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The Canadian Entomologist.

VOL. VII. LONDON, ONT., OCTOBER, 1875. No. 10

MEETINGS OF THE ENTOMOLOGICAL CLUB OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(Concluded from September No.)

References were made by Mr. Grote to several rare captures of Lepidoptera in the vicinity of Buffalo. Among others he had taken *Thecla ocellifera*, which is also found in the West Indies. Mr. Saunders stated that he had again reared a specimen of *Thecla strigosa* from thorn, and referred to the capture of specimens of *P. thoas* and *P. marcellus* at North Ridge, Ont., by Mr. F. C. Lowe, of Dunnville. Mr. Cook said that *thoas* had been found this year at Lansing, that it occurred there to his knowledge some three years ago, and that last season it was quite common, the larva feeding on prickly ash. Mr. Riley stated that the larvae of *philenor* feed on a creeping plant very closely allied to Aristolochia. Mr. Ison has found *philenor* scarce about Cleveland during the last five or six years, but *marcellus* rather common; the larva of the latter feeds on pawpaw. One of the Detroit members remarked that there were pawpaw bushes growing within a few miles of Detroit.

A discussion on sugaring for Noctuæ was next in order. Mr. Ison reported excellent success with this method at Cleveland; he preferred adding a little rum to the usual mixture of beer and molasses or coarse sugar. Mr. Lintner greatly interested the members in relating his wonderful success in sugaring. He produced a tabulated list of Noctuidæ captured or observed at sugar at Schenectady, N. Y., commencing with July 7th, giving the results of sixteen evenings in that month, and four evenings in August.

Seventy-eight species of Noctuæ are recorded, and opposite each species observed or collected is placed a check in a column bearing the day of the month at its head. Four species were observed on each evening, viz., *Hadena arctica*, *Hydroecia sera*, *Homopyralis tactus* and

Asopia costalis. Of the first two, hundreds could have been collected on a single evening. *Hadena lignicolor* was unobserved on only one evening; *Erastria carneola* on only two evenings; *Catocala ultronia* and *Hadena devastator* on only three evenings.

The following species were common: *A. herbida, A. haruspica, A. plecta, Orthodes infirma, Pseudothyatira expultrix, Hydroecia nictitans, Amphipyra pyramidoides* and *Erastria nigritula.* Of *Catocala ultronia* about *seventy* examples in fine condition were captured; of *Catocala nuptala,* of which not a single example had ever before been taken by Mr. L., thirty-six were collected, and of *Catocala parta* sixteen examples had been secured, all in perfect condition. Specimens of *Catocala Meskei, C. serena, C. Briseis, C. Clintonii, C. polygona* and *C. similis* had also been obtained.

Mr. L. has become quite enthusiastic over the success with which he has met thus far, in the number of rare species collected, and particularly in the perfect condition in which the larger portion of them are obtained. It is his purpose to continue his collecting in this method, and also the tabulation of the results. The table, when completed at the end of the season, will probably be published in the New York State Museum Report. We are sure that it will prove a valuable contribution to that part of the natural history of our moths which relates to the number and duration of their several broods.

Mr. Mann exhibited specimens of the wood of *Agave Americanum,* which, when cut of the proper thickness, may be used as a substitute for cork. This wood is remarkably light and porous, and pins may with great ease be firmly pushed into its substance. It grows in Brazil, and can be obtained from Mr. Mann at a lower price than cork. In proof of the suitability of this material for the purpose named, Mr. Mann stated that Wallace preserved all his specimens collected in the East Indies in boxes made with pieces of this wood pinned together with thorns.

At a late hour this most enjoyable meeting was brought to a close.

On Thursday afternoon a large proportion of the members of the club joined in an excursion to some good collecting grounds in the neighborhood of Fort Wayne, the party being under the direction of Mr. Hubbard, of Detroit. A very pleasant and profitable time was thus spent, and many interesting specimens captured. In addition to the advantage enjoyed of closer social intercourse between the "brethren of the net," this occasion afforded an opportunity for the mutual exchange

of practical ideas in regard to collecting insects which no in-door meeting could have afforded. It seemed as if every member had *some* original idea of his own either in reference to capturing or carrying specimens, the advantages of which were freely urged and as freely discussed with much profit. After thoroughly enjoying themselves for several hours, the members returned at nightfall well satisfied with the afternoon's sport.

On Friday morning a second meeting of the Entomological Club was held at the rooms of the Detroit Scientific Association. In the absence of the President, Mr. Lintner was called to the chair.

The Committee on Nomenclature reported as follows :—

" The committee appointed at the last meeting of the Entomological Club to consider whether any immediate action is advisable on the part of the club to aid in establishing uniformity in zoological nomenclature, finding that the committee of the general association intends to report during the present session, and deeming it best to await this report before making any definite proposition, would at the present time recommend that the club appoint a committee of five to prepare and present to the club at its next annual meeting a compendium of the views of the leading entomologists of the country upon points which, in their judgment, require elucidation, and also to present a series of resolutions touching such points, in order that intelligent discussion may be had upon them, and some general agreement, if possible, arrived at.

Signed, SAMUEL H. SCUDDER,
C. V. RILEY,
WM. SAUNDERS."

On motion the report was adopted, and the appointment of the committee left with the President, who subsequently nominated the following gentlemen :—Messrs. Scudder, Saunders, Grote, Riley and Leconte.

An interesting discussion then took place in reference to the various methods of pronunciation followed by entomologists when speaking of insect names, which culminated in the following resolution, which was carried unanimously.

Resolved, that in view of the desirability of securing uniformity among Entomologists in the pronunciation of the names of insects, Mr. O. S. Westcott, of Chicago, be requested to prepare such an accentuated list for publication in the CANADIAN ENTOMOLOGIST.

Mr. Westcott very kindly promised to give his attention to this matter at an early date. We shall hail the advent of this list with much satisfaction; it is a work greatly needed, and coming from the hands of one who is in every way well fitted to do it justice, we feel sure that it will command general assent.

The next subject of discussion was on certain offensive names which have been proposed for insects, in which most of the members took part. The following resolution was unanimously adopted :—

Resolved, that in view of the fact that certain names have of late been proposed for insects which are offensive and unwarrantable, that the Committee on Nomenclature be requested to present at the meeting next year a list of such names as should be ignored; so that the club may take action in reference to them.

Some explanations were then offered in regard to a valuable discovery lately made by Mr. George Dimmock, of Springfield Mass., of a ready method of removing the scales from the wings of Lepidopterous insects, so as to display the vein structure. Mr. Dimmock had kindly shown the admirable working of his process to a number of Entomologists at his room the evening previous, when all present were struck with the great practical value of the discovery. After full explanations to those present who had not seen the working of the process, it was resolved, "That the thanks of the members of the Entomological Club be given to Mr. Dimmock for his valuable discovery in reference to a ready method of denuding the wings of insects."

This process of Mr. Dimmock's formed the subject of a paper read before the American Association, and which will be published, we believe, in an early number of *Psyche*. It may thus be briefly explained: All the materials necessary are a little alcohol, a saturated aqueous solution of chloride of lime, a phial of pure muriatic acid and another of sulphuric acid. The wings are first moistened with alcohol, then transferred to the solution of chloride of lime, to which a little of the sulphuric acid has been added. After immersion for a few moments, the coloring matter of the scales rapidly disappears. This result may be hastened by taking the wings out of the chloride of lime solution and immersing for a moment n the muriatic acid, diluted with twice its weight of water, and then returning them again to the former solution. This alternation may be repeated as often as required. By this means any quantity of wings of Lepidoptera may be safely and entirely denuded with little or no trouble.

The denuded wings were neatly mounted by Mr. Dimmock on white cards, to which they had been gummed. An interesting collection, illustrating the nerve structure of many of the genera of moths, was exhibited by him, to the great gratification of all present.

In the compilation of these memoranda in regard to the meetings of the Entomological Club, we are greatly indebted to the Secretary, Prof. C. V. Riley, who very kindly placed his notes at our disposal; also to Mr. B. P. Mann, of Cambridge, who did us similar service.

ON CATOCALA VERRILLIANA, WITH NOTES ON CATOCALA RELICTA.

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

Catocala Verrilliana Grote, Bul. B. S. N. S., 3, 12 (Aug., 1875).

The smallest N. Am. red-winged species known. It has a resemblance to *polygama* and *fratercula* in the ornamentation of the primaries. Fore wings gray, shaded with blackish; lines black. A diffuse basal black shade. T. a. line diffusely shaded with black. Reniform small, yellowish, more or less distinctly double ringed. Sub-reniform small, yellowish, disconnected with the t. p. line. T. p. line shaped much as in *polygama*. Hind wings bright red. Median black band narrow, tolerably even throughout, not attaining internal margin. Terminal band black, narrow, not quite attaining anal angle. A red apical mark, opposite which the fringes are pale. Medially the black band is five times outwardly scalloped, and opposite this scalloping the fringes are blackish. The red color again prevails below them on the margin, with the pale fringes; towards anal angle the fringes are dusky. Beneath, both wings red, with constricted median band on hind wings not attaining the margin.

Expanse 48 m. m. G. W. Belfrage, Bosque Co., Texas, June 13. Dedicated to Prof. A. E. Verrill, of New Haven. Interesting as a form of the red-winged group, resembling the yellow-winged and smaller species of the genus.

I am indebted to Prof. Hopffer, of the Royal Museum of Berlin, for a beautiful water colored drawing of the Texan *Catocala frederici* Grote,

the types of which species, from Texas, are contained in the Royal Museum.

Catocala relicta (Walk.)

I have recently examined my material of this species taken in Buffalo and Batavia, N. Y., and I find that the dark shading of the fore wings is not a sexual, but a varietal character. I have a male (as shown by the simple frenulum and the genitalia) which is darker than the specimen figured by Mr. Strecker as a female. I have also a female whiter than Mr. Strecker's figure of the male as regards the fore wings. It is evident from the form of the abdomen that both Mr. Strecker's figures are males. The sexual character is adopted from earlier writers, who had slender material, without personal verification by Mr. Strecker.

ON NEW SPECIES OF AGROTIS.

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

Agrotis Treati, n. s.

♂. Allied to *A. bicarnea* Guen.; smaller and distinguishable by the evenness of the t. p. line. Fore wings dead brownish black. T. a. line rigidly oblique to submedian fold, not rounded as in its ally, and with a less prominent tooth on internal margin. A very faint yellowish shading to the line and also on the costa at inception of t. p. line, where *A. bicarnea* is strongly marked with carneous. T. p. line shaped as in its ally, but even, geminate, the inner line not scalloped; the component lines include a pale shading. Disc velvety black between the narrow stigmata, which are concolorous with the dead black of the wing. A black shade at base below the median vein. All the transverse lines geminate; the inner line of the basal and t. p., and the outer line of the t. a., marked with velvety black. In one specimen there is an absence of the velvety black shades; this one is in imperfect condition and allows of no certain description. Hind wings yellowish gray, paler than in *bicarnea*, with a noticeable terminal darker shading. Beneath with common line and

strong lunule on secondaries. Head dark brown on vertex, with pale marginal lines; terminal palpal joints pale; collar brown, with a black and pale line at base. Legs dark, pale dotted. Thorax brownish black, with pale line at base of tegulæ. Abdomen like secondaries.

Expanse 34 m. m. Mass., Mr. Thaxter, No. 2,311. Named for Mr. James O. Treat, of Andover, Mass.

Agrotis brunneipennis, n. s.

♂. Allied to *cupida*, but smaller. Fore tibiae unarmed. Thorax and fore wings of a glossy chestnut brown, somewhat reddish. None of the usual markings are noticeable. The subterminal space is stained with blackish. Following the s. t. line is a series of faint pale interspaceal fleckings. Ordinary lines indicated on costal region. Hind wings blackish fuscous. Abdomen beneath stained with reddish brown as is the costal region of primaries; else the blackish wings beneath show only a common black transverse line, which fades out towards the internal margins. Palpi black at the sides. Head brown above.

Expanse 30 m. m. Mass., Mr. Thaxter, No. 2,303.

Agrotis friabilis, n. s.

♀. A small species with a resemblance to *Bostoniensis*. All the tibiæ spinose, the fore pair with larger terminal spinules; clypeus roughened. Fore wings fuscous gray, with indistinct darker markings. The t. p. line is lunulate; the t. a. line widely geminate and dentate; stigmata obsolete; median shade noticeable; terminal space more purely gray than the rest of the wing. Hind wings concolorous, pale grayish fuscous, above without line or spot; beneath (where they are whitish with the costal region powdered with fuscous) there is a faint median shading. Fore wings beneath with a faint median line distinctly marked in black on costa.

Expanse 30 m. m. Taken by Mr. Geo. Norman; number 371.

Agrotis badicollis (Grote).

Mr. Norman sends me a fine male with the transverse lines broadly marked in black, and Mr. Lintner has again sent me my ♀ type. I have mistaken the black scales about the eyes for true lashes. Mr. Morrison's correction, as to the genus, must, then, be accepted. The species seems to vary greatly in distinctness of markings.

Agrotis campestris Grote.

This species, collected by Mr. Geo. Norman at Orillia, No. 372, appears to be a form of *tessellata* (*maizi* Fitch); it differs by the red brown tinge of thorax and fringes, the unicolorous purplish black brown primaries, and the coarseness of the black median lines. Specimens are before me from N. Y. (Mead) and Vancouver Island (Hy. Edwards, 5,644). With other species of the genus, it is described in a paper presented to the Academy of Natural Sciences, Philadelphia.

ON A NEW CANADIAN LITHOPHANE AND SCOPELOSOMA.

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

Mr. George Norman has recently taken a number of the species of the genus *Lithophane* at Orillia. In a recent letter, Mr. Norman records the capture of *petulca*, *ferrealis*, *disposita*, *Bethunei*, *semiusta*, and "that lovely *oriunda*, a single specimen." Mr. Norman also finds a number of specimens of a large light grey species allied to *laticinerea*, but differing from that species and *cinerea* in the position of the stigmata, the color, and the shape of the subterminal line. I propose to call the species *Lithophane Georgii*, after its discoverer. Fore wings bluish grey, with a white shade on the shoulder above the black basal dash. T. a. line dentate, indistinct. Orbicular erect, not oblique, moderate, concolorous, with a paler annulus. In shape, color and form this spot offers decided differences when compared with allied species. Reniform squarish, darker stained than the wing, proportionally smaller than in allied forms. T. p. line sub-obsolete; it appears to run nearer the subterminal line than usual; the latter line consists of a series of disconnected, distinct, interspaceal, blackish, triangulate marks. Fringes entire, concolorous. Hind wings blackish fuscous, beneath with spot and line. Thorax concolorous with primaries; collar with a black line in front; face with a black line; antennæ whitish at base. *Expanse* 48 m. m.

I have received from Mr. J. Pettit, of Grimsby, Ont., two specimens of a small species of *Scopelosoma*, which I propose to call *Pettiti*. The little roughly scaled species presents some resemblance in ornamentation to *Scopelosoma Graefiana*. The color is orange ferruginous over light yellow;

head, antennæ, thorax and fore wings of this color. Primaries with three transverse darker lines, the t. a., median shade and t. p. lines; all indistinct, the t. p. line followed by faint blackish points. Orbicular small, round, pale centered. Reniform large, vague, sometimes with a few blackish scales inferiorly. T. a. line perpendicular, undulate; t. p. line even. Abdomen and hind wings above, very pale silky yellowish; beneath a little darker, the latter with orange spot and median and terminal lines; fringes concolorous. Fore wings with line and dot faintly shown. *Expanse* 30 to 31 m. m.

ARGYNNIS MYRINA AND ITS ALLEGED ABNORMAL PECULIARITIES.

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

In the Am. Nat., Sept., 1872, Mr. Scudder published an essay entitled "The Curious History of a Butterfly," in which it is stated that in two N. American species of the "genus Brenthis," namely, *myrina* and *bellona*, occurs a phenomenon considered by the author to be quite unique among butterflies: there being two sets of individuals, each following its own cycle of changes, apparently with as little to do with the other set as if it were a different species; each set having its own distinct seasons and thus giving rise to the apparition of two or three successive broods in the course of the year. At the very end of the season one of these sets, which the author calls the "aestival," lays eggs which hatch in a few days; the larvæ at once commence hybernation, to awake and begin to feed early the next season, attaining their growth by the end of June, and emerging as butterflies about the middle of July. These butterflies continue on the wing till the end of September.

The second set, called the "vernal," hybernate as half grown caterpillars, and the butterflies from them appear about the middle of May, sometimes earlier, but are hardly common before the end of May, and also live till September. These lay their eggs the last of July and early in August, the eggs hatch, the larvæ moult twice, and beyond that, behave differently, some at once entering on their hybernation, giving butterflies

in May again ; the others proceeding to chrysalis, from which the butterflies emerge in September, "*doomed to an untimely end. Their sisters of the aestival series are busily laying eggs to perpetuate the race, but to them is this boon denied; the cold autumnal blasts sweep them away before the eggs are half developed in their ovaries.* It is, in fact, a vain effort of Nature to develop a second brood." Elsewhere this is spoken of as a "waste of energy on the part of Nature."

It is expressly stated that "*in this butterfly the eggs are wholly undeveloped at the birth of the female.*" The above statement of facts leads the author to conclude that "we have here two independent series in the same species, each single-brooded, but one making an effort towards a second generation, *invariably ending in disaster;* that it is improbable that the blood of both series ever commingles through the union of the butterflies of the two series, because, although the generations overlap, *the males of a brood are the first to disappear*, and the *females the last to appear*, and at best there would be few that could thus mate; moreover, *since the eggs of the freshly emerged females are not fully developed for weeks or even months*, the effect of such a union would be questionable. Yet if there is no union between the two series, then are the vernal and aestival groups practically as distinct from each other as any two species. The two groups *show a difference such as usually characterizes somewhat distant genera.*"

Mr. Scudder's observations on these species were so different from those on an allied European species, *cuphrosyne*, as related by Doubleday, that he could not comprehend the statement given, and says: "By this account the butterflies *(cuphrosyne) lay their eggs on their first appearance; either they differ in toto from their congeners in America, or there is some error in this statement* (of Doubleday).

When I first read Mr. Scudder's paper it occurred to me that possibly there was error in his statement of facts. But as these butterflies are not inhabitants of my district, I have had no opportunity to put Nature to the question till the last season, and the result is as I anticipated. She may dry her tears, unveil her blushing cheeks, and walk forth acquitted of the horrid charge. I think it will appear that the history of the butterfly, although curious, as I find the history of every species of butterfly which I have studied, is not unlike that of many of the double-brooded species, and certainly runs parallel with some of them.

In July, 1875, I was at Hunter, in the Catskill Mountains, and both

myrina and *bellona* were rather abundant. The females of both species were more or less worn and were heavy with eggs. I shut up half a dozen of each species in a muslin bag, which was drawn over the top of a flower pot in which I had set plants of wild violet. Between the 20th and 25th inst. both species laid many eggs, and these hatched in about five days. I lost nearly all the *bellona* eggs by mailing them to Coalburgh, but three which I sent Miss Peart for drawings gave larvæ, and in due time the larvae became chrysalids and yielded butterflies on or before the 1st of September.

But as I kept the larvae of *myrina*, my observations relate to them only. These grew very rapidly, moulted five times, and the first of them reached chrysalis on the 27th of August, about thirty days from the egg. The butterfly emerged on the 3rd of September, and was a female. Next day five emerged, three ♀ and two ♂ (I mention the sex to show that the females emerge as early as the males, and this is so in all species of butterflies which I have made observations on, except one, *Apatura clyton*, and in this the male has been found to appear about a week in advance of the female). The other butterflies emerged at intervals till September 9th, by which time twenty-five had appeared. Not one of this brood of larvae hybernated after the third moult, or at all, and all the chrysalids gave butterflies. On opening the abdomens of the newly emerged females, *they were found full of nearly mature eggs.* These eggs were soft, but nearly or quite full sized, and distinctly ribbed, which would not be so if they were not almost ripe for deposition. I have never found this to be the case in the larger species of *Argynnis*, there being so far as I have examined, and I have done this in very many instances, no appearance of the egg for weeks after the females are on the wing. But in some other butterflies, as *Papilio ajax*, the eggs are almost ready to deposit when the female issues from the chrysalis, and it is certain that she deposits them within a few days—say a week—from chrysalis.

So far I have given my own observations upon *myrina*. Adding to them such as are related by Mr. Scudder, and not involving the error as to a long period of time being required to mature the eggs, and the history of the species resolves itself into this shape.

The butterfly of the fall brood emerges from chrysalis about the 1st of September, lays eggs on or before the 15th, the larvae hatch between the 20th and the 24th, and go at once into hybernation, to awake in May, and reach chrysalis about the middle of June, and the butterfly about the 25th

of June. If, however, any of the last brood of larvae, instead of at once beginning hybernation, incline to feed for two or three weeks, there is plenty of time before severe frosts come to do so and reach the third moult, at which time, in all five-moulting species that I have experimented on, the hybernation occurs, if at all. In such case the larvae would also awake in May, and would reach the butterfly stage two or three weeks earlier than the 25th of June. If any of the summer brood of larvae hybernate after their third moult (a fact which I had no opportunity to establish), then the larvae of both broods would awake at the same time and become butterflies at the same time, making the summer brood. It is to be observed that the several stages of the same brood of larvae do not occur in exactly the same periods of time. From eggs laid on the same day, by the same female, some of the larvae hatched will reach chrysalis several days before others. In the larger *Argynnis* there will be such a difference, amounting to two or three weeks. Therefore some of the larvae which hybernate at the third moult may be retarded so that their butterflies shall emerge contemporaneously with those which proceed from the larvae that hybernate as soon as they leave the egg. The case is parallel with that of *Phyciodes nycteis* and with that of *Apatura celtis*, both double-brooded species, both discovering larvae from the summer brood which hybernate when half grown, while a part of the brood go on to chrysalis and give the fall brood of butterflies, these again producing larvae which also hybernate. (In both these the last hybernation begins after the larva is half grown, the third moult in *nycteis*, the second in *celtis*.) Mr. Scudder has made a hypothetical case which is precisely the actual case that I have set forth above. He says: "Should the season be so long that the *second brood could lay eggs*, the caterpillars would then be forced to hybernate as those of the aestival series and *become members of that series the next year. Thus the vernal series would continually feed the aestival*," &c. Moreover, in no species do the several preparatory stages of its members run even. On the contrary, in any, whether single or double brooded, there will be found by different females eggs freshly laid, eggs ready to hatch, young larvæ and mature larvæ, all at the same time. By this means there is kept up for a long period, often for weeks, a succession of newly emerged butterflies of the same brood, and the newer and older are constantly mating. On one day in September of this year I cut a branch of Wild Senna *(cassia)*, on which at the moment were newly laid eggs of *Terias nicippe*, larvæ in every stage of growth, and a butterfly of the same species just emerged and still resting on the empty shell of its chrysalis.

I have bred from the egg four of our larger species of *Argynnis*, viz., *diana, cybele, aphrodite* and *idalia*, and have had the egg and chrysalis of *atlantis*, and have drawings of the several stages of each species; and now having bred *myrina*, I can say that so far as I have seen of the preparatory stages of all these species, they are congeneric The simple difference that is found among them is not in the shape of the eggs, or the forms and habits of the caterpillars, or the forms of the chrysalids, but merely in the behavior of *myrina* as regards the second brood, each of the others being, so far as is yet known, single brooded.* And neither in the preparatory stages nor in the butterflies themselves do I see any reason for separating *myrina* and the smaller species from the genus *Argynnis*, or making more of them than a group. A group is as expressive as a genus, and a genus with its groups should present at one view an entire class with all its families, inter-related, though in differing degrees, as having had a common ancestor, and any system of arrangement which elevates what are properly groups into independent genera, destroying the unity of the class, strikes me as unnatural, and therefore unphilosophical.

But in passing we may as well look into the facts about this genus *Brenthis—Brenthis* Hübner (Scud. Syn. List, 1875) and learn something about the manufacture of modern genera.

The species *myrina* is closely like *cuphrosyne* of Europe, and congeneric with it, no matter how *Argynnis* be split up. Hübner, in his Verzeichniss, amused himself with assorting the known butterflies into batches or parcels, as a child would sort his alleys and taws, by color, stripes and shape, putting blues into one lot, browns into another, one-striped into a third, two-striped into a fourth, regardless of characters which would be generic, that is, *which would indicate blood relationship or a common descent.* It is a very rare thing to find one of his batches —which he called a coitus, meaning a batch or assemblage, and which is in no sense a genus, for the element of common descent does not enter into this whimsical system—co-extensive with a genus. It is by the merest chance if it is so. Nor does the coitus correspond with a natural

* Though there are some reasons for suspecting that in West Virginia the other species must be double brooded also. That, however, is not determined, and I do not assume it. But this difference in the same genus as regards the number of broods, supposing it exists in *Argynnis*, is paralleled by the *Apaturas celtis* and *clyton*, the former being here double, the latter single brooded.

group under a genus. At first sight it may sometimes seem to do so, the species being assorted in twos and threes, but it will be found that whether the coitus embraces two or twenty species, the butterflies under it are most likely such as belong to distinct genera, and sometimes so distinct that one hundred or two hundred pages of Kirby's Catalogue separate them. And an instance of this mis-assortment is found in the coitus *Brenthis*. Under this head are ranged five species, viz., *hecate*, *dictynna*, *thore*, *daphne* and *claudia*, the latter as much out of place in such company as a horse in a drove of asses. But the horse is dapple and the asses are dapple, each has one tail and two ears, and behold a Hübnerian coitus! The definition of *Brenthis* is "the hind wings below gaily clouded, pale spotted," and it is ranged under the first family of the fifth stirps. This family is called Reticulatæ, and embraces two coitus only, viz., *Phyciodes*, under which our *tharos* comes, and *Brenthis*. The definition of the family is thus given: "The wings above striped like a grating; the hind wings below spotted with colored spots on a pale yellow ground, marked with eye-like spots." *Thore*, an European species very much like our *bellona*, and congeneric with it as *myrina* is with *euphrosyne*, is placed in *Brenthis*, along with *claudia*, and these are separated from the batch which includes *myrina*, *not merely by the limits of a coitus, but of a family even, in order to get them among the Reticulatæ by the side of tharos.* This next family, the Phalaratae, is thus defined: "The wings differently spotted, the under side ornamented with pearl-colored spots." And the first coitus under it is *Argynnis*, the definition of which is: "the hind wings below variegated, spotted with shining white." Under this coitus comes *euphrosyne*, and therefore *myrina*, included in this loose definition solely because it has white spots. Two more coitus are made, called *Issoria* and *Acidalia*, which include the larger species of *Argynnis* (not Hübner's), *lathonia*, *cybele*, *diana*, &c. Of these absurd divisions, Mr. Edward Doubleday (Remarks on the genus *Argynnis*) says: "they are so unnatural that they can in no case be adopted."

But suppose these batches were not unnatural, but were co-extensive with genera, how comes *myrina*, which, as it agrees with *euphrosyne*, is placed by Hübner under *Argynnis*, filling in some little degree the requirements of that coitus, to be remanded to the coitus *Brenthis*, which belongs to another family even, placed along side of *Phyciodes tharos*, and the requirements of which coitus it does not fill at all? It is an unwarranted use of Hübner's name, applying it to what he expressly says it shall not be applied. It is taking one of his blue taws and dropping it among the

striped ones, doing violence to all his notions of symmetrical arrangement. He would have rejected the blue taw with abhorrence. What does the word "*Brenthis* Hübner" mean, if not that the genus *Brenthis* was created by Hübner, and that his definition includes the species sought to be placed under it? If it has any other meaning I am ignorant of it, and if it does mean that it is false. This is a fair sample of the uses to which Hübner's absurd and worthless Catalogue has been put. Very few Lepidopterists in this country know anything of Hübner's books, and most are disposed to accept in some degree the dicta of any one who sets up to reform the nomenclature. But if reform be needed, which is very questionable indeed, it is not to be brought about by lugging Hübner into the arena. To go back at this time of day to the Verzeichness is to go back to the balls and tops and games of school-boys.

NOTE ON DATANA PERSPICUA G. & R.

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

Since the original illustration and description of this species, ten years ago, in the Proceedings of the Entomological Society of Philadelphia, it has not been noticed, except by the late Mr. B. D. Walsh, in the same Proceedings, vol. 5, p. 194–5. I have been since last year indebted to Prof. C. V. Riley for a number of specimens of *perspicua*, raised from larvæ found on Sumach. It is enough to say that the specimens bear out the specific validity of a form which is perhaps the most easily recognized among the difficult species of this genus. I was able to separate the imagos of a number of the species bred by Prof. Riley, by the characters laid down by the late Mr. Robinson and myself in our revision of the genus. Specimens of *contracta*, *integerrima*, *ministra* and *perspicua* were sent me by Prof. Riley; no true specimens of *angusii* were included. I observed the larva of *integerrima* at Detroit, August 13, and again on Grand Island, Niagara River, Aug. 19, apparently nearly full grown. I have not had hitherto any specimens of *perspicua*, before receiving those sent me by Prof. Riley, who will, I hope, give us some observations on the genus before long. I am glad also to be able to find that the facts

relieve us from the imputation of having described "not the *species*, but the *individual*," placed upon us by the late Mr. Walsh in the case of *D. perspicua*. And as to the "very limited number of specimens," the argument which covers two pages seems to have been compiled almost wholly from Fitch and other writers who mixed up a variety of forms under the name of *ministra*, and who, in consequence, cannot be considered as any authority on the subject. I have yet to see imagos of *Datana* which I cannot refer to one or the other of the forms in this genus, which are separable also on larval characters. It matters little whether we call these forms "species" or "varieties," so far as the advisability of according them different Latin designations is concerned.

NOTES ON CERTAIN SPECIES OF ARCTIA.

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

Arctia arge (Drury).

A male specimen taken by the late Mr. C. T. Robinson, at Brewster's, N. Y., varies by the fore wings being black, the veins broadly bordered by flesh color. The ordinary triangulate black interspaceal markings have all fused. Hind wings shaded entirely with blackish, none of the usual spots being visible. Beneath as above. Body as in the type.

Arctia Anna Grote.

Contrary to Mr. Stretch's remark, two specimens of this species occurred in Penn. One is in Dr. Packard's collection, and is recorded by him in his Synopsis. The markings of the fore wings prevent the idea that it is a "melonotic" var. of *Persephone*, as suggested by H. Strecker. *Persephone* Grote was described *after* this species; I supposed at first the two belonged as ♂ and ♀, only one sex of each being known to me. More material is needed to decide these points, bare opinions being useless and offensive.

Arctia Michabo, n. s.

♀. Belongs to the series of *virgo, Saundersii (intermedia), Edwardsii, Blakei.* The size is next to *Saundersii.* It is like *virgo* in having black spots on the middle of hind wings, one rounded one on the median vein

within and below the rounded discal spot; below this, on internal vein, is another sub-obsolete spot. The sub-marginal spots are very large irregularly triangulate; the marginal spots are limited to two superiorly, which do not tend to run along the edge of the wing as in allied forms; the fringes are but little paler than the rosy wings, which are more diaphanous than in its allies. Fore wings like *Saundersii* in having linear venular markings; the bands are like that species, the color is more pinkish, the discal stripe much broader. Beneath both wings alike roseate, with the black markings repeated. Thorax and head like its allies; the breast is however, pink, and the legs spotted with pink and not wholly blackish. Costa of fore wings without black markings beneath. *Expanse* 43 m. m. Nebraska, Mr. Dodge.

Arctia intermedia Stretch.

My specimens from Belfrage lead me to suppose a different species from that illustrated by Mr. Stretch, whose figure seems to me undoubtedly to represent *Saundersii*. It is probable that a number of specimens sent by Belfrage belong to a different species from that sent to Mr. Stretch, and I provisionally propose the name *Stretchii* for the following form. It differs from *intermedia* and *Saundersii* by the presence on the fore wings of an inner sub-basal transverse band, narrowing at median vein, broad below the longitudinal stripe. On hind wings *all* the spots much reduced. The anus is not black at the sides. Oct. 7, 10. Dr. Harvey has recently referred specimens of this form to *Saundersii*.

Arctia Snowi, n. s.

♀. Habit of *nais*, of which I thought it at first an extreme variety, but the fringes on both wings are wholly black. Head, thorax, legs, wholly black; abdomen crimson at sides. Wings wholly black. A crimson discal rounded lunule, narrowly yellow edged; a short broken transverse bar, similarly colored, opposite the disc. Hind wings with a moderate crimson lunulated spot outwardly towards the apices. Beneath as above, a dash above the discal spot. *Expanse* 38 m.m. Kansas, Prof. Snow.

DESCRIPTION OF A NEW HADENA FROM THE WHITE MOUNTAINS.

BY H. K. MORRISON, CAMBRIDGE, MASS.

Hadena ancocisconensis (nov. sp.)

Expanse 40 m. m. Length of body 16 m. m.

Eyes naked, with short lashes. Antennæ in the female simple. Palpi gray, the third joint very short. Collar whitish beneath, above bearing a transverse, partially interrupted black line. Thorax mingled light and dark gray; no prothoracic tuft, metathoracic tuft low and longitudinally furrowed; sides of the thorax deep black and very conspicuous. Abdomen light gray, with several slight dorsal black tufts, and one very strong one, tipped with white on the third segment. Tibiæ unarmed. Anterior wings having the basal space light gray, whitish at the base, and contrasting with the thorax and a black acute basal dash; inner margin of the wings white near the base, this white space is bounded above by another basal dash, finer than the one last mentioned; median space darker gray; the ordinary spots are of the usual shape, faintly outlined in black and filled with light gray, which extends around and beyond them, but less distinctly; interior line simple, black and very acutely dentate, forming inferiorly two very long teeth, the upper of which is connected by a black dash with the exterior line; the latter is well removed towards the outer margin, obsolete above, below it appears as an oblique black line, followed by a distinct white shade, this is followed by another thicker black line, slight traces of the subterminal line otherwise obsolete, and another white dash before the angle, enclosing a black spot; a series of black dashes in the terminal space, three of which are united, forming the usual W-shaped marking; the white subterminal shade line extends sometimes around this marking. Fringes gray, with white points at the terminations of the nervules. Posterior wings gray, darker towards the margin. Beneath gray, nearly unicolorous, without the usual median line.

Hab. Glen Valley, Mt. Washington, N. H.

Described from a specimen in my collection, taken at sugar in August.

The alternation of black and white at the inner angle makes this species very easy to recognize; it differs in this respect from all other members of the genus.

THE LUNA MOTH *(Actias luna).*

BY R. V. ROGERS, KINGSTON, ONT.

As supplementary to my remarks on this pretty creature in the August number of the CAN. ENT., I would say that on June 6th a friend gave me a captured female Luna. For two or three nights I used her as a trap to entangle unwary males, but in vain as far as my cabinet was concerned; the weather was cold. On the 7th, 8th and 9th, during the silent watches of the night, she deposited in her place of confinement, in all, about 100 eggs of a dark brown or chocolate color, flattened at the sides, smooth and about .005 of an inch in length; the sides were of a lighter shade. On the 13th the moth died, having accomplished the end of her existence. On the 20th the first little larvæ appeared, having made their escape by eating an oval opening in the end of the shell; the inner surface of the egg now appeared perfectly white. The caterpillars were about .02 of an inch in length; head black, greenish on top and yellowish in front; the body black, with two yellow spots on each segment, and having numerous yellow hairs; the under part of the body and feet and legs were of a light yellow. Some crawled about with the empty shell on their tails, others carried it as an umbrella over their heads, but the majority seemed to discard it at once. The first day they were in a dark box, and they seemed very restless and would eat nothing; the next day I put them in a box with a glass cover, and they at once settled down contentedly to their life-long work of eating their daily bread. Others were born on the 20th and 21st. I fed them on elm leaves. On the 27th they had grown to over a third of an inch in length, and now the warts upon each segment were apparent, and the little hairs upon them were also visible.

On the 30th they began to change their skins; the head and body were now of a light green, with yellow warts on each segment; the hairs were neither as numerous or as distinct as before; there were a few dark ones on the front segments.

On the 4th of July the length of the largest was .45 in.; on the 11th, .6 in.; on the 13th they moulted a second time, and on the 18th they had attained the length of almost an inch.

Unfortunately, the food, the weather, the close watching, the narrow confinement, or something or other, did not agree with these unfortunate caterpillars, and one by one they would suddenly die, and my attempt to reap a rich harvest of cocoons was utterly foiled, and I succeeded in getting—not one; although up to the very day of their death they would eat the elm leaves apparently with great gusto; it was difficult for me to get a change of diet for them.

ON A NEW EUCHAETES.

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

Euchaetes Spragueï, n. s.

♂. Allied to *elegans*, but entirely stone color, like *egle*.

Fore coxae, head at base, two thoracic vittae, costal and internal margin of fore wings crimson. Abdomen above bright red, with dorsal black dots.

Kansas (Prof. F. H. Snow).

I name this beautiful species, which is of the same size as *elegans* and *Oregonensis*, after my friend Mr. Henry S. Sprague, of Buffalo, N. Y.

BOOK NOTICES.

Injurious Insects of Michigan, by A. J. Cook, of the Michigan State Agricultural College, 8vo., 48 pages, with numerous cuts. We are indebted to our esteemed friend Cook for a copy of this excellent report, in which is contained a concise summary of most of the facts known relating to the life history of a large number of our most injurious insects, with the best means of subjugating them. It is intended as a practical hand book to guide the agriculturists of Michigan, a purpose it is well qualified to serve.

We have also received from the same author a copy of an address delivered by him on *Phylloxera vastatrix*, at Munroe, Mich.; 8vo., pp. 10, with illustrations.