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No. 6

ON A NEW CANADIAN CRAMBUS ALLIED TO CONCHELLUS.

BY A. R. GROTE,

Director of the Museum, Buffalo Society Natural Sciences.

Mr. Wm. Saunders has collected a species of *Crambus*, which is apparently unnoticed by Prof. Zeller or Dr. Clemens, who have written most frequently on our American species. The new species, which I call *C. interruptus*, is very easily recognized and has been figured by Prof. Townend Glover on his Plates of Lepidoptera. The head is white; palpi inwardly and beneath white, outwardly dark brown. Thorax white, patagia bright brown. Hind wings and abdomen pearly gray. Fore wings bright brown with a longitudinal white median band obliquely interrupted at the middle of the wing by the ground color. Beyond is a white block on the outer half of the wing, with its inner and outer edges inwardly oblique and its upper edge longer than its inferior margin. Beyond this, before the external margin, is a white band, following the shape of the wing and discontinued above and below. The brown space between this band and the block of white is narrower above than below. In this simply marked species the whole ornamentation seems to be limited to a longitudinal white band, widening outwardly and interrupted mesially and subterminally obliquely by the brown ground color of the wing. There is a sub-obsolete series of minute terminal black points; fringes fuscous, interrupted with white at the middle of the wing and again near internal angle. Beneath the hind wings are almost white; the fore wings shaded with fuscous.

When we compare *C. interruptus* with the European *C. conchellus*, we see that the pattern of ornamentation is very similar in the two forms. The American species differs by the white band before the external margin. In *C. conchellus* there is merely the basal vitta and the outer block of white

scales, and this latter is much larger than in *C. interruptus*. The hind wings are darker in *C. conchellus*, and the thorax and head not so purely white.

C. interruptus has also been taken at Grimsby, Ont., by my kind friend, Mr. J. Pettit. I have seen no specimens from New York State yet, but it will probably occur with us. Its average expanse is 21 mil. For a fine series of *C. conchellus* I am indebted to Prof. Zeller, of Stettin.

A NEW GENUS OF APHIDÆ.

BY J. MONELL, MISSOURI BOTANIC GARDENS, ST. LOUIS, MO.

Colopha, nov. gen.

Antennæ six jointed, wrinkled transversely, and almost moniliform.

Front wings with three discoidals; the cubital once-branched.

Hind wings with one oblique vein.

Wings in repose, usually horizontal.

C. ulmicola (Fitch)—*Byrsocrypta ulmicola* Fitch, N. Y. Rep., ii., 347.
Thelaxes ulmicola (Walsh), Proc. Phil. Ent. Soc., i., "American Entomologist," vol. i., 108.

The above-mentioned species was originally described by Dr. Fitch (N. Y. Rep., 347), who had not seen the winged form, as *Byrsocrypta ulmicola*. The winged individuals were first described by the late Prof. Walsh, who removed it to "*Thelaxes* Westw." Judging alone from the original description of *Thelaxes* in the "Synopsis of British Genera of Insects," it would be almost impossible to say whether this insect is a *Thelaxes* or not; but Prof. Westwood states in his "Arcana Entomologica" (ii., p. 64) that his genus *Thelaxes* is synonymous with *Vacuna* Kalt.; and since, in addition to other differences, *Vacuna* has five-jointed antennæ, it is evident that our insect can not belong to that genus, and as I can find no generic description which will at all agree with this, either in our American authorities or in Koch, Kaltenback and Passerini, I have presumed it to be new and described it accordingly.

The bibliography of this species really seems like a "Comedy of Errors." Dr. Fitch placed it in a wrong genus; Mr. Walsh removed it to *Thelaxes* and refers to N. Y. Rep., ii., 257, instead of ii., 347. In the "American Entomologist" it is indexed for p. 224, instead of p. 108. Mr. Packard (Guide, p. 525) mentions *Thelaxes ulmicola* Walsh, while on the next page he speaks of *Pemphigus ulmicola* (Fitch), and refers to figure 525, which is from an electrotpe of the identical wood-cut first published by Messrs. Walsh and Riley in the "American Entomologist," under the name of *Thelaxes ulmicola* Fitch. Mr. Packard's figure 525 is, therefore, evidently my *C. ulmicola*, and, indeed, I have so far failed to find any other mention of a *Pemphigus ulmicola* Fitch.

NEW PYRALIDES.

III.

BY A. R. GROTE,

Director of the Museum, Buffalo Society Natural Sciences.

Botis vibicalis Zeller, Beitr. ii., 8, Taf. iii., fig. v.

By error in text "*vibicalis*;" correction pages 9 and 131. One of the smallest forms, looking like a minute Heliothid. Fore wings pale yellow with a purple, oblique inner band and an outer of the same hue running parallel with external margin and connected along internal margin with the first band. Hind wings fuscous. Texas (Belfrage, No. 407), August 20th.

Botis nasonialis Zeller, Beitr. ii., 9, Taf. iii., fig. 6.

Texas (Belfrage, No. 406), June 15th.

Botis coloradensis G. & R.

Also from Texas, taken by Belfrage April 25 (No. 379). This species may be known by the white-immaculate secondaries. The lines on the primaries are ochreous; in the colored copies of the original plate these lines are incorrectly left black.

Botis atropurpuralis, n. s.

Allied to *vinulenta*. Fore wings of an obscure reddish brown with a purple cast. At first sight appearing immaculate, but the exterior line can be made out by its being followed by scattered yellowish scales; it is similarly shaped to that of *vinulenta* (= *signatalis* †), but not angulated on submedian fold. The stigmata are not obvious. The anterior line is partially shown in the same way as the outer line. Hind wings fuscous, paler at base; fringes paler and narrowly interlined. Head and thorax like fore wings. Beneath the body is silky whitish. Wings beneath fuscous with a slight lilac reflection, without obvious markings except on secondaries an indication of a mesial line.

Expanse 15 mil. Texas, Belfrage (No. 362), Sept. 12.

Botis onythesalis Walk.

Larger and with longer body than *sumptuosalis*; similarly colored. Orange yellow; terminal space on both wings shaded with purplish fuscous. Median space on primaries variably washed with purple red. Lines purple, shaped as in *sumptuosalis*, but the outer line running in more deeply on vein 2. Beneath the fore wings are less brightly colored, with the fuscous terminal shade repeated and the discal marks indicated. Above the secondaries show an oblique mesial line, and beneath this is reflected. Body above orange yellow, beneath with legs whitish.

Expanse 19 mil. Hab. Texas, Belfrage (Nos. 364 and 365), March 26, May 25.

Botis Harveyana, n. s.

A small species more slender than *communis*, with pale brown primaries, the exterior line fine, blackish, obsoletely denticulate, rather suddenly drawn in at vein 2, thence back again and angulate before the margin. Outer spot large, annulate. Inner spot obsolete. Before the fringes, which are faintly interlined with pale and are discolorous, there is a distinct sinus of dark points. Hind wings paler than primaries, washed outwardly with the same brown as primaries, with a distinct discal dot and median line. Beneath more ochreous, with the discal dots double on hind wings; a common exterior line; on the primaries the veins are partially darker marked; terminal points very distinct and continuous. Head, palpi and thorax above pale brown, beneath concolorous with under surface of wings glistening.

Expanse 18 mil. New York, L. F. Harvey, July 27 ; Texas, Belfrage (without number, among *communis*), Sept. 25.

Botis flavidissimalis, n. s.

Size moderate. Entirely bright deep yellow, saturate with this color above and below. Costal region of primaries at base a little deeper tinged, and the thorax in front a little ochreous. Under surface of body and legs whitish ; fore tibiae marked with brown ; palpi dark ochreous, white beneath. Fore wings with two stigmata, dark, nearly solid, the outer annulate. Lines blackish, fine, dentate ; the outer line much bent in to below the outer spot, thus differing from *citrina*, and continued on secondaries. No subterminal line. A terminal series of ochrey points on both wings. Fringes pale yellow. Eyes with a white line. Beneath the costa of primaries is shaded with ochreous ; both stigmata repeated ; a common exterior line.

Expanse 19 mil. Texas, Belfrage (No. 383), June and August.

Botis catenulalis, n. s.

Larger than *ventralis*. Entirely brown, not opalescent. Fore wings with the exterior line not greatly indented below vein 2, and followed by a series of dull yellowish spots opposite the scalloping of the line. Discal spots annulate ; all three present ; the inferior (claviform) spherical. The transverse anterior line faintly preceded by a pale shade. Hind wings paler than primaries, especially towards internal margin, crossed by a line corresponding to the outer line of primaries, not much indented, continuous, lunulate, the indentations filled in with pale spots as on fore wings. An even dark brown terminal line ; fringes paler than wing, whereas on primaries these are concolorous. Beneath paler than above with the outer common line distinctly repeated as well as the stigmata on fore wings. Head and palpi brown above, white beneath.

Expanse 26 mil. Hab. California ; Coll. Buff. Soc., from Mr. Meske.

Botis fracturalis Zeller.

Collected by Dr. Shannon in Southern Texas ; also by Belfrage, Nos. 385 and 384 ; varies in color of fore wings as does *argyralis*.
March and April.

Eurycreon communis Grote.

Varies excessively in color. Dark wood brown or fuscous specimens

were collected by Belfrage (Nos. 372, 375) on the 25th and 26th of March. On the 5th of November one with red brown primaries. Clypeus with frontal protuberance; a darker form than *vautalis*, formerly incorrectly referred by me to *Botis*.

Botis tatalis, n. s.

A single male specimen (No. 659, Nov. 7). The hind wings are yellow ochre with a subterminal dark line and a trace on the middle of the wing of a mesial line. A discal spot near the base of secondaries, which beneath are ochrey and immaculate. Primaries and thorax dark brown; ornamentation like *communis*, than which this is larger winged. Subterminal shade indistinct; fringes darker than the wing. Beneath fore wings ochrey with a trace of the external line at costa; outer discal spot large, black, inner quite small. Head and thorax above brown; beneath with the legs, pale ochre. Hind wings appear wider and very different in color, almost yellow above, as compared with G. & R.'s figure of *posticata*. I have not their type, but from recollection it is not the present species, which may be known by the subterminal shade on the ochre-yellow hind wings, which contrast with the brown.

Expanse 20 mil.

Of all the species of N. Am. Pyralides described by Grote & Robinson, *Botis posticata* is the only one I do not recognize in the Collection of the Buffalo Society of Natural Sciences. The type may be in Philadelphia or New York. I thought for some time that *communis* might be identical with it, but it will need a comparison of specimens to decide the matter.

Botis penumbralis, n. s.

Allied to *terrealis*, but much larger. Of the same silky gray-fuscous, but stained with yellowish on the veins, the costal margin of fore wings and narrowly along the terminal border of both wings. Abdomen and thorax above yellowish; head, palpi, fore legs and pectus in front obscure yellowish. Thorax and abdomen silky whitish. On the wings the lines are diffuse. No subterminal shade, no stigmata, the cross-vein being indicated by yellow scales. The lines are fuscous, sub-dentate, shaped much as in *terrealis*, but without costal accentuation. This is a more robust species than *terrealis*, and its ornamentation more simple. Beneath the wings are pale silky fuscous, reflecting the common outer line. Fringes pale fuscous, not interlined.

Expanse 31 mil. Ohio (Mr. Drury).

Botis socialis, n. s.

Fore wings triangulate, widening outwardly more than usual. Ground color pale yellow washed with red, especially beyond the outer line, where a broad, diffuse, blackish subterminal band forms the most prominent marking of the wing and appears purplish from overlying bright scales. Transverse lines blackish, linear, trembled. Stigmata small, both solid. Outer line not strongly indented below median vein. Fringes pale, silky, very faintly interlined. The terminal edge of the wing is narrowly red. In one specimen the red shades are more or less absent, leaving the subterminal shade blackish. Hind wings pale yellow, with the subterminal broad shade more or less obviously continued; fringes pale. A fine mesial line. Beneath very pale sericeous yellow, with the subterminal shade and fragments of the exterior line repeated. On primaries discal marks repeated. On fore wings in one specimen the fringe is a little fuscous above. Body yellowish, paler beneath.

Expanse 25 mil. Canada, Mr. Saunders; Buffalo, Mr. Zesch.

Botis allectalis, n. s.

♂. Size of *communis*, but with more pointed primaries and longer abdomen. Gray over fuscous, with a pale ochreous discal patch on the median space surrounding the stigmata. These latter distinct, solid, dark fuscous, the oblique orbicular probably sometimes with paler centre, as it is faintly so on one wing. The lunate reniform followed by a fuscous shade margining the ochreous patch outwardly. T. p. line denticulate with a whitish included shade, setting out the line, not much indented below median vein. The gray scales overlay the fuscous, and when the wing is rubbed are first lost. The costa to t. p. line is ochrey fuscous. Hind wings translucent fuscous with pale line and darker borders. Head and appendages ochrey fuscous. Beneath paler with stigmata and exterior common line apparent.

Expanse 23 mil. Belfrage (No. 445), May 12, Bosque Co., Texas.

TINEINA.

BY V. T. CHAMBERS, COVINGTON, KY.

HELIOZELLA.

H. ? æsella. N. sp. ?

I am but imperfectly acquainted with this genus, knowing it only through the Nat. Hist. Tin., vol. xi. ; and the plan of that work does not seem to admit of details of structure. If it is equivalent to *Aechmia*, *Perittia*, *Tinagma* and *Douglassia* combined, as those genera are limited in Ins. Brit., v. 3, then the proper place for this species is in it. But if, as I conclude from the account in Nat. Hist. Tin., it is the equivalent of *Tinagma* alone, and the other groups above mentioned are good, distinct genera, then this species, while possessing affinities with all, would be out of place in either. In Ins. Brit. Mr. Stainton places in *Tinagma* three species, *sericiellum*, *stannecellum* and *resplendellum*. In Nat. Hist. Tin. these three species, with the comparatively new species *lithargyrella* Zell. and *grisescens* Staint., compose the genus *Heliozella*, none of the species placed in *Aechmia*, *Perittia* or *Douglassia* in Ins. Brit. being placed in it. Prof. Zeller has since (Beit. z Kent, May, 1873) described from Texas a new species, *H. gracilis*—the only species heretofore met with in this country. Possibly *æsella* may prove to be identical with *gracilis*, but I think not, and the particulars in which they differ will be indicated below. Some of these points of difference are structural, based upon the supposition that *Heliozella* is identical with *Tinagma*, as characterized in Ins. Brit., v. 3. For instance, in *Tinagma*, as there characterized, *there is no tongue, the ciliæ are long, the antennæ short, stout and very much compressed*. In the species before me the tongue is as long as the thorax and naked (as in *Douglassia*); the antennæ as stout and thick, not half as long as the fore wings, *not compressed* (unless by "closely compressed" is meant that the joints are closely set), *they are microscopically pubescent, and with a minute basal joint as in Aechmia*; and the ciliae have no unusual length, but are rather coarse. I do not detect the marked demarcation between the wings and the ciliae which Prof. Zeller describes in *H. gracilis*, nor are the wings posteriorly so much narrowed and pointed as from his description I infer them to be in that species. Certainly the hind wings are not so much so as in either *D. ocucrostomella* or *T. serici-*

ellum, as these are figured in Ins. Brit., though the neuration is exactly that of *ocnerostomella*. I have not examined the neuration of the fore wings, but the shape is very nearly that of *sericiellum*, *loc. cit.* The labial palpi are those of *Tinagma sericiellum*: and the maxillary palpi are about equal to the first joint of the labial.

The ornamentation is that of *Tinagma*, and of the other genera above named as well. There are the usual two silvery white dorsal spots, one near the base, the other at the anal angle; the latter is not a triangle, as it is described in *gracilis*, or if it is triangular, the apex is very obtuse; it points a little obliquely backwards; the other lies parallel to it, pointing also a little backwards, is of the same length but narrower, and reaches the fold. Hind wings pale fuscous; ciliae grayish fuscous. Otherwise the entire insect is of a rich brown, but glittering so with metallic reflections that it is difficult to get a good view of its true color. These reflections from the wings, thorax and abdomen are brassy, or rather bronze; from the head, palpi and under surface of the abdomen, silvery or like burnished steel; the antennae are of the same color with the fore wings, the legs are a little paler. Wing expanse, $2\frac{1}{2}$ lines.

Described from a single specimen taken April 24th, resting on the body of an apple tree (on the edge of a forest, however,) near Covington, Kentucky. I did not observe anything peculiar in its position in the hasty glance which I gave it, and, indeed, was under the impression that it was an early specimen of *Aspidisca splendoriferella* Cham. In Europe species of *Heliozella* are said to appear flying in hot sunshine in May and June. In ten years of diligent observation, I have never met with a mine resembling that made by *H. resplendellum* (the only species of which the larva is known), except in July and August, 1875, in the region of Mammoth Cave. There a mine was not uncommon in Chestnut leaves. It was a narrow line beginning always by the side of a lateral rib, running thence towards but not to the edge of the leaf, then crossing over the space to the next rib, and passing along beside it down to the midrib, which it entered and burrowed along down it towards the stem, emerging from the midrib through a little slit, looking like two minute half parted lips. I never saw the larva, and saw no trace of its having left the midrib, and cut out from the cuticle of the leaf an oval case in which it might descend to the ground and pass the pupa state like *H. resplendellum*, in *Alnus* leaves.

I believe I have already somewhere alluded to the connection which

exists, or which I fancy to exist, between these small genera of *Glyphipterygidae* and the *Elachistadæ* of Mr. Stainton's classification. I can not now refer to the place where I have alluded to the subject, nor am I altogether certain that I have published the observations which then suggested themselves on this subject, as at that time I only knew the *Glyphipterygidae* through the writings of other Entomologists. But it certainly seemed to me that the larvæ of the above-mentioned genera of small species being unknown, there was nothing in the structure of the imago to exclude them from the *Elachistadæ*, though the larger genera, *Ascalepia*, *Glyphipteryx*, etc., were allied sufficiently nearly to the *Gelechiidæ*. But such species as *Æchmia dentella* and *Lithariapteryx abroniæella* unite these small genera and *Glyphipteryx*, so that they cannot be placed in separate families, though the apodal larvæ of *Antispila*, *Heliozella*, etc., do not offer any strong affinities with either *Glyphipterygidae* or *Elachistadæ*. While, therefore, it is true that these small genera can not be separated from *Glyphipteryx* and placed in a different family because of being so connected, nevertheless, taken by themselves, in the imago, they still seem to me to show strong affinities with the *Elachistadæ*; and, indeed, the older Entomologists placed the European species of *Antispila* in the genus *Elachista*. Do the *Glyphipterygidae* afford a passage from the *Gelechiidæ* to the *Elachistadæ*?

DESCRIPTION OF A NEW TEXAN ANISOTA.

BY LEON F. HARVEY, M. D., BUFFALO, N. Y.

The following species, new to the fauna of the United States, have been collected by Mr. L. Heiligbrodt, in Bastrop Co., Texas, and the types are contained in the beautiful collection of my friend, Mr. Otto Meske, in Albany.

Anisota Heiligbrodti, n. s.

♂ ♀. The antennæ of the male are broadly bipectinate, except at the tips; those of the female are simple. This species differs from its allies by its purely gray color and by the fore wings being covered by two nar-

row blackish lines. The first of these is sub-basal, irregularly sinuous, produced on the disc; the second is regularly scalloped, interspaceally waved, and runs from apical third to internal margin. The wide median space has a more purely whitish ground, while the wing everywhere is thickly dusted with dusky cells. The usual discal mark consists of two superposed white spots duskily ringed. Hind wings of the same gray with the disc bright rose color, enclosing a large round black discal spot and outwardly limited by a faint mesial band visible towards anal margin. Beneath of the same gray, with the round black discal spots repeated on both wings; the primaries alone are rose color at base, and there is a trace of a common extra-mesial band. Body gray with the sides of the abdomen tinged with roseate.

Expanse, ♂ $2\frac{1}{8}$ inch.; ♀ 3 inch.

Anisota Heilighbrodti, which is named for its discoverer, approaches certain southern species in form, which have been referred by Dr. Boisduval to *Adeloccephala*.

NEW SPECIES OF ORTHOPTERA.

BY G. M. DODGE, GLENCOE, DODGE CO., NEBRASKA.

Caloptenus angustipennis, n. sp.

General color light brown. Upper part of pronotum and hind femora with a reddish tinge. Face sometimes mottled. Antennæ light brown infuscated apically. The usual black band behind the eye broad and distinct, and reaching last division of pronotum, bounded below by a narrower white stripe. A broad white stripe from base of elytra connects with a white stripe at insertion of posterior femora, forming a right angle. Outside of hind femora is crossed by two indistinct dusky bands that extend upon upper edge. Lower sulcation reddish. Knees black. Hind tibiæ blue. Elytra light brown with very small black spots in the disk.

Frontal costa depressed at ocellus. Head but slightly elevated above pronotum. Foveola of vertex scarcely depressed. Carinæ of pronotum nearly obsolete; the median cut by three transverse incisions. Hind lobe of pronotum slightly rugulose. Elytra extending beyond abdomen, un-

usually narrow. ♂ cerci small, narrow, straight, tip rounded and sulcate. Tip of abdomen notched, as in *C. spretus*, but the notch is wider. Length: ♀, .95; ♂, .90 inch. Elytra ♀, .75; ♂, .70 inch. Hind femora ♀, .56; ♂, .50 inch.

Banks of the Elkhorn River, Dodge County, Nebraska. August and September.

Caloptenus volucris, n. sp.

Head unusually large. Frontal costa slightly depressed at ocellus, broadening below. Punctate above ocellus. Pronotum slightly constricted in middle. Median carinae distinct, but slight; cut by last transverse incision. Lateral carinae distinct only on posterior part of pronotum. Elytra longer than abdomen. Posterior femora equals abdomen in length. In dried specimen the face is brown, occiput and pronotum a shade lighter. The usual black stripe behind eye to last lobe of pronotum, and testaceous spot below. Elytra light brown, darkest at base, unspotted. Oblique yellow stripe on side of body. All the femora reddish yellow above, the posteriors black at tip, with three brownish patches on upper edge. Hind tibiae blue with black spines, and narrow, black, basal annulation. Under side of thorax and abdomen yellow. Antennae red, darker at tips. Terminal segment of abdomen pointed. Cerci broad at base, rapidly tapering to the middle. The apical half scarcely tapering and ending in a blunt point. Length ♂, .85 inch. Elytra ♂, .70 inch. Hind femora, .45 inch.

Rare and local so far as observed. Habitat, Glencoe, Neb. Time of appearance, September. This species is very close to *Pezotettix autumnalis* Dodge, and differs chiefly in the length of the elytra and wings.

Caloptenus plumbum, n. sp.

Frontal costa sulcate only at ocellus. Vertex slightly sulcate. Median carina of pronotum distinct, cut about the middle by last transverse furrow. Hind border of pronotum angled. Elytra and wings extend beyond the abdomen. Cerci broadest at base and straight until near the apex, when they bend upward—the upper side with a gentle curve, the lower making an obtuse angle—and end in a blunt point. Tip of abdomen rounded.

Color dark inclining to blue. Pronotum with a red, longitudinal

median stripe. Black band behind eye, broadest on pronotum, ending at last sulcus. Yellow spots behind the eye on both sides of black stripe and below the same on side of pronotum. Cheeks bordered behind with yellow. Sometimes face yellow, mottled with blue. A yellow spot at base of antennæ, and a yellow stripe following the lateral carinæ of pronotum on hind lobe, runs obliquely across base of elytra to insertion of hind femora. Elytra brown, with a few dusky dots along the disk. Wings tinged with blue. Upper outside face of hind femora dark blue, the upper edge crossed by the usual dark bands. Hind tibiæ red with black spines. Antennæ light red. Entire under-side of insect yellow.

Length of body ♀, 1.00 inch. ; ♂, .85 inch. Of hind femora, male and female, 0.50 inch. Elytra ♂, .75 ; ♀, .80 inch.

Two ♂, four ♀. Found in low grounds during the month of Sept., at Glencoe, Nebraska. Possibly a local variety of *femur-rubrum*.

Pezotettix abditum, n. sp.

Medium size. Frontal costa punctured, depressed at ocellus. Vertex sulcate. Occiput faintly carined. Median carina of pronotum slight, cut by last transverse incision. Lateral carinae obtuse. Elytra short, oval, pointed. Last segment of male abdomen acuminate. Cerci short, broad at base, of equal width from middle to apex. Tip broadly rounded.

General color dark brown. Antennæ red, darker at apex, sides of face and pronotum yellow. The usual black stripe behind the eye ; narrow on pronotum and ending at last sulcus. Elytra dark brown, spotted obscurely and irregularly with black. Hind femora dusky without, with three indistinct black bands that cross over the upper edge and appear on the inside, the one nearest the knee usually broadest and crossing the inner face. Inside and below yellow. Hind tibiae red, spines black. Under side of whole insect bright yellow.

Length of body ♀, .70 inch. ; ♂, .65 inch. Elytra ♀, .27 inch. ; ♂, .23 inch. Hind femora ♀, .45 inch. ; ♂, .40 inch.

Three ♀, three ♂. Taken at Glencoe, Nebraska, where it is usually abundant in August. It occurs upon hill sides, near damp ground, among the rank herbage common in such situations.

NOTES ON LIMENITIS PROSERPINA AND ARTHEMIS.

BY W. H. EDWARDS, COALBURGH, W. VA.

Last fall I obtained a few eggs from a female *L. proserpina*, in Sept., while in the Catskills, and raised eight larvæ to hybernation, which took place after third moult. This spring I have carried four of these to maturity with the following results: The first chrysalis gave butterfly this morning (April 29th), a male *arthemis*. For some hours before the emergence the white band of *arthemis* was distinctly seen through the wing case. The second was but a few hours younger and during this afternoon has given *proserpina* male. I expected this, as here there was no white band on the wing case. The third and fourth produced *arthemis*, making three *arthemis* and one *proserpina*.

After hybernation the fourth and fifth moults took place. As *disippus* undergoes five moults in same way, I presume *ursula* will be found to, and that it is the rule for this genus, in this country at least. We know that *proserpina* is found flying with *arthemis* in the White Mountains and Catskills, and probably in the Adirondacks. But I have never seen it from Canada, though *arthemis* roams over British America from Nova Scotia to low down Mackenzie's River. Can you or can any of your readers tell me whether this form (*proserpina*) has been taken in Canada, or British America, and where, if at all? I wish to get the northern limits of the form, preparatory to illustrating the species in Butterflies N. A. I should be glad to receive letters on this matter from any one who can give the information I seek.

A NEW GENUS AND SPECIES OF GEOMETRÆ.

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

Meskeæ Grote (n. g.)

This genus of *Geometræ* resembles *Tornos*; the fore wings are larger and with the apices more produced; the external margin is longer and more oblique. The hind wings are narrow and lanceolate, with the apices pointed and a little depressed; external margin straight or a little incurved. The female abdomen is like that of *Tornos*, and is thickly tufted at the

extremity. This singular genus, which I name for Mr. Meske, may be at once distinguished by the pointed secondaries, narrower in proportion than in any other genus of the group, while the primaries are disproportionately large with straight costa and produced apices.

Meskea dyspteraria Grote (n. s.)

♀. Fore wings of the same cream color as lighter specimens of *Tornos*, shaded outwardly on the interspaces with dusky and dotted with dark scale points. The dusky shades become linear between the median nervules, before a fine white interrupted subterminal line near the external margin. The costal edge shows a few separated dusky dots; there are no traces of the median lines; the cell is shaded with dusky, lined on either side diffusely with whitish towards its inner extremity. Hind wings blackish with a white median band showing a series of dark points; anal angle washed with ochrey; a fine terminal black line relieved by a narrow ochre shade. Above the median band is a deeper black discal shade. Body like fore wings. Beneath the wings are much as above, but darker, with the fore wings more mottled with dusky. Antennæ of the female simple. Expanse $1\frac{1}{2}$ inch.

The type of this species is contained in Mr. Meske's collection in Albany, and was taken by Mr. L. Heiligbrodt, in Bastrop Co., Texas.

CENTER, N. Y., ENTOMOLOGICALLY CONSIDERED.

BY JAMES S. BAILEY, A. M., M. D., ALBANY, N. Y.

Center is situated on the line of the New York Central Railroad, midway between Albany and Schenectady. The road in reaching this point traverses a distance of eight miles from Albany, and attains an elevation of 315 feet above tide-water.

During the warm months there are two daily trains stopping at this station, going east and west, and are so arranged as to give the scientist the advantage of the first half of the day on the ground. The place itself is not in the least attractive, consisting of but a few dwellings erected for the accommodation of the Railroad employes.

It is among the pine barrens and seemingly unfertile and inhospitable soil where is found so much to interest and instruct the student, for here

he can commune undisturbed with nature, and at each step find his pathway strewn with objects of interest. Center has a world-wide reputation botanically and entomologically. The collecting ground is embraced in a tract of one thousand acres, which civilization has never disturbed, but has allowed to remain in its primitive condition. It is now owned by a community of Shakers, living in close proximity.

The entomological tract is situated on the south side of the Railroad, and lies on both sides of the road leading to Sloans, any great divergence from which will not prove successful to the collector. It is unnecessary to traverse this road more than one mile, which brings you near to Mount Brizo, which is a bold projecting sand mound rising abruptly nearly to the height of 100 feet above the surrounding country on the east and gradually sloping to the west.

Upon this point has been found annually a few specimens of *Nisoniades Brizo*. During the last summer the number found was limited to a single pair.

The collecting ground has been subject to accidental visitations of fires, which have proven very destructive to the timber and shrubbery. During the last year a fire broke out and burned over 300 acres of timbered land before it could be subdued. The timber was supposed to be destroyed, but, fortunately, later in the season, the foliage put forth with renewed vigor and beauty. Later in the season another fire occurred, but as to the extent of damage done the writer is unable to determine; but many food-plants, caterpillars, pupæ and imagines must have perished in the flames.

The following Lepidoptera have been taken at Center during the last ten years. It must also be a rich field for the Noctuidæ, but as yet sugaring has not been practiced in the vicinity.

It is proposed to sugar systematically and persistently during the coming season, and if successful, the result will be given at another time.

PAPILIONINA, H. S.

Papilio, L.

Papilio turnus, L.

“ *troilus*, L.

“ *asterias*, Fab.

PIERIDES, B.

Pieris, Schrank.

Pieris rapae, L.

Colias, Fab.

Colias philodice, Godt.

- RHOPALOCERA.
- Argynnis*, Fabr.
- Argynnis myrina*, Cramer.
- “ *bellona*, Fabr.
- “ *atlantis*, Edw.
- “ *cybele*, F.
- Nymphalides*, B.
- Melitaea tharos*, Drury.
- “ *nycteis*, Doubleday.
- “ *Batesii*, Reakirt.
- “ *Harrisii*, Scudder.
- “ *phaeton*, Drury.
- Limenitis*, Fabr.
- Limenitis disippus*, Godart.
- “ *ursula*, Fabr.
- “ *arthemis*, Drury.
- SATYRIDÆ, Swainson.
- Neonympha*, Hüb.
- Neonympha eurydice*, Fabr.
- “ *canthus*, L.
- LYCAENIDÆ, Fabr.
- Thecla*, Fabr.
- Thecla strigosa*, Harris.
- “ *calanus*, Hüb.
- “ *irus*, Godt.
- “ *augustus*, Kirby.
- “ *melinus*, Hüb.
- “ *humuli*, Harr.
- “ *niphon*, Hüb.
- Polyommatus*, Latr.
- Polyommatus americana*, Harris.
- Lycaena neglecta*, Edw.
- “ *lucia*, Kirby.
- “ *Scudderii*, Edw.
- “ *comyntas*, Godt.
- HESPERIDÆ, Leach.
- Ancyloxypha*, Feld.
- Ancyloxypha numitor*, Fab.
- Hesperia*, Latr.
- Hesperia sassacus*, Scud.
- “ *leonardus*, Harris
- “ *bimacula*, Gr. & R.
- “ *mystic*, Edw.
- “ *otho*, Sm. & Abb.
- “ *peckius*, Kby.
- “ *viator*, Edw.
- “ *maculata*, Edw.
- “ *massasoit*, Scud.
- “ *hianna*, Scud.
- “ *verna*, Edw.
- “ *metacomet*, Harris.
- “ *zabulon*, B.
- “ *delaware*, Edw.
- “ *vialis*, Edw.
- Thanaos*, Bd.
- Thanaos juvenalis*, F.
- “ *martialis*, Scud.
- “ *persius*, Scud.
- “ *Brizo*, B.
- “ *icelus*, Lintner.
- “ *lucillius*, Lint.
- Eudamus*, Swainson.
- Eudamus bathyllus*, S. & Abb.
- “ *lycidas*, S. & Abb.
- “ *tityrus*, Fab.
- HETEROCERA, B.
- Hemaris*, Palm.
- Hemaris tenuis*, Grote.
- Haemorrhagia*, Gr. & R.
- Haemorrhagia gracilis*, Gr. & R.

- Haemorrhagia uniformis, Gr. & R.
 " thysbe, Fab.
 " tenuis.
 " Buffaloensis.
 Amphion, Hüb.
 Amphion nesusus, Cram.
 SPHINGIDÆ.
 Thyreus Abbotii, Swain.
 Deilephila chamoenerii, Harris.
 " lineata, Fab.
 Darapsa choerilus, Cram.
 " myron, Cram.
 Sphinx drupiferarum, Sm. & Abb.
 " Kalmiae, Sm. & Abb.
 " gordius, Hüb.
 " luscitiosa, Clem.
 Ellema Harrisii, Clem.
 SATURNINA, H. S.
 Euchronia, Packard.
 Euchronia maia, Drury.
 Hyperchiria, Hüb.
 Hyperchiria io, Fab.
 Anisota, Hüb.
 Anisota senatoria, Smith.
 " stigma, Hüb.
 ARCTIIDÆ, Stephens.
 Spilosoma, Stephens.
 Spilosoma isabella, Smith.
 " virginica, Fab.
 " latipennis, Stretch.
 Euchaetes, Harris.
 Euchaetes oregonensis, Stretch.
 " collaris, Fitch.
- THYRIDIDES, H. Sch.
 Thyris, Oelsh.
 Thyris lugubris, B.
 Aegeria.
 Aegeria pictipes, Gr. & R.
 ZYGAENIDES, Latr.
 Ctenucha, Kirby.
 Ctenucha virginica, Carpenter.
 Scepsis, Walker.
 Scepsis fulvicollis, Hüb.
 Lycomorpha, Harris.
 Lycomorpha pholus, Drury.
 Harrissina, Packard.
 Harrissina procris, Harris.
 COCHLEOPODA, B.
 Cyrtosia, Packard.
 Cyrtosia albipuncta, Packard.
 Limacodes, Latr.
 Limacodes scapha, Harris.
 Lagoa, Harris.
 Lagoa crispata, Packard.
 PSYCHIDÆ, B.
 Peraphora, Harris.
 Peraphora Melsheimerii, Hüb.
 PLATYPTERYCIDÆ, Stephens.
 Dryopteris, Grote.
 Dryopteris, rosea, Grote.
 Drepana, Schrank.
 Drepana arcuata, Walk.
 NOTODONTIDÆ, Stephens.
 Hypurpax, Hüb.
 Hypurpax aurora, Sm. & Abb.

The following Lepidoptera are extremely local in their distribution, and are found at Center, but not, I believe, elsewhere in New York.

Lyc. Scudderi.	Mel. Harrisii.
Hes. metea.	Thyris lugubris.
“ vialis.	Euch. oregonensis.
“ delaware.	Neonympha canthus.
“ hianna.	Haem. gracilis.
Thecla augustus.	

CORRESPONDENCE.

NOTES ON THE FOOD PLANT OF HEMILEUCA MAIA.

Last season I reared a brood of this rare species from eggs sent me by my worthy friend, Wm. Provis, of Detroit. The locality where he found the eggs is in Oakland County, Mich., known as the 5,000 acre tract, and so low and marshy that it is covered with water part of the year. In his interesting letter, giving a description of the place, he says: “The timber is mostly swamp oak and willow, and the land so low and wet I found great difficulty in getting about.” Mr. P. was too late to find any of the larvae, they having finished their growth and entered the ground, but the imagines were very plentiful, flying about in a very lazy manner, and occasionally dropping down in such a way as to induce one to think they had been injured.

Many of the females were depositing their eggs—not, as my friend had expected, on the oak—but on a species of wild aster found in abundance in the locality. The oak and aster are, botanically speaking, widely separated, and yet the female, whose instinct ought to teach her what course to pursue for the welfare of her offspring, is found depositing her eggs on the latter as well as the former, which goes to show that the food plants of this species have a far wider range than had been previously supposed. To convince me he was correct, Mr. Provis sent me a stem of the aster with a cluster of eggs in the form of a ring glued to it.

ROBERT BUNKER.

Camp at “Lake Forest,” Erie Co., N. Y., June 8, 1877.

Entomology can be pursued with great success when camping out. Here, on the borders of Lake Erie, our camp is pitched on the top of a

sandy ridge, which is covered with hemlock, beech and chestnut trees, and was formerly, no doubt, a reef when the lake was more extended. An outer sand ridge, parallel with ours, runs along the beach and up the lake, while between the two a small creek finds its way into the larger waters. Last night, at "sugar," about the camp, I took specimens of *Habrosyne scripta*, *Acron. noctivaga*, *Charandra deidens*, *Pyrrhia exprimens*, *Zale horrida* and *Homoptera duplicata*. I think *Zale* may be distinguished by its brown, discoloured and exaggerated thoracic tufts. I was much pleased to see many *Sphinges* come to the bait. I took *Thyreus Abbotii*, *Ellibia versicolor*, *Everyx choerilus* and *Sphinx Kalmia*. The flight of *versicolor* is more like that of *Kalmia* than *choerilus*; the latter sits close to the bait, the tongue being apparently shorter than in *versicolor*. The specimen of the latter which I captured (I saw a second) is fresh, and in looking at it one is reminded of the saying of Marcus Aurelius: "That which is beautiful is beautiful in itself; the praise of man adds nothing to its quality." The *Sphinges* came to the bait till 9:30 o'clock—it being very dark and cloudy; *Kalmia* was the earliest to appear. The species of *Lithophane* and *Scopelosoma* are now apparently over. *Heliophila Harveyi* and *phragmitidicola* are common at sugar, as well as *Hadena fnuima*, and *Eustrotia apicosa* and *carneola*.

A. R. GROTE.

Coalburgh, W. Va., 15th May, 1877.

In my recent Catalogue I named a genus of *Hesperia* on behalf of Mr. Butler, and called it *Lintneria*. It so happens that Mr. Butler had given this name to one of the genera of the Sphingidæ in his late "Revision" of that family, a fact which I only discovered a few weeks ago, and after the Catalogue was published. Mr. Butler proposes the name *Systasea* for the genus of *Hesperidæ* spoken of, which therefore should stand *Systasea* Butl.

W. H. EDWARDS.

EFFECT OF HOT WEATHER UPON THE TRANSFORMATION OF THE SPHINXES.

The 28th of last July I found feeding on the Virginia Creeper two larvae of the Satellite Sphinx (*Philampelus satellitia*). One was nearly full grown, and at the end of three days stopped feeding and entered the ground. August 1st passed through its transformations, and came out the 10th of September. It proved to be a very fine female of large size, with colors unusually bright. The above would seem to show that this species in a warm climate would become double brooded.

ROBERT BUNKER, Rochester, N. Y.