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- (See also Appendices in Garrison's History.)

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EXIT HÜBNER'S TENTAMEN!

ALL lepidopterists having a thorough knowledge of the nomenclature of their science will welcome Opinion No. 97, recently handed down by the International Commission on Zoological Nomenclature. (See SCIENCE, LXV, p. 301.) This opinion should terminate for all time the contention concerning Hübner's "Tentamen," long ago thought to have been settled, but which recently has been revived in certain quarters.

Hübner's "Tentamen" is a small quarto sheet issued by Jacob Hübner, of Augsburg. The title is: "Tentamen determinationis digestionis atque denominationis singularum stirpium Lepidopterorum, peritis ad inspicendum et dijudicandum communicatum, a Jacobo Hübner." Literally translated, the title is

"An attempt to fix, arrange, and name the individual races of Lepidoptera, submitted by Jacob Hübner to experts for examination and the expression of an opinion." At the end the author adds a warning, "Ne expectet quis, ordinem hunc nullam amplius correctionem esse desideratum, verumtamen magis satisfaciet necessitati, quam prævius quivis. Familiis indicandis supersedere malui." This warning says: "Let no one expect that this arrangement makes further correction undesirable, but it will more nearly satisfy necessity than anything which has gone before. I have preferred to place [it, i.e., 'the order of Stirpes'] above the families, which are to be indicated."

In order to understand what Hübner meant it is necessary to understand the system of classification which he employed. It was an advance upon that originally proposed by Linnæus. Linnæus in his "Systema Naturæ" established among the insects the order *Lepidoptera* to include the butterflies and moths. Linnæus set up only three genera: *Papilio*, *Sphinx*, and *Phalæna*. Into these three genera he put five hundred and thirty-five species: one hundred and ninety-two species under *Papilio*; thirty-eight species under *Sphinx*, and three hundred and five species of moths under *Phalæna*. Linnæus himself recognized the incongruities arising from thus throwing together a multitude of forms into but three categories, or *genera*, as he called them. He attempted to bring about a subdivision by resorting to quadrimomials, intercalating fanciful and grotesque subdivisions, which exact systematists with more time and material at their command later have discarded, or modified, adopting some of the names he employed as generic and reducing his quadrimomials to binomials. But this does not concern us at this point.

The system adopted by Hübner involved a number of subdivisions. It is as follows:

Order LEPIDOPTERA

- a. *Phalanges* (Germanice Horden; Anglice hordes) = SUBORDERS, in modern parlance.
- b. He divided the *Phalanges*, or Hordes, into *Tribus* (Germanice Rotten; Anglice tribes) = SUPERFAMILIES.
- c. He subdivided the *Tribus* into *Stirpes* (Germanice Stämme; Anglice races, or clans) = FAMILIES, as now used.
- d. He subdivided the *Stirpes* or races, into *Familie* (Germanice Familien; Anglice families) = SUBFAMILIES, as now used.
- e. He subdivided the Families into *Coitus* (Germanice Vereine; Anglice unions) = GENERA in the Linnæan sense.
- f. He subdivided the *Coitus* into *Genera* (Germanice Arten; Anglice kinds, or species) = SPECIES in the Linnæan sense, and as now employed.

The "Tentamen" was issued as a preliminary inquiry, bearing upon a work contemplated by the author to be issued in the future. This work is the "Verzeichniss bekannter Schmettlinge," published by Hübner in 1816. In its production he largely followed the arrangement of the "Stirpes" suggested by him in the "Tentamen," as he tells us in his introduction, adding: "I made known [the Tentamen] to the end that it might be examined and passed upon by experts before I adopted it."

On examining the "Verzeichniss" we find that he employs the "Stirpes" names, many of which he had suggested in the "Tentamen." He adds a great many "family-names," as promised in the warning at the foot of the "Tentamen." The arrangement of the butterflies in the "Tentamen" is as follows:

LEPIDOPTERA

Phalanx I. Papiliones

Tribus I; nymphales

- I. Nerëides—Nerëis Polymnia.
- II. Limnades—Limnas Chrysippus.
- III. Lemoniades—Lemonias Maturna.
- IV. Dryades—Dryas Paphia.
- V. Hamadryades—Hamadryas Jo.
- VI. Najades—Najas Populi.
- VII. Potomides—Potamis Iris.
- VIII. Oreades—Oreas Proserpina.

Tribus II; gentiles

- I. Rustici—Rusticus Argus.
- II. Principes—Princeps Machaon.
- III. Mancipia—Mancipium Brassicæ.
- IV. Consules—Consul Fabius.
- V. Urbani—Urbanus Malvæ.

Turning from the "Tentamen" to the "Verzeichniss" we find under Stirps I, *Nerëides*, which he cites as equivalent to *Heliconii* Linn., that the name *Nerëis* nowhere occurs! We find the names *Hymenitis*, *Ithomia*, *Oleria*, *Eueides*, *Mechanitis*, etc. The specific name *polymnia* Linnæus given in the "Tentamen," in the "Verzeichniss" appears under the genus (*Coitus*) *Mechanitis*, and there it has remained for one hundred and ten years since Hübner published the "Verzeichniss," as every systematist knows.

Taking up Stirps II proposed in the "Tentamen," the *Limnades*, we find that the generic (*coitus*) name *Limnas* does not anywhere occur in the "Verzeichniss," but we find under the *Limnades* such well-known generic names as *Amauris*, *Hestia*, *Euplœa*, *Anosia*, etc. The species *Chrysippus* L. is found in the genus *Euplœa*!

Stirps III of the "Verzeichniss" is not mentioned in the "Tentamen," but includes such genera as *Eurybia*, *Echenais*, *Mesosemia*, *Charis*, *Euselasia*, etc.

Stirps III represents what we now know as the *Erycinidæ*, or, as some would have it, the *Riodinidæ*.

Stirps IV of the "Verzeichniss," = Stirps III of the "Tentamen," contains the so-called *Lemoniades*. The genus *Lemonias* is not given under the *Lemoniades*! We, however, find the genus *Melitæa*. The butterfly which in the "Tentamen" appears as *Lemonias maturna* in the "Verzeichniss" is *Melitæa maturna* Linnæus, and under this name has been familiar to every German schoolboy from the days of Hübner to the present time.

Stirps V in the "Verzeichniss" is equivalent to Stirps IV of the "Tentamen" and bears the same name, *Dryades*. Under this heading we find the genera *Phyciodes*, *Brenthis*, *Argynnis*, *Colænis*, etc. Under the genus (*coitus*) *Argyronome* we find *A. paphia* Linn. as a species. Nowhere does the genus (*coitus*) *Dryas* appear!

Stirps VI of the "Verzeichniss" is equivalent to Stirps V of the "Tentamen," bearing the same name, *Hamadryades*. No genus *Hamadryas* appears anywhere in the "Verzeichniss," but among the genera enumerated under the *Hamadryades* are *Vanessa*, *Pyrameis*, *Precis*, *Junonia*, etc. The species indicated in the "Tentamen" as *Hamadryas Io* is found as No. 22 under the genus *Inachis*.

And so the student may go on throughout the entire list, discovering the fact that the apparently generic names prefixed to the species, which are cited in the "Tentamen," do not occur at all in the "Verzeichniss," of which, as Hübner tells us, the "Tentamen" was the foundation.

Now what is the explanation of this fact? In order to understand it we must endeavor to put ourselves in Hübner's place and follow the workings of his mind at the time he was engaged in his studies. At the moment he sketched the "Tentamen" for submission to his learned friends and correspondents the matter immediately before him was not the setting up of genera, but the creation of what he calls *Stirpes*. He was seeking for a natural subdivision of the lepidoptera into *Stirpes*, or what we now call *families*. He was giving no thought whatever to the minor subdivision into genera or *Coitus* (Vereine) as he called them. In the "Tentamen" he proposes a series of *Stirpes* or family-names. In order to visualize to his correspondents what he had in mind he took the specific names of a number of well-known species and prefixed to these specific names the name of the *Stirps* (not of the genus) into which he proposed to put the insect. Any man who simply confines his attention to the "Tentamen" and fails at the same time to take into consideration the "Verzeichniss" is certain to go astray, as has unfortunately been the case with some recent writers. It is as unfortunate

for a student of this matter to confine himself and his thought to Hübner's "Tentamen" as it would be for a man endeavoring to write a life of Christ to confine himself to the Gospel according to St. Matthew and to omit all reference to the other three gospels. The gospels supplement each other. The "Verzeichniss" explains the "Tentamen" and shows beyond the shadow of a doubt that he is in error who accepts the names in the "Tentamen," which look like generic names, as being such in reality. The "Verzeichniss" shows clearly that Hübner did not intend them to be so used. He simply cites certain species as representative of what he intended to include in his proposed *Stirpes*.

Passing from this critical examination of the subject, it should be said that the International Commission on Nomenclature has done right in deciding that the "Tentamen" was, as all students who have investigated the matter understand it to have been, merely a circular letter. Although it was printed on paper (typewriters, hectographs and other manifold devices were unknown in Hübner's day) it was not published as "a zoological record."

In this connection I can not refrain from quoting a sentence contained in a letter received from my honored friend, Dr. F. A. Bather, of the British Museum, who anent the question of the "Tentamen" says: "I think it is perfectly awful to decide that a man can not ask the opinion of his friends as to the value of certain names without being thereby committed to them eternally." All that Hübner did in the "Tentamen" was to circularize his acquaintances, and he would turn in his grave if he imagined that his private correspondence, forgotten until S. H. Scudder published a facsimile of the letter in 1873, was being employed to upset the system he published in the "Verzeichniss," as well as to upset a system of nomenclature based in large part on his patient labors, but improved by those who have come after him, and which has been practically in use for a century.

Certain workers in the field of terminology, obsessed with the idea that by slavish obedience to the "law of priority" they can establish a final and satisfactory nomenclature, should be reminded that consistent usage, covering a century, or more, in the use of names, is also not to be disregarded. "A rose under any other name would smell as sweet." But roses are roses; they are not cabbages; and, when some man reminds me that certain roses long ago and even recently have been called "cabbage-roses" and tells me that I must therefore call all roses cabbages, because in combination cabbage "has priority" over rose, I naturally am ruffled.

As a student of the lepidoptera for sixty years

and with the entire literature of the subject at my fingers' tips, I object emphatically to having the terminology of my favorite science upset by efforts which, however well meant, show that those who are making them possess "more zeal than knowledge."

Opinion 97 will be accepted by all thorough students of the terminology of the lepidoptera with gratification. The thanks of the lepidopterists of the world are due to the Commission for the Opinion which they have handed down. It will tend mightily to clear up a situation which has been most annoying to students of the lepidoptera, as well as the great public, including compilers of dictionaries and encyclopedias. Only recently I received a letter from a young correspondent who said to me: "What is the matter? Why are they always changing the names of the butterflies? I have arranged my collection using the generic names given in your Butterfly Book. Must I now call my Argynnis *Dryases*; my *Vanessas Hamadryases*?" I answered him by saying, "No! The generic names *Argynnis* and *Vanessa* have been used prevalently by reputable scientists for a hundred and twenty-five years. You have the authority of all the leading writers in the world for their use."

It is high time that trifling in matters of zoological nomenclature should come to an end. As the croupier at Monte Carlo says, when a too ardent player strives to lay down his belated stakes on the table: "*Le jeu est fait. Rien ne va plus!*"

W. J. HOLLAND

GEORGE BISHOP SUDWORTH

THE recent death at his home in Chevy Chase, Md., on May 10, of George Bishop Sudworth, for more than forty years the dendrologist of the United States Forest Service, removes from the scientific world a man who at the time of his death was unquestionably the most eminent living authority on forest trees in the United States, and one of the greatest in the world.

Born at Kingston, Wisconsin, in 1864, he attended the country schools of those days and studied botany, ornithology, dendrology and kindred sciences. He was graduated eventually, however, from the University of Michigan, as a physician and surgeon. After a year of teaching botany at the Michigan Agricultural College, he surrendered to his natural desire for the open, and was appointed botanist and dendrologist to the old division of forestry in the U. S. Department of Agriculture on August 31, 1888, and from that date forestry became his life work. Mr. Sudworth was the oldest member of the Forest Service in point of years of service. Just a few weeks