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THE EARLIEST BUTTERFLIES AT THE WHITE MOUNTAINS OF NEW HAMPSHIRE.

BY SAMUEL H. SCUDDER, CAMBRIDGE, MASS.

A few years ago a visit was made to the Glen, in the White Mts. of New Hampshire, in the early spring, just as the first tender leafage was appearing (June 2-5), and a report of the thirteen butterflies then found was published in *Psyche*, 1874, vol. 1, p. 13-14, 18-19. Wishing to secure eggs from some of the wintering butterflies abundant in that place, which I then failed to secure from being too early, another visit was made last spring to the same place, and at the same date (June 3-7), as the season was evidently sufficiently advanced to make it practically at least a week later; and so it proved, the vegetation at the Half-way House, at the upper limit of forest growth on the Mt. Washington carriage road, being this spring exactly at the stage at which I found it in the valleys at the previous visit, the difference in elevation being over fifteen hundred feet. The sky was equally sunny in both cases.

The collecting ground was the same as previously, excepting that on this occasion there was superadded an ascent of Mt. Washington by Tuckerman's Ravine, with a descent by the carriage road; and also a walk southwardly from the Glen to North Conway.

This last walk showed a very distinct change in the fauna from the considerable clearing at the Glen to the open country to the south (a thousand feet lower), after the eight miles of unbroken forest, ending at Emery's, was passed. *Pamphila sassacus* at once appeared in considerable numbers; *Brenthis myrina*, *Phyciodes tharos* and *Atrytone hobomok* were far more common—all indicating an earlier appearance at this altitude, since they are common enough at the Glen in their season; while only two or three *Cyaniris pseudargiolus* were seen, in place of the abundance farther north, and not a single *Amblyscirtes samoset*, which had been seen sparingly at the Glen for several days.

The most interesting observation on the trip, however, was that of three individuals of *Oeneis semidea* on the mountain summit. There is indeed a possibility of error here, for no one of them was taken, though two were near enough to warrant a dash with the net. They appeared to be unusually dark, but they had every other appearance of this butterfly, including size and their manner of flight, when flying tolerably high on a not windy day. As the caterpillars have been taken fully grown and wandering in September, it is altogether probable that they pass the winter (as has always been supposed) in chrysalis; and if so, there seems to be no reason why they may not emerge as early as this; but as the butterfly has never before been found on the wing earlier than July,* and is never known to be abundant before the second week in that month, and disappears by the middle of August, it would seem not impossible and even probable that the butterfly is double-brooded, at least in part. This certainly seems strange at such an inclement altitude, especially as the European *Oeneis aello* (which winters, at least sometimes, like many other Satyrids, as a juvenile caterpillar) is believed to take two years to reach maturity.

The only other butterflies seen above the timber were *Eurymus philodice*, twice near the summit and once in Tuckerman's Ravine; and *Lycaena americana*, seen once a mile or two down from the summit. A single *Cyaniris pseudargiolus lucia* was seen near the edge of the forest just before entering Tuckerman's Ravine.

It may be added that the snow patches about the summit of Mt. Washington, which were not very extensive—their size, as seen from the valley, diminishing perceptibly in the few days of our visit—were peppered with minute insects, largely made up of a few species; the most abundant were an Aphis, two or three flies no larger than Aphides, some other minute Homoptera, one or two minute Hymenoptera and equally small Coleoptera. Among larger forms were a species of the heteropterous genus *Acanthosoma*, according to Mr. Uhler, probably *A. nebulosa*, which was the most common of all, and *Bibio femoratus* Wied. (determined by Dr. Williston); every pool of melted snow contained three or four of the latter, while the former fairly swarmed everywhere.

As to the valley butterflies, the advanced season was as apparent with

* Harris, however, on the authority of Oakes, gives June as one of the months of its flight.

them as with the vegetation, as will be seen by the following serial notes, as well as by the much longer list. Twenty species in all were seen, fourteen of them not seen on the previous visit, while, more remarkable than that, seven of the thirteen species before seen were not now observed.

Basilarchia arthemis, found previously in abundance as a larva just out of hibernaculum, and *B. disippe*, sparingly in the same condition, were not discovered at all. Hundreds or perhaps thousands of the shoots of black birch were examined, as well as many poplars and willows in suitable spots, without a trace of anything—not even of a leaf eaten in Basilarchian fashion.

A single specimen of *Polygonia interrogationis umbrosa* was seen on the 7th, on the Notch road south of Emery's.

Polygonia faunus was taken or seen every day but the 3rd, on forest roads; perhaps two or three dozen in all were taken, and about a third of them were females. None were seen beyond Emery's, and none in walking from Gorham to the Glen, the latter on a somewhat cloudy afternoon.

P. gracilis was not met with. One butterfly was seen two miles up the Mt. Washington carriage road, which looked very like *P. comma*, but was perhaps *P. faunus*. None of the females would lay eggs on young willows, in their two or three days confinement in the Glen, nor on larger plants in Cambridge after my return home.

Polygonia progné and *Nymphalis j-album* were not seen this year.

Two specimens of *Papilio antiopa* were seen, on the 4th and on the 7th.

No *Aglais milberti* was observed on this occasion.

Two fresh specimens of *Argynnis atlantis* were seen on the 7th, one in the forest a short distance north of Emery's, the other half way from there to Jackson.

Fresh specimens of *Brenthis myrina* were seen every day after the first (and either this or the next species on that day), and all taken were males. The number increased from two on the 4th to three or four times that number on the 7th, before reaching Emery's, and after that as many more, though it was then after 3 o'clock.

Unless the specimen seen the first day was *Brenthis bellona*, this species was only seen on the 5th, in a few examples, in which both sexes were represented, and all were more or less worn.

Phyciodes batesii was seen on the 7th, and of each sex, three or

four on the forest road south of the Glen, and abundantly beyond Emery's.

The larvæ of *Cinclidia harrisii* were found feeding on *Diplopappus*, in the penultimate and final stages, in a dozen different localities in the Glen. They were apparently just about as forward as they were on the previous visit, only then they were found at Gorham, which, though farther to the north, is 800 feet lower than the Glen, and in a broader, more open valley, where the spring opens slightly earlier than at the Glen. The caterpillars taken this year went into chrysalis between June 7 and 13, and emerged June 21-27.

Though half a hundred plants of *Loricera* by the roadside were searched for *Euphydryas phaeton*, this species was not found as on the previous occasion, nor did any of the plants appear to have been eaten.

During the first half of our stay, *Cyaniris pseudargiolus lucia* was the most abundant butterfly, and though afterwards it did not diminish, it was supplanted by the increasing numbers of the next species. Yet when most abundant its numbers by no means equalled those at my former visit, and at no time were more than five or six seen at once. On the last day, south of Emery's only a couple of specimens were seen, so that the first brood was disappearing; all were of the form *lucia* or heavily marked *violacea*. Females were enclosed over *Amelanchier*, *Vaccinium* and *Cornus*, and laid abundantly on the first two, but not on the last. When the larvæ emerged, however, they would not touch either *Amelanchier* or *Vaccinium*.

In the last half of our visit *Lycaena americana* was the commonest butterfly. It was the first seen in the morning, the last in the afternoon, and appeared everywhere excepting in Tuckerman's Ravine and above timber on Mt. Washington, though seen once on the latter. Not a specimen was seen on my previous visit.

Three specimens of *Feniseca tarquinius* were taken, and others were seen; one of the two females taken, old and battered, was left three days enclosed over a branch of *Alnus*, on which were numerous young and fat *Coccidæ* (none with Aphides were discoverable), but no eggs were laid; the other taken the last day, died on the way home, with numerous eggs in her abdomen.

Eurymus philodice was tolerably common every day, and increasingly so. On my previous spring visit none were seen. Two specimens were seen in the alpine zone of Mt. Washington, and one in Tuckerman's

Ravine—the only butterfly seen there ; both had probably flown in from below.

A few fresh specimens of *Pieris rapæ* were seen every day but the first ; most on the last day, below Emery's.

Six or eight specimens of *P. oleracea* were seen, all very fresh ; of the three or four taken only one was a female.

Though *Euphaedra turnus* was seen every day in very fresh condition, it was not yet abundant ; four, however, were seen at one roadside puddle, and all were exceedingly tame.

Several fresh specimens of *Thanaos icelus* were seen the first day and the numbers increased daily, both sexes fresh, but the female predominating. Several females were enclosed on different species of poplar and willow, but laid no eggs.

Two male specimens of *Cyclopides mandan* were taken by the roadside on the 5th, and one or two were seen north of Emery's on the 7th.

Males and females of *Amblyscirtes vialis* were seen every day, but never more than three or four specimens a day. Enclosed females laid eggs on grass on June 5-6, which began to hatch on June 14; the first one to change stopped eating on July 18 or 19, and in about ten days changed to chrysalis. The species has never before been reported from this region.

A couple of specimens of *Amblyscirtes samoset* were seen, and one of them taken on the 7th, north of Emery's.

The first *Atrytone hobomok* was seen on the 7th, in the Glen, another between that and Emery's ; but south of that at least a dozen specimens, all of them males.

Pamphila sassacus first appeared at Emery's, south of which it was twice as abundant as the last species ; a couple of females were taken, but nearly all the others seen were males. It was evidently going to be very abundant.

SYNONYMY IN AMERICAN COLEOPTEROLOGY.

BY JOHN HAMILTON, M. D., ALLEGHENY, PA.

On looking over Melsheimer's, Crotch's and Henshaw's Catalogues of the described species of North American Coleoptera, many names will be seen placed as synonymical, or varietal ; while a reference to the bibliography of the many synopses and monographs of families and gen-

era in the Trans. Am. Ent. Soc., and other publications, exhibits a number still larger. How were so many originated? and, Have they any value? are questions that it may not be unprofitable to briefly consider. As to their origin, it may be asked: Are they descriptions of the same forms made by different writers in ignorance of what had previously been done? or, of forms that at the time were regarded as distinct, but afterwards, by connecting links, seen to be but variations within specific limits? or, from mistaken identification and other causes? The history of American Coleopterology shows all these to have been factors in varying quantities. Before the year 1824, no description of any species (so far as known) had been published on this side of the Atlantic; but, for more than one hundred years previously, large numbers had from time to time been taken over and described in every country of Europe, many of them several times by as many names. The works of these various describers were mostly unknown or inaccessible to American students of that period, so that when Mr. Thomas Say, the founder of this branch of Entomology here, undertook the description of our species at the year mentioned, it was often impossible for him to know what had been done abroad. Haldeman, Melsheimer and others thus continued the work till 1844, they and the Europeans making synonyms reciprocally, in ignorance of what each had done. About this time appeared a talented, scholarly, enthusiastic young man, who, on seeing so many of "our finest insects going to Europe for names," with Juvenal exclaimed, "*Siccum jecur ardeat ira*," and forthwith the immortal Leconte devoted his life (as he informs us) "to the classification and naming of American Coleoptera, even at the risk of creating much synonymy." How well he did his work needs not to be told to the Coleopterological world of either hemisphere. The synonymy made proves to be much below what might have been reasonably anticipated. Mr. S. Henshaw in his Index gives, to that time, the number of species named by Dr. Leconte as 4,734, to which is to be added 80 published posthumously—in all, 4,814. Of these only 864 were considered synonyms, and 188 as races or varieties. This kind of synonymy may be termed re-descriptive, and with proper care and a judicious restraint on haste, but little of it should be made with us hereafter.

A second source of synonymy arose from the descriptions of certain forms as distinct, that differed so much from the assumed type—perhaps in size, ornamentation, or even structure—as to seem different, but subse-

quently discovered to be merely variations of one thing ; just as one ignorant of the variations of *Canis familiaris* might describe a poodle, a Newfoundland, a bull-dog, etc., etc., as true species of *Canis*. In the early times of description this was unavoidable, as the extremes of many of the variable species look so unlike that it could not be known they were the same till it was proved by more extensive collections and after discoveries. In his lifetime Dr. Leconte eliminated many of the ones made by himself and others, and Dr. Horn, in his studies, with enlarged collections and more abundant opportunities, adds to this, and in suppressing species sometimes carries the matter too far to please collectors, but doubtless no further than is warranted by well ascertained specific variation.

There is another source of synonymy that practically does not differ from the last, except in this, that it is made intentionally by writers who are a little mixed, or have a different conception of what constitutes a species from that entertained by our leading Entomologists, and the authors of our lists of Coleoptera.

And here it becomes necessary to say something about species. No definition of this term as applied to organisms has ever been received as entirely satisfactory, and a discussion of it here is foreign to the object of this paper. For practical purposes it was necessary for naturalists to have a definition of universal applicability, and that of Buffon has generally been accepted by most of the leading Zoologists and Botanists since his time, namely: "A species is a constant succession of individuals similar to and capable of reproducing each other." The believer in special creation, the evolutionist, and such as hold opinions between these extremes, can meet here on common ground. Coleopterists on this side of the Atlantic mostly agree with it in substance, giving it expression in this form: "A species is an aggregation of variable individuals which have a common parentage." With this definition, except in case of uniques, obviously it would be unscientific to make any individual a type. This is the line to which systematists are endeavoring to bring our species, and the further it is pursued, we find typical superseded by normal descriptions which embrace the points of agreement of as many individuals as can be examined, and reject the points of disagreement, as individual or racial.

The synonymy thus made has not been very extensive, but threatens to become so through the writings of Mr. Thos. L. Casey, who, for the

short time since the issue of his first paper, proves to be a very industrious and prolific author. He does not seem to have accepted the above definition, or at least to a great extent ignores it in practice, but the idea he attaches to the term species is only known by inference. He writes, *Bul. No. 6, Calif. Acad. Sci.*, p. 162: "Forms which some Coleopterists would regard as specific, are held by others to be simply racial, and by others again as merely accidental variations not even worthy of a name." That he entertains the first of these opinions seems to be a correct inference, from the fact he has described as valid among the larger species a considerable number of forms which others consider as variations. Now, it can scarcely be supposed that he did not know, in common with others, the common parentage of many of these; and, if so, then he does not fully recognize this relation as essential in the construction of species. In other words, he founds his species on identity of structure, thus making them practically artificial, like genera. This brings him into direct conflict with those who regard common parentage as an essential element in species, and as they happen to be in the majority and control our catalogues, many of his species are placed in synonymy at once. Mr. Casey, among our Coleopterists, seems to stand alone in his views, but Lepidopterists for a long time appear to have had a somewhat similar split.

These two views are diametrically opposite. The first recognizes no single individual as a type when others are at hand, and raises an insuperable barrier to the multiplication of species. The second describes more or less minutely any individual, and calls it the type of a species, but never defines how far it is allowable for other individuals to vary and still belong to that particular species, and so can offer no defense against their multiplication *ad libitum*.

The re-description by Americans of our Coleoptera that were first described in Europe, has been and still is of inestimable value, and it would have been no loss had every species of ours described there been re-described here and placed in synonymy.

The original descriptions were often largely defective and so indefinite that to make a determination with certainty was impossible, even when they were accessible. The American descriptions in the synonymy are much clearer, and from them, with a little practice, except in minute or closely related species, the insect may be readily known; and in fact, for many species are the only accessible or intelligible descriptions we yet have. As no two writers present the same thing in the same way, by

synonymy many doubts may be solved that could not be by a single description.

The second kind of synonymy, which may be regarded to a certain extent as embracing the third, is likewise more or less useful, when fully established. The names represent, within specific limits, variations more or less divergent. These differences may be of a trivial character—of the kind Dr. Leconte excuses himself for making in early life, on the ground that, like most young Entomologists, he had magnified characters as of importance that were merely individual or of no importance; still a reference to even such may give points of information not likely to be so lucidly set forth in the normal description of the species. Or, again, these names may represent the extremes, or even the sexes of a variable species that in ignorance of their true relationship have been described as true species. This is the most valuable part of synonymy, because when a species is treated as a whole, the peculiarities of individuals and races are usually less clearly stated than when specialized.

A catalogue of our described Coleoptera with the established synonymy would be exceedingly valuable to all our students of Coleoptera. It is a desideratum.

It was intended to have closed this paper here, but the occurrence of *Carpophilus hemipterus* Linn., affords an opportunity to present a practical illustration in reference to some of the foregoing statements. This species is potentially cosmopolite, having been carried to many countries by commerce, and in Europe has many synonyms. The present colony, consisting of several hundred individuals, was found in a box of raisins recently from Spain. It is a good example of the great variability in structure and coloration that may occur among the individuals of a species, as is well pointed out by Mr. A. Murray, in his Monograph, p. 363: "For example," he says, "the following variations occur in the form, with intermediate degrees of each, viz:

"1.—The posterior angles of the thorax nearly right angles.

"2.—The posterior angles of the thorax nearly rounded.

"3.—The posterior angles of the thorax nearly cut off.

"In color, again, it varies as much, the variation, however, being referable to greater or less intensity of coloring." I was able to verify Mr. Murray's statements in every particular from this single colony. This is a good demonstration of the impropriety of making any individual the type of a species, as well as of disregarding common parentage as an essential element in the construction of species.

STRAY NOTES ON MYRMELEONIDÆ.

BY DR. H. A. HAGEN, CAMBRIDGE, MASS.

(Continued from page 93.)

5. *Palpares papilionoides* Klug.

I have never seen this species, except the couple from Arabia Felix in the Berlin Museum, described by Klug, Symb. Phys., iv., pl. 35, f. 2 and 3. Rambur, p. 369, No. 5, described the species after Klug's figures. Rambur and others, not excepting myself, believed that the male did not belong to the same species as the female. Klug calls it a variety. After a thorough study of the species in Berlin, I arrived at the conclusion that Klug was right, and *P. cephalotes* Klug shows a similar but not so exaggerated difference between both sexes. I have carefully compared the types with the figures, and found them to be very exact. Indeed, Mr. Weber was one of the best draughtsmen in Germany. *P. papilionoides* had nothing whatsoever to do with *P. aescnoides*, as McLachlan supposes. The types of both species are in the Berlin Museum.

6. *Palpares immensus*, McLachl.

The species is described, 1867, Journ. Linn. Soc., ix., p. 239. I have to state that the excellent description leaves no doubt that my *P. comes* noted without description, 1866, p. 456, is the same species. My specimen is a female from the Nagami Lake, presented by Prof. Boheman. Length of body 66 m.m.; exp. alar. 160 m.m.

I am glad that my manuscript name is explained; at the same time I ask to cancel also *P. conspersus* Hag., l. c. p. 456, from Nagami Lake, by Boheman, as the type has been destroyed; there will be specimens in the Stockholm Museum.

7. *Palpares Caffer*, Burm.

This species is mentioned, Burm., ii., p. 998, No. 23, with *P. speciosus* L., as follows: "A very similar but larger species, with the gray spots of the front wings very small, from south-east Africa, was received from the collection of Mr. Drège. I name it *M. Caffer*. The abdomen of both sexes shows the same difference (as *M. speciosus*)."

I have before me two females, one from Dr. Schneider's coll., the other coll. by Dr. Wahlberg in Caffraria, from the Stockholm Museum. The British Museum has four

specimens among Walker's types of *M. speciosus*. Finally I have seen the types of Burmeister in the Halle Museum. The species is mentioned by McLachlan in his review of Walker's paper; as far as I know, it has never been described. Fem., length of body, 50 m. m.; exp. al. 120 to 130 m. m. As I have no males before me, I give briefly the characters to recognise the females: The front margin of prothorax notched in middle; with two transversal rolls, one before the front margin, the other before the hind margin; between them a flat, narrow, deepened saddle, perhaps eight times broader than long; a longitudinal black median band is only a little enlarged on the saddle. *P. speciosus* has the front margin straight; the black median band fills the saddle on each side nearly to the side margin; the band is on the front roll triangularly dilated, but is wanting on the hind roll. This character is very good to separate directly both species. *P. Caffer* has the wings broader, more obtuse on tip, less spotted; front wings saffrony, with smaller ashy gray spots; there are much less numerous little spots around hind margin, and nearly none on the disk; ante-cubitals with black linear bands; pterostigma straw color; hind wings paler, about hyaline, the brown bands less large, not connected, the penultimate sometimes divided; abdomen brown, darker below.

The description of the appendages of the male is needed.

I have two females from Pniel Station, Damaraland, which I had named *P. sparsus*. As this name is now pre-occupied by a similar, perhaps the same species, from Damara, by McLachlan, I refrain from giving a description. It is intermediate between *P. speciosus* and *P. Caffer*, but the black band of the prothorax is as on *P. Caffer*.

8. *Palparcus pardalinus* Burm.

Burmeister, Vol. ii, p. 997, No. 20, describes the male from Orange River, South Africa, collected by Drége. In 1849 I bought the second specimen from Drége's collection, also a male, which I have compared with Burmeister's type still present in the Halle Museum. *Myrmelcon pardalinus* Walk., p. 314, No. 26, a female from the Cape, is the same species. This was doubted by McLachlan, Journ. Linn. Soc., p. 275, and for the species the name *P. brachypterus* proposed. Rambur's species is different. In 1850, in Peters' Voyage, p. 101, I had placed *P. pardalinus* together with the species of Pamexis. But I have corrected this in Stett. Zeit., 1860, p. 361, and 1866, p. 457.

9. *Pamexis contaminatus* Burm.

McLachlan (Review Myrmel. de Rambur) notes for this species that there exists an error in my Synopsis, as the *M. contaminatus* Burm. is a North American species. But he has overlooked that in my Synopsis, p. 433, is quoted *M. contaminatus* Burm., a species only named Vol. ii., p. 995, but the differences stated from *M. irroratus* from S. Carolina. This species belongs to *Macronemurus*, Synopsis, p. 424. The type is before me. Besides, Synops., p. 433, quotes *M. contaminatus* Burm., coll. *Winthem*, said to be *Pamexis contaminatus*; Synops., p. 457, it is quoted with this name and the locality, Orange River. In the introduction of the Synopsis, p. 370, is stated: "Sometimes collection-names of undescribed species are quoted, soon to be published, or for another reason." The publication was prevented by my going to America a few months later. The species, of which the type with the name in Burmeister's hand-writing is before me, belongs to a genus so far distant from the N. American species, that it seemed to be not inconvenient to retain Burmeister's name, though he had in his publication not even mentioned it, as is stated by the words [from Winthem's collection]. Now *Pamexis contaminatus* is from the collection of Drége, and as his insects were sold to many museums and collections, I believed that Burmeister's name would be found in other collections, and did retain it for this reason. *Pamexis contaminatus* is identical with the type of Rambur's *P. pardalinus*. This identity was only recognized by my study of the type after the publication of my Synopsis, in which *P. pardalinus* Rbr. is quoted with *P. pardalinus* Br. As the description of Rambur is sufficient, and the identity with Burmeister's species is beyond doubt, I believe that the name *P. contaminatus* can be accepted, instead of coining a new name for it, and therefore I propose to name it *P. contaminatus*.

10. *Pamexis luteus* Thunbg.

The figure and the description of this species (perhaps the type is still in existence, but since it was nearly fifty years ago that I saw Thunberg's collection, I would not state more) belong to *M. venosus* Burm., which after a careful study subsequent to the publication of my Synopsis, I find is identical with *M. conspurcatus* Burm.; both types in the Winthem collection. Rambur's species, after the study of the type, I find is the same with *M. venosus* Burm.,

NOTE ON ABBOT'S SPECIES IN THE BREMEN MUSEUM.

BY A. R. GROTE, A. M., BREMEN, GERMANY.

In the Bremen Museum are specimens collected by Norwich in the Southern States in the beginning of the century, which bear evidence of having been determined by Abbot, as there are one or two MS. names credited to him. I note here merely a ♀ specimen of *Parorgyia leucophaea*; this is paler, the outer line followed by brown shadings, as compared with our Northern *Clintonii*, and agrees with a specimen collected by myself in Alabama, and previously described in CAN. ENT. There is then no doubt that our Northern *Clintonii* is a valid species. There is also a specimen of *Catocala neogama*. This bears out my statement that *neogama* is distinct from our Northern *communis* Grote (= *neogama* Guen. nec Abbot). The hind wings are lighter yellow as figured by Abbot, while our Northern *communis* has them of a dusky ochrey yellow, and there are a number of other comparative characters whereby the two may be separated. I should then be disposed to consider all determinations of our Northern species as *neogama* to be incorrect. I may take occasion later on to allude to other species from the Southern States in the Bremen Collection.

NOTE ON MISTAKEN IDENTIFICATIONS.

BY A. R. GROTE, A. M.

In the course of my studies I have been able to point out a number of cases in which the species illustrated by earlier authors have been identified with allied forms inhabiting the Middle and Eastern States and parts of Canada, I must think wrongly. Dr. Harris has furnished a number of instances in point, chiefly, perhaps, in interpreting the figures of Abbot. It must not be forgotten that the locality has much to do with the forms of Lepidoptera. The different climate and physical conditions of the Southern States could not fail to impress the Lepidopterous fauna of that region. The topography of the country, the climate, as, indeed, I say on page 215 of the CAN. ENT. for 1886, must be duly considered in this question of related forms. In his writings Dr. Harris describes our Northern *Phlegethontius ccleus*, for the more Southern species *carolina*.

He identifies our *Philampelus pandorus* with the species *satellitica*, which seems to be South American, and not to occur within the limits of the United States, or, as we write, North America. Equally in the smaller moths he wrongly identifies his (*Parorgyia*) *achatina*, which is not Abbot's species, but our northern *Clintonii*. In the *Noctuide* his identification of his *Apatela americana* with either of the forms figured by Abbot is, at least, probably premature. Abbot's drawings, which I have studied as closely as possible, make it probable that there are two Southern species of *Parorgyia*, *leucophaea* and *achatina*, not found in the North, and I believe I have correctly identified the former in two female specimens, one of which I found in Alabama.

While writing, I am reminded of another curious identification of Dr. Harris's in the *Coleoptera*. He says, House Report, April, 1838, p. 72: "In France, a large insect, called *vinaigrier* (*CARABUS auratus* L.), devours the female *Melolontha vulgaris* at the moment when she is about to deposit her eggs. I have taken one specimen of this fine *Carabus* in Massachusetts." No other author I have seen refers to this identification of an American species with the European *C. auratus*.

Abbot's work must be studied in connection with Southern collections, and his observations be verified in all stages, before we can be quite sure in all instances that we have his species before us. That he sometimes "mixes" his species is, I have thought, proved by his plate of *Catocala amasia*, where he gives us different species for sexes of the same; and this may not be the only instance. Among Abbot's smaller moths, I have at least identified correctly his (*Adita*) *chionanthi*, a Noctuid sparingly found in New York State, but which is so plainly marked that the identification can be relied upon.

Leaving Dr. Harris and coming to Guenè, there is no doubt now (after freshly comparing Southern specimens) that this eminent writer wrongly identified our Northern species *Catocala communis* Grote, with Abbot's *neogama*. The typical form of *communis* as it occurs with us has the primaries of an obscure smooth olivaceous gray with distinctly *brown* markings; the hind wings dusty ochrey or brownish yellow. *C. neogama* has the fore wings black shaded over paler, purer gray with bright yellow secondaries. While the two are of a similar size, there seem also certain differences in the band of the hind wings. As I originally pointed out, Guenè also mistakes Abbot's *vidua*. It seems to me probable, however, that the *vidua* of Guenè, or *viduata*, which I have called *Catocala*

Guenèi (to avoid all further confusion and because Guenèe's alteration is unessential and merely covers a wrong identification) has been sent to Europe as *vidua* of Abbot, either by Abbot or determined as after Abbot by collectors in the Southern States at the commencement of the century (1800). Abbot, I have said, figures probably what Guenèe calls *desperata*. But it is not essential to recover now this name of Abbot's. It was applied at a time when black winged *Catocalæ* were a great rarity and when the number of species now known was not guessed at. When we know all the Southern forms *ab ovo*, then it is time enough to be certain what Abbot meant by *vidua*. If my supposition that thereby he intended our *desperata* turn out correct, later lepidopterists may make the change, I call our Northern species *desperata* Guen., and Guenèe's *vidua*, which I have proved not to be Abbot's and have certainly identified, GUENÈI.

HINTS ON COLLECTING HYMENOPTERA.

BY W. HAGUE HARRINGTON, OTTAWA.

To have the specimens in a collection look well, and at the same time be in a condition such as to render their examination as easy as possible, it is necessary that they should be properly collected. The ordinary cyanide bottles prepared either with plaster of Paris, or sawdust, which are used for Lepidoptera and Coleoptera, do not furnish good specimens of Hymenoptera, and those collected in alcohol are less satisfactory. I have found the method advised by Dr. Williston (*Psyche*, vol. iv., p. 130) for collecting Diptera, so satisfactory that I will quote a portion of his description:—

“ I select several two-ounce, wide-mouthed bottles of the same form, and carefully line the bottom and sides with a good quality of blotting paper. Good firm corks are selected, which are interchangeable in the different bottles; in one of these corks a small hole is made, in which it is better to fit a small metallic ferule; a strip of blotting paper is then coiled within this cavity, and it is over this that a few drops of a solution of cyanide of potash is poured.”

For those who may not desire to keep on hand a solution of this poison, I would suggest a modification of this method which I find very

satisfactory. Scrape a few grains of cyanide into the cavity in the cork and then insert a small wad of damp cotton wool or sponge. The fumes will be readily given off, and it is only necessary to occasionally renew the cyanide. As Dr. Williston suggests, it is well to have several bottles, but it is sometimes impossible for the collector to take more than the minimum amount of apparatus, and he will then limit himself to two, reserving one of them for delicate or small insects. Bees should never be placed in a bottle with previous captures, as honey is often disgorged, and the specimens greatly injured by the matting of pubescence and soiling of the wings; the pollen which the bees so generally carry is almost as bad in its effects. The safest and most desirable plan is for the collector to carry a supply of small pasteboard pill boxes, and transfer his specimens frequently to these, putting only one specimen of such insects as *Bombus* in a box. These boxes can be obtained of very small sizes, permitting a sufficient number to be packed in a small space. Their use ensures perfect specimens and enables the collector to keep a better record of them by numbering the boxes, and in his field note-book entering full particulars of the contents of each. When possible, it is better to pin the insects before they stiffen, but if time or circumstances do not permit of this, they will keep safely in the boxes, and may be at any time easily relaxed in a damp atmosphere, care being taken not to allow them to become wet. In pinning it is not at all necessary to set the wings and feet symmetrically, unless one has plenty of time and desires pretty specimens. The wings, however, should be separated, so as to admit of a full examination of the venation both of the anterior and posterior ones, and of the metathorax and the basal segments of the abdomen.

BOOK NOTICES.

It is a cheering sign of the zeal and energy and ability that are being brought to bear upon Entomology that there should be so rapid an increase in the literature of this department of Natural Science. Though several works of importance have been recently noticed in these pages, there are still many others which we desire to acknowledge, and to bring before the notice of our readers. This, however, we can do but briefly, as so much space has of late been given up to literary notices.

The first work on our list is :—

THE BUTTERFLIES OF NORTH AMERICA. By W. H. Edwards. Third Series, Part II., 4to. Houghton, Mifflin & Co., Boston, Mass.

The second part of the new series of this superb work contains the usual three exquisitely finished coloured plates of butterflies. The first illustrates the Californian *Colias Harfordii* Hy. Edwards, and its variety *Barbara*, giving no less than nine pictures of the imagines, and more than a dozen of the earlier stages ; the second *Argynnis Coronis* Behr., giving both the upper and under surfaces of the male and female of this beautiful Californian species, which extends northward as far as our own Northwest Territory, where it has been taken by Capt. Gamble Geddes ; the third plate fully illustrates all the stages of *Neonympha Gemma* Hubn. and *N. Henshawi* Edw. There is the usual letter-press description of all the species figured, and also a notice of *Argynnis Callippe* Boisd. It is hardly necessary to add that no Lepidopterist's library can be considered complete without a copy of this admirable work.

REPORT OF OBSERVATIONS OF INJURIOUS INSECTS and Common Farm Pests during the year 1886, with Methods of Prevention and Remedy. By Eleanor A. Ormerod, 8vo., 112 pages. London : Simpkin, Marshall & Co.

We must congratulate our esteemed friend upon the publication of her Tenth Report. It is full of interesting matter and well illustrated with excellent wood-cuts, chiefly the work of the talented authoress. The principal noxious insects treated of are "Earwigs" affecting cabbage—a pest that we are happily free from in this country ; Clover Weevils, the Hessian Fly and other wheat insects, the Hop Aphis, Mustard Beetles, the Horse and Ox Warble-flies, etc. Economic Entomologists everywhere may learn much from these pages ; though the insects treated of are for the most part British, many of them have been transported to this side of the Atlantic and to other distant regions, where they have wrought incalculable damage to crops of various kinds.

SYNOPSIS OF THE HYMENOPTERA OF AMERICA, NORTH OF MEXICO. By E. T. Cresson. Part i. Families and Genera. 8vo., 154 pages.

This valuable work, published as a supplementary volume by the American Entomological Society in Philadelphia, is a very much needed contribution to the literature of this difficult order of insects. With this

assistance towards classification, we trust that many will be encouraged to collect and study these particularly interesting creatures.

TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, and Proceedings of the Entomological Section of the Academy of Natural Sciences. Philadelphia. Vol. xiii., 1886.

This volume is replete, as usual, with papers of high scientific value by such well-known authorities as Dr. Horn on Coleoptera, Messrs. Ashmead, Blake and Howard on Hymenoptera, the Rev. Messrs. Holland and Hulst on Lepidoptera, and Mr. Williston on Diptera.

THE MULBERRY SILK-WORM; being a Manual of Instructions in Silk Culture. By Prof. C. V. Riley. Bulletin No. 9. Division of Entomology, U. S. Department of Agriculture.

OUR SHADE TREES AND THEIR INSECT DEFOLIATORS; being a consideration of the four most injurious species which affect the trees of the Capital; with means of destroying them. By Prof. C. V. Riley. Bulletin No. 10.

The species referred to are the Elm-leaf Beetle (*Galerucha xanthomelana* Schrank.); the Bag Worm (*Thyridopteryx ephemeraeformis* Haw.); the White-marked Tussock-moth (*Orygia leucostigma* Sm. & Abbot); and the Fall Web-worm (*Hyphantria cunea* Drury).

REPORTS OF EXPERIMENTS WITH VARIOUS INSECTICIDE SUBSTANCES, chiefly upon insects affecting garden crops, made under the direction of the Entomologist. Bulletin No. 11.

MISCELLANEOUS NOTES ON THE WORK OF THE DIVISION OF ENTOMOLOGY for the season of 1885. Prepared by the Entomologist. Bulletin No. 12.

These four works abundantly testify to the value of the Government Commission on Entomology at Washington, and to the ability and industry of its members.

ARSENICAL POISONS FOR THE CODLING MOTH (*Carpocapsa pomonella* L.) By Dr. S. A. Forbes, State Entomologist of Illinois. Bulletin No. 1.

Another valuable contribution to Economic Entomology, the result of careful and painstaking work in the field.

CORRESPONDENCE.

USE OF CHLOROFORM IN COLLECTING.

Dear Sir,—In the article of Henry S. Saunders, on Collecting at the Electric Light (CAN. ENT., Feb., 1887), he gives his experience in the use of cyanide of potassium and chloroform as follows: "Cyanide of potassium I found the best poison; a few drops of chloroform on cotton would quiet them more quickly, but was more troublesome, the chloroform having to be frequently renewed, occasionally as often as four or five times during the same evening, and sometimes even then the moths would be found alive the next morning."

I should like to explain my method of collecting with chloroform. I have found it better than any other, whether at the electric light or in the field:

Take a glass fruit jar, one in which the lid screws down upon a rubber cushion or packing. Put a bunch of cotton in the bottom, retaining it in its place by pressing down upon it a circular piece of pasteboard, made to fit tightly in the jar, except that two or three notches should be left in the edge for the chloroform to run through to the cotton. Saturate the cotton with chloroform and screw the lid down tight. The bottle is now ready for use, and it will be found that an insect dropped into it will be suffocated almost instantly by the fumes of chloroform that completely fill the bottle. A feeble flutter for a second, a kick or two, and all is over. As soon as the insect is dropped into the bottle, screw the lid down again, and as it fits air tight, the chloroform will not evaporate too rapidly. Less than a teaspoonful will last for a whole evening's work. If on retiring from the work the chloroform seems nearly exhausted, it would be well to pour in a few drops more, and then close the lid for the night. If these precautions are taken the insects will never revive.

Chloroform, when used in this manner, will be found to possess many advantages over any other poison. It is quicker in its action, much more convenient, and under all circumstances entirely harmless. I use this form of collecting bottle both for the electric light and in the field. The bottle will contain, without injury to the specimens, the captures of a whole evening, or a whole day.

If, through carelessness, so much chloroform has been poured into

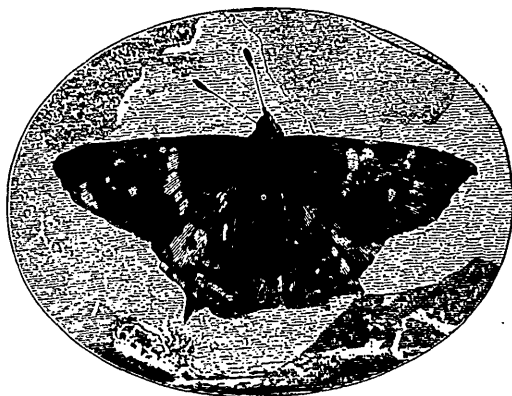
the bottle as to saturate the pasteboard on which the specimens rest, their wings may become moistened and somewhat damaged. To prevent accidents of this character, pack a bunch of crumpled newspaper tightly down on the pasteboard before putting in any specimens; the paper will be dry, and will prevent the insects from coming in contact with the moist pasteboard.

For Coleoptera I use a morphine bottle prepared in the same way, except that the newspaper is not wanted, and it is closed with a cork. I always carry such a bottle in my pocket ready primed, and thus am always prepared for preserving any specimens captured incidentally while engaged in other affairs.

J. A. JACKSON, Des Moines, Iowa.

FOSSIL BUTTERFLY FOR SALE.

In order to illustrate more fully his forthcoming work on New England Butterflies, the undersigned offers for sale for Two Hundred and Fifty Dollars, that wonderfully preserved Fossil Butterfly, *Prodryas Persephone*,



of Colorado. The accompanying cut gives a rude impression of it. Less than twenty specimens of fossil butterflies are known in the world, and this is by far the most perfect and best preserved.

SAMUEL H. SCUDDER.

Cambridge, May 9, 1887.

[ADV.]