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TYPE AND TYPICAL.*

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These terms are used in such different senses by different authors that confusion is sometimes caused, and it is much to be desired that some authoritative body of naturalists should accurately define their proper use, and then that all other naturalists should accept the decision and conform to it even if it does not agree with their own individual opinions.

My thoughts have been recently turned in this direction by reading the Annual Presidential Address of Mr. Charles Owen Waterhouse, read before the Entomological Society of London on the 15th of January last.

In his address Mr. Waterhouse urges, and in my opinion rightly, that accuracy and stability of nomenclature are of more importance than the observance of the strict letter of the law of priority, but we differ in our views as to the use of the word type.

Mr. Waterhouse urges, as others have done, that there should be only one type specimen for each species, and that that type specimen should be the standard for all time, while I hold that a species should never be founded upon one specimen where that can be avoided.

We agree, however, in regarding the preservation of type specimens as of the greatest importance.

Mr. Waterhouse, pointing out the different ways in which different authors use the word type, especially mentioning that some regard all the specimens which they had before them when describing a new species as types, and distribute them as such, says: "Some thirty-five years ago I saw the danger arising from this loose way of using the word, and applied the word 'type' to the actual specimen described when that could be determined, and called the other examples, mentioned by an author, 'co-types.' Some years afterwards my colleague, Mr. Oldfield Thomas, proposed (P. Z. S., 1893, p. 242) the terms para-type, topo-type and meta-type, and all these are useful in their way, but we are both agreed that the word type should be restricted to the actual specimen upon which the species is founded."

*Read before the Montreal Branch of the Entomological Society of Ontario, Feb. 8th, 1908.

Another similar term, viz., homo-type, has also been proposed, but it may, perhaps, be objected to all these terms except co-type, the meaning of which might seem to be sufficiently obvious, that a glossary is necessary to explain them, and even the word co-type seems to be used in different ways, as Dr. J. B. Smith, in his "Explanation of terms used in Entomology," explains the word as follows :

"Co-types are all the specimens before the describer when a species is named, no single one being selected as the type ; the type in such case equals the sum of the co-types."

This is using the word in a different sense from that in which Mr. Waterhouse and others use it, but it is the sense in which Mr. Oldfield Thomas defined it, Proc. Zoo. Soc., 1893, he adding: "No species would have both type and co-types, but either the former or two or more of the latter."

Para-type is defined by Dr. Smith as "every specimen of the series from which the type was selected," and it is in that sense that Mr. Waterhouse and others use the term co-type.

Meta-type is defined by Dr. Smith as "a specimen named by the author after comparison with the type," but according to Mr. Oldfield Thomas, it must also be from the original locality, and so also be a topo-type.

Homo-type, on the other hand, is "a specimen named by another than the author after comparison with the type," and topo-type is "a specimen collected in the exact locality whence the original type was obtained."

It always appears to me that any unnecessary addition to the already vast number of technical terms is to be deprecated, as imposing an additional burden upon amateurs and beginners, and it would seem to be simpler to label a specimen "compared with type" than to label it "homo-type," and when a specimen is compared with a type by anyone other than the owner of the specimen, the name of the comparer should be put on the label, as the value of such comparison is directly in proportion to the ability of the one who makes it. My objection to having a single type, when additional specimens, which are undoubtedly of the same species, are available, is that in the former case a *specimen* is described instead of a *species*.

One good specimen of a coin is sufficient for description, but insects are not stamped from dies like coins, and all species vary more or less, and if an author has before him a fair representation of the range of variation of the species, his description can be made to much better cover the species than if drawn up from a single specimen. Of course, it is of the greatest importance that all danger of having more than one species in the series selected be avoided, but even should such an error be made, the plan which I have adopted would work automatically to establish the species intended. My plan is to number all the types. The best, and what I believe to be the most typical ♂, I name type No. 1, and the best and most typical ♀ type No. 2. The others are numbered consecutively, as far as possible, according to their closeness to type No. 1. Should, unfortunately, another species be discovered among the types, it must be given a new name, type No. 1 being the final standard for the species. Should type No. 1 be unfortunately destroyed, type No. 2 would then become the final standard.

When a species is very distinct and not very closely allied to any other species, types of any kind are of minor importance, as, for instance, in the case of such a species as *Vanessa Antiopa*, the preservation of the type would be of no consequence beyond the interest necessarily attaching to a specimen described by the great Linnæus.

When the type of a species has been lost or destroyed, a topo-type might be of great importance in re-establishing the species.

In the Proc. Acad. Nat. Sci. Phil., 1862, Mr. W. H. Edwards described a species under the name of *Lycæna Pembina*. The types were brought from the shores of Lake Winnipeg by R. W. Kennicott. Unfortunately, the types were afterwards lost, and Mr. Edwards could not afterwards certainly identify anything as the same. Strecker thought he had identified it with the species later described by Grote under the name *Glaucopsyche Couperi*, but he afterwards admitted his error, and in his catalogue designated it as unknown to him. Scudder thought, after a "prolonged study" of all the N. A. Blues, that it was the same as *Lycæna Lycea*, Edw., of which *L. Arapahoe*, Reak., is accounted a synonym, but that also proved erroneous. In such a case as that, topo-types would be exceedingly valuable, and should render it possible to clear up the mystery surrounding the name.

I now come to the consideration of the word Typical. This naturally means agreeing with the type, but what type? The author's type from which he described the species, or a specimen agreeing with the general average of the species in nature? Surely it should be used in the latter sense, which is the common every-day sense of the term. Some species have unfortunately been described from aberrant specimens, but it is surely absurd to call an aberrant specimen typical of the species?

In 1863 Grote described in the Proc. Ent. Soc. Phil., a species of Tiger moth under the name *Arctia Anna*, the hind wings and abdomen being entirely black. Three months later he described in the same volume what he considered to be another species, under the name *Arctia Persephone*, in which the hind wings were yellow, with black markings, both specimens having been received from the same collector. Later it was found that they were only varieties of the same species, and though *Anna* is very rare, that name is given to the species, while *Persephone*, the common form, which probably outnumbers the *Anna* form fifty to one, is classed as a variety. Surely that is unnatural and ridiculous?

What difference could it make to Mr. Grote's credit whether we write

Arctia Anna, Grote,	Arctia Persephone, Grote,
var. Persephone, Grote, or	var. Anna, Grote?

While the first represents a foolish worship of the Law of Priority, the second shows the true relationship in Nature. Even had they been described by different authors, I would follow the same practice, as it would make no difference to the authors, while it would make the nomenclature agree with nature.

NEW AND LITTLE KNOWN BEES.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

The genus *Nomia* doubtless originated in the Old World, where it is abundant and varied. In America it has few species, though one (*N. jenseni*, Friese) exists as far south as the Argentine. The genus may perhaps have reached America about the same time (and doubtless by the same route) as the Elephantidæ.

Nomia ekuivensis, sp. nov.

♂.—Length about $8\frac{1}{2}$ mm., anterior wing 6; black, *with a strongly clavate abdomen*; pubescence dull white (not at all fulvous or yellow);

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