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The Canadian Entomologist.

VOL. V. LONDON, ONT., APRIL, 1873. No. 4

NOTES ON CASNONIA LUDOVICIANA, SALLE.

BY S. V. SUMMERS, M. D., NEW ORLEANS, LA.

Long, .30–.33 inch. Body elongated, glabrous, sanguineous, pilose. Head, disk of prothorax, and under surface black; head rhomboidal, middle wider than thorax, thence gradually constricted into a narrow rufous neck; eyes large and prominent; mouth parts, three basal joints, antennæ and legs rufous; eighth and ninth joints of antennae white, remaining joints black; prothorax elongate, cylindrical, piceous; humeral base and apex rufous, widest just behind middle, when viewed vertically two fine long yellowish erect hairs will be observed to arise laterally just before the middle, much longer than on elytra. Elytra faintly striate, striae with fine distant punctures, from each arise a single yellowish erect hair; intervals smooth, flat, elytral constriction at humeri narrower than middle of thorax, humerus slightly elevated, angles rounded, a wide black band on middle of elytra, situated above, arcuate below, apex truncate and tipped with black; knees darker than femora, posterior thigh with outer two-thirds black.

I am unable to detect any sexual dissimilarity.

Its larger size and finer punctured striae before band on elytra, and the white eighth and ninth antennal joints, easily distinguishes it from *pennsylvanica*. The Californian *picta* is unknown to me.

Habitat New Orleans, La. Mexico. Rare.

This charming addition to our North American fauna appears first due to M. Salle, of Paris, France, who (if I am correctly informed) about forty years ago took a unique near an old Saw Mill, in N. O. Subsequently, none others were known to occur until 1861, when an individual was attracted by the lamp of a Mr. Speck, which ultimately became the property of Mr. Salle, making the second specimen in all Europe. Mr. Trabranelt, a diligent collector who has resided here some eighteen

years, took the next three specimens, one of which he has lately exchanged to Mr. Salle. Again, on Dec. 31st, '72, under some board traps in dry grass, near water, my first specimen occurred, and for three succeeding days a unique was taken. Their habits are probably gregarious, living on the ground, and as the collecting grounds in the vicinity of New Orleans are limited, owing to swamps, they may be found to occur more plentifully in Northern La. They are very active and graceful, taking alarm at the least noise, and run with great rapidity, keeping the antennae in constant vibration; when placed in a collecting bottle containing Cyanide of Potassium, they would seize hold of some other insect and proceed to drag it off, imitating certain species of ants. The drug, however, quickly quiets them.

ON MR. SCUDDER'S SYSTEMATIC REVISION OF SOME OF THE AMERICAN BUTTERFLIES.

BY AUG. R. GROTE., BUFFALO, N. Y.

[PAPER NO. 2.]

Since it is conceded that the law of priority is invariable in its application to zoological nomenclature, it remains for us to apply it to the determination of our Butterflies. That some inconveniences may arise from the correction of errors, does not militate against our desire to be right. The question is, are Mr. Scudder's genera well founded, or, are his names entitled to precedence, not is it convenient for us to use them. Without as yet entering an extended discussion upon the structural characters of our Butterflies, we will briefly notice Mr. Scudder's genera.

1. Oeneis, *Hubner* (1816.) The type and first species mentioned under this name by Hubner is *Norna*. While five species are cited under this genus, Hubner refers two more to Eumenis, viz.: *aello* and *tarpeja*. But the type of Eumenis is *E. autonoe*. It is difficult to avoid the conclusion that we must retain Oeneis to be correct, while regretting the necessary abandonment of Chionobas, so sonorous and accustomed a name. In our North American fauna we have, besides the species cited by Mr. Scudder, *Oen. chryxus* and *Oen. Uhleri*, described under Chionobas by Doubleday and Reakirt. Chionobas *Stretchii*, Edw., does not belong to

this genus, and is a synonym of Satyrus Ridingsii, I have been informed. *Oen. nevadensis* has been described by Behr.

2. Enodia, *Hubner* (1816). No one can possibly object to this designation for our *E. portlandia* on any score.

3. Minois, *Hubner* (1816.) This generic name has priority, and Mr. Scudder shows that it represents a distinct type. It cannot be objected to on any score. Besides *nephele* and *alope*, it includes *M. pegala*, *M. ariane* and *M. boopis*. The former is a Southern species, the *Papilio pegala* of Fabr., and thought to be a possible form of *M. alope;* the two latter are described by Behr under Satyrus.

4. Argus, *Scopoli* (1777). Mr. Scudder restricts Scopoli's term to our species, the *Hipparchia Boisduvalii* of Harris, enumerated under another name by Scopoli. To this procedure there is no objection, provided that Boisduval's types of Argus were not of those referred to the genus by Scopoli, which we cannot determine at the moment, when Boisduval's restriction would have priority. Hubner has, however, a Satyrid genus *Arge*, the type of which is *A. psyche*.

5. Megisto, *Hubner* (1816.) Hubner's type is *M. cymelia*, to which he refers Eurytus as a synonym. He includes in his genus Megisto Mr. Scudder's type of Argus. There can be objection to the use of the term if we do not follow Mr. Butler's Enlargement of Euptychia.

(To be Continued.)

NOTES ON THE HABITS OF THE ANT LION.

BY H. L. MOODY, MALDEN, MASS.

It was in April of 1872, while at Plymouth, Mass., with a party of friends in search of the Mayflower *Epigæa repens*, that I was so fortunate as to capture a specimen of the larva of this insect. It was quite by accident that it came to my hands. A friend and myself were lounging by the roadside, for want of better employment thrusting our fingers into the light sand, when with a jerk and exclamation my friend withdrew his hand to find this larva clinging with a most determined nip to a finger; it immediately dropped to the ground, however, and so quickly buried itself backward as to almost escape us, but a moment's lively digging revealed

it again, and I secured it in a pill box. On my arrival at home I provided a jar with a few inches of dry sand in the bottom, and placed the larva in it; it at once buried itself, and though I waited several hours, hoping to witness the commencement of its pitfall, there was no movement in that direction; there was now and then a slight stir of the sand, and once or twice the head was thrust above the surface, but quickly withdrawn at the slightest movement on my part. I grew tired of watching and retired for the night, returning in the morning to find a completed pit. It was in the form of an inverted cone, about one and one-half inches in diameter and three-quarters deep, and as smooth as sand could be made. At the first glance I discovered no sign of the builder, but a closer inspection revealed a pair of mandibles and at the base of them a pair of eyes; the bearer of these was snugly ensconced in the sand. The mandibles were stretched to their widest capacity and resting against opposite sides of the pit, so harmonizing in color with the sand as not to be readily noticed. In this position the larva would rest for hours unless disturbed, when it would withdraw from sight, but soon reappear and resume its watch.

My great interest, however, was in its method of taking its prey, and to witness this operation I provided a dozen or more ants of a small species, dropping them all into the pit at once; the larva with one sweep of its jaws secured three or four, and in a very short time killed or disabled them, but it soon dropped them and proceeded to kill most of the others before commencing its repast. Owing to their sluggish habit but very few succeeded in escaping. I was curious to see if the larva would attack as readily larger and more savage species, and the next day secured the largest specimens I could find of the Red Ant, *Formica sanguinea?*—noted for its courage and ferocity. I dropped the largest of these on the sand in the jar, leaving it to find its way into the pit, which it soon did, hesitating a moment at the brink and then walking to the bottom. At the instant that the ant came within reach the larva closed its jaws upon one of its legs, and for a few moments I witnessed quite an exciting contest, the ant turning and twisting to find its adversary and biting savagely at everything within its reach, the larva endeavoring to draw far back into the sand, thereby protecting itself and pressing the ant so close to the surface as to allow but very little room for movement. The ant finally freed itself from the jaws of the larva, but did not at once succeed in leaving the pit; the larva instantly almost entirely uncovered itself and slashed right and left with its mandibles, seeming to be in a perfect fury at

the loss of its prey. It also threw sand rapidly, but I could not see that the sand struck the ant except when it tried to escape up the side of the pit back of the larva; then the sand invariably struck it and brought it to the bottom. The ant finally escaped, but the next day was again caught and its juices sucked dry.

In no instance did I see so much resistance offered as in this case; usually the ants seemed to realize that their adversary was one with which they could not cope. From my observations I concluded that the larva trusted rather to its long mandibles and the inability of its prey to readily climb the walls of the pit, than to sand throwing where it did not capture them in the first attempt, for I saw it throw sand in but few instances. I did not see it in the act of digging its pitfall but once; it was then midnight and I did not stay to witness the completion. I noticed only that it threw the sand out with its head, working very rapidly. I have sometimes left the room to return in less than an hour to find a completed pit where before there was no sign of it. From the day of capture to May 11th I kept it supplied with ants, of which it destroyed numbers every day, but on the latter date, either by design or accident, its pit was filled level with the surface, and from this time to the time of pupating it dug none, remaining hidden most of the time and but once taking any food, then capturing an ant while concealed by a few grains of sand. On June 4th it constructed a round cocoon of silk, covered with grains of sand, and about one-half an inch in diameter. I presume it immediately pupated, but did not open the cocoon to ascertain. On July 8th the imago appeared and proved to be *Myrmeleon immaculatus*.

In the larva state it is certainly in some respects the most interesting insect I have ever seen, its very activity and pugnacity exciting admiration; its mandibles were always ready to close upon any intruding object. When I first obtained it I wished to preserve a description and in order to accurately observe the colors I was obliged to remove the fine grains of sand that were entangled in the short hairs on the body; this I did with a camel's hair brush, an operation to which the larva decidedly objected, but it stood its ground and fought it out, constantly seizing the brush between its mandibles, often in its attempts to reach it springing quite clear of the table.

DESCRIPTIONS OF NORTH AMERICAN HYMENOPTERA, No. 6.

BY E. T. CRESSON,

Continued from Page 54.

Genus TOXONEURON, Say.

The characters of this genus are given at length under the name of *Tenthredoides* (Proc. Ent. Soc. Phil., iv., p. 290), which appears to be synonymous. It may be easily recognized by the short robust body, rather large transverse head, stout legs, broad ample wings (which are generally fuliginous), and especially by the form of the marginal cell, which is rather suddenly constricted (or somewhat reclivate) at tip of second sub-marginal cell, and thence narrowed to the apex, which is somewhat incurved, and reaches the extreme apex of the wing; this, as well as the second and third submarginal cells, are indistinctly defined, the nervures being sub-obsolete.

The species, thus far known, may be distinguished by the characters given in the following table:—

Body entirely black.
- Wings entirely fuliginous.
  - Legs black, anterior knees honey-yellow.
    - Tibial spurs black ..... 1. ÆTHIOPS.
    - Tibial spurs white ..... 2. MINUTUM.
  - Legs black, anterior femora and tibiæ, and intermediate knees honey-yellow ..... 3. ORIZABÆ.
  - Legs honey-yellow, coxæ, trochanters, tips of posterior tibiæ and their tarsi black ..... 4. EXPLORATOR.
- Wings hyaline, apex fuliginous.
  - Legs entirely black ..... 5. MEXICANUM.
  - Legs black, anterior pair except base honey-yellow ..... 6. APICALE.
  - Legs black, anterior tibiæ and tarsi, base of intermediate tibiæ, their tarsi and band at base of posterior tibiæ white or yellow ..... 7. TIBIATOR.

Body black; head, pro and mesothorax and anterior legs flavo-ferruginous ..... 8. THORACICUM.

Body black; abdomen and legs flavo-ferruginous ..... 9. ABDOMINALE.

Body ferruginous; head, antennæ, metathorax and pleura black ..... 10. SEMINIGRUM.

Body fulvo-ferruginous; mouth, antennæ, pleura beneath and metathorax black ..... 11. VIATOR.

Body yellow; three spots on mesothorax, spots on pleura, and abdomen, except base, black ..... 12. ORNATUM.

1. TOXONEURON ÆTHIOPS. *N. sp.*

♀.—Black, shining, clothed rather thickly with a short whitish pubescence; wings fuliginous, a sub-hyaline spot beneath base of stigma, posterior wings except tips and costa, hyaline; legs black, anterior knees bright honey-yellow, their tarsi palish. Length .25 inch.

Cordova, Mexico. (Sumichrast.)

2. TOXONEURON MINUTUM. *N. sp.*

♀.—Very small, black, shining, slightly pubescent; wings uniformly pale fuliginous, iridescent; legs black, tibial spurs white, anterior knees, their tibiæ, four anterior tarsi except tips, and intermediate knees pale yellowish. Length .10 inch.

Illinois.

3. TOXONEURON ORIZABÆ. *N. sp.*

♂.—Black, shining, slightly pubescent; mandibles, anterior femora except base, their tibiæ and intermediate knees, honey-yellow, tibial spurs black; wings fuliginous, iridescent, posterior pair sub-hyaline; abdomen flat, base tinged with piceous. Length .16 inch.

Orizaba, Mexico. (Sumichrast.)

4. TOXONEURON EXPLORATOR.

Bracon (Toxoneuron) explorator, Say, Bost. Jour. Nat. Hist., i, p. 259.

"Indiana" (Say); Illinois; Texas. The femora except base, and the tibiæ except apex of posterior pair, are bright honey-yellow; tibial spurs pale; in one specimen the posterior femora and tibiæ are dusky. Length .20 inch.

5. TOXONEURON MEXICANUM. *N. sp.*

♂ ♀.—Black, shining, rather thickly clothed with a short, white, sericeous pubescence; tips of mandibles brown; impressed lines on mesothorax and excavation at base of scutellum, crenulated; wings hyaline, apex beyond first cubital cell fuliginous, nervures black; spurs of anterior tibiæ pale. Length .25–.30 inch.

Cordova, Mexico. (Sumichrast.) Sometimes the posterior orbits are tinged with honey-yellow, and the pubescence on anterior tibiæ tinged with yellow.

6. TOXONEURON APICALE. *N. sp.*

♂.—Black, shining, clothed with a very short dull pubescence; sutures of mesothorax not crenulated; metathorax with strongly developed elevated lines; wings hyaline, apex fuliginous, leaving base of marginal and of second cubital cells hyaline; nervures and stigma black; legs black, anterior femora except base and their tibiæ entirely, bright orange-yellow, intermediate knees slightly tinged with testaceous. Length .20 inch.

Illinois.

7. TOXONEURON TIBIATOR.

Bracon tibiator, Say, Long's 2nd Exped., ii, p. 322; *(Toxoneuron)* Bost. Jour. Nat. Hist., i, p, 259.

"Pennsylvania" (Say); Illinois. A very pretty species, easily recognized by the white annulus at base of posterior tibiæ. Length .25 inch.

8. TOXONEURON THORACICUM. *N. sp.*

♂ ♀.—Black, shining; head, prothorax, mesothorax, spot beneath tegulae and anterior legs except coxae, trochanters and base of femora pale ferruginous; spot on cheeks beneath, mouth, more or less of clypeus and a spot between ocelli and eyes in ♂, black; wings uniformly blackish-fuliginous, nervures and stigma black; metathorax with strongly developed elevated lines, forming an ovate central area. Length .20 inch.

Cordova, Mexico. (Sumichrast.)

9. TOXONEURON ABDOMINALE. *N. sp.*

♂.—Black, clothed with a short dull pubescence; posterior orbits, legs except coxae and trochanters, and the abdomen entirely pale sanguineous; base of first abdominal segment tinged with yellow; wings dark fuliginous, nervures and stigma black; posterior tarsi dusky. Length .28 inch.

Illinois. *Bracon populator* (Say, Long's 2nd Exped., ii, p. 323), which is also referred to this genus by Say, and which, he says, is "a very common insect in many parts of the United States, does not appear to be a *Toxoneuron*, as the ovipositor is described as being longer than the abdomen." It is probably a true *Bracon*.

10. TOXONEURON SEMINIGRUM.

Tenthredoides seminiger, Cress., Proc. Ent. Soc. Phil., iv, p. 291, ♂ ♀.

Colorado. Colored much like *Microdus divisus*, described in the preceding paper (page 52); the form is, however, much more robust, and the neuration of the wings entirely different.

11. TOXONEURON VIATOR.

Bracon (*Toxoneuron*) *viator*, Say, Bost. Jour. Nat. Hist., i, p. 258.

"Indiana" (Say); Arizona. The specimen from Arizona has all the coxæ, except spot on two anterior pair beneath, concolorous with remainder of legs. Length .30 inch.

12. TOXONEURON ORNATUM. *N. sp.*

♂.—Lemon-yellow, shining; spot behind antennæ covering ocelli, extending to summit of eyes and from thence in a narrow line to occiput which it margins, three stripes on mesothorax, the central one broad and abbreviated behind, spot on scutellum, short line beneath tegulæ, furcate line on pleura, large spot on underside, posterior coxæ beneath and a spot above at base, their femora and tibiæ within, spot on each side of first abdominal segment, and the remaining segments except very narrow apical margins, black; flagellum brown; wings yellow-hyaline, apex fuscous, nervures and stigma reddish-brown; apex of abdomen compressed. Length .25 inch.

Cordova, Mexico. (Sumichrast.) A beautiful species.

Genus PROTEROPS, Wesm.

PROTEROPS CALIFORNICUS. *N. sp.*

♂,—Black; abdomen entirely ferruginous; wings uniformly blackish-fuliginous; antennæ as long as body; legs entirely black, slender. Length .30 inch.

California. (Behrens.) This is allied in general form to *Toxoneuron*, from which it is at once separated by the anterior ocellus being situated between the insertion of the antennæ. The neuration is also quite different.

SPECIFIC NOMENCLATURE.

BY H. K. MORRISON, OLD CAMBRIDGE, MASS.

The publication of Mr. Scudder's Revision has caused much dismay among amateurs, on account of the numerous specific changes and minute generic sub-divisions which it proposes.

To students of Lepidoptera the novel, and in many cases, original views advanced afford a fertile field for discussion. Mr. Scudder has attempted to study the order by the same methods, and to correct its tangled specific nomenclature by the same principles which govern all other departments of Zoology.

This work is rendered very difficult from the fact that their beauty and the readiness with which they can be captured and preserved, has made them from the time of Linnæus a favorite order with collectors. Thus it was that many of the species have been described not by naturalists, but by amateurs; and genera founded on the most casual and unimportant characters. The confusion caused by the publication of superficial and carelessly written works, or of works in which the labors of preceding Entomologists have been neglected, it will take years to undo. Mr. Kirby, in his invaluable catalogue, has combined the results of the labors of European students in this direction, and adopted, although he did not fully carry out, the principles which Mr. Scudder followed strictly in his Revision.

Unless some definite law is laid down and universally observed, in regard to Entomological nomenclature, the Science will always remain in the chaotic condition in which it now is. Time will only increase the confusion; and now that a good remedy has been proposed, it would be folly to reject it, because of the temporary inconvenience it would occasion. The condemnation with which Mr. Scudder's book has been received seems to be founded, not on an intelligent rejection of his deductions, but simply on account of the trouble which a partial change of names would cause the present generation of students.

But is it not better to endure a slight and constantly diminishing evil for the sake of a future and permanent good?

There are two laws by which the nomenclature of a science may be governed, that of priority and the so-called law of convenience. The

former is fixed, immutable, and to it every possible case of generic or specific synonymy can be referred, and at once and for ever decided. The latter is relative, changeable, differing in various countries and among Entomologists of the same country. That which is convenient to European Lepidopterists is the reverse to American. A collector has a different standard of convenience from a naturalist. To reconcile all these different opinions is impossible; there is no rule which would be acknowledged by all.

Take as an example one of our common Hesperidæ, *Pamphila zabulon*, described by Boisd. & Lec. in 1833, and found in all the European collections under that name. In 1862 the same species was described in Harris, Ins. Mass., as *Hesperia hobomok*, and it is so named in most American collections. By the law of priority the matter would be at once determined in favour of *zabulon*. But which is the most convenient?—*zabulon* evidently to European Entomologists, and *hobomok* to American.

Here is a case in which the convenience of the two parties will always be opposed, and what rule have we to decide which is right? none, unless we accept priority as our guide.

Priority can be applied equally well to genera, but whether it would be advisable to change our families in accordance with it is, perhaps, doubtful, as the family name is not used in designating the insect and is therefore not of so much importance.

By accepting these laws as proposed by Mr. Scudder, we are under no obligation to follow him in his excessively fine generic divisions. It is the array of new names which gives his paper, at first sight, such a formidable appearance. I would be the last one to separate such closely allied species as *massasoit* and *zabulon*, *mystic* and *sassacus*, *polyxenes* and *troilus*, and many others which are placed in new genera.

But the questions which can be raised in regard to the expediency of using large or small genera, and others of like nature, will, in time, settle themselves, if we can establish our nomenclature on a firm foundation which will never be disturbed by subsequent investigation. This we think Mr. Scudder has done, and we hope that his work will be appreciated by American Lepidopterists.

MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

Continued from Page 50

GRACILLARIA.

If the rule holds good absolutely that the same generic name should not be used in Entomology and Botany, then *Gracillaria* must be dropped in one or the other. I do not know which has priority, but a name of a genus so old and well known as the *Gracillaria* of Micro-Lepidopterists ought scarcely to give place to an obscure genus of *Cryptogamia*.

EIDO ALBAPALPELLA.

Venillia albapalpella, ante v. 4, p. 207.

Dr. Packard calls my attention to the fact, which has slipped my memory, that *Venillia* is preoccupied among *Geometridæ*. I therefore substitute *Eido* for it.

PSORICOPTERA GIBBOSELLA, Stainton.

Adrasteia quercifoliella, ante v. 4, p. 206.

When '*Adrasteia*' was established I knew *Psoricoptera* only by name A specimen of *A. quercifoliella* which I sent to Mr. C. V. Riley, was pronounced by him to be nothing else than *P. gibbosella*, St. Mr. Riley states that he has bred the species from larvae feeding on Oak leaves, and that he compared his bred specimens with specimens in the collection of Mr. Stainton. He has also favored me with a generic and specific diagnosis of *P. gibbosella*, and I am satisfied that his identification of *A. quercifoliella* with it is correct. *Adrasteia* must therefore give place to *Psoricoptera*, and the species which I have placed in the former must be removed to the latter genus. Some of the other species (as *e. g. D? pseud-acaciella*) which I have placed provisionally in *Depressaria*, also approach very nearly to *Psoricoptera*, if they do not in fact belong *in* it.

PTEROPHORUS.

P. lactodactylus. N. sp.

Creamy white. Head pale lemon yellow, except between the antennae where it is of the general creamy white hue; abdomen with a streak of pale lemon ye'low along the sides. *Alar ex.* 1⅛ inch. Kentucky, in June.

ADELA.

A. bella. N. sp.

Vertex, upper portion of the face, palpi and a long streak on each side of the thorax under the wings brilliant golden; lower portion of the face dark purple. ♀ with the basal half of the antennae dark purple, the remainder snowy white: in the ♂ only about the basal third is purple. Thorax above the wings and both pairs of the wings dark shining purple, the thorax and primaries with a golden gloss and appearing, according to the light, dull brown purple, violaceous, or golden; before the apex of the primaries are three narrow, and in some lights, indistinct fasciae, the color of which varies with the light and all of which are faintly dark margined both internally and externally; the third fascia is at the apex. The fasciae when most distinct have a silvery lustre.

Al. ex., ♂ ½ inch; ♀ a little larger. Kentucky.

A fresh or living specimen of this insect is a gorgeous creature, but after death the colors become dull. I am not acquainted with the larva. The imago may be taken in May, feeding upon the flowers of the "Climbing Bittersweet" (*Celastrus scandens*), and a little later it is not uncommon resting upon leaves along paths or roadways through the woods.

DICTE, *gen. nov.*

Head, face as broad as the thorax; head and face, basal joint of the antennae and first and second joints of the labial palpi clothed with long loose hair-like scales; antennae with the basal joint incrassate, stalk simple, reaching to the apex of the wings; maxillary palpi microscopic; labial palpi drooping (in the dead insect), the terminal joint projecting forwards and a little upward, and about two-thirds as long as the second joint. (If recurved the palpi would reach the vertex.) Tongue naked, rather longer than the thorax; eyes globose, prominent.

Wings deflexed; anterior oblong ovate, obtusely pointed, with moderately long ciliae. The costal vein attains the margin about the middle. The subcostal curves gradually into the discal, giving off a long branch before the middle, a shorter one behind the middle, then a furcate one which curves upwards to the costal margin, whilst the apical branch also curves up from its junction with the discal vein to the margin just before the apex; the discal vein closes the discal cell and sends three branches to the posterior margin; the median is straight to the discal, where it becomes furcate, both branches attaining the posterior margin; submedian simple.

Posterior wing about as wide as the anterior, sub-ovate, the apex pointed and the costal margin but slightly convex; the costal attains the margin behind the middle; the discal cell is closed by a much curved discal vein which emits two branches to the posterior margin; the subcostal sends a branch to the apex from near the end of the cell and beyond the discal vein becomes furcate, both branches attaining the margin behind the apex. Median and submedian both simple, and both attain the posterior margin.

The roughened head and palpi and the shape and neuration of the wings ally this genus to *Tenea* and its congeners.

D. corruscifasciella. N. sp.

Head, palpi, basal joint of the antennae, thorax and basal half of the anterior wings golden yellow; antennae glistening snowy white, the apical half annulate with velvetty black; just before the middle of the anterior wing, in the yellowish portion, is a brilliant metallic fascia. The central portion of the apical part of the wing is occupied by a large, nearly circular, greyish drab spot, containing four longitudinal velvetty black streaks, bordered before by a brilliant metallic costal streak which points towards the fascia; and behind by a similar costal streak pointing towards the dorso-apical margin. The grayish drab spot is separated from the dorsal margin by a rather large triangular velvetty black patch, the apex of which touches the dorso-apical margin. This triangular streak is dusted a little with grayish drab scales; two metallic spots on the disc, and four dorsal spots of the same hue. Costo-apical margin and the apex brownish golden, with a bright metallic fascia interrupted in the middle, and another streak of the same hue at the extreme apex. Posterior wings purplish fuscous; under surface of both wings purplish fuscous mixed with yellowish green, and the fascia and streaks of the forewing visible through the wing. Abdomen black washed with golden, and each segment margined beneath with silvery; legs black, annulate with white. *Alar ex.* a little over ½ an inch.

Kentucky and No. 127, collection of Mr. Wm. Saunders, London, Ont. Rare. This is one of the prettiest and most brilliant 'Micros' known to me.

SOLENOBIA.

S. Walshella? Clem. *Proc. Ent. Soc. Phila., vi, p. 132.*

Dr. Clemens described this species from a single specimen sent to him by the late Mr. Walsh. Mr. Walsh took the larva in the winter time

underneath the bark of Hickory trees, and suspected it of making galleries under the bark. Dr. Clemens more correctly suspected that it was lichenivorous and hoped that Mr. Walsh might ascertain its larval history. Alas! the researches of both have terminated forever.

Only the male was known to Dr. Clemens, and from his description I think his specimen must have been somewhat rubbed. Male, "Head and face dark gray. Antennae dark gray, slightly spotted with white." Fore wings dark gray at the base, remainder paler, sprinkled irregularly with dark spots and scales. Ciliae grayish white. "Hind wings gray." (The quotations are from Dr. Clemens' description.) The female is apterous, with the head clothed with hoary scales and a tuft of the same at the apex; but the body is nearly naked. *Al. ex.* 5/8 inch. Kentucky. Common.

The larva feeds upon lichens and may be found in March and April, feeding up. It becomes a pupa in April and the imago emerges about a week thereafter. The larva is whitish, head black, upper surface of the two succeeding segments shining yellowish brown, anteriorly margined with white. The case is prismatic in outline, and of an almost leathery consistence, about 1/3 of an inch long, and tapering slightly towards each end; it is composed of silk, sand, particles of lichens, and excrement of the larva, and I have sometimes found small Molluscous shells adhering to it.

ON SOME OF OUR COMMON INSECTS.

IV.—*THE ISABELLA TIGER MOTH.*

Pyrrharctia (Spilosoma) Isabella.

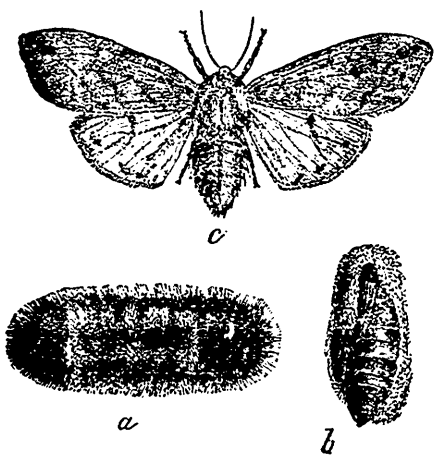
BY W. SAUNDERS, LONDON, ONTARIO.

There are but few of our readers who are not familiar with the caterpillar of the Isabella Tiger Moth, one of our commonest "woolly bears," and found, we believe, in almost every part of Canada and the Northern United States. This larva, in common with many other members of the family *(arctiadæ)* to which it belongs, hybernates during the winter. It acquires nearly full growth in the autumn, and then, having selected a cosy sheltered spot under bark, log, rail, stone or board in which to hide, it

coils itself up there into a sort of ball and sleeps through the long and dreary winter, and about the time when the birds come back and the warm days of spring begin, this bristly creature rouses itself to begin life anew. Hence it is one of the few caterpillars which present themselves to us full grown in early spring, and from its peculiar appearance can scarcely fail to attract attention. It has not to wander far for food, for, being in possession of an omnivorous appetite, it feasts on the first green thing it meets with, grass, or weed, or early plant, and having fed but a short time, it spins its cocoon and becomes a chrysalis.

The caterpillar is about an inch and a quarter long; its head and body are black, and it is thickly covered with tufts of short, stiff, bristly hairs, which are dull red along the middle of the body and black at each end. When handled it immediately coils itself into a ball and remains for some time motionless. It is very tenacious of life; we have known the larva to be frozen in a solid lump of ice, and when thawed out move around as if nothing had happened. It sometimes occurs, although very rarely, that this larva becomes a chrysalis early in the fall, and produces the moth the same season. We have never met with an instance of this but once, see CAN. ENT., vol. i, p. 26; its usual course is that which has already been partially described.

Fig. 14.



Its cocoon, *b*, fig. 14, is spun in some secluded nook, and is of a dark color, of an elongated oval form and curiously wrought with a network of silk, in the meshes of which are interwoven the black and red hairs from the body of the caterpillar. Within this enclosure the insect changes to a dark brown chrysalis, and remains as such about two or three weeks, sometimes longer, when the moth having burst its shelly covering, softens the silky fibres of which its cocoon is formed by a liquid with which it is furnished, and makes its exit through a hole at one end of the cocoon.

The moth, *a*, fig. 14, when its wings are spread, measures about two inches. Its wings are of a pale yellowish buff colour, with a few dull

blackish dots more numerous on some specimens than on others. The hind wings are sometimes paler than the fore wings, and at other times tinged with orange red, while in other specimens we have observed that the under surface of the fore wings assumed a dull rosy hue. The body is a little deeper and richer in colour than the wings, and the abdomen is ornamented with longitudinal rows of black dots; on the upper surface there is a row down the middle of the back, and one on each side, and on the under surface there are sometimes two additional rows of smaller dots.

Although this insect is so common and well known in its larval condition, it is not often seen on the wing. It flies at night, and being seldom attracted by lights, it rarely finds its way into our houses. It is also probably subject to the attacks of ichneumons, which destroy some of the caterpillars before they reach maturity.

ON THE GEOGRAPHICAL DISTRIBUTION OF SOME GENERA OF CANADIAN INSECTS.

BY FRANCIS WALKER, LONDON, ENGLAND.

Before leaving the Canadian *Chalcidiæ*, in hope of returning to them when many more genera are discovered in Canada, I will mention *Megastigmus*, which very probably occurs there; it is a genus of *Torymidæ*, and, in some respects, connects that family with the *Eurytomidæ*, and is next to the latter in the interest with which it may be regarded in case there is a foundation for the report lately published concerning the seed-eating habits of the species which represent it in California. But this does not seem probable, as it is certainly carnivorous in Europe, where two species exceed the others in beauty and are especially conspicuous, the great *M. giganteus* that maintains itself on the *Cynips* of a one-chambered gall in the Mediterranean region, and *M. dorsalis* that, with various other species, lives on the substance of the *Cynips* of the many-chambered Oak Apple of North Europe. I have seen other species near London and in the Alpine vallies of Switzerland, and they are attractive on account of their comparative rarity, though their economy is but little known. The natural history of the Australian species may be unknown for some time to come, and I hope that its discovery will be preceded by attention to the Canadian galls and to their parasitic inhabitants.

SIREX.—This genus is well known by the large size of the few species that have been discovered and by its especial habitation in the North. I have mentioned elsewhere its occurrence in Eastern Siberia, which may have been the earlier habitation of the European species, and wherein some of the North American species also dwell, such as *S. gigas*, *S. albicornis*, *S. juveneus*, *S. spectrum* and *S. flavicornis*. *S. juveneus* has appeared as far south as Algeria, and *S. cedrorum* is contemporaneous with the cedars on Mt. Lebanon. *S. varipes* and *S. dimidiatus* inhabit North America, and there are three apparently undescribed species from that region and one of small size from Mexico. There are two in North Hindostan and one in Australia, and three or four whose native country is unknown to me. It does not appear that distance in space between two species is accompanied by corresponding difference in character, for the Australian species is very nearly allied to *S. juveneus*. In the neighbouring genus, *Tremex*, the European *T. juxicernis* is represented in North America by *T. columba*, and there are three undescribed species, one of North America, one of Hindostan, and one of China.

NOTES ON COLLECTING.

BY THEODORE L. MEAD, NEW YORK.

Last season, while in the Catskill Mountains, I made some experiments in sugaring for moths, which may be interesting to collectors.

The sugaring mixture employed was "molasses sugar" and water, in the proportion of three or four pounds to the gallon; I could not perceive that other additions, such as alcohol or preserved fruit, &c., were of any advantage.

About twenty trees in an orchard were sugared, but very few moths were seen for the first night or two, though as afterwards they came in immense numbers, it would seem that a little time is required for the news to spread.

Having found a cyanide poison-bottle to be very useful in killing small Diurnals, and noticing the almost universal habit of these moths, when disturbed, of darting downward before flying away, it occurred to me to make a poison-bottle on a large scale and to dispense with a net, always so inconvenient to use at night.

Accordingly I procured a quart bottle with as wide a mouth as possible—a fruit jar would have done very well—put in it enough lumps of common fused cyanide of potassium to cover the bottom, and having poured upon this about an inch of plaster of Paris mixed with plenty of water, I had only to await nightfall to commence operations.

The large poison-bottle worked to a charm; scarcely a moth escaped which I desired to take. With the new instrument I became impatient of the time required to take out and pin each specimen as soon as stupefied, and tried the experiment of capturing every uninjured moth seen and allowing them to remain in a layer upon the plaster until it was convenient to return to the house and sort them over, taking a moderate amount of care that they should not be unnecessarily shaken up in carrying.

Rather unexpectedly I found that this treatment did not seem to injure or rub the specimens in the least degree, though sometimes nearly a hundred moths of all sorts and sizes would be piled together, making a stratum an inch or two thick in the bottle.

After this discovery night collecting became easy, nets and boxes were left at home, and the only necessary articles were a lantern and the poison-bottle. Arrived at a tree and carefully turning the light upon the sugared patch, I selected out such moths as seemed desirable, and, removing the stopper, gently touched them from below with the open bottle. When they had flown down into the receptacle, the cork was replaced and the specimens were thus safely disposed of till the following morning, when they could be sorted over at leisure.

Occasionally a very wary moth would fly away at the first approach of artificial light, and I endeavored with laudanum and hydrate of chloral to so stupefy them that they could be readily taken. The laudanum was rather too effective, seeming to intoxicate them; at any rate, after imbibing the mixture, the moths fell off the tree and sprawled around in the grass in a very absurd manner, quite unable to fly away; but still most of them managed to go a considerable distance, and so were lost in the grass. The hydrate of chloral had no effect whatever upon them; some moths which took a considerable quantity of a very concentrated solution—about equal bulks of the salt and of water—remained unaffected.

Sometimes ants were troublesome, biting the trunks of the moths as they fed, and causing them to fly away. In these cases a dose of laudanum was generally effective in driving off the ants for a considerable time.

Strips of white cloth nailed upon the trees were very convenient to receive the sugar, though not necessary. One afternoon, while preparing my baits for evening, a fine *Grapta Interrogationis* hovered around the tree for a moment and then lit close by, and unrolling its proboscis, feasted on the nectar. While engaged in this absorbing operation I readily captured it between thumb and finger. In some localities where rare species are to be found, it may be worth while to try sugaring for butterflies as well as moths.

The vapor of hydrocyanic acid in the poison-bottle, as a rule, did not change the colors of specimens even after prolonged exposure. But a single moth of those collected, a pinkish *Crambus*, was faded by it, changing to olive brown.

At my suggestion cyanide of potassium was adopted by the American Museum of Natural History, to preserve their Entomological collections from the ravages of insects. At first small tin boxes were used, but the salt chrystallized upon the tin and made its way over the edge and down the sides of the receptacle, staining the cabinet drawers. Finally small glass capsules were used to contain the poison, and proved satisfactory. The vapors render it unpleasant to work over the drawers while the capsules are in them, but with the temporary removal of these the inconvenience ceases. A fly or other small insect introduced into one of the cases, dies in a very short time, and the protection against Dermestes is very complete, though of course it is hardly advisable to use this method where the drawers are not nearly air-tight. Still I think that every Entomologist would find a single tight receptacle thus poisoned very useful as a sort of quarantine for suspected specimens. Even delicate green *Geometrae*, after being in an atmosphere of prussic acid vapor for months, have, so far, shown no change in color.

THE South London Entomological Society, which, though only nine months old, has been extremely successful, held on Thursday evening last, at Dunn's Institute, Newington Causeway, a very interesting exhibition of collections of insects, chiefly British Lepidoptera. The collections were made by the members themselves, all amateurs, and do them the greatest credit. The room was densely crowded, and the exhibition was a great success.