8. Marginal cell squarely truncate at apex; second recurrent nervure subobsolete; first joint of the flagellum longer than the second. (North and South America.).....Hoplomutilla, Ashmead.
(Type Mutilla cephalotes, Swederus.)
9. Thorax obpyriform, ovate or ovoid; head not unusually large....10.
Thorax banjo-shaped, or nearly; head very large, quadrate, about twice as wide as the thorax.....16.
10. Pygidium smooth, *without* a pygidial area, or at most the area only slightly indicated, rarely finely, sparsely punctate.....11.
Pygidium not or rarely smooth, opaque, striate or rugulose, always *with* a distinct pygidial area.....14.
11. Thorax bare, or with only a few sparse hairs; eyes ovate or oval; first abdominal segment petioliform, as wide at base as at apex; metathoracic spiracles round or short oval.....12.
Thorax not bare, densely pubescent above; eyes ellipsoidal or short oval; first abdominal segment subnodose at apex; metathoracic spiracles long, linear.....13.
12. Head transverse, much wider than the thorax, the temples obliquely narrowed; eyes rather large, oval.....Ephutopsis, Ashmead.
Head transverse or subglobose, not much wider than the thorax; eyes ovate or oval; flagellum not long, either subclavate or clavate, the first joint transverse, a little shorter than the second, the following short, wider than long; hind tibiæ with a few sparse hairs.....Ephuta, Say.

13. Head subglobose; flagellum filiform, the first joint obconical, longer than the second, the following joints longer than thick; mandibles with a tooth within before apex.....Stenomutilla, André.

14. Thorax longer, obpyriform or obovate.....15.

Thorax short, obovoid, above bare or nearly; metathoracic spiracles (?) oval; mandibles bidentate; abdomen red and black, with the first segment petioliform, of an equal width throughout.....Allomutilla, Ashmead.

15. Thorax bare; head subquadrangular; eyes very small, placed towards the middle of the sides of the head; antennæ very short, strongly clavate, the joints of the flagellum wider than long.....Rhopalomutilla, André.

Thorax usually densely pubescent, the metathoracic spiracles long oval; mandibles tridentate at apex, or with one or two teeth within before the apex; antennæ neither very short nor strongly clavate, the first joint of the flagellum longer than the second; abdomen usually spotted with silvery-white or golden pubescent spots, the petiole short, widest behind.....Dasylabris, Radoszkowski.

16. Head with the hind angles acute or dentate, armed beneath with *four* teeth, *i.e.*, two small teeth at base of gula and a large tooth on each side behind these; mandibles bidentate, the lower tooth much the longer.....Hoplomutilla, Ashmead,

Tribe II.—Sphaerophthalmini.

The members of this tribe exhibit the strongest affinity with those in the tribe *Photopsidini*, and many females are easily confused with some in the latter.

The closest attention, therefore, must be given to the difference in the shape of the first abdominal segment, made use of in separating the tribes, before they can be recognized.

Table of Genera.

Males.....
Females.....1.

1. Fully winged.....7.

Subapterous or with rudimentary wings.....2.

Thorax ovoid, coarsely sculptured, or rugosely punctured, with a black pubescence; head rather large, quadrate, wider than the thorax; eyes small, rounded; mandibles 3-dentate; first joint of the flagellum not short, but hardly longer than the second. (North America.).....Pycnomutilla, Ashm., gen. nov.

(Type Mutilla waco, Blake.)

2. Front wings with only *two* cubital cells.....3.
Front wings with *three* cubital cells, or the third partially formed..7.
3. Marginal cell at apex broadly truncate.....4.
Marginal cell at apex pointed or rounded, never truncate.
4. Mandibles at apex broad and 3-dentate.....5.
Mandibles at apex never broad nor 3-dentate, at the most bidentate 6.
5. Body bare, or nearly; second dorsal abdominal segment not black, red or marked with red or yellow spots. (North and South America.).....Sphaerophthalma, Blake.
=Traumatomutilla, André.
(Type S. scaeva, Blake.)
Body not bare or nearly, usually very hairy or pubescent; second dorsal abdominal segment usually black or unicolorous, not spotted with red or yellow. (North and South America).....Dasymutilla, Ashmead.
(Type Sphaeroph. gorgon, Blake.)
6. Body well pubescent or hairy, the abdomen black, with a white hair-band; first joint of the flagellum shorter than the second. (South America.).....Reedia, Ashm., gen. nov.
(Type Mutilla atripennis, Spinola.)
7. Thorax obpyriform or obovate, or at least always narrowed posteriorly.
Mandibles at apex *not* 3-dentate, edentate, or with a small tooth within some distance from the apex, or bidentate.....8.
Mandibles at apex obliquely truncate and 3-dentate.
First joint of the flagellum obconical, but not twice as long as the second; head and thorax usually black, with a sparse black pubescence, rarely with the head red; second abdominal segment mostly red....Pycnomutilla, Ashmead.
8. Body bare or nearly, never densely pubescent, or hairy, usually rugosely punctured; scape rather long, slightly bent, the first joint of the flagellum longer than the second; second abdominal segment marked with from 2 to 4 red or yellow spots, rarely immaculate.....Sphaerophthalma, Blake.
=Traumatomutilla, André.
Body *not* bare, but clothed with dense long hairs or densely pubescent, or the head and thorax above with a dense pubescence; second abdominal segment usually black or the *derma* not spotted, although the segment is sometimes spotted with two or more pubescent spots.....Dasymutilla, Ashmead.

SEVERAL NEW DIPTERA FROM NORTH AMERICA.

BY D. W. COQUILLETT, WASHINGTON, D. C.

Family CULICIDÆ.

Culex Dupreei, new species.—Female. Near *serratus*, but much smaller, the white-scaled median vitta of the mesonotum broader, widening posteriorly where it is wider than the brown lateral portion, etc. Black, the bases of antennæ, lower part of pleura, the metanotum, basal portion of venter, coxæ, and femora, yellowish; scales of palpi black, those of occiput white, and with a spot of black ones each side; scales of middle of mesonotum white, those on the sides brown, on the pleura and scutellum white; scales of abdomen brown, those in the basal angles of the segments and on the venter white; scales of femora yellowish, those on front side of first two pairs, and on apical portion of upper side of hind ones, chiefly brown, those of tibiæ and tarsi brown; tarsal claws toothed; wings hyaline, lateral scales of the veins narrow and linear, petiole of first submarginal cell about one-third the length of that cell, hind crossvein about its length from the small; length, slightly over 2 mm.

Male.—Colours as in the female, but the mesonotum nearly covered with white scales; penultimate joint of palpi considerably dilated, the last joint narrow, front and middle tarsi with one tooth under one of the claws, none under the other, petiole of first submarginal cell nearly as long as the cell.

Baton Rouge, Louisiana.—A specimen of each sex received from Mr. J. W. Dupree, after whom the species is named. Type No. 7340, U. S. National Museum. Mr. Dupree writes that the eggs and larvæ of this species are very distinct from those of *serratus*. A small series bred by Dr. J. B. Smith, at New Brunswick, New Jersey, has also been examined.

Conchyliastes varipes, new species.—Near *musicus*, but the last joint of the hind tarsi is brown. Black, the front and hind femora, except their broad apices, the posterior side of the middle femora except their apices, and the stems of the halteres, yellow, the fourth joint of the hind tarsi white; scales of palpi violaceous, those of the occiput yellowish white and with a patch of violaceous ones on either side; (mesonotum abraded; what scales remain are yellowish white and a few black ones along the middle); scales of abdomen violet blue, those on sides of first two

segments, hind angles of the others except the last one, under surface of each segment except the last one and base of the preceding, whitish; scales on yellow portion of femora yellowish white, those on the remainder and on tibiæ violet blue, those on the tarsi black except on the fourth joint of the hind tarsi, where they are white, claws of front tarsi toothed; wings grayish hyaline, veins and scales brown, petiole of first submarginal cell from two-fifths to three-fifths as long as that cell, hind crossvein less than its length from the small; length, 4 mm. Five female specimens. Type No. 7341, U. S. N. M.

Las Penas and Tonala, Mexico (Dr. A. Dugès), and Agricultural College, Mississippi (May 18, Glenn W. Herrick).

Family CHIRONOMIDÆ.

Metriocnemus Knabi, new species.—Black, the knobs of the halteres whitish, hairs of antennæ brown, those of the body yellowish; mesonotum somewhat polished, front tibiæ twice as long as the first joint of their tarsi, hind tibiæ outwardly fringed with rather long hairs, all tarsi with a short pubescence, but without hairs, the fourth joint slender and longer than the fifth; wings grayish hyaline, densely covered with brown hairs, third vein almost straight; length, 1.25 to 2 mm. Two males and four females bred by Mr. Fred Knab, after whom the species is named. Type No. 7321, U. S. N. M.

Westfield, Massachusetts. This European genus of Chironomidæ has not heretofore been recorded from this country.

Family OESTRIDÆ.

Cuterebra grisea, new species.—Near *fontinella*, but the hairs of the mesonotum are whitish; also near *scutellaris*, but the last abdominal segment is largely opaque, gray pruinose. Black, the abdomen and legs dark reddish brown; front at vertex one and one-half times as wide as either eye, its hairs black and with several yellow ones on the lower portion, two gray pruinose spots along each eye and one on either side of insertion of antennæ; face and cheeks densely gray pruinose, the upper portion of sides of face broadly, a triangular spot on either side of lower part of facial cavity, a small spot at lower end of each eye and one nearly midway between it and the oral margin, also two streaks along the anterior portion of the latter, polished, margins and lower portion of facial depression, except in the middle, also polished, hairs of face and cheeks whitish, those on upper portion of face chiefly black; (antennæ wanting);

thorax gray pruinose, its hairs whitish, those of the hypopleura, middle of breast and scutellum black, a row of three polished spots near the lower front corner of the pleura; abdomen polished, the last segment and venter of the last three gray pruinose, several spots and the hind margin of the last segment polished, hairs of abdomen black, those of the last segment and venter of the last three chiefly yellow; legs polished, an elongate, whitish pruinose spot on front side of middle femora, hairs black, those on inner side of apical half of front tibiæ golden yellow, on inner side of other tibiæ chiefly white; wings brown, veins yellow, calypteres dark brown; length, 15 mm.

Fort Simpson, B. C., Canada. A single specimen collected by the Rev. J. H. Keen, and submitted for naming by Dr. James Fletcher, to whom the type has been returned.

Family SCIOMYZIDÆ.

Bischofia varia, new species.—Black, the head except middle of face, basal half of antennæ, mouth-parts, pleura, sternum and scutellum, reddish brown, the halteres, sides of abdominal segment, coxæ, trochanters, middle legs except apical half of femora, and nearly basal half of hind femora, yellow; head and body polished, frontal lunule hidden, antennal arista sparsely long-plumose, face strongly produced forward at the oral margin, mesonotum bearing two pairs of dorsocentral bristles, no acrostichals, mesopleura bare, pteropleura bearing two bristles, one above the other, and several short hairs, sternopleura covered with short hairs, hind femora without long hairs or bristles on the under side; wings hyaline, veins broadly bordered with brown, least distinct on the sixth vein, tip of first vein slightly before the small crossvein, calypteres whitish; length, 6 mm.

Rigaud, Quebec, Canada.

A female specimen collected May 24, 1902, by Mr. G. Chagnon, and submitted by Mr. C. W. Johnson, of Boston, Mass., to whom it has been returned by request.

This European genus was founded by Hendel in the Kais. Konig. Zool-bot. Gesell. Wien, II., page 52, 1902, and besides the present form the *Dryomyza aristalis*, Coquillett, also belongs to this genus. The latter is closely related to *Dryomyza*, differing in the possession of a propleural bristle, a preapical pair of bristles on each front tibia, etc.

RECORDS OF AMERICAN BEES.

BY T. D. A. COCKERELL, COLORADO SPRINGS, COLO.

Chelostoma Neomexicanum, n. sp.

♀.—Length about 8 mm., black, with distinct narrow white hair-bands on abdomen. Middle of anterior margin of clypeus curved upwards, presenting a point from which the sides slope gently for some distance, and then abruptly nearly vertically, the whole, seen from beneath, having about the outline of a low house seen from one end; some distance on each side of this structure is a low projection of the margin. In general, the insect looks just like *Ashmeadiella bucconis*, but the second tooth of the mandibles is short, and the front and vertex are as densely punctured as it is possible for them to be. The last joint of the labial palpus is conspicuously longer than the penultimate one.

Hab.—Barela Mesa, New Mexico, at flowers of blue-bell; June 28, 1903. (*Anna Gohrman.*) The genus is new to New Mexico. The species will be easily known by the clypeal structure, as described. Miss Gohrman also collected *Osmia Bruneri*, Ckll., at flowers of blue-bell at Barela Mesa, June 28. The species is new to New Mexico. At the same place, and on the same day, she also collected *Anthidium maculosum*, Cr., ♂ (at loco flowers), and *Synhalonia frater*, Cr.

Halictus clematisellus, n. sp.

♀.—Length about 5 mm.; head and thorax olive green; abdomen shining bright orange-ferruginous, not at all dusky at apex, the third and fourth segments each with a small round black spot near the base on each extreme side; wings short, iridescent; tegulæ, nervures and stigma pale testaceous. In nearly all respects this agrees with *H. pictus*, Crawford, but it differs conspicuously in having the abdomen only very scantily pubescent, and the enclosure of the metathorax (except the broad shining rim) entirely covered with strong vermiform rugæ. The clypeus (except its upper margin) is wholly purplish-black, with very large, sparse punctures, and no testaceous border; the supraclypeal area is more or less brassy. The knees, apices of tibiæ, and tarsi more or less, are ferruginous. Antennæ black, flagellum dark brownish beneath. Mesothorax strongly and rather closely punctured on a microscopically tessellate surface. First abdominal segment smooth, with sparse, very minute punctures; second, with equally small but rather closer punctures, and more or less transversely striatulate basally. Hind spur of hind tibia with few, large, teeth. Belongs to Robertson's group *Chloralictus*.

Hab.—Pecos, New Mexico, July 14, 1903. (*W. P. Cockerell.*) It occurs in numbers at flowers of *Clematis ligusticifolia*, but has been seen on no other plant.

Trypetes carinatum (Cresson).

Prof. C. H. T. Townsend has taken this at Tlacotalpam in Vera Cruz, Mexico, April 21. I cannot see any difference between the specimen and those found in the United States. The genus is new to Mexico.

Colletes Wilmattæ, n. sp.

♀.—Length 10 mm.; almost entirely covered with short pale yellow pubescence; legs red. Palpi ferruginous, with subequal joints, the basal ones a little the longer; malar space very short, at least twice as broad as long; mandibles black, with a faint red stain in the middle; labrum convex, shining, with a row of shallow pits; clypeus confluently punctured; antennæ short, black or nearly so, scape brownish, second joint very distinctly brown; prothoracic spines short; mesothorax shining and densely punctured, but the surface entirely concealed by the short hair; even the metathorax is covered with hair; tegulæ small, pale testaceous; wings very short, quite clear, the small stigma and the nervures pale ferruginous; second submarginal cell broader than high; abdomen rather parallel-sided, long, the dorsal surface entirely covered with very short pubescence, except the apical segment, which is dark brown and nearly bare, strongly contrasting.

Hab.—Pecos, N. M., Aug. 9, 1903. (*T. D. A. & W. P. Cockerell.*) Flying over damp ground by the Pecos River. A very distinct and beautiful species. The character of the pubescence allies it with *C. aberrans*, Ckll., while the red legs and some other characters curiously suggest the Brazilian *C. rufipes*, Smith. The insect also reminds one of *Dasiapis ochracea*, Ckll.

NOTES ON NORTH AMERICAN STRATIOMYIDÆ.

BY A. L. MELANDER, CHICAGO.

While arranging the flies of this family contained in the Garry de N. Hough collection of the University of Chicago, together with my own material, a number of notes have been made, which are here given. This family, like a number of other dipterous groups, needs monographic study owing to the confused and scattered descriptions of most of the forms. Of recent years the number of genera has been multiplied,

although the authors have neglected to sift out the older species belonging to these new groups. Accordingly, the older genera, like *Sargus* for example, contain species of several of the modern subdivisions.

In the following pages are listed the species studied, together with the localities from which they were received. Analytical keys are introduced for several of the genera as an aid to the future student. I here wish to thank my friend, Mr. Charles T. Brues, for supplying descriptions not accessible in this city.

ALLOGNOSTA.

Our three species are related thus :

Discal cell not as broad as the stigma ..... 2.
Discal cell as broad as the stigma ; abdomen testaceous centrally ..... *fuscitarsis*, Say.
2. Abdomen testaceous centrally ..... *similis*, Loew.
Abdomen wholly black ..... *obscuriventris*, Loew.

A. fuscitarsis, Say.

Edgebrook and Algonquin, Ill.; Kiamesha, N. Y. June.

A. obscuriventris, Loew.

Edgebrook, Ill. June. This species occurs in company with the preceding in open woodland.

BERIS.

But two species occur in the United States. They have the thorax metallic green and the abdomen black.

Scutellum with four spines ..... *viridis*, Say.
Scutellum with six or eight spines ..... *Mexicana*, Bell., Will.

B. viridis, Say.

New Jersey (vi., 3, '01) ; Michigan ; Glen Ellyn, Ill. (v., 30, '99).

B. Mexicana, Bellardi, Williston.

One specimen from Vancouver Island (Livingston, vii., 14, '96) agrees with Dr. Williston's redescription of this species (CAN. ENT., 1885, p. 123).

SARGUS.

The species grouped under the old genus *Sargus* are many of them superficially described. Accordingly, it would be difficult to decide to which subdivision most of the species belong. So far the species described under the generic name *Sargus* may be distributed among the following groups :

Non-metallic species ..... *Ptecticus*, Lw.*
More or less metallic species.
Eyes contiguous or subcontiguous, ♂ ; ocelli equidistant
Abdomen long, pedicellate, cylindrical at the base ..... *Macrosargus*, Bigot.
Abdomen short, broad and flattened ..... Spp. *elegans*, Lw., and *Texana*, sp. n.
Eyes, ♂ ♀, separated ; front ocellus further from the other two ..... *Sargus*, s. str.

The assignment of the species in the following table is based almost entirely on their descriptions, and hence can not be relied upon with absolute certainty. Many species are known from one sex alone, many are poorly described, and as we know that there is great variability in colour in some of the species, it seems certain that the species are less numerous than their descriptions. All the species that have been recorded as from North America are included in the table. To the future student who has a sufficiently large collection is left the task of solving the synonymy.

Abdomen petiolate ; eyes of male contiguous or nearly so ; ocelli equidistant (*Macrosargus*, Bigot) ..... 2.
Abdomen not clavate ; eyes generally separated and front ocellus generally further from the others ..... 11.
2. Thorax reddish, more or less metallic posteriorly ..... 3.
Thorax completely metallic green ..... 4.
3. Abdomen dark green ; antennæ black ..... *linearis*, Loew.
Abdomen reddish, with four black fasciæ ..... *smaragdiferous*, Bigot.
4. Abdomen entirely metallic, cupreous ..... 5.
Abdomen with the second segment yellow ..... *coarctatus*, Macquart.
5. Scutellum margined with red; face more or less black pilose (*filiformis*, Gilio Tos) ..... *cæsius*, Bellardi.
Scutellum wholly green or gold-green ..... 6.
6. Wings blackish ..... *clavatus*, Walker.
Wings at most brown ..... 7.
7. Abdomen black with bronze lustre ..... *clavis*, Williston.
Abdomen cupreous with green lustre ..... 8.
Abdomen golden at base, aeneous at tip ..... *aureus*, Bellardi.

*(Of the species in Osten Sacken's Catalogue, *Sargus trivittatus*, Say, and *S. subinterruptus*, Bellardi, belong here.)

8. Pile black ..... *alchidas*, Walker.
Pile fulvous ..... 9.
9. Mesonotum with a white spot ... sp. innom., Osten Sacken, Williston.
Mesonotum not marked with a white spot ..... 10.
10. Pleura green ; vertical triangle longer ..... *lucens*, Loew.
Pleura yellow ; vertical triangle shorter ..... *lateralis*, Macquart.
11. Legs black, at least the hind femora more or less black ..... 26.
Legs largely yellow ; at most the hind legs with brown markings .. 12.
12. Abdomen unicolored, not fasciate ..... 13.
Abdomen purple with yellow fasciæ ..... 25.
13. Abdomen reddish or yellowish, at least at base, sometimes with more or less cupreous tinge ..... 14.
Abdomen black, green, violet, or cupreous, not light coloured .. 17.
14. Pleura yellow, eyes of male contiguous ..... *elegans*, Loew.
Pleura black or concolorous with the dorsum ..... 15.
15. Face and front reddish yellow ..... 16.
Face and front metallic green ; wings hyaline ; length 3 mm ..... *bicolor*, Wiedemann.
16. Abdominal segments with lateral triangles ; wings light brown (not *pallipes*, Say) ..... *pallipes*, Bigot.
Abdomen aeneous at the tip ; wings hyaline ..... *debilis*, Walker.
17. Pleura yellow, wholly or partly ..... 18.
Pleura black or dark metallic ..... 20.
18. Legs varied with brown ; stigma blackish ..... 19.
Legs completely yellow ; stigma fuscous ..... *pleuriticus*, Loew.
19. Thoxax blue-green ; length 7 mm ..... *cæruleifrons*, Johnson.
Thorax violet ; length about 16 mm ..... *splendens*, Bigot.
20. Front testaceous ; scutellum margined with yellow ..... 21.
Front metallic, except sometimes for two white spots ..... 22.
21. Abdomen blue ; veins yellow ..... *versicolor*, Bellardi.
Abdomen green ; veins dark ..... *bagosus*, Walker.
22. Face yellow ; thorax violet ..... *sapphireus*, Bigot.
Face black ; thorax green ..... 23.
23. Eyes of male contiguous; ocelli equidistant; abdomen short and broad, green ..... *Texanus*, sp. nov.
Normal *Sargus*-species ; abdomen slender ..... 24.
24. *Sargus decorus*, Say.
abdomen green ..... *punctifer*, Bigot.

abdomen cupreous ..... *picticornis*, Bigot.
xanthopus, Wiedemann.
abdomen piceous ..... *decorus*, Say.

25. Hind legs varied with brown ..... *stamineus*, Fabricius.
Tip of hind tarsi only brown ..... *tricolor*, Loew.

26. Thorax and abdomen violet green, concolorous ..... 27.
Thorax violet or green, abdomen not concolorous ..... 28.
Thorax red above, scutellum dark; abdomen yellow at base; fore legs pale ..... *concinnus*, Osten Sacken.

27. Legs entirely black; antennæ black (*nigribarbis*, Bigot). *viridis*, Say.
Legs in part yellow; antennæ yellow ..... *nigrifemoratus*, Macquart.

28. Wings with a brown cloud at middle (*nubeculosus*, Zetterstedt) ..... *cuprarius*, Linnæus.
Wings uniformly yellowish; front legs pale ..... 29.

29. Abdomen uniformly metallic ..... 30.
Abdomen with a white vitta ..... *Sallei*, Bellardi.

30. Abdomen cupreous violet ..... *speciosus*, Macquart.
Abdomen aeneous ..... *latus*, Bellardi.

Of these species the following are not listed in Osten Sacken's Catalogue:

splendens, Bigot, Ann. Soc. Ent. France (5), ix., p. 224. 1879. Mex.
nigribarbis, Bigot, ibid., p. 224. Cal. (=*viridis*, Say.)
clavis, Williston, CAN. ENT., xvii., p. 123. 1885. Va., N. C.
punctifer, Bigot, Ann. Soc. Ent. France (6), vii., p. 27. 1887. Col.
picticornis, Bigot, ibid., p. 27. Wash.
pallipes, Bigot, ibid., p. 28, Oregon.
sapphireus, Bigot, ibid., p. 28, Cuba.
concinnus, Osten Sacken, Biologia Centr.-Amer. Dipt.
sp. innominata, Osten Sacken, ibid., p. 23. Mex.
Williston, ibid., Suppl., p. 231.
filiformis. Gilio Tos, Bull. Mus. Zool. Torin. 1891, No. 102. Mex. (=*cæsius*, Bell.)
sp. innominata, Townsend, Ann. N. Hist., xix., p. 18. 1897. Mex.
cæsius, Bellardi, Williston, Biol. Centr.-Amer. Dipt. Suppl., p. 232.
cæruleifrons, Johnson, Ent. News, Phila., xi., p. 325. New Jersey.
cuprarius, Linn, etc. A common European species.
coarctatus, Macq., etc. A Brazilian species, taken also in Mexico.
Texanus, sp., nov. Described herewith.

Notes on the distribution of the specimens of *Sargus* studied.

1. *lucens*, Loew. Several specimens from Hayti.

2. *cuprarius*, Linn. This is the species known as *nebeculosus*, Zett., in collections. Not rare. Woods Hole, Mass. (July); Newark, N. J. (June); Penn.; Chicago, Ill. (June-July).
3. *decorus*, Say. Kiamesha, N. Y. (June); New Bedford, Mass. (May); Phila, Penn.; Ontario; Algonquin and Chicago, Ill.; Austin, Tex.; Vancouver Island. June and July.
4. *viridis*, Say. Mich.; London, Ontario; Chicago, Ill.; Denver, Col. May and June.
5. *elegans*, Loew. Opelousas, La. May and June.
6. *Texanus*, sp. nov.

Male: Eyes contiguous, subcontiguous in front of the antennæ; front and face black; antennæ reddish, the style black; proboscis yellow; ocelli equidistant, ocellar triangle metallic black, with fulvous pile. Thorax polished green, scutellum and metathorax somewhat more bluish; pile of thorax fulvous, erect, appearing dense when viewed from the side; humeri and a line to the root of the wing yellow; pleura black. Abdomen metallic green, with erect fulvous pile, sexual organs testaceous; venter piceous, becoming metallic posteriorly. Legs, including coxæ, completely yellow. Halteres yellow. Wings lutescent, veins yellow. Length, 6 mm.

Female: Front and vertex green, their sides parallel, medially bisected by a fine impressed line, which also separates the transversely lunate frontal white spots. Between the antennæ and the frontal marks the ground colour is piceous. Otherwise as in the male.

Described from two males and one female collected by the writer at Austin, Texas, one bearing the date of April 28, 1900.

Although not a typical *Sargus*, this species is placed in this genus, as it is closely related to *elegans*, Loew. From *elegans* it may be distinguished by the shorter contiguity of the male eyes (in *elegans* the eyes are contiguous up to the ocellar triangle), by the lack of frontal spots in the male, the wholly green thorax and the black pleura.

PTECTICUS.

The two species occurring in the United States may be separated as follows:

Front black above; hind metatarsi black, remainder of hind tarsi white..... ..... *Sackenii*, Williston.
Front wholly yellow; hind tarsi brown..... *trivittatus*, Say.

P. trivittatus, Say. (*P. similis*, Will.).

A single female from Pennsylvania.

HERMETIA.

1. *H. illucens*, Linn.

Not rare at Austin, Texas, during the whole year. The species seems to have a predilection for fences and sidewalks, where they can be picked up with the fingers, showing no desire for flight.

2. *H. aurata*, Bellardi.

Austin, Texas. April-May.

OXYCERA.

1. *O. maculata*, Oliv.

Opelousas, La. (May-June); Toronto, Ontario.

2. *O. unifasciata*, Loew.

Boykins, Va. (June); McHenry, Ill.

EUPARYPHUS.

E. tetraspilus, Loew.

McHenry, Ill. June.

NEMOTELUS.

The genus *Nemotelus* has been reviewed in the current number of Psyche, where five new species are described from my collection.

MYXOSARGUS.

M. fasciatus, Brauer.

Several specimens, all males, of this dainty little species were taken running about on the large leaves of Elephant's-ear growing along the Comal River, New Braunfels, Texas. May.

STRATIOMYIA.

Owing to the absence in Florida of Mr. C. W. Johnson at the time of publication, the analytical keys of *Odontomyia* and *Stratiomyia* in the Trans. Am. Ent. Soc. (1895) are full of typographical errors. Every student of this paper has been perplexed as to the meaning of the strange mélange. The following table is a transcription of the key published on page 230 of Mr. Johnson's paper:

Head ♂ ♀ narrower than the thorax.....2.
Head ♂ ♀ much wider than the thorax; third antennal joint flat ....17.
2. Eyes ♂ ♀ glabrous.....3.
Eyes ♂ pubescent.....16.
3. Occiput of both sexes largely yellow.....4.
Occiput black, sometimes yellow beneath.....8.
4. Antennæ normally long.....5.
Antennæ noticeably shorter than in the other species .....7.

5. Abdominal spots usually connected on the fourth segment of the male, and always connected on the fourth and usually on the third of the female ..... 6.
Abdominal spots never connected on the fourth segment of the ♂, and rarely connected in the ♀ ..... *barbata*, Loew.

6. Fifth segment with a large keystone-shaped marking. *melanostoma*, Lw.
Fifth segment with a dorsal line and spot at the anterior angle ..... *lativentris*, Lw.

7. Abdomen: lateral triangular markings on the second and third segments, widely connected on the lateral margin... *Bruneri*, Johns.
Abdomen: lateral subtriangular markings on the second and third segments not connected at the lateral margins ..... *laticeps*, Lw.

8. Scutellum normally yellow, or with base narrowly black..... 9.
Scutellum black, or with narrow apical margin yellow..... 12.

9. Second segment with lateral triangles; wings infumated ..... 10.
Second segment with narrow lateral markings; wings usually dark ..... *senaria*, Lw.

10. Posterior margin of fourth segment yellow, with median triangular projection..... *unilimbata*, Lw.
Yellow on posterior margin of fourth segment interrupted..... 11.

11. Fourth segment with a small dorsal triangle; vertex of ♀ black..... *normula*, Lw.
Fourth and fifth segments with small dorsal triangles; vertex of ♀ usually yellow..... *norma*, Wied.

12. Abdomen with yellow markings..... 13.
Abdomen wholly black ♂ (♀ unknown) ..... *Nevadæ*, Big.

13. Abdominal markings linear..... 14.
Abdominal markings coalesced, forming a triangular yellow spot at the anterior corners of the abdomen ..... 15.

14. Fifth segment with a dorsal line; lateral markings on the segments of the ♀ very narrow.. ..... *Meigenii*, Wied.
Fifth segment with a dorsal triangle; lateral markings on the segments of the ♂ ♀ prominent..... *apicula*, Lw.

15. Pile of the thorax unusually long and dense; abdomen wide, third and fourth segments very convex..... *discalis*, Lw.
Pile on the thorax normal; abdomen narrow, and third and fourth segments noticeably convex ..... *quaternaria*, Lw.

16. Face of ♀ yellow, ♂ black; abdomen with a wide maculated or indented lateral margin; variable.....*maculosa*, Lw.
Face of ♂ ♀ yellow, with a longitudinal line of black; abdominal markings transverse, the same in both sexes; eyes of ♀ glabrous.....*badius*, Walker.

17. Abdomen: bands on the second segment interrupted, the third and fourth contiguous.....18.
Abdomen: fourth and fifth segments only with wide yellow bands.....*mutabilis*, Fabr.

18. Scutellum ♂ black.....19.
Scutellum ♂ ♀ yellow.....*constans*, Lw.

19. Abdomen: bands on the second and third segments contiguous.....*Gerstæckeri*, Bell.
Abdomen: second segment with two large spots...*bimaculata*, Bell.

List of species of *Stratiomyia* studied.

1. *S. melanostoma*, Lw.
McHenry, Ill. July.

2. *S. lativentris*, Loew.
Chicago, Ill. (July); Canada.

3. *S. normula*, Loew.
Chicago, Ill. (May); Colorado.

4. *S. norma*, Wiedemann.
Indiana; McHenry, Ill. (June).

5. *S. unilimbata*, Loew.
McHenry, Ill. (July); Milwaukee, Wisc. (June); Berkeley, Col. (May).

6. *S. Meigenii*, Wiedemann.
Chicago, Ill.; Austin, Texas; S. Dakota.

7. *S. apicula*, Loew.
Algonquin, Ill. (June); Austin, Texas (April).

8. *S. discalis*, Loew.
Chicago, Ill. May.

9. *S. badius*, Walker.
McHenry, Ill. June and July.

10. *S. constans*, Loew.
Austin, Texas. April to October. Common.

ODONTOMYIA.

The puzzling key to the species of *Odontomyia*, given in the Transactions of the American Entomological Society, 1895, pp. 250–251, was printed without Mr. Johnson's supervision, and contains numerous mistakes in typography. The student attempting to use the key is misled to a blind ending in four places. The dichotomy is given corrected herewith. In addition to the species listed by Mr. Johnson, the Supplement of the Biologia Centrali-Americana contains three recent species from Mexico.

Third longitudinal vein branched ..... 2.
Third longitudinal vein simple ..... 13.
2. Abdomen largely green or yellow ..... 3.
Abdomen largely black, the markings comparatively narrow ..... 10.
3. Sides of dorsulum of thorax yellow or green ..... 4.
Dorsum of thorax wholly black ..... 8.
4. Abdominal markings ♂ ♀ dissimilar; markings of ♂ confluent laterally ..... 5.
Abdominal markings ♂ ♀ similar, separated ..... 7.
5. Disc of thorax usually with two irregular marks ..... *binotata*, Lw.
Disc of thorax without marks ..... 6.
6. Spines of scutellum blunt ..... *varipes*, Lw.
Spines of scutellum sharp ..... *viridis*, Bell.
7. Abdominal markings triangular, attenuated and reaching the lateral margins ..... *cincta*, Oliv.
Abdominal markings triangular, not reaching the lateral margins ..... *dorsalis*, Fabr.
8. Abdomen ♀ with transverse bands; ♂ with only lateral markings at posterior angles ..... *inæqualis*, Lw.
Abdomen ♀ with transverse bands; male with dorsal line ..... 9.
Abdomen ♂ ♀ similar, with basal triangular spot and transverse bands ..... *rufipes*, Lw.
9. Scutellum and spines yellow ..... *arcuata*, Lw.
Scutellum and spines black ..... *flava*, Say.
10. Scutellum more or less yellowish, without spines ..... 11.
Scutellum black, with spines ..... 12.
11. Scutellum wholly black; black of the vertex does not extend over the vertical angle ..... *fallax*, Johns.
Scutellum, base black; black of the vertex extends over the vertical angle: proboscis longer ..... *nigrirostris*, Lw.

12. Wings: very dark brown, face produced ..... *nigerrima*, Lw.
Wings: veins reddish, face rounded, front broad ..... *pilosus*, Day.
13. First antennal joint less than twice the length of the second ..... 14.
First antennal joint twice the length of the third or longer ..... 24.
14. Scutellum largely yellowish ..... 15.
Scutellum black or marked with yellow ..... 18.
15. Pleura ♂ yellow; thorax ♀ with yellow vittæ .... *trivittata*, Say.
Pleura ♂ black; thorax ♀ not vittate ..... 16.
16. Abdomen wholly green ..... *Aldrichii*, Johns.
Abdomen with black marks ..... 17.
17. Antennæ, front and vertex red ..... *hydroleonoides*, Johns.
Antennæ, front and vertex black ..... *vertebrata*, Say.
18. Scutellum laterally green ..... *Texasiana*, Johns.
Scutellum apically green ..... 19.
19. Abdomen ♂ ♀ with wide dorsal line, usually narrower in ♂ than in ♀ ..... 20.
Abdomen ♀ black with transverse markings, ♂ with dorsal line ..... *interrupta*, Oliv.
Abdomen ♂ ♀ with transverse or triangular markings ..... 23.
20. Third antennal joint sharply pointed; front yellow ..... 21.
Third antennal joint bluntly pointed; front shining black ..... 22.
21. Abdomen brown-black, with wide continuous lateral margin; scutellum ♀ yellow ..... *microstoma*, Lw.
Abdomen with irregular median black stripe ..... *pilimana*, Lw.
22. Pile of thorax whitish; median black stripe of abdomen straight ..... *Americana*, Day.
Pile of thorax yellow; median black stripe notched on the sides ..... *virgo*, Wied.
23. Femora yellow; abdominal marks usually triangular .. *pubescens*, Day.
Femora black; abdominal marks transverse ..... *hoodiana*, Big.
24. First and second joints of the antennæ black ..... 25.
First and second joints red ..... 26.
25. Front and vertex wide, lateral thoracic stripe continuous ..... *hieroglyphica*, Oliv.
Front and vertex narrow; lateral thoracic stripe abbreviated anteriorly ..... *similis*, Johns.
26. Eyes pubescent; scutellum of ♀ yellow ..... 27.
Eyes glabrous; scutellum black, with yellow margin . *occipitalis*, Johns.
27. Abdomen ♂ broad, with narrow markings, pilose ..... *obscura*, Oliv.
Abdomen ♂ narrow, with wide markings, pubescent . *flavicornis*, Oliv.

(To be continued.)

BOOK NOTICES.

THE MOTH BOOK.—A popular guide to a knowledge of the Moths of North America. By W. J. Holland, D.D., Director of the Carnegie Museum, Pittsburg, Pa., etc. New York: Doubleday, Page & Company, 34 Union Square; 4to. pp. xxiv. + 479. (Price $4.00 net, postage 34 cents.)

It is now four years since Dr. Holland published his admirable "Butterfly Book," and for some time the possessors of it have been looking forward eagerly to the publication of this companion volume, which is intended to afford an easy introduction to the identification of our moths. We can well understand that the task has been a difficult one, as there are six thousand species listed, a number manifestly impossible to figure or describe in a single volume, and the problem has been how to make a satisfactory selection from this vast number. The author has wisely solved the difficulty by figuring almost all the larger and more conspicuous species which the ordinary collector is most likely to meet with, and giving representatives of many genera in the remaining families. Owing to the limitations of space, no descriptions are given as a rule, but there is a useful key to the families, and a list of books which the student may consult.

The forty-eight plates, containing over 1,500 figures, are very beautiful, and for the most part true to nature, but in some cases the purple tint of the background affects the correctness of the colouring. In many instances the effect is marvellously successful, as may be seen in the case of *Composia fidelissima* (plate xxxviii., fig. 4), and the figures of larvæ on the frontispiece. The cuts in the text, 263 in number, are not so satisfactory, owing to the rough texture of the paper, which has prevented clear impressions from being made.

A full meed of gratitude is certainly due to Dr. Holland for this welcome addition to the goodly list of popular works on Natural History. With this volume, the Butterfly Book, and Dr. Howard's Insect Book, the way is made easy for beginners in the study of Entomology, who should now become many times more numerous than ever before. The initial difficulties regarding the identification of specimens being largely removed, collectors and students should have much more time at their disposal for tracing out the life-histories and observing the manners and customs of insects respecting which we know little at present.

The want of a "Beetle Book" still remains unfulfilled. Its preparation would be an even more difficult task than that of the "Moth Book," owing to the immense number of species to be dealt with, and the minute size of a large proportion of them; it might, however, be practicable to take up a certain number of families at a time and spread the work over two or more volumes.—C. J. S. B.

We have before us Dr. Holland's long expected "Moth Book," a companion to his well-known "Butterfly Book," published in the same style and only a little larger. The coloured plates show most characteristically the appearance of all the commoner North American moths, except in the lower families, where only typical illustrations are given. The book will be of great value to all collectors. Not only this, but there are several features wherein it will commend itself to more advanced students. Several types are figured, noticeably some of Hulst in the Geometridæ, and among these I see some species with the appearance of which I was not hitherto familiar. A few new species are described by Dr. Holland, and there is some change in the nomenclature, notably the adoption of the names of the Sphingidæ proposed by Rothschild and Jordan. There is no attempt at description of genera or species, and the synoptic tables do not proceed beyond family definition; but a good review of the literature of the subject is given, arranged under a heading of families. We are personally aware that Dr. Holland took much pains to avoid misidentification of his figures, but are sorry to note that a considerable number have nevertheless crept in. A casual glance over the plates shows, for example, pl. xxix., fig. 66, what purports to be *Cydosia majuscula*, Hy. Edw., but really represents *Tricostibas calligera*, Zell. Pl. xlii., fig. 32, is labelled *Tephroclystis absinthiata*, Cl., but shows *Macaria infimata*, Guen.; pl. xliii., figs. 10 and 11, are marked *Hydriomene custodiata*, Guen., but really represent *Hydriomene excurvata*, Grt. On page 378 in the text is figured "*Inguromorpha basalis*," which should be *Cossula magnifica*, while the cut on page 379, which purports to be the latter species, is a representation of something unfamiliar to me, which is neither *magnifica* nor *basalis*. The plate xlvii., representing Limacodiæ, contains several errors: fig. 15 should be *Euclea indeterminata*, not *E. chloris;* fig. 21 should be *Tortricidia flexuosa*, not *Cochlidion y-inversa*, and fig. 27 should be *Cochlidion latomia*, not *C. rectilinea*, which has black hind wings. We fear that there are other such misidentifications, and on this point the student will have to be on his guard in using the book. HARRISON G. DYAR.

CATALOGUE OF THE LEPIDOPTERA PHALÆNÆ IN THE BRITISH MUSEUM, Vol iv. By Sir George F. Hampson, Bart. London: 1903; xx + 689 pages, with a supplementary volume of coloured plates.

With this volume the Noctuidæ are begun, the classification to be used is outlined, and about one-tenth of the species are treated. Fifteen subfamilies are recognized, based on the usual structural characters, but used in a new order, and a very commendable one it seems to us. The first subfamily, the one treated in this volume, is the Agrotinæ, containing all those Noctuids with trifid venation of the hind wings and spines on the hind tibiæ. This subfamily is remarkably well represented in North America, so that the volume consists largely of our familiar names—I ought to say our familiar species, for the names are very largely changed. The sequence of genera, too, is a new one. The little day-flying *Heliolonche modicella* heads our list, followed by the Heliothids and Schinias, and finally the bulk of the Agrotids proper. These changes in the generic names were fully to be expected, since now for the first time all the old names are applied to the world fauna. Besides this, secondary sexual characters are not used in generic definition, and this naturally makes a great change in the names as heretofore applied by American authors. We have been in the habit of using these characters very largely. I am therefore pleased to note that there are some of our names that are not changed. I regret that Hübner's "Tentamen" is not adopted. American economic students will hardly recognize the familiar Boll-worm under the new appellation of *Chloridea obscura*, Fab. A part of this change could have been avoided by recognizing the Tentamen; it would have allowed the retention of the generic name *Heliothis*. Our large genus *Carneades* (*Paragrotis*, Pratt, of Bull. 52, U. S. Nat. Mus.), made still larger by the addition of *Rhizagrotis* and *Corhizagrotis*, is called *Euxoa*, Hübn. It would be *Agrotis* if the Tentamen names were applied. The term *Noctua*, Linn., does not appear in the volume, being applied to the South American species *strix*. The process of arriving at this and other types of genera is not elucidated, and it is not clear to us. We can only hope that future workers will not feel obliged to review the matter, and change all the names again.

A few new genera are based on our species, and two new North American species are described. Most ill-advisedly, the name *Californica* has been selected for one of these. This specific name has been used

already too often, so that it has become a nuisance to anyone attempting to use a specific index. There are thirty species named *Californica*, and including the variants *Californiæ*, *Californiata*, *Californiella*, *Californiana* and *Californicalis*, the name has been used forty-eight times. The other new name, *borealis*, is also objectionable, having been used no less than sixteen times for North American species.

We note that Harvey's species are uniformly credited to Harris.

At the end of the book is a list of 77 unrecognized species, 26 of which are North American, and might have been eliminated from the list if American students had exerted themselves more actively to assist the author.

HARRISON G. DYAR.

PERSONAL NOTES.

From *Science* we learn that the following Entomological appointments have been recently made:

MR. S. I. KUWANA, M. S. (Leland-Stanford University), has been appointed Entomologist at the Central Agricultural Experimental Station, Nishigahara, Tokyo, Japan. His special studies have been devoted to scale insects, and he has monographed the Japanese Coccidæ, so far as the species are at present known.

PROF. C. P. GILLETTE, Entomologist at the Agricultural College, Fort Collins, Colorado, has been appointed Chief Entomologist of the St. Louis Exposition.

MR. H. MAXWELL-LEFROY, who left Barbadoes early in the year to fill the the position of Entomologist to the Government of India at the Imperial School of Forestry, Dehra Dun, N. W. Provinces, is to be stationed at Surat in the Bombay Presidency.

PROF. W. M. SCOTT, State Entomologist and Pathologist of Georgia, has been appointed Pathologist in the Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

PROF. WILMON NEWELL, of the Texas Agricultural College, has been appointed State Entomologist of Georgia, *vice* Prof. Scott.

Mailed January 4th, 1904.