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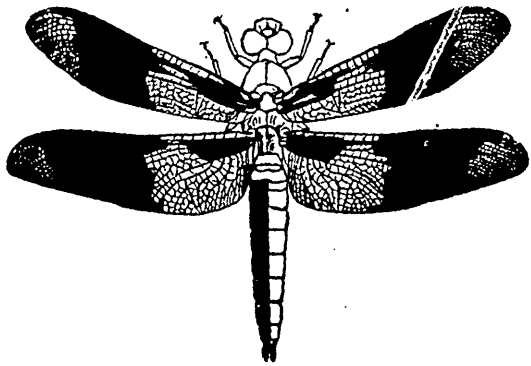
The Canadian Entomologist

VOLUME XXIX.

No. 9.



LIBELLULA TRIMACULATA.

EDITED BY

REV. C. J. S. BETHUNE,

HEAD MASTER OF TRINITY COLLEGE SCHOOL,

PORT HOPE, ONTARIO.

SEPTEMBER, 1897.

LONDON:

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1897.

EXCHANGE.

Subscribers are invited to make liberal use of this column. Notices over three lines are liable to be shortened if necessary. All insertions free to subscribers.

Cynipidæ and Typhlocybinæ wanted, named or unnamed, from all quarters. Will offer, in exchange, Colo. insects in any order. C. P. GILLETTE, Fort Collins, Col.

WANTED.—First An. Report on Nox. Insects of Illinois, by B. D. Walsh, 1868. I have for sale or exchange a complete set of Dr. Fitch's fourteen Reps. on the Insects of New York. Address, M. V. SLINGERLAND, Ithaca, N. Y.

LEPIDOPTERA.—I desire long series of Plusias from all parts of boreal North America. Will purchase or give liberal exchanges. Correspondence invited. E. OTTOLENGUI, 115 Madison Ave., New York.

N. A. LEPIDOPTERA.—Exchange desired. Also a lot of exotic Coleoptera, named and unnamed. What offers? Will collect in other orders.—E. V. RIPPON, 129 Hazleton Ave., Toronto.

KERMES.—Desired from North America. Will return identified material. E. F. BOGUE, Agr. Expt. Sta., Stillwater, Oklahoma.

LEPIDOPTERA desired from all parts of N. America. Will collect in other orders in exchange. C. H. TYERS, 227 Front Street East, Toronto.

LEPIDOPTERA.—Exotic and native cocoons and pupæ. Preserved larvæ. Especially Rhopolocera. Correspondence invited. W. S. KEARFOTT, 24 South Water St., Cleveland, Ohio.

WILL COLLECT in many orders of Entomology and Herpetology of Arizona. Address DR. R. E. KUNZE, Phœnix, Arizona.

I OFFER perfect specimens of named diurnals from Central America and Northern South America, in pupers, for diurnals from Northwest, Western and Southwestern States. LEVI W. MENGEL, Reading, Pa.

WILL COLLECT any Aquatic insects to exchange for Odonata and Plecoptera, nymphs or imagoes; nymphs preferred. Will determine nymphs or imagoes in these orders for duplicates. JAMES G. NEEDHAM, Cornell University, Ithaca, N. Y.

COLLECTORS OF AQUATIC COLEOPTERA should save all the Aquatic Hemiptera taken with the beetles, dredging or at light. I will give exchange for all such Hemiptera in any order, or purchase. CARL F. BAKER, Auburn, Alabama.

COLEOPTERA.—Exchange desired; only perfect specimens given and received. Will also collect in other orders in exchange for Coleoptera of N. A. R. J. CREW, 105 Oak St., Toronto, Ont.

N. A. LEPIDOPTERA not in my collection wanted; offer Manitoba Lepidoptera and Coleoptera. Send lists to A. W. HANHAM, Bank of B. N. A., Winnipeg, Man. Can.

LEPIDOPTERA FROM MINNESOTA.—To exchange for the same from other localities. Send lists to H. W. EUSTIS, 31 Elbert St., Augusta, Ga.

COLEOPTERA.—Will exchange for species not represented in my cabinet. Coccinellidæ and Cicindellidæ especially desired. Good returns. FREDERIC ORMONDE, 59 Eustis Street, Boston, Mass.

CANADIAN ICHNEUMONIDÆ.—Will be glad to purchase undetermined material in this family, particularly from the vicinity of Quebec. Will determine or exchange specimens if parties prefer. G. C. DAVIS, Agricultural College P. O., Michigan.

COLEOPTERA.—Wanted, Haliplidæ, Gyrinidæ, and Rhynchitidæ, named or unnamed; also Attelabus genalis. Good returns of named N. American Coleoptera. RALPH HOPPING, Redstone Park, Kaweah, California.

Correspondents desired in any part of the world who will collect Hesperidæ (either named or unnamed) in exchange for N. H. Lepidoptera. W. F. FISKE, Mast Yard, N. H., U. S. A.

WANTED.—Diptera of the families Sarcophagidæ and Muscidæ (sensu stricto) from all localities. Will purchase or exchange for insects of any order. GARRY DEN. HOUGH, M. D., 542 County St., New Bedford, Mass.

HYMENOPTERA.—Fossores and Bees wanted from West and South (named or unnamed). Offer in return good American and European Col., Lep. or Hym. S. N. DUNNING, 43 Niles St., Hartford, Ct., U. S. A.

VANCOUVER ISLAND.—Lepidoptera for sale or exchange—*C. gigas, M. Taylori, A. rhodope; New noctuidæ.* W. H. DANBY, P. O. Box 314, Victoria, British Columbia.

EUROPEAN COLEOPTERA.—I have a large quantity of European Coleoptera which I wish to exchange for American. Lists furnished. PAUL J. ROELOFS, 90 Rue van Straelen, Antwerp, Belgium.

The Canadian Entomologist.

VOL. XXIX. LONDON, SEPTEMBER, 1897. No. 9.

THE COLEOPTERA OF CANADA.

BY H. F. WICKHAM, IOWA CITY, IOWA.

XXVII. THE CERAMBYCIDÆ OF ONTARIO AND QUEBEC.—*(Continued.)*

With this paper we begin the consideration of the Lamiinæ, the third great subfamily of Longhorns. They have recently been worked up by Mr. Leng and Dr. Hamilton in a joint publication* which has been largely used and followed in the preparation of the succeeding pages. The essential characters are to be found in the oblique sulcation of the outer side of the front tibiæ, the lack of prothoracic margin and the cylindrical pointed terminal joint of the palpi. None of the Canadian forms offer exceptions to the above rule. It will also be noticed that the front of the head is usually vertical instead of being oblique or nearly horizontal. Compare a *Prionus, Romaleum* and *Saperda* and this point will be made clear.

In order to construct a dichotomous table of the Canadian genera it has been necessary to disturb the sequence somewhat. The student will understand, however, that no implication of relationship is meant to be expressed in the succession as adopted in this paper, but convenience of identification has been given the most prominence. Probably the only characters that will be found difficult to a beginner are those relating to the claws (which, however, are sufficiently commented upon in the table), the antennal cicatrix and the front coxæ. The cicatrix is a sort of scar which is to be easily seen in *Monohammus* near the tip of the first antennal joint; it is, in the above genus, limited by a distinct raised line. The angulation of the front coxal cavities is readily noticeable in the same insect, especially if the leg be removed, when it is seen that the cavity, instead of being circular in outline, has a V-shaped nick in the outer margin.

It is, perhaps, hardly necessary to state so self-evident a fact as that the "Classification" of Drs. Leconte and Horn has furnished the chief

*The Lamiinæ of North America. Trans. Am. Ent. Soc., XXIII.

material for the table, which is in the main only a slight rearrangement of the numerous short ones of their own.

Humeral angles not prominent, wings wanting. Form very convex, prothorax rounded, unarmed. Elytra with bands of pubescence ..... *Ipochus.*

Humeral angles usually distinct, wings and elytra fully developed, not abbreviated ..... 2.

2. Usually large or moderate-sized species; elytra not spinose at base..4.

Small or minute species. Elytra with a spine or gibbosity near the scutellum ..... 3.

3. Humeri rounded, elytra very convex and with large spine near scutellum ..... *Crytinus.*

Humeri distinct, elytra less convex, with oval gibbosity near scutellum ..... *Psenocerus.*

4. Scape of antennæ with apical cicatrix. Nearly all large species, antennæ sometimes greatly elongate in the males. Prothorax with lateral spine present, often very large ..... 5.

Scape of antennæ without apical cicatrix ..... 6.

5. Legs long, anterior pair elongate in the males ..... *Monohammus.*

Legs equal, not elongate ..... *Goes.*

6. Front coxal cavities rounded. Body usually broad. Elytra attenuate behind. Antennæ usually very long in the males ..... 7.

Front coxal cavities angulate ..... 14.

7. Scape of antennæ club-shaped. Prothorax with dorsal tubercles and large, acute, nearly median lateral spine ..... *Acanthoderes.*

Scape of antennæ nearly cylindrical. Lateral spine or tubercle, if present, behind the middle ..... 8.

8. Female without elongated ovipositor ..... 9.

Female with elongated ovipositor ..... 12.

9. Prothorax fully tuberculate or angulate. Mesosternum broad ..... *Leptostylus.*

Prothorax distinctly angulate, or more frequently with a short spine or acute tubercle behind the middle. Mesosternum narrow ... 10.

10. Antennæ without traces of ciliæ beneath, first joint of hind tarsus as long as the next two. Prosternum narrow, body without erect hairs ..... *Liopus.*

Antennæ distinctly ciliate beneath, first joint of hind tarsi as long as next three ..... 11.

11. Elytra without lateral carina, usually with transverse angulated markings..... ...*Lepturges.*
Elytra with lateral carina and marked with numerous small black spots ..... *Hyperplatys.*
12. Body above pubescent, without intermixed erect hairs; antennæ with at least joints 3 4 densely fringed with hairs beneath..*Acanthocinus.*
Body above with erect hairs mixed with the pubescence .....13.
13. Mesosternum broad, antennæ not much longer than the body and not ciliate beneath except feebly on the scape..... *Graphisurus.*
Mesosternum narrow, antennæ of male twice as long as the body, ciliate beneath .... *Ceratographis.*
14. Antennæ very elongate, prothorax cylindrical, slightly tubularly narrowed behind (in our species) without lateral armature or dorsal tubercles. Colour black.....*Dorcaschema.*
Antennæ not more than moderately elongate . .....15.
15. Claws (at least on front tarsi) divaricate; *i. e.*, extending in a plane at right angles to the length of last tarsal joint.....17.
Claws divergent; *i. e.*, not in plane as described above, but forming an angle ....16.
16. Rather large species, prothorax sinuate or feebly tuberculate on sides, front of head large, flat. Shape *Saperda*-like. Claws simple..... *Oncideres.*
Rather small species. Black, front of head in part and sides of prothorax yellow, claws cleft .....*Amphionycha.*
17. Claws simple (except outer one of front and middle tarsi in some male *Saperda*) ....18.
Claws cleft or appendiculate.... .....22.
18. Smaller species, prothorax spinose or tuberculate on sides..... .19.
Larger species, prothorax never armed nor tuberculate ....*Saperda.*
19. Thighs clavate, vertex concave, antennal tubercles prominent....20.
Thighs not clavate, vertex flat or convex, antennal tubercles not prominent. Eyes coarsely granulated, lower lobe as wide as long, body with flying hairs, antennæ pilose, joints 5–10 shorter, equal ....*Eupogonius.*
20. Lower lobe of eyes elongate. Lateral spines of prothorax large, median. Pubescence mottled, gray and black, mixed with short, scattered hairs on elytra.....*Hoplosia.*
Lower lobe of eyes subquadrate or subtriangular .....21.

21. Prothorax with lateral spine, flying hairs long..... *Pogonocherus*
Prothorax with feebly rounded sides, pubescence short..... *Ecyrus.*
22. Eyes not divided, prothorax not distinctly tuberculate, form slender..... *Obcrea.*
Eyes completely divided, the upper and lower portions widely separated, prothorax with large lateral tubercle, form stout. Colour red with black spots..... *Tetraopes.*

IPOCHUS, Lec.

A record of the Californian species *I. fasciatus*, Lec., is existent upon the Society's list, but I am unaware of the original authority. It is a convex, heavily-built beetle, blackish, pubescence long, erect. Prothorax with large punctures, and bearing a transverse row of four spots of white pubescence. Elytra with irregular transverse bands of whitish pubescence, varying in width. Length, .18–.30 inch.

CYRTINUS, Lec.

Represented by one extremely small, somewhat antlike species, *C. pygmæus*, Hald., easily recognized by the convex elytra with rounded humeri and large juxta-scutellar spine. Colour nearly black, elytra with a whitish pubescent spot before the middle, antennæ annulate. Length, .08–.12 inch. Said to occur on dead oak branches.

PSENOCERUS, Lec.

P. supernotatus, Say (fig. 30), is recorded as boring during larval life in the stems of grape, currant, gooseberry, and apple. I have frequently beaten it from crab-apple trees. It is a small beetle of somewhat elongate form, reddish to nearly black, the elytra with a darker blotch behind the middle which is bordered anteriorly and posteriorly by a band of whitish pubescence, the anterior band usually much the narrower and interrupted near the suture. Antennæ shorter than body in both sexes. Small specimens are often almost entirely black, and may lack the elevation at the base of the elytra. Length, .12–.24 inch.

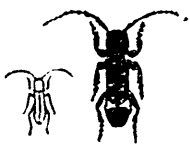

FIG. 30.

MONOHAMMUS, Serv.

Includes several very large species with long legs and antennæ, especially in the males. Some or all of them are injurious to pine lumber, and *scutellatus* and *confusor* are usually abundant in the eastern

coniferous forests. *M. maculosus* is more essentially western, but often common, while *marmorator* is very rare. Dr. Horn separates the species thus:

A. Tips of elytra rounded, sutural angle acute or spiniform, especially in the male. Piceous or black, more or less bronzed, elytra irregularly mottled with patches of brownish and grayish or whitish pubescence. Punctuation very coarse and close. .66–1.06 inch ..... *maculosus*, Hald.

AA. Tips of elytra rounded, sutural angle not prolonged, usually very obtuse.

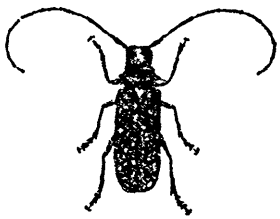

FIG. 31.

b. Black, distinctly bronzed. Elytral patches of pubescence few or wanting; female antennæ annulate. Scutellum densely clothed with white pubescence. .64–1.24 inch. (fig. 31). *scutellatus*, Say.

bb. Brown, elytra sparsely mottled with patches of gray and brown pubescence. Female antennæ not annulate. 1.10–1.24 inch. (fig. 32) .. *confusor*, Kirby.

AAA. Tips of elytra obliquely prolonged and acute. Elytra brownish, surface feebly punctured, clothed with ochreous white and brown patches intermixed. 1.00 inch.... *marmorator*, Kirby.

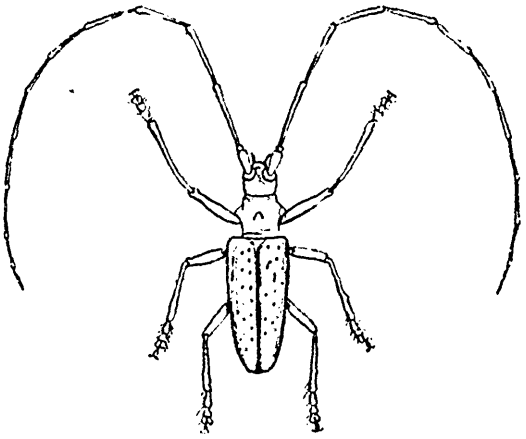

FIG. 32 (after Harris).

GOES, Lec.

Contains several species, mostly of rather or quite large size, resembling *Saperda* somewhat in form, but with a strong lateral thoracic spine. All have the upper surface mottled with pubescence, sometimes arranged in tolerably distinct transverse bands. Since only one of the North American species is lacking from Canada, we reproduce Dr. Horn's synopsis as far as it concerns us:

A. Surface colour of body brownish; antennæ of male at most one and one-quarter times the length of the body.

b. Elytra with conspicuous denuded fascia one-third from apex.

Pubescence of surface white. 1.00 in.....*tigrina*, Dej.

Pubescence ochreous or luteous, basal region of elytra darker, less pubescent. .92 in.....*pulchra*, Hald.

Pubescence marmorate, whitish and ochreous, the apical region darker ochreous. .44–.52 in.....*debilis*, Lec.

bb. Elytra without conspicuous denuded fascia, pubescence cinereous or almost white, uniform, sometimes with faint trace of denuded fascia. .80–.88 in.....*pulverulenta*, Hald.

AA. Surface colour black, shining, pubescence whitish, a small conspicuous black spot on each elytron, one-third from apex. Antennæ of male twice as long as the body. .40–.44 in.....*oculata*, Lec.

A few notes on food-habits have been published, from which it appears that *debilis* has been found on hickory and white oak, *tigrina* on hickory (as an adult) and in oak (as larva); *pulchra* and *oculata* are found in the mature stage on hickory, while the larva of *pulverulenta* is said to bore in wild cherry and in living beech trees.

ACANTHODERES, Serv.

The three species belonging here may be separated from those immediately following by their antennæ, in which the first joint, or scape, is strongly clavate. They are brownish insects, maculate above with whitish or ashy pubescence, of rather robust form, the upper surface rough, the femora much swollen. Prothorax with strong, sharp lateral spine. The differentials are given by Dr. Horn, thus:

A. Sutural region of elytra vaguely grooved, the groove limited on each elytron by a feeble costa. Elytra with a moderately broad transverse band of white in front of middle, broadly interrupted at suture. .40 in .....*quadrigibbus*, Say.

AA. Sutural region not grooved, elytra with a more or less distinct M-shaped black mark behind the middle of each.

Base of elytra irregular, an oblong obtuse umbone at middle of base. .42.–48 in.....*decipiens*, Hald.

Base of elytra regularly convex without umbone. .80 in.....*Morrisii*, Uhler.

The recorded food-plants of *A. quadrigibbus* are oak, hickory, beech, and hackberry. I have found *A. decipiens* on oak logs, but am unaware of the larval habits.

LEPTOSTYLUS, LEC.

Numerous species are known from Canada, and are arranged mainly on the plan offered by Dr. Horn. The name *commixtus* is replaced by *sexguttatus*. The lateral tubercle of the prothorax is always blunt, sometimes obsolete.

A. Elytra without asperities and scalelike hairs.

Prosternum between the coxæ as wide as a coxal cavity, elytra slightly truncate at tip. Robust, convex, prothorax with whitish pubescence forming a broad lateral stripe each side, bounded internally by a black stripe which is formed of a row of denuded tubercles, the discal area brownish. Elytra with a broad irregular transverse post-median area of whitish pubescence. .16–.36 in.....*macula*, Say.

Prosternum narrower than a coxal cavity, tips of elytra separately rounded, thorax moderately densely punctured on flanks as well as disk. Yellowish or reddish brown, elytral surface uneven, basal angles black, polished; a dark brown irregular band often extends backward from these angles to the middle, thence narrows towards suture, followed posteriorly by one or two black spots, but these markings may be absent. Three large basal tubercles on prothorax, and three smaller, sometimes obsolete, subapical ones. .40 in.....*collaris*, Hald.

AA. Elytra with asperities or tubercles, bearing at their summits short black scalelike hairs.

b. Thorax densely punctured, elytra with densely placed coarse deep punctures. Colour variable, elytra mottled with grayish pubescence. .28–.40 in.....*sexguttatus*, Say.

bb. Thorax not densely punctured, elytral punctures not closely placed, often inconspicuous or concealed. Legs not hairy.

c. Antennæ longer than the body in both sexes, the third joint only slightly longer than the fourth. Punctuation of thorax regular.

Elytra very indistinctly punctured, especially at apex, the disk with angulate fascia behind the middle, tips feebly obliquely truncate. .16–.24 in..... .....*biustus*, Lec.

Elytra distinctly punctured over entire surface, disk with acutely angulated fascia, apex slightly prolonged, not obliquely truncate. .16–.24 in.....*parvus*, Lec.

cc. Antennæ scarcely longer than the body even in the male, the third joint conspicuously longer than the fourth. Robust, brownish, surface of prothorax roughly tuberculate, pubescent, punctures sparse, irregularly placed. Elytra with raised tubercles or ridges, and with grayish and whitish pubescence which tends to form a post-median transverse band broadest at the suture, the pubescence becoming darker anteriorly. Tip dark. .32–.40 in. (fig. 33).....*aculifer*, Say.

FIG. 33.

The food plants of several of the above are recorded. *L. macula* is known to breed in beech, hickory, walnut, butternut, and chestnut; *sexguttatus* in pine; and *aculifer* in oak, apple, sycamore, and osage orange.

RARE BUTTERFLIES.—On the 8th day of May, Mr. James Walker captured, in a cedar swamp, near Orillia, Ont., a specimen of *Thecla tæta*, Edw. This butterfly has hitherto only been recorded in Canada, from London and York Mills in this Province, and from a few localities in the Province of Quebec.

Mr. C. E. Grant, of Orillia, has recently taken a specimen of the melanic form of *Colias philodice*, the yellow on the wings being replaced by dark scales. It is apparently somewhat similar to the aberration recorded by Mr. Dwight Brainerd (C. E., XXVIII., p. 305), which he took at Edgartown, Mass., last year. Mr. Grant has also taken at Orillia, for the first time, *Papilio troilus* and *Lycæna comyntas*, making the total number of butterflies from that locality sixty-two.

Papilio Ajax (a perfect specimen) has again been seen at Port Hope on the 24th of July.

A GENERIC REVISION OF THE HIPOCRITIDÆ (ARCTIIDÆ).

BY HARRISON G. DYAR, PH. D., NEW YORK.

The earliest use of the term Arctiidæ is referred by Dr. Packard to Leach (1815). This is antedated by Hübner's Tentamen terms, Hipocritæ and Hypercompæ. The latter is unavailable, as Hypercompa becomes a synonym. I do not find any plural terms for the family before Hübner.

The faunas of Europe and America are here united. I have included the Indian genera as far as possible, but could not do so completely, as Hampson's work is much less available here than usual. Hampson does not recognize the Lithosiidæ on the character of the absence of ocelli, but unites under the term Arctiidæ all the species here grouped as Hipocritidæ with Lithosiidæ, Nyctemeridæ, Pseudoipsidæ and Nolidæ. His subdivisions of this aggregation are based on other characters, so that some of the genera that I have not seen can not be placed in the table from his figures and descriptions. Especially Castalba, Tatargena, Sidyma may be Hipocritidæ, though placed in Hampson's Lithosiinæ, while Rhodogastria, Pangora, Nicæa and Leucopardus I can not place from lack of the type species. I do not think that this affects the present revision, as these genera seem to be distinct from any of those included. As far as the American genera are concerned, I exclude Cydosia and Cerathosia, as they are probably Noctuid. Euverna is transposed to the Arctiinæ and becomes synonymous with Ectypia, a result due to the study of additional material, which I owe to Prof. Smith. Cycnia divides into three genera on venational characters, one of the sections supplanting Pareuchaetes; Halisidota divides into two genera. The names Elpis and Neoarctia fall before European terms and a new genus is required for the species *virginalis*, Boisd. Pygoctnucha is transferred from the Euchromiidæ on account of the presence of vein 8 of secondaries. Three genera, Eucereon, Bertholdia and Euerythra, lack vein 8 and would seem strictly to be Euchromiidæ, but I hesitate to transfer them, as the habitus is Arctian, the larvæ are unknown and the condition of vein 8 is distinctly led up to in Eupseudosoma, which has a short spurlike vein 8 in the male and none in the fema . The Phaegopterinæ may be further modified when the large South American fauna is worked up. In the meantime I dedicate to Mr. Schaus the new section of Halisidota, which he has shown to be of generic value (Journ. N. Y. Ent. Soc., IV., 138) in recognition of his work on this group as well as on the allied Euchromiidæ and in the anticipation of still further and more comprehensive labours.

The following table is based on the work of Prof. J. B. Smith, which appeared in CAN. ENT. some years ago, and was worked over in the revision of Bombyces by Mr. Neumœgen and myself. Following the table is a list of genera and species; italicized names are North American. Bibliographical references are omitted, and they can readily be found in Kirby's catalogue if wanted. The types of genera are recognized as determined by Kirby.

KEY TO THE GENERA.

1. Head prominent, tongue moderate or strong.....2.
   Head more or less retracted, tongue weak or small.....13.
2. Secondaries large and ample, habitus lithosiiform .....3.
   Secondaries trigonate, often small, primaries pointed at apex ....44.
3. Vein 5 of secondaries faint or absent.....4.
   Vein 5 distinct .....5.
4. Primaries long and narrow.....*Coscinia.*
   Primaries broad, trigonate.....*Eubaphe.*
5. Primaries broad, trigonate.....6.
   Primaries narrow, apices rounded.....*Utetheisa.*
6. Vein 5 of secondaries arising close to vein 4.....7.
   Vein 5 of secondaries from near the middle of the cell.....*Doa.*
7. No accessory cell; veins 7 to 10 of primaries stalked .....10.
   No accessory cell; vein 10 free, from the discal cell .....*Axiopœna.*
   Accessory cell present, vein 10 arising from it .....8.
8. Anal angle of secondaries rounded in the male, spurs of tibiæ long..9.
   Anal angle produced to a point; spurs very short .....*Argina.*
9. Vein 6 arising beyond the angle of the discal cell.....*Macrobrochis.*
   Vein 6 arising from the discal cell.....*Callimorpha.*
10. Vein 11 free from vein 10 .....11.
    Vein 11 almost or quite touching vein 10.....12.
11. Secondaries over three-fourths the length of primaries .....*Haploa.*
    Secondaries less than three-fourths the length of primaries....*Areas.*
12. Secondaries with veins 6 and 7 from the cell.....*Sebastia.*
    Secondaries with veins 6 and 7 stalked .....*Calpenia.*
13. Vein 8 of secondaries wanting.....*Euerythra.*
    Vein 8 present.....14.
14. Veins 7 to 10 of primaries stalked from apex of cell..... 15.
    Vein 10 arising from the discal cell.....38.
15. Vein 11 free .....16.
    Vein 11 joined to vein 10 to form an accessory cell.....*Hipocrita.*

16. Median spurs of hind tibiæ wanting ..... 17.
Median spurs of hind tibiæ present..... ...26.
17. Anterior tibiæ unarmed .... 18.
Anterior tibiæ armed at tip .... 20.
18. Antennæ of male simple..... 19.
Antennæ of male pectinated..... *Leptarctia.*
19. Palpi exceeding the front..... *Ecpantheria.*
Palpi not reaching the front..... *Creatonotus.*
20. Inner prong of tibial armour-plate produced into a spine..... ..21.
Inner prong not much produced, spine short..... 24.
21. Wings of male with the outer margin upright, of female aborted..... *Pachylischia.*
Wings narrow, outer margin somewhat oblique..... 22.
22. Costa of primaries convex..... *Seirarctia.*
Costa of primaries straight ..... 23.
23. Robust, with hairy vestiture, blackish ..... *Alexicles.*
Slenderer, the vestiture smooth, white ..... *Aloa.*
24. Male and female antennæ simple ..... *Phssama.*
Male antennæ pectinated, female simple... ..... 25.
Male and female antennæ pectinated..... *Estigmene.*
25. Wings with short erect scales, slightly transparent ..... *Diaphora.*
Wings with appressed scales, not transparent..... *Hyphantria.*
26. Antennæ of male simple..... 27.
Antennæ of male pectinated..... 30.
27. Vestiture of thorax scaly, appressed..... 28.
Vestiture hairy, smooth ..... *Pericallia.*
Vestiture hairy, short, erect ..... 29.
28. Wings broadly trigonate ..... *Camptoloma.*
Wings elongate, more rounded..... *Arachnis.*
29. Apex of primaries acuminate..... *Pyrrharctia.*
Apex of primaries square ..... *Phragmatobia.*
30. Ocelli close to margin of eye (about the diameter of the ocellus)..31.
Ocelli distant from the margin of the eye..... 36.
31. Primaries broad, outer margin somewhat erect ..... 32.
Primaries narrower, outer margin somewhat oblique ..... *Alphæa.*
32. Body slender, secondaries ample..... *Diacrisia.*
Body more robust, secondaries moderate..... .....33.
33. Female wingless .... *Ocnogyna.*
Female with fully-developed wings .... 34.

34. Costa of primaries not depressed before apex ..... 35.
Costa of primaries depressed before apex..... *Rhyparia.*
35. Wings opaque..... *Spilosoma.*
Wings somewhat translucent ..... *Thygorina.*
36. Front narrowed above and below ..... *Arctinia.*
Front square, not narrowed ..... 37.
37. Rough hairy, wings subdiaphanous..... *Eucharia.*
Somewhat smooth, wings opaque ..... *Hyphoraia.*
38. Accessory cell wanting ..... 39.
Accessory cell present..... 40.
39. Wings broad, size large, vestiture smooth and short.... *Platyprepia.*
Wings moderate, size smaller, vestiture rough ..... *Euprepia.*
Wings elongate, size very small..... *Kodiosoma.*
40. Spurs of posterior tibiæ long or moderate..... 41.
Spurs of posterior tibiæ short ..... *Ectypia.*
Median spurs of posterior tibiæ wanting ..... *Ammobiota.*
41. Size small, body rather slender ..... 42.
Size large, body more robust ..... 43.
42. Wings short and broad..... *Parasemia.*
Wings long and narrow ..... *Pygoctnucha.*
43. Wings broad ..... *Arctia.*
Wings narrow..... *Antarctia.*
44. Vein 8 of secondaries absent..... 52.
Vein 8 present ..... 45.
45. Veins 7 to 10 of primaries stalked..... *Cycnia.*
Vein 10 from the discal cell ..... 46.
46. Accessory cell present ..... 47.
Accessory cell absent ..... 48.
47. Antennæ long, secondaries proportionately small..... *Theages.*
Antennæ shorter, secondaries larger..... *Pygarctia.*
48. Primaries broad, secondaries proportionate ..... *Euchætes.*
Primaries narrow, produced at apex, secondaries smaller..... 49.
49. Male antennæ simple ..... *Pelochyta.*
Male antennæ pectinate ..... 50.
50. Vein 8 of secondaries double ..... *Schausia.*
Vein 8 long, single ..... *Halisidota.*
Vein 8 very short, spurlike..... 51
51. Vein 5 of secondaries present..... *Acmilia.*
Vein 5 of secondaries wanting..... *Eupseudosoma.*

52. Vein 10 of primaries from the discal cell ..... *Eucereon.*
Veins 7 to 10 of primaries stalked ..... *Bertholdia.*

LIST OF GENERA AND SPECIES.

Coscinia, Hübn. (= Eulepia, Curt. = Emydia, Boisd.)
striata, Linn.
cribraria, Linn.
Eubaphe, Hübn. (= Crocota, Hübn. = Holomelina, H. S.)
laeta, Guér.
intermedia, Graef.
ostenta, H. Edw.
costata, Str.
opella, Grt.
immaculata, Reak.
aurantiaca, Hübn.
Utetheisa, Hübn. (= Deiopeia, Steph.)
bella, Linn.
venusta, Dalm.
ornatrix, Linn.
pulchella, Linn.
formosa, Boisd.
Doa, Neum. & Dyar.
ampla, Grt.
dora, N. & D.
Axiopoetra, Ménét.
maura, Eichw.
Macrobrochis, H.-S.
gigas, Walk.
Callimorpha, Latr. (Euplagia, Hb. = Tripura, Moore.)
dominula, Linn.
quadripunctaria, Poda.
prasena, Moore.
pallens, Hamps.
principalis, Koll.
similis, Moore.
plagiata, Walk.
equitalis, Koll.
nyctemerata, Moore.
Argina, Hübn.
argus, Koll.
syringa, Cram.
cribraris, Clerck.
Haploa, Hübn
clymene, Brown.
colona, Hübn.
Lecontei, Guer.
contigua, Walk.
confusa, Lyman.
Areas, Walk. (= Melanareas, Butl.)
galactina, Van d. Hoev.
imperalis, Koll.
Sebastia, Kirby (= Moorea, Hamps.)
argus, Walk.
Calpenia, Moore.
khasiara, Moore.
Saundersi, Moore.
Euerythra, Harvey.
phasma, Harv.
trimaculata, Smith.
Hipocrita, Hübn. (= Euchelia, Boisd.)
jacobææ, Linn.
Creatonotus, Hübn.
interruptus, Gemel.
Ecpantheria, Hübn.
garzoni, Oberth.
ocularia, Fab.
permaculata, Pack.
Leptarctia, Stretch.
californiæ, Walk.

Pachytischia, Ramb. (= Artimelia, Ramb.)
corsica, Ramb.
Latreillei, Godt.
Seirarctia, Packard.
echo, Sm. & Abb.
Alexicles, Grote.
aspersa, Grt.
Aloa, Walk. (= Bucæa, Walk.)
emittens, Walk.
simplex, Walk.
fumipennis, Hamps.
Phissama, Moore (= Amphissa, Walk.)
transiens, Walk.
Estigmene, Hübn. (= Leucarctia, Pack.)
acræa, Drury.
*Ricksecker*i, Behr.
albida, Stretch.
Diaphora, Stephens.
mendica, Clerck.
Hyphantria, Harris.
cunea, Dru.
Camptoloma, Felder.
interioratum, Walk.
binotatum, Butler.
Arachnis, Geyer.
aulea, Geyer.
picta, Pack.
maia, Ottolengui.
citra, N. & D.
zuni, Neum.
Pericallia, Hübn.
matronula, Linn.
Pyrrharctia, Packard.
isabella, Sm. & Abb.
Phragmatobia, Steph.
fuliginosa, Linn.
assimilans, Walk.
Rhyparia, Hübn.
purpurata, Linn.
Diacrisia, Hübn. (= Euthemona, Steph.)
sannio, Linn.
Ocnogyna, Lederer (=Cletis, Ramb. =Somatrichia, Kirb.).
zoraida, Grasl.
maculosa, Herm.
parasita, Hübn.
Spilosoma, Steph. (=Spilarctia, Butl.)
urticæ, Esp.
lubricipeda, Linn.
punctarium, Stoll.
lutea, Hufn.
virginica, Fab.
prima, Slosson.
antigone, Strecker.
latipennis, Stretch.
vestalis, Pack.
multiguttum, Walk.
sangaicum, Walk.
subfascia, Walk.
dalbergiæ, Moore.
punctatum, Moore.
dentilinea, Moore.
stigmata, Moore.
mona, Swinhoe.
gopara, Moore.
ummera, Swinhoe.
bimaculatum, Moore.
jucundum, Butler.
flavale, Moore.
todarum, Moore.
montanum, Guer.

strigulatum, Walk.
castaneum, Hamps.
rubilinea, Moore.
erythrophelps, Hamps.
brunneum, Moore.
casignetum, Koll.
bifasciatum, Hamps.
comma, Walk.
lacteatum, Butl.
melanopsis, Walk.
rubitinctum, Moore.
erythrozona, Koll.
fuscipenne, Hamps.

Thygorina, Walker.*
indica, Guer.
multivittata, Moore.
nigrifrons, Walk.
unifascia, Walk.
discalis, Moore.
obliquivitta, Moore.
venosa, Moore.
flavens, Moore.
biseriata, Moore.
sordida, Moore.
sikkimensis, Moore.
eximia, Swinhoe.
rhodophila, Walk.
melanosoma, Hamps.

Alphæa, Walker.*
fulvohirta, Walk.
florescens, Moore.
imbuta, Walk.
quadriramosa, Koll.
tigrina, Moore.
leopardina, Moore.
vittata, Moore.
biguttata, Walk.
nigricans, Moore.
dentata, Walk.
pannosa, Moore.
siaphi, Moore.

Arctinia, Eichw. (= Elpis, Dyar. - Eupatolinis, Butl.)
cæsarea, Gœze.
rubra, Neumœgen.
vagans, Boisd.

Eucharia, Hübn. (= Neoarctia, N. & D.)
casta, Esper.
Brucei, H. Edw.
Beanii, Neum.

Hyphoraia, Hübn. (Platarctia, Pack.)
aulica, Linn.
hyperborea, Curt.
Yarrowi, Stretch.

Platyprepia, Dyar.
virginalis, Boisd.

Euprepia, Ochsenheimer*
pudica, Esp.
fasciata, Esp.
intercalaris, Evers.
virgo, Linn.
virguncula, Kirby.
michabo, Grt.
intermedia, Stretch.
parthenice, Kirby.
rectilinea, French.
anna, Grote.
ornata, Pack.
arge, Dru.
Quenselii, Paykull.
obliterata, Stretch.
proxima, Guer.

*See Hampson for the generic synonymy.

cervinoides, Streck.
Bolanderi, Stretch.
Blakei, Grote.
superba, Stretch.
favorita, Neum.
Williamsii, Dodge.
phyllira, Dru.
figurata, Dru.
placentia, Sm. & Abb.
nais, Dru.
phalerata, Harris.
vittata, Fab.

Kodiosoma, Stretch.
fulvum, Stretch.

Ectypia, Clemens (= Euverna, N. & D.).
bivittata, Clemens.
clio, Packard.

Ammobiota, Wallengren.
festiva, Hufn.

Parasemia, Stephens.†
plantaginis, Linn.
petrosa, Walk.

Pygoctnucha, Grote.
Harrisii, Boisd.
terminalis, Walk.
Robinsonii, Boisd.
funerea, Grote.

Arctia, Schrank (=Epicallia, Hbn. = Hypercompa, Hbn. = Zoote, Hübn.)
villica, Linn.
caja, Linn.
opulenta, H. Edw.

Antarctia, Hübner.
vulpina, Hübn.

Cycnia, Hübn. (=Tadana, Walk. Pareuchætes, Grt.)
tenera, Hübn.
sciurus, Boisd.
insulata, Walk.

Pygarctia, Grote.
abdominalis, Grote.
vivida, Grote.
murina, Stretch.
Bolteri, H. Edw.
elegans, Stretch.
scepsiformis, Graef.
albicosta, Walk.

Euchætes, Harris.
egle, Dru.
eglenensis, Clemens.
oregonensis, Stretch.
perlevis, Grote.
Spragueï, Grote.
zonalis, Grote.

Pelochyta, Hübn. (=Amerila, Walk.)
astræa, Dru.

Halisidota, Hübn. (=Lophocampa, H. =Euhalisidota, Grt.)
tessellaris, Sm. & Abb.
Harrisii, Walsh.
cinctipes, Grote.
Edwardsii, Pack.
labecula, Grote.
maculata, Harris.
alni, H. Edw.
Agassizii, Pack.
minima, Neum.
caryæ, Harris.
pura, Neum.
longa, Grt.
propinqua, H. Edw.

†See Neumœgen and Dyar for the generic synonymy.

bicolor, Walk.
Courregesi, Dognin.
atra, Druce.
daruba, Druce.
ergana, Druce.
aconia, H.-S.
thalassina, H.-S.
Schausia, Dyar.
argentata, Pack.
subalpina, French.
sobrina, Stretch.
mixta, Neum.‖
ingens, Hy. Edw.
ambigua, Strecker.
albigutta, Boisd.
lugens, Hy. Edw.
Acmilia, Kirby.
roscata, Walk.
occidentalis, French.
Eupseudosoma, Grote.
floridum, Grote.
Eucereon, Hübn.
carolinum, Hy. Edw.
Theages, Walker.†
strigosa, Walk.
Bertholdia, Schaus.
specularis, H. S.
trigona, Grote.

LARVA OF TITANIO HELIANTHIALES, MURTFELDT.

BY HARRISON G. DYAR, PH. D., NEW YORK.

Miss Murtfeldt's interesting discovery of this leaf-mining Pyralid suggested to me the inquiry as to how far the setæ of the larva had been affected by this unusual habit. The leaf-mining Tineids have tubercles iv. and v. remote, while all the Pyralids that I have seen have these tubercles united. I was interested to learn how far fixed this Pyralid character is, especially as the setæ have been studied in but a few microlepidoptera.

Miss Murtfeldt very kindly sent me her alcoholic specimens. The larva has the flattened retracted head and large cervical shield of a leaf-miner, but the body is not flattened and the slender legs are normal. The setæ are perfectly normal for the Pyralidæ, iv. and v. closely united. There is also the little additional tubercle before and above the spiracle, which is present in other Pyralids and also in the Cossidæ. In fact, the larva strongly suggests a little Cossid, except that the feet are longer and the circle of crotchets is broken on the outside. The pupa tells a different story. It might belong to the Pyraloid Obtectæ, which Dr. Chapman says have obtect characters in practically all respects except the possession

‖In the male type vein 10 of primaries arises from the apex of discal cell on one wing, distinctly stalked on the other wing, but with a basally directed spur, indicating an accessory cell. On secondaries the supplementary vein preceding vein 8 is very short.

†Type of Theages not examined. The characters in the table are those of our species.

of traces of maxillary palpi; but I can only find with difficulty a slight trace of the maxillary palpi. This would make it almost a true obtect pupa, which is far removed from the Cossidæ.

The following descriptions contain some details not specially mentioned in Miss Murtfeldt's article:

Larva.—Head rounded, flattened, small, partly retracted; clypeal sutures depressed, upper segment of labium forming a ridge; dark brown, blackish on the narrow lateral angle; width, 1.3 mm. Body segments distinct, creased several times in the incisures but not distinctly annulated, joint 13 divided. Cervical shield large, bisected, irregularly marked in black. Setæ distinct, from rather large, flat dark tubercles; i. and ii. in trapezoidal form, iii. lateral, iv. and v. from a single substigmatal tubercle, vi. posteriorly, vii. above the base of the leg with three setæ, viii. single; a small secondary tubercle with one little seta before the upper part of the spiracle. On the thorax normal, the setæ of i. and ii. united in pairs, iv. and v. united, vi. with one seta on joints 3 and 4. Thoracic feet well developed, armed with setæ and claw. Abdominal feet distinct, rather slender; crotchets in a narrow ellipse, broken on the outer side, a single row, but doubly clawed, a slight hook on the outside as well as the more distinct one on the inside, both small.

Pupa.—Smooth, obtected, thickest through the second abdominal segment, slightly tapering each way, rounded, the head a little projecting. Anal end rounded, cremaster without projection, but with four rather long, stout, recurved hooks. Fifth and sixth abdominal segments moveable. Cases reaching to the end of the fourth segment; eye covered by a single piece, separated below by the small, lanceolate labium; maxillæ reaching about one-third the length of the cases, a small piece indistinctly segmented off at the base next to the labium; first leg reaching two-thirds the length of the cases, enclosing a small elliptical piece of its basal part next to the maxilla; second leg reaching to the tip of the cases, apparently touching the eye, but on careful focusing a small piece seems to be cut off at the base, which I take to represent the maxillary palpus; antennæ not attaining the extremity of either the second legs or the wing cases; third legs concealed. The spiracle on the first segment is concealed by a projection of the hind wing case which extends to segment 3. Light yellowish-brown, all the sutures narrowly and distinctly marked in dark brown. Smooth, shining, no distinct punctures or wrinkles of any kind. Length, 6.5 mm.; width, 2.5 mm.

GRAPTA INTERROGATIONIS, ETC.

This insect is not by any means abundant in my neighbourhood, and for several years I only captured one or two of the pale variety *Fabricii*. About four or five years ago I saw a worn female of that variety depositing eggs upon a wild hop I had trained over the front of my house. I did not subsequently see any other female near the plant. I left the larvæ upon it until they were nearly full grown, when I collected about a dozen. I think they all hatched out safely, and the result was about one-third of the dark form *Umbrosa* to about two-thirds of the pale. The larvæ were all of a size, and pupated within a day or two of each other, so I think it reasonable to suppose they were all from the eggs I saw being deposited, and from one and the same mother. Never having before seen or taken the dark form, and not then having any book upon Canadian butterflies, I was rather surprised at the result. On looking over my notes for last year I do not see anything of special interest, except that I took a specimen of *Chionobas varuna* on 21st June, and the only one that I saw. The occurrence here of *Colias cæsonia* has already been noted.

Owing to a conversation I had some time ago with Dr. Fletcher, I paid particular attention to *Colias eurytheme* and its varieties. I did not detect a single instance of *Eriphyle* "in coitu," or even flirting with other than its own female, though there were many flying about of the early small yellow form of *Eurytheme* and also of *Keewaydin*, nor vice versa.

Neither did I notice any intercouse between *Eriphyle* and the large orange form *Amphidusa*, Scudder, but the males of each variety seemed to single out the corresponding females of that variety. I am aware I am venturing upon dangerous ground, but so far as I am able to judge from observation, I should certainly say that *Eriphyle* was a species distinct from *Eurytheme*. Unfortunately, I am unable to give the time required to the rearing of the large number of larvæ necessary to the determination of this question. What I want particularly to convey is that I have never noticed promiscuous intercourse between the different broods, if such they are, though they overlap each other, and are flying at the same time.

E. FIRMSTONE HEATH,
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Cartwright, Manitoba.

A RARE CATOCALA.

BY ARTHUR J. SNYDER, EVANSTON, ILL.

Early last July, while examining the collection of Prof. G. H. French at Carbondale, Ill., I saw for the first time a specimen of *Catocala Sappho*. Being especially interested in this genus of the Noctuids, I was somewhat surprised to see for the first time so striking a species, and felt sure that I would have no difficulty in recognizing the species should I ever see another example.

On July 6th, near Makanda, Ill., I began a search for Catocala. From the first hickory I "whipped," a *C. Sappho* started and lighted upon a white oak near by, but about fifteen feet from the ground. Through the aid of a fence rail placed against the tree, and by using the net, I easily captured my first *C. Sappho*, a perfect specimen, with the exception that a few scales were removed from the thorax. July 14th I was collecting four miles south of Makanda and captured two more *C. Sappho*, one in fair condition and one a badly worn example. Another in very poor condition was taken on July 13th. Two others were seen and captured, but allowed to escape through sheer anxiety not to injure them. It may be interesting to collectors to know that this rare moth is one of the slowest flyers in the genus, and is easily captured. It usually lights low, and is not easily frightened. On account of its light colour it is quite conspicuous. In all seven *C. Sappho* were seen in the vicinity of Makanda, Ill., in four days' collecting. It has been my pleasure to examine 78 or more of the species and varieties of North American Catocalæ, but I have seen nothing which approaches *C. Sappho* closely enough to be confusing even to an amateur.

THE NEW MEXICO SPECIES OF ANTHIDIUM.

BY T. D. A. COCKERELL, MESILLA, N. M.

The bee-genus *Anthidium* is not very well represented in New Mexico, the following being all yet observed.

(1.) *Anthidium larreæ*, n. sp.— ♀. Length about 12½ mm., fairly stout, but the abdomen not subglobose; black, with yellow markings, those of the thorax recalling *Steniolia duplicata*. Head large, face nearly square, moderately shining, closely punctured, sides of vertex with punctures of unequal size; end of mandibles not developed into distinct teeth. Antennæ short, black. Clypeus, broad triangle above, and lateral face marks, bright yellow; the last occupy all the space be-

tween clypeus and eyes, narrowing obliquely upwards so as to form nearly a right-angled triangle, continuing narrowly a little way along the orbital margin, then enlarging near the top of the eyes to a mark which points inwards towards the ocelli. Cheeks yellow, the yellow continuing across vertex as a narrow line. Mandibles yellow except ends. White pubescence rather sparse on face and cheeks; also on thorax, becoming dense on lower part of pleura. Tubercles, sides of thorax except a black patch on lower part of pleura, tegulæ except a pair of fuscous spots (one much larger than the other), sides of mesothorax broadly, extending along the front some distance to an oblique truncation, two longitudinal stripes on mesothorax, and scutellum except median base, all bright yellow. Mesothorax and scutellum granular from a very close punctuation. Tubercles with a prominent keel. Hind margin of scutellum rounded, with a wide median emargination. Tegulæ punctured. Wings subhyaline, strongly smoky in upper part of marginal cell, nervures black, second recurrent, going beyond tip of second submarginal cell. Posterior truncation of thorax shining black, with a pair of broad hammer-shaped yellow marks. Legs yellow; some black on anterior coxæ above, and at base of anterior femora, also at base of middle tibiæ and on basal two-thirds of hind tibiæ; inner sides of all the legs largely ferruginous Middle and hind tibiæ, and basal joint of hind tarsi, all greatly broadened. Abdomen shining, microscopically tessellate, with large sparse punctures. Entire apical yellow bands on segments 1–5, broadest at the sides; apex yellow. Ventral scopa dense, white.

♂.—About the same size, abdomen more slender. Antennæ longer, scape yellow in front. Yellow spot near tip of eyes much reduced, line on vertex broken and nearly obsolete. Stripes on dorsulum wanting. Tegulæ with one large dark spot. Posterior truncation all black; upper part of pleura largely black. No spine on posterior coxa. First three bands of abdomen emarginate at sides. Rounded median hind border of sixth segment projecting. Apex rounded, broadly emarginate.

Hab.—Mesilla Valley, N.M., close to Agricultural College; a ♀ at flowers of *Larrea* (Creosote bush), May 6 [Ckll.]; also a ♀ taken May 18 by Mr. F. Garcia, and a ♂ taken some years ago by Prof. Townsend, both in the Mesilla Valley. Unfortunately the ♂ is reddened by cyanide. Mr. Fox kindly compared this species with Cresson's collection, and returned it marked "near *occidentale* and *zebratum*." It can be dis-

tinguished from these by the colour of the legs and the sides of the thorax.

(2.) *Anthidium occidentale*, Cress. — Described from specimens taken in New Mexico by Dr. Samuel Lewis is 1867. Not observed by me.

(3.) *Anthidium gilense*, n. sp. — ♀. Length hardly 10 mm.; robust, with long wings; black, with lemon-yellow markings. Head, mesothorax and scutellum with close, extremely large punctures, closest on front, largest on scutellum. Edge of mandibles with small, short, but quite distinct, teeth. Tubercles forming an oblong, sharp-edged lobe. Hind edge of scutellum straight, sharp, overshadowing metathorax. Second recurrent nervure going considerably beyond end of second submarginal cell. Abdomen of the subglobose type, shining, with large punctures, close enough to produce a subcancellate effect. Small spot on each side of clypeus; broad lateral face marks, extending only as far as level of antennæ, where abruptly truncate; continuous line on vertex, lateral thirds of front margin of mosothorax broadly, ends of tubercles, four spots on scutellum (the middle ones large and elongate), all yellow. Cheeks, pleura and shining posterior truncation, black. Tegulæ rufous, with an elongate yellow mark. Wings fuliginous, with a hyaline spot just beyond and partly in the third discoidal cell, and a much smaller one just beyond apex of second submarginal. Base sub-hyaline. Legs ferruginous, anterior femora blackened, a yellow stripe on anterior and middle tibiæ, a yellow spot at extreme base of hind tibiæ. First abdominal segment with an oblong yellow spot on each side. Second with a band, narrowly interrupted in middle, and produced into a short tooth on each side behind. Third to fifth segments with a pair of large quadrate yellow marks, and a small spot on each extreme side. Apical segment black. Ventral scopa white. Pubescence of legs, thorax and head white, but very little of it; a small but conspicuous patch behind the wings.

Hab.—West Fork of Gila River, N. M., July 17, one specimen [C. H. T. Townsend]. Of the N. M. species it most resembles *pudicum*, but it is quite distinct.

(4.) *Anthidium pudicum*, Cress.—Five at Santa Fé, N. M.: two on flowers of *Grindelia squarrosa*, Aug. 2 and 3, in company with *Heriades*, *Melissodes*, *Megachile* and *Podalirius*; two resting in hole in adobe wall, Aug. 2. A ♀ was submitted to Mr. Fox, and returned marked *pudicum*;

the N. M. form is perhaps a distinct race, as all have the markings yellow, whereas the typical form from Nevada has them white.

(5.) *Anthidium emarginatum*, Say.—Taken in 1867 by Dr. Lewis, and described by Cresson as *atrifrons*.

(6.) *Anthidium interruptum*, Say.—Las Cruces, N. M., and Chaves, N. M.: four, all taken by Prof. Townsend. Determined by Mr. Fox.

(7.) *Anthidium maculifrons*, Smith.—Taken in 1867 by Dr. Lewis. One taken by Prof. Townsend in Soledad Canon, Organ Mts., Aug. 15, 1896, on plant No. 40.

(8.) *Anthidium maculosum*, Cress.—Tuerto Mtn., near Santa Fé, 8,025 feet, Aug. 7, on flowers of *Senecio*. Besides the difference in the markings, this differs from the last in the abdominal punctation.

There is in New Mexico another bee which might easily be taken for a small *Anthidium*, namely *Stelis costalis*, Cresson. This is a very variable species, both as to size and colour. It was taken by Prof. Townsend on the West Fork of the Gila R., July 16, and by me at Santa Fé, on flowers of *Rudbeckia laciniata*, July 19. It is the only *Stelis* yet observed in New Mexico.

A NEW ATTID SPIDER.

BY T. D. A. COCKERELL, MESILLA, N. M.

Icius Peckhamæ, n. sp.

Length not quite 5 mm. Cephalothorax above brilliant peacock green, slightly intermixed with brassy in front; white hairs above the row of eyes forming a weak band, also narrowly encircling the eyes; an irregular patch of white hairs beneath the hindmost eyes; lateral (inferior) margins of cephalothorax with a broad, well-defined white band. Legs black with white hairs, the hairs so arranged as to divide the legs into alternate sections of black and white; the tibiæ black at base and middle, the tarsi narrowly black at base. Palpi covered with white hairs. Mandibles black. Abdomen above brilliant metallic magenta, with the base yellowish green; the sides and the under surface white, minutely speckled with black.

Legs approximately 4 (31) 2. Quadrangle of eyes occupying less than half of cephalothorax. First row of eyes a little curved; middle eyes almost touching, lateral hardly half their diameter, and separated from them by a very short interval. Posterior eyes of the same size as anterior lateral, further from each other than from the lateral borders of the cephalothorax. Sternum with white hairs.

In alcohol the abdomen is not so brilliant, and most of those parts of the legs covered by white hairs appear brown. The legs have a little metallic colour.

First legs 2¾ mm. long, second 2½, third 3, fourth 4. Width of abdomen, 1⅓ mm. Length of cephalothorax, 2 mm.

Hab.—In the course of some investigations of the codling moth, this beautiful little spider was found not rarely hibernating under the bark of apple trees in Mesilla, N. M. Mr. G. W. Peckham, to whom specimens were sent, confirms it as new. *I. Peckhamæ* is respectfully dedicated to Mrs. Elizabeth G. Peckham, who, in conjunction with her husband, has done such admirable work on the Attid spiders. The present description will serve to fix the name; Mr. and Mrs. Peckham will no doubt figure the palpus, etc., when they come to revise the group.

SPHINX LUSCITIOSA, CLEM.

On the morning of the 9th of June, 1897, Mr. Bice took from an electric-light pole in London a fine male specimen of that rare moth, *Sphinx luscitiosa*, Clem.

All the writers upon the Sphingidæ that I have consulted are agreed in pronouncing it rare. Mr. Grote says: "This is probably our rarest hawk moth of these kinds, proper to the Middle States." Dr. J. B. Smith states that "the species is very rare." This is the first report of its being taken in this section of the Province that I am aware of.

Prof. Fernald, upon information received from the Rev. G. D. Hulst, says that it had been bred near Newark, N. J., on willow. Dr. Smith says: "The species has been frequently raised in the vicinity of New York on willow." But whether willow is its natural food plant, or that the larvæ merely feed upon willow in preference to other plants offered to them, is not stated. If willow proves to be its natural food plant, it does seem decidedly strange that, with willow everywhere so plentiful, *luscitiosa* should yet remain so very rare, and would lead one to surmise that there must be some special influence at work that is the cause of it. Up to the time of Dr. Smith's writing (1888) no description of the larvæ was obtainable. J. ALSTON MOFFAT.

London, Ont.

In my last communication *Agrotis catherina* is printed as a separate species, whereas it ought to have appeared as a synonym of *Semiophora tenebrifera*, Walk. J. A. M.

Mailed September 2nd, 1897.