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SOME REMARKS ON ENTOMOLOGICAL NOMENCLATURE.

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

The papers on Nomenclature, lately published in the CANADIAN ENTOMOLOGIST, have much interested me, and doubtless many others, and as the subject is one that just now, for reasons well known, appeals especially to Lepidopterists, I beg to be allowed a little of your space to give my views thereupon, and to state what I believe is a practicable remedy for the evils complained of.

I am glad that this matter of Nomenclature was brought so prominently forward by the Entomologists present at the Meeting of the American Association for 1872, and that a Committee was appointed by the Entomological section to report a series of Rules for consideration at the next Meeting.

I apprehend that hitherto very little attention has been paid to Nomenclature in this country, at any rate in Entomology, and that when startling innovations are proposed, based upon assumed Codes or systems of Rules, very few know what such Codes or Rules are, or how far they are applicable or binding, or how they came to be enacted, with many other points of like nature. As applied, they seem incomprehensible to most persons, and even to the initiated have their difficulties. In the words of Alex. Agassiz, "The laws requisite for the correct name of an animal or of a plant have become as difficult to establish as the most intricate legal question." How such a discreditable state of things has come about, it is worth while to consider.

From an early period, Entomology, quite as much as its kindred Sciences, suffered from a disagreement as to names of species, one set prevailing in England, another in France, another in Germany, and so on. The first effort to secure uniformity seems to have been made in England by the Rev. Mr. Strickland, who, after consultation with other naturalists, drew up a Code of Nomenclature for Zoologists, that was

adopted by the British Association, in 1842. (I have been unable to obtain a copy of this Code, and only know its Rules as I have found them recited in various authors. On applying to Mr. A. G. Butler, Brit. Mus., I received the following reply:—"I can get no exact information as to when and where these Rules were published. At the time, they appeared in the report on the Meeting, and separate copies were struck off and distributed. Most of our Entomologists have either made copies of them or have seen them, and a few say they have printed copies *somewhere*."

This Code was not found to work altogether satisfactorily, and never did receive the general assent of Naturalists in their several departments. Prof. Verrill says, "The success of these Rules was but partial, even in England, for a considerable number of English authors have either ignored them or adopted them in part, often violating the most obvious and important Rules. In Conchology, especially, the violations have been lamentably numerous."

In 1865, a Revised Code was adopted by the British Association, which Code is printed at length in the Am. Journal of Arts and Science, July 1869, with valuable notes by Prof. Verrill. In this Revision some important changes were made, with a view to curing the defects of the original Code, and of gaining a more general acceptance. It is significant that Botany is recommended, by the Committee of Revision, *to be omitted from the operations of the Code.*

These two Codes may, so far as my purpose is concerned, be treated as one and the same, as the Rules that I consider obnoxious are found in both of them, and it is of their application to Entomology only that I have to speak, and more especially as affects the Lepidoptera.

The first Rule reads as follows:—"The name originally given by the describer of a species should be permanently retained, to the exclusion of all subsequent synonyms."

It is declared by those who are familiar with the facts, that the object of this Rule was not to drop out of sight all existing names in favor of a rejected or obsolete name, but to give the right to *that one of the names in use* that should be found to have priority of date.

For a period of years after 1842, it is asserted that such was the understood effect of the Rule, until a generation arose who knew nothing of, or overlooked the circumstances connected with its original proposal, and who took the letter of the Rule as their guide. And gradually there has

sprung up a class of authors who have devoted themselves with enthusiasm to exploring ancient works and forgotten publications of all sorts, in the hunt for the earliest recorded name to every species, by which to replace the name or names in use. The old authors had described but a few hundred species, and their descriptions were of the briefest. How brief, an average example from Linnæus will show :—"Papilio Troilus ; wings tailed, black ; fore-wings with pale marginal spots, hind wings beneath, with fulvous spots;" a description applicable, perhaps, to fifty species of Papilio. (This description at once misled Drury into giving the name Troilus to his figure of Asterias, to which it applies equally well.)

As new species were discovered, each of the earlier described having a group of close allies, many of these descriptions were no longer capable of identification, applying to numerous species as well as one. Then recourse was had to tradition, or to type specimens. The former may, or may not be trustworthy, and the latter is utterly untrustworthy unless the type agrees with the description. Dr. Staudinger says:—"It is unfortunately a fact that the acquirer of the Linnæan collection had the deplorable idea of sometimes replacing damaged specimens by fresh."

Mr. McLachlan says :—"It (this Linnæan collection,) was so maltreated by additions, destructions and misplacements of labels, as to render it a matter of regret that it now exists at all. Any evidence it now furnishes is only trustworthy when confirmed by the descriptions." Speaking of quite a modern collection, that of Mr. J. F. Stephens, Mr. Janson says :—"It not unfrequently happens that two, or in difficult genera, more species are mixed up under the same specific title."

And it is my opinion, knowing well the carelessness of collectors in the matter of labelling, some even who have described many species using no labels at all, but trusting to memory for identification of all their specimens, that a type specimen, or what was offered as such, if it disagreed essentially with the description, should be wholly rejected.

Besides the brevity of the old descriptions, many are defective from other causes. Often the two sexes received different names; often varieties were described as species ; often damaged and broken specimens were described as if fresh, the defects being cured by imagination ; often figures were made by unskilled artists, who omitted the specific characteristics, or the figures were colored so poorly as to be incapable of identification, or were copies from copies, or copies from memory, (for a curious illustration of this last, see Westwood, Trans. Lond. Ent. Soc.

1872, on Donovan's Papilios); and often descriptions were made from unreliable figures, instead of from the insect.

Now, with these and other disadvantages that might be mentioned, the authors who have undertaken to revise our Nomenclature have, each for himself, fixed on this or that description as applying to this or that insect, and there is frequent and serious disagreement between them. This will sufficiently appear by comparing the two Catalogues hereinafter mentioned, which, as to the names of British butterflies alone, that one might suppose had been settled long ago, differ as to the correct specific name to the extent of one-seventh of the whole number, as has been stated by Mr. W. A. Lewis, in his paper on Synonymic Lists. Lond. 1872.*

To complicate the case still further, there is a disagreement as to the date at which names shall be held to have first begun. Specific names did not originate with Linnæus, but that naturalist was the author of the binomial system of Nomenclature, and enunciated it in 1751. This was after his earlier works had been published, and even he did not fully apply the system till several years later. He re-described the known species of insects, using sometimes the names of his predecessors, but often re-naming, and very frequently changed a name given by himself in his earlier editions.

The question of a starting point, therefore, has very much exercised authors exploring for ancient names. And it is a very important one, and one above all others on which agreement would seem to be necessary, for many insects in 1767 bore different names from those given to them in 1758, and the latter from those of prior date.

Rule 2nd of the Code says:—"Specific names published before 1766, *cannot be used* to the prejudice of names published since that date;" and in the explanatory remarks, it is said:—"We *ought not to attempt* to carry back the principle of priority *beyond the date of the 12th edition* of the Systema Naturæ, 1766." (Vol. I., issued 1766; vol. II., in which are the insects, 1767.)

Mr. Kirby, in his Catalogue of Lepidoptera lately published (1870), follows the Rule, and would ignore all names prior to 1767. Dr. Staudinger, in his Catalogue of European Lepidoptera, also published

*NOTE.—See also a very able pamphlet by Mr. Lewis, entitled "A Discussion of the Laws of Priority in Entomological Nomenclature," Lond. 1872, which I advise all persons who care to make themselves better acquainted with the subject, to obtain. It may be had through the Naturalists' Agency, Salem,

in 1871, adopts the *10th edition* of the same work (1758), and says distinctly :—"*Every name given before 1758 loses its right.*" Others go back to various earlier dates. If the earliest Linnæan edition comes to be claimed as having a prior right over those that followed, as symptoms indicate, then there will be a sweeping away of landmarks, that will make the lesser floods hitherto experienced seem as nothing.

The result of all these efforts at stability, for that is the avowed object of the advocates of rigid priority of date, is extreme confusion,* instead of the agreement hoped for when the Code of the British Association was adopted, and students of one branch of Entomology at least are at a loss to know where the Nomenclature stands to-day, and are very certain that under the present order of things there will not be a name familiar to them that 20 or 50 years hence will not be supplanted under the claims of priority.

The Code of the British Association not only has not been adopted in detail by the British naturalists, who might be supposed to have given their assent to it, but it has not been adopted in other countries.† It is not the law of France nor of Germany. In the latter country, in 1858, a Code of Nomenclature was adopted by the Dresden Congress, in which the Rule on the subject of priority more sensibly meets the requirements

* Prof. Verrill, in his comment on Rule 2, says:—"Disregard of this important and essential law (viz., *fixing the 12th edition as the starting point,*) has brought into Conchology, *and some other branches of Zoology*, an almost incredible amount of confusion."

† "Notwithstanding the Rules sanctioned by the authority of the Brit. Ass'n, it would not seem that any perceptible improvement has taken place."—*G. R. Crotch, Cist. Ent., 1872*

Mr. Kirby has revised, &c., "in accordance with a series of Rules *selected from those issued* by the Brit. Ass'n for 1865."—*Wallace.*

Dr. Thorell "refers to the old Brit. Ass'n Rules with general approval, but differs from them in some important points."—*Ibid.*

Dr. Staudinger lays down eight rules that vary from those of the Brit. Ass'n or from Kirby and Thorell in several particulars. And Gemminger and Harold's Cat. Coleopt. differs in the Rules applied from all the others. *See Wallace.* As to French authors, the following extract of a letter to me from a distinguished English Entomologist will show how heterodox is their position :—"The chief confusion in generic Nomenclature is owing to the French, who consistently ignore or alter every thing done in other countries, on purpose to force their own names on the world in place of others."

of the case. "*The principle of preserving the oldest of the names given to the same insect is not absolute; the choice between them, following the greater or less degree of convenience, remains free.*"

Until quite lately, although there was a general feeling among Lepidopterists that the hunt for new names was getting to be a nuisance that demanded abatement, there seems to have been no active opposition to it, till the publication of the Catalogues of Staudinger and Kirby, and, in this country, of Scudder's Revision. The changes announced in these works amount to a revolution of much of the existing Nomenclature. In the Revision the names of American species have been changed largely, and of genera almost altogether. For example: of the Butterflies found in New England, out of 28 hitherto recognized genera (omitting the *Hesperidæ*) Mr. Scudder has left but three untouched; of five others he has retained the name, but restricted the genus; but of nineteen he has changed the names altogether, displacing well-known names by others purporting to have been found in ancient authors, and mostly in Hubner. And from the twenty-eight genera have now proceeded fifty-one. Whilst of the *Hesperidæ* he has made forty-five genera for one hundred and thirty-eight species, besides giving a horrid array of barbaric family and tribal names, remnants of systems ages ago deservedly exploded.

Mr. Kirby's "Revision has the effect of abolishing scores of old and familiar names (generic) and replacing them by others altogether new to the majority of Lepidopterists" *Wallace*; and Mr. Crotch, by following out his mode of determining typical species, "shows us that Mr. Kirby is wrong in the names of twenty-seven genera," defined before Hubner, and in a letter he says: "I stopped abruptly at 1816, as the question of Hubner's *Verzeichness* beat me," to which bewilderment we should be grateful, for the assimilative powers of that author are fearful.

The trouble caused by the strict application of Rule 1 to specific names becomes intensified when applied to generic names. It might be supposed in the hunt for the former, that if the several authors now at variance could be got to interpret the ancient descriptions by the same illumination, and could agree upon a starting point, the ultimate name of each species would some day be reached. It might require a long period, but it would seem possible. Not so with genera. Even when the final stage of disintegration was reached, and each species stood in a genus by itself, there would be a never-ending contest as to whether such genus should bear

the stamp of Fabricius, or Latreille, or Hubner, and each successive "resurrectionist," as these exhumers of dry bones are irreverently called, would but glory in upsetting the platforms of his predecessors, and would prove to a nicety that they and their systems were all wrong. Now, it is a matter for admiration that, notwithstanding the imposing names attached to these generic creations, every one of them is the result of the labor of Brown, Smith or Jones, alive and industriously working, and that the ancient worthies, so honorably preferred, lived and died in happy ignorance of the progeny after ages would attribute to them.

Now, it is insisted by those who rigidly adhere to the application of the priority theory to generic names that the original name given to a genus must never be lost, no matter what changes are made with the genus, although to retain such name may be to attribute to its original author exactly what he did not mean, and perhaps never would have sanctioned.

Rule 4th says:—"A generic name, when once established, should never be cancelled in any subsequent subdivision of the group, but retained, in a restricted sense, for one of the constituent portions." And Rule 5th:—"The generic name should always be retained for that portion of the original genus which was considered typical by its author."

That is to say, Papilio of Linnæus embraced what is now divided into very many genera, and the name Papilio must somewhere be retained. What particular species Linnæus would have chosen for the type of the genus, had he foreseen its future disintegration, is not known, and in the absence of such knowledge, authors now would differ in selecting the typical species; and unless there is agreement on that, it is plain that nothing but discord can follow. Mr. Kirby says, following the Rules:—"In subdividing a genus, the original name should be restricted to the typical sections if this can be ascertained." I have asked of an eminent Ornithologist what would be done in such case in his science, and he replied as follows:—"It is our custom to take the *first name mentioned* by an author as the type of his genus, unless another be especially claimed; and, if this genus be subsequently subdivided, to insist that the original name must be retained for the *first species of the original list*, unless there are very grave reasons to the contrary. I notice, in the 10th edition of Linnæus, the first Papilio is Priamus, from Amboyna. I should, therefore, be inclined to maintain that the name Papilio should be retained for that first mentioned species, whatever else might befall the group. This being premised, the author engaged in overhauling a group has the right

to select any other species of the original section as the type of his new genus." Mr. Crotch says (Cist. Ent., 1872) "No genus can be considered defined until its type is indicated," but when this is not done by the original author, "I am not inclined to cut the knot by taking *the first species*, but to trace the genus historically until it has a type given to it;" and "Cuvier (1799) gives precision to the old genera by characterizing them and indicating their types."

Let us apply these *dicta* to Vanessa Antiopa as metamorphosed into Papilio Antiopa by Mr. Scudder. He says:—"The generic name Papilio was applied by Linnæus to all the butterflies at the foundation of the binomial system of Nomenclature. Fabricius, in his later works, restricted it to the Nymphales and *Papilionides*. Schrank was the next author to restrict the name, limiting it, in 1801, to most of the Nymphales."

By Rule 5, or by Mr. Kirby's Rule, the original name having to be restricted to the typical section, Schrank should have left it with some part of the Papilionides of Fabricius, for I suppose no one can doubt that the swallow-tailed butterflies were the typical section of Linnæus (Equites), even though his typical species may be in question. Had he bound himself by the ornithological dictum, he would also have restricted the name to the *Papiiionides*, *Priamus* being the typical species.

By that of Mr. Crotch he would still have been restricted to the *Papilionides*, making *P. Machaon* the type, because Cuvier (in 1799) made this species the type of the genus *Papilio* (and so it is recognized to-day and I hope will be for all future time.)

But, says Mr. Scudder, "If the laws of priority have any force or meaning, I do not see how we can refuse to acknowledge the *claims* of Schrank. I select, accordingly, from among the species grouped under Papilio by Linnæus, Fabricius and Schrank, one of *the best known* European butterflies as most suitable for the type of the genus." And by this curious process, one of the *best known species* being selected as the type, we get the astonishing creation Papilio Antiopa.—(Scud.) And this is equivalent to enunciating another *dictum*, being the fourth on this head, by which the *best known* species of a genus is to be the typical. Moreover, such exceedingly minute definition is given to the new genus that it would appear to be impossible that a second species could ever be embraced within it.*

* I notice that Mr. Scudder speaks of the "insufficiency of their generic descriptions" being "the reproach of Lepidopterists." Mr. Wallace, on the other hand,

Now, here are four modes of determining the typical species of a genus, propounded by as many authors, and there may be others for aught I know to the contrary, all with the view of simplifying these sciences, under the operation of Rule 1. Is it strange that "an incredible amount of confusion" is the result?

Linnæus placed under Papilio the princes of the order, and no matter what restrictions may have been made hitherto, these hundred years, Papilio has always had a magnificent following, increasing in splendor as the years went on. And now we are told, in 1872, that, in order to save the *claims* of the hitherto unappreciated Schrank, who published his speculations in 1801, Papilio is to be ejected from his rich possessions, and made to share the rest of his unlucky days with the dingy Vanessan to whom hard fate and Mr. Scudder has driven him. No more the superb creature we have read of, with "glistering burganet," and "shinie wings as silver bright,"—"refreshing his sprights," in "gay gardins," "pasturing on the pleasures," &c.; but, like Clarion, "reduced to lowest wretchedness," his good times all over, he flits about in slums and nasty lanes—and there we leave him.

In the explanatory remarks to Rule 4, it is said:—"It is an act of justice to the original author that his generic name should never be lost sight of." By Mr. Scudder's new creation the name Papilio is so nearly lost sight of that it might as well disappear altogether. It is certainly no compliment to Linnæus to retain it.

And this brings up the whole question of the obligation of naturalists to adopt whatever system any one may propose. Clearly enough, the right of ignoring changes made in Nomenclature is recognized even by the most determined advocates of strict priority, when applied to their contemporaries. A genus is set up, and no one follows it. It happens constantly, and it seems to me that in this matter one's contemporaries are the proper judges of one's work, and that no reversal of their judgment may rightfully be looked for from posterity, and therefore the writings

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asserts that the definitions of a Westwood, or of a Doubleday, are "careful and elaborate." I was much struck on reading these words in Cope's Origin of Genera, page 6:—"The reader will often find introduced into diagnoses of genera characters which indicate nothing of this sort;" and these, "adjacent genera of the same series differ from each other *but by a single character.*" From which it may be inferred that inordinate length of generic description is not commendable, and is not properly attainable.

of authors whose systems were rejected in their own day, and whose generic creations were ignored not only by contemporaries, but for generations afterwards, cannot properly be appealed to. If there was injustice done to them it is too late to remedy it, and justice at this late day means injustice to those in present possession, and whose title often has the strength of nearly a century's undisputed possession. We cannot judge of the circumstances that influenced the contemporaries of such authors, and with the views prevailing at the time, their judgment was right. Therefore, when Schrank, and Hubner and others, are sought to be reinstated, and a host of generic names set aside, the later injustice is worse than the first,—if there was any first, and of that we have no knowledge. Otherwise, fifty years hence a system or a genus proposed by an author of to-day, though rejected by every naturalist living, for defects that appeal to the sense of each one of them, may be reinstated in spite of such contemporary judgment.

It has become more and more the practice, for twenty years past, to ignore all genera created since Hubner, and to replace subsequent names by names taken from that author, who published a Catalogue of Lepidoptera, in which nearly every species stands by itself, in a division that, whatever it may be called, is not generic. Of course it is easy to apply one of his names to every genus that can be now created. By his contemporaries, and for a generation after his works were published, his fanciful divisions and fanciful names were rejected, and it is only of late years that some authors have discovered that in his works is a mine of wealth.

But on this head it is sufficient to give the words of an Entomologist whose authority is second to none. I quote from the annual Address (1871) to the Lond. Ent. Soc., by Mr. Alfred R. Wallace, President of the Society, and I quote at some length, as it seems to me desirable that American Lepidopterists should be made aware that Hubner's claims are not yet everywhere acknowledged:—"By far the most important and most numerous alterations are caused by adopting the names of an author who has long been purposely ignored as an authority for genera both by English and Continental Lepidopterists. I of course allude to Hubner."

"Such old names as Chionobas, Agraulis, Eresia, Godartia, Adolias, Polyommatus, Leptalis, Terias, Callidryas, Thestias, Anthocaris, with many more, are changed for others to be found in no other work than Hubner's obsolete and useless Catalogue. Yet this wholesale change

does not seem to be warranted by the Rules of the British Association. Rule 12th says:—"A name which has never been clearly defined in some published work, should be changed for the earliest name by which the object shall have been so defined." And in the explanatory remarks it is said, "Definition properly implies a distinct exposition of essential characters, *and in all cases we conceive this to be indispensable.*"

Now this Rule merely embodied the feeling and practice of naturalists, and it had been acted on for thirty years, before it had been formally enunciated, in this very case of Hubner, whose work had been systematically set aside as an authority by most European Entomologists, because it was felt that his so-called genera were mere guesses founded on *facies* alone,—happy guesses, no doubt, sometimes—but as frequently wrong as right, and wholly without such definition as was held, even in his own day, to be required to constitute a new genus. Boisduval expressly states this, and his non-recognition of Hubner's genera has been followed in almost all the great systematic works which have since been published. If we take Hubner's first four genera and the characters he gives them, we shall be able to judge of the reasons for this course. They are as follows:—

Hymenitis,.....upper wings half banded.
Ithomia,..... " " one-banded.
Olcria..... " " twice-banded
Thyridia,.....both wings banded.

Such a mode of defining genera, though it has the merit of being simple and symmetrical, is undoubtedly superficial, and it can only be by the purest accident that a group so characterized can correspond in extent to any real genus. * * * In Mr. Kirby's own work, we find Hubner's condemnation in almost every page, in the utter want of agreement between his groups and modern genera. The modern restricted genus Heliconius, for instance, contains species belonging to seven Hubnerian genera; Pieris comprises five, and Thecla twelve of these hap-hazard groups; while, in other cases, the species comprising Hubner's groups are divided among several unrelated modern genera. * * * * The names sought to be reinstated, rank as mere catalogue names for want of proper definition, and should therefore never be quoted. * * * Even as a matter of justice it may be maintained that we should recognize the careful and elaborate definitions of a Doubleday or Westwood, rather than the childish guesses of a Hubner. * * * The proper course to be taken is to rein-

state every name which of late years has been made to give place to one of Hubner's, and further, to treat the *Verzeichniss bekannter Schmetterlinge* as a mere Catalogue, which can never be quoted as an authority for genera."

Now with regard to the remedy for the evil complained of. There have been various suggestions of Rules by foreign authors, many of which would meet the assent of most Entomologists, and it is easy to select from these authors both Rules and arguments for their adoption. I will call attention to so many of these suggested Rules as seem to me to meet the difficulty of the case, and to others, which might properly form part of a code, and will give short extracts illustrating them.

I mention them for the purpose of exciting discussion as to their fitness for the end in view, and that Lepidopterists may know what is the opinion of students in other branches of Entomology besides their own:—

1 There must be intelligible description and publication in case of a species, or a recognizable figure. In case of a genus there must be a definition giving the essential characters.—*From Dr. Thorell's European Spiders, quoted in Wallace's Address, before cited.*

2. In determining the priority of specific names, notice should be taken only of those works in which the Linnæan binomial nomenclature is exclusively and consistently employed.—*Thorell.*

Note—"The binomial system of nomenclature was fully and distinctly propounded by Linnæus in the *Philosophia Botanica*, published in 1751, and there can be no reason whatever why authors who adopted and systematically applied it should be set aside, because Linnæus himself did not apply it to the whole animal and vegetable kingdoms till 1758."—*Thorell.*

3. The same date should apply to generic as to specific names, both being characteristic of the binomial nomenclature, and it being impossible if we go back earlier, to determine what are to be considered as truly generic names.—*Ibid.*

4. Between two specific names in use, the prior right shall belong to the first named. *But no name in use shall give way to an obsolete or rejected name, even though the latter be of prior date.—Wallace's Address, p. 67.*

Note.—"The idea of justice to the namer or describer of a species is sometimes appealed to, but the law of priority is founded on no such

expressed idea, but rather on the universal practice of mankind, which always upholds stability of nomenclature, and requires cogent reasons of beauty or convenience to sanction its alteration. * * * * * *

"The proper Rule to adopt (instead of Rule 1 of Brit. Ass'n.) would have been *unchangeability of names in use*, rather than priority of date, which latter rule ought only to have been brought in to decide on the claims of two or more names in use, not to retain obsolete names never in use, or long ago rejected.—*Ibid.*

"What we want for the sake of knowledge is stability and uniformity of nomenclature, not an upsetting of it by the substitution of old, forgotten and very doubtful names, published in works without, or with very little scientific merit."—*Dr. Schaum, on Nomenclature of British Carabidæ, Ent. Ann., 1860.*

"The rule of priority in Nomenclature, I hold to be a good rule within its proper limits; it is not an unmixed good; and priority, like every other hobby-horse, may be ridden too hard. When the rule is strained beyond the reason for the rule, it becomes a nuisance,—nay more, it produces intolerable evil; but when reasonably applied, it produces more convenience than inconvenience. I accept it, therefore, as a rule for convenience, and nothing more, a rule adopted for the benefit of science, not for the glorification of name givers."—*J. W. Dunning, Ent. Mo. Mag., vol. 8, 215.*

"In systematic nomenclature the object is to register titles, not to gratify pride, and the names of authors are appended for convenience, not fame; the question of justice or injustice has no place here."—*Scudder, Am. Jo. Arts and Sci., 1872.*

"Both sides agree that the accord of Entomologists is the ultimate desideratum. I hold that the law of priority is not that the oldest name of an insect is invariably the right one, but that in cases of dispute, the prior name is to be preferred, and in such cases only; and that any attempt to subvert accord cannot be done under the law of priority, but we must make a new law—the law of *antiquity* say. * * * * In such event, every insect capable of identification must henceforth carry the name under which it was first called—no matter by whom—no matter the language. The American fire-fly must bear its Indian appellation—the 'Palmer-worm' and the 'Canker-worm' must have their 'prior' names restored; we must carry the law back without limit—even to chaos itself."—*T. H. Briggs, Ent. Mo. Mag. vol. 8, p. 93.*

"Nobody but a fool or a madman would try to persuade the modern New Yorkers to call their city New Amsterdam, or the English to have their letters addressed to Londinium, because these were the old original names. And yet, what men of the world would never dream of doing certain scientific men are doing every day."—*Walsh, Am. Ent., 1872.*

5. The name placed after a genus shall be that of the author who established the genus in the sense in which it is actually used.—Dr. Sharp, in Nature, Feb., 1872.

Note.—"Carabus of Linnæus included all the insects now comprised in the family Carabidæ, at present divided into several hundreds of genera. To write, therefore, Carabus, Linn., when we mean something else, may be usual, but is not desirable."—*Dr. Sharp, ibid.*

I do not deny to any author the right to establish new genera. Quite the contrary. But I would insist on these genera standing on their own merits, and claim for the Entomological world the right to accept them or not, as they choose. If any one thinks it worth while to break up Papilio, for instance, let him do so at his pleasure, but do not let him apply to the severed parts names taken from Hubner or other ancient author, in order to give these brand-new creations a smack of age, and so get the advantage of another author who may honestly put his name to his own work It is by this species of wrong that Nisoniades, Hubner has supplanted Thanaos, Boisduval; Oeneis, Hub. is trying to supplant Chionobas, Bois.; Polygonia, Hub. thrusts itself into the place of Grapta, Kirby, and so in cases innumerable.

Rules 4 and 5, if carried out, must put an effectual stop to the perpetual shifting of names.

Other Rules, which might properly form part of a Code, are as follows:—

6. The same specific name may be employed in genera sufficiently remote from each other.—*Staudinger, Cat.*

7. If a species has received different names for its sexes, that first given shall be retained.

8. The names of species should properly be Latin, or Latinized to the extent that renders them capable of being used in scientific Latin. But names once given are not to be altered or set aside for any defect or errors.—*Dr. Sharp, before cited.*

"It matters not in the least by what conventional sound we agree to designate an individual object, provided the sign to be employed be

stamped with such an authority as will suffice to make it pass current."—*Explan. Rem. to Rule 1.*

"The name originally given, even though it may be inferior in point of elegance or expressiveness to those subsequently proposed, ought, as a general principle, to be permanently retained."—*Ibid.*

9. The same generic name may be employed in Botany, but not in Zoology.

I have heard the objection to the application of the above Rules, that Entomologists have no right to separate themselves from other naturalists, and make a special Code for their own sole guidance. To this I would reply, why not? If it is found impossible to enact a series of Rules that will meet the requirements of the several branches of Natural Science, and the experience of thirty years shows that the thing is impracticable, why should not each branch adopt Rules to suit its own case? If Botany may be excluded from the operations of a Code, why not Entomology? It is very certain that in other branches than Entomology there is wide-spread dissatisfaction, and I believe an effort for reform in any direction will be met by general approval. At all events, as the dissatisfaction felt on this side the Atlantic has found expression, and a set of Rules is to be prepared as aforesaid, by a Committee of experienced Entomologists, it may be left to them to estimate the force of this and any other objection, and to report accordingly.

But Entomology is peculiar in one respect, and if there were no other reason, this alone would make it imperative that its votaries should resist strenuously unnecessary changes in Nomenclature, even if, by so doing, they should separate themselves from other naturalists. This is the only branch of Natural History that is becoming thoroughly popular through organized effort. Not to speak of Europe, the Governments of the United States, and many of the individual States, and Canada, employ professional Entomologists, who make frequent Reports that are printed by authority, and widely disseminated with the view of rendering the people intelligently acquainted with their native insects. Several Magazines have been published, which are exclusively devoted to the same subject, and the numerous agricultural weeklies or monthlies set apart a portion of their space for Entomology. Professedly, the object is to give information upon insects injurious to vegetation, but that includes, in one relation or other, every insect. The expensive treatise of Dr. Harris was published by the State of Massachusetts, and is everywhere a received authority. Packard's

Guide to the Study of Insects, has passed through three large editions, in as many years, and is rapidly becoming the text book used in our schools and colleges.

The result is that a vast degree of attention is concentrated upon Entomology, a hundred fold, I venture to say, more than upon Botany or Geology, and a thousand-fold more than upon Ornithology or Mammalogy. In these branches, therefore, a disturbance of names would affect scarcely any but special students, and if they do not care to resist innovations, it is not our concern. But, from the nature of the case, in Entomology, the advantage gained by disseminating information depends wholly upon the precision with which the objects treated of can be identified, and precision can result only from the use of a common Nomenclature. If one Treatise dilates upon the habits of an insect by one name, and the next Report under another, and anybody may shift about the names, specific and generic, at will, nothing can result but incomprehensibility and disgust. What man reading the history of Papilio Asterias, figured with all its preparatory stages, and colored to the life, in Harris, and the larva of which species he recognises as one of the pests of his garden, will comprehend what the Annual Report of his State Agricultural Society for 1873 shall say upon Amaryssus Polyxenes? or, his old acquaintance, familiar from boyhood, that he has been instructed to call Papilio Turnus, when he shall read about Euphœades Glaucus? Mr. Wallace well says, "Intelligible language is wholly founded on stability of Nomenclature, and we should soon cease to be able to understand each other's speech, if the practice of altering all names we thought we could improve upon became general."

I hope, therefore, that the Entomological section of the American Association, at its next Meeting, will adopt a new or amended Code, having in mind the exigencies of their own science only, and that full discussion and interchange of opinion having meantime been had, such Code will express the views of the great majority of the Entomologists of this continent. If the Rules are sensible, they will recommend themselves to the Entomologists of other countries, and in time secure general adoption.

ON SOME OF OUR COMMON INSECTS.

II. CABBAGE BUTTERFLIES.

BY THE EDITOR.

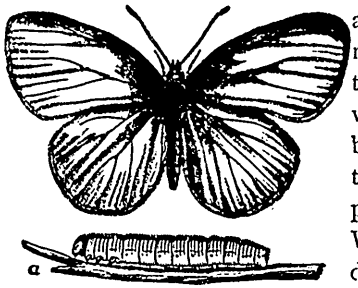
In pursuance of our plan of laying before our readers, from time to time, illustrated descriptions of the common insects of this country, we propose to begin in this number of our journal some account of the Butterflies belonging to the genus *Picris*—familiarly known in their larval state as "Cabbage-Worms." As stated by our coadjutor, Mr. Saunders, in the first paper of this series (C. E., v., page 4), we do not profess to bring out any new facts or information of interest and value to the experienced Entomologist, but we wish to afford to our less scientific readers plain descriptions, with illustrations, of our more common insects, in order that any one beginning to collect and observe may be able to identify and learn something about what he meets with. Such being our object, we shall not hesitate to make use of all available information, whether derived from our own or extraneous sources, and shall not pretend to be especially original in our descriptions or remarks.

The genus *Picris* is represented in Canada by but three species (*Oleracea*, *Rapæ* and *Protodice*), all of them white butterflies of moderate size, with more or less conspicuous black markings. The first-mentioned species, the Pot-herb Butterfly (*P. Oleracea*, Harris), is our native representative of the genus, being found all over the northern portion of this continent, from Nova Scotia and Maine in the East to the District of Algoma and even Manitoba in the North-West. It has been occasionally observed south of Lake Ontario, but very rarely as low down as Pennsylvania; at Ottawa, Collingwood, and other northern localities in Ontario, it is generally quite abundant every year, but it is seldom observed in any great numbers at Toronto or other places in the same latitude. When prevalent, it is usually to be seen on the wing from May to September, there being at least two broods in the year.

The *Oleracea* Butterfly (Fig. 7), may be at once distinguished from all other Canadian species by its almost pure white wings, destitute of spots or other markings on the upper surface; towards the tip and also next the

body the forewings are slightly discoloured with dusky scales. On the under surface the wings are sometimes of a yellowish hue, with the veins broadly marked with black or dark green; sometimes they are entirely white, with the veins merely faintly outlined in black; between these two extremes many gradations of shade may be observed. The pure white specimens found in the North West were supposed at one time to be a distinct species, and were described by Kirby under the name of the "Chaste Butterfly" (*P. Casta*); there is no doubt now, however, that these are merely varieties of the same species. The legs and body of the insect are black; its wings expand to a breadth of about two inches, but there is considerable variation in the size of individuals.

Fig. 7.



The butterfly, about the end of May or beginning of June, and again towards the close of summer, may be seen hovering over the food-plants of its larvæ, preparing to deposit its eggs. These are pear-shaped, or oval, of a yellow-green colour, and measure about one-twentieth of an inch in length, and a third of this amount in diameter; they are ribbed longitudinally with about fifteen sharp-edged lines. The parent deposits them singly, and rarely more than one on a leaf, on the under side of the leaves of the cabbage, turnip, radish, mustard and other plants of the order *Cruciferæ*. They are hatched in about a week or ten days.

The young larva is pale green, cylindrical in shape, and covered with short, whitish hairs. In order to escape from the egg it makes an opening with its jaws and then eats the shell until the aperture is large enough to admit of its easy egress; it subsequently devours the greater part of the shell that remains. At first the new-born caterpillar is less than one-twelfth of an inch in length, but it grows rapidly, until it attains its full size, about an inch and a quarter, in the brief space of a fortnight. The mature larva (Fig. 7, *a*) is pale green in colour, with numerous darker dots and a dark line along the back; it closely resembles the ribs of the leaf upon which it feeds.

When mature, the caterpillar forsakes its food plant and crawls away to some secluded spot, such as the under side of a stone or board, or a crevice in a fence or wall; there it spins a knot of silk to which it fastens its hindermost pair of feet; then it proceeds to form a loop of silk which

it dexterously fashions into a girth around the middle, and thus supported finally turns into a chrysalis. This is pale green or whitish, finely and regularly speckled with black, and in shape much resembles that of *P. rapæ*, of which an illustration will be hereafter given. In summer the chrysalis state lasts only a week or ten days, but in the case of the autumn brood the insect remains in this condition all winter and only comes forth as a Butterfly in the April or May following.

REVIEWS.

CONTRIBUTIONS TO ENTOMOLOGY FROM THE STATE OF NEW YORK.—Two works of value on the life history of various insects taken in the neighbouring State of New York, are before us; both of them emanate from official sources, and singularly enough, both appeared but a few months ago, though the Reports to which they belong have reference to the year 1869. The first to which we would draw attention is entitled "ENTOMOLOGICAL CONTRIBUTIONS," by Mr. J. A. Lintner.* It contains a remarkably elaborate description of the metamorphoses and whole life history of the handsome but rare moth *Hemileuca Maia*, Drury, occupying nearly twenty pages, accompanied by a lithographed plate of egg, chrysalis and imago, and constituting an excellent monograph of the species. This is followed by interesting observations upon various stages in the life of the butterflies *Melitæa Phæton*, Fab., *M. Nycteis*, Doubl., and *Pieris Oleracea*, Harris. The author then describes, with illustrations, three new species of *Nisoniades*, named *Icelus*, *Lucilius* and *Ausonius*; and a new Sphinx, *Ellema pineum*, which will probably be found in Canada, if it be not already in some of our collections under the name of *E. Harrisii*—a closely allied species. A list of forty species of Sphingidæ, another of over a hundred butterflies, and calendars of butterflies and moths, complete the author's observations. To these he has appended a very useful list, with references to volume and page, of all the North American moths, some 600 in number, described in Guenee's *Species General des Lepidopteres*. The volume is concluded by a translation from the German of a paper by Dr. Speyer on *Cucullia intermedia*, Spey., and *C. lucifuga*, W. V., to which Mr. Lintner has prefixed some notes on the larvæ. We have given a full account of the contents of this volume in order that the student may know where to look for very valuable contributions to our

* *Entomological Contributions*, by J. A. Lintner. From the twenty-third Annual Report of the New York State Cabinet of Natural History, for the year 1869. 8vo., pp. 90.

knowledge of the species referred to. We trust that Mr. Lintner will not relax in his efforts, but will continue to afford us year by year a complete record of his most pains-taking and accurate observations.

The other work, to which we have alluded above, is DR. FITCH'S THIRTEENTH REPORT as Entomologist of the State Agricultural Society of New York.† It opens with a long account of the synonymy and natural history of the Bean Aphis (*A. rumicis*, Linn.,) followed by descriptive notices of the Black-lined Plant-bug (*Phytocoris lineatus*, Fab.,) the Lilac Measure-worm (*Priocycla armataria*, H. Sch.,) and a new species of the latter genus, *P. Johnsonaria*, Fitch. The remainder of the Report is occupied by a very long and minute account of the two Cabbage Butterflies (*Pieris oleracea* and *P. rapæ*), covering some six and thirty pages. The diffuseness of these notices leads one to wish that the talented author would extend his observations to some other department of economic Entomology, and afford us, as he is so well able, concise and accurate accounts of species that are not yet familiarly known. While upon this subject we cannot forbear complaining of the excessive difficulty there appears to be in obtaining Dr. Fitch's Reports; we have tried in vain to obtain his 10th, 11th and 12th, and only succeeded as a special favour in getting the one we have just noticed. We are sure that Entomologists would esteem it as a great boon were they permitted to purchase these Reports separate from the volumes of Agricultural Transactions, at some reasonable price. The Naturalist's Agency at Salem would, we should think, be an excellent and convenient depository for them.

The volume of 'Transactions' contains also an admirable account of "The Grasses and their Culture," by the Hon. J. Stanton Gould, illustrated by upwards of 70 beautiful lithographed plates.

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† Thirteenth Report on the Noxious, Beneficial and other Insects of the State of New York. By Asa Fitch, M. D. Transactions of the New York State Agricultural Society for the year 1869. Albany.