

*piens*, would have priority over all the others and the various types of fossil men should be considered as subspecies of *H. sapiens*. In this case, the older scientific names, e.g., *Pithecanthropus erectus*, etc., would be inappropriate and should be abandoned. In their place could be substituted the names *Homo sapiens javanensis* (= *Pithecanthropus erectus*), *H. s. pekinensis* (= *Sinanthropus pekinensis*), *H. s. dawsoni* (= *Eoanthropus dawsoni*, if considered human), *H. s. rhodestensis*, *H. s. heidelbergensis*, *H. s. neanderthalensis*, etc.

These names would be more in keeping with the usual rules of zoological nomenclature, would more clearly indicate the significance of the various types and would still readily distinguish the different fossil men, which is Weidenreich's sole reason for retaining the older names.

Another aid to other biologists would be a reduction in the synonymy. At present, to mention a few examples, *Homo neanderthalensis* = *Homo primigenius* or *Palaeoanthropus neanderthalensis*; *H. heidelbergensis* = *Palaeoanthropus heidelbergensis*; *H. soloensis* = *Palaeoanthropus soloensis*, *H. neanderthalensis soloensis* or *Javanthropus*; and *H. modjokertensis* = *Pithecanthropus erectus* (baby). In an earlier paper Weidenreich<sup>6</sup> calls *Pithecanthropus* by the name *Homo erectus javanensis* and *Sinanthropus* by the name *Homo erectus pekinensis*, but Dobzhansky<sup>2</sup> believes that the correct name for *Pithecanthropus* should be *Homo erectus erectus*.

Naturally, much of this confusion and synonymy can only be cleared up by further study and new material which would probably result in a change of status of some of the forms. However, whenever possible, the use of a single scientific name as the accepted and correct one is greatly to be desired.

The designation of the correct name, the status of the individual types and the reduction in the synonymy could probably be best and most efficiently brought about by an international board of experts. The fact that we are dealing with fossils, which are rarely complete specimens or abundant in number, greatly complicates the problem, as more than once in paleontology different generic and specific names have been given to various parts of the same individual or species. An additional factor contributing to the confusion is that human remains are among the rarest of fossils and it is undoubtedly extremely difficult for the discoverer or describer of a new specimen to be objective and unbiased in his evaluation of its true significance and importance.

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<sup>6</sup> F. Weidenreich, *Am. Anthropologist*, n.s. 42: 375, 1940.

## THE REACTION OF VITAMIN A WITH LIEBERMAN-BURCHARD REAGENT

In repeating the work of Lowman<sup>1</sup> on the reaction of vitamin A and carotene with adsorbed sulfuric acid it was found that unadsorbed sulfuric acid added to carotene in chloroform solution gave rise to a blue color. The difficulty that was encountered in attempted quantitative measurement of this color was the immiscibility of the sulfuric acid and the chloroform. However, when acetic anhydride was also added (Lieberman-Burchard reagent) the solution became completely homogeneous and gave rise to an intense blue-green color, which rapidly faded. Acetic anhydride by itself gave no color reaction when added to carotene.

This reaction was also obtained with vitamin A-carotene mixtures extracted from human blood plasma and suggests the possibility of utilizing this reaction for the quantitative measurement of vitamin A in plasma. One difficulty that might be encountered in such a determination would be the interference caused by cholesterol. This might be obviated by saponification of plasma cholesterol ester with mild alkali to free cholesterol and subsequent removal of cholesterol by precipitation with digitonin.

As time is not available for the complete study of the possibilities of this reaction this communication is being published as a suggestion to interested workers in the field.

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## OPINION 152 OF THE INTERNATIONAL COMMISSION OF ZOOLOGICAL NOMENCLATURE<sup>1</sup>

ON May 24, 1944, the International Commission on Zoological Nomenclature issued Opinion 152 on the status of the generic names in the Order Diptera first published in 1800 by J. W. Meigen in his "Nouvelle Classification des Mouches à Deux Ailes."

This opinion has far greater importance than most workers realize, as it affects all branches of zoology. Few taxonomists know why the Meigen names have been the cause of so much discussion and therefore little realize the importance of this opinion.

In 1800, M. Baumhauer of Paris published a paper by J. W. Meigen entitled, "Nouvelle Classification des Mouches à Deux Ailes," in which he reviewed the known genera of Diptera and proposed many new genera. For all of these genera he gave names and short descriptions and cited the number of species, but gave no specific names. The generic descriptions

<sup>1</sup> A. Lowman, *SCIENCE*, 101: 183, February 16, 1945.

<sup>2</sup> Contribution No. 250 from the Entomology Department, University of Illinois, Urbana.

are very poor and have no diagnostic value as they are very incomplete. In the introduction, which has been overlooked by the majority of workers interested in this matter, appears the statement that this is a preliminary work, written for circulation among entomologists and would be followed by a more complete work. This indicated that Meigen did not wish these names to be used. In 1803 Meigen published a complete work on Diptera, but used none of the names he proposed in his 1800 paper. The 1800 paper was forgotten, but there is evidence that other workers of the time knew of it.

In 1908 F. Hendel<sup>2</sup> reprinted, in part, Meigen's paper of 1800. Hendel said he was able to recognize the 1800-genera by comparing the 1800 diagnoses (in French) with the diagnoses of the 1803 paper (in German) until he succeeded in pairing them off. He explicitly states that before he tried this method he was unable to recognize them from their diagnoses alone.

In 1909, J. M. Aldrich took steps to have the International Commission on Zoological Nomenclature act on the validity of the Meigen 1800 names. He sent them a paper, first asking if the 1800 names were valid and then listing reasons why they should not be, with the hope that the commission would declare that the names could not be or were not to be used. In 1910, the commission gave Opinion 28, which did not answer Aldrich's question, but stated that the 1800 paper had been published and, therefore, the names were available if found valid under the International Code. The majority of dipterists did not use the 1800 names, because they believed them invalid since they could not be recognized from the original description. Thus the matter rested until 1932, when F. W. Edwards of the British Museum published a "Questionnaire" in the *Entomologist* (65 (1932), pp. 13-14) and the *Entomologist Monthly Magazine* (vol. 68) (1932) pp. 1-3). The questions were as follows:

1. Do you consider that the names in the *Nouvelle Classification* should be accepted?
2. Do you consider that the omission of specific names renders the *Nouvelle Classification* names invalid?
3. Do you consider that, whether or not the *Nouvelle Classification* names are valid under the International Code, they should be annulled?

The results of the questionnaire were as follows (*Ent. Mo. Mag.*, vol. 68 (1932), pp. 255-258):

1. Affirmative, 13 per cent; no. of votes, 11.
2. Affirmative, 58 per cent; no. of votes, 58.
3. Affirmative, 74 per cent; no. of votes, 63.

The results show that the great majority of dipterists were definitely not in favor of the Meigen 1800 names.

<sup>2</sup> *Verhandl. zool.-bot. Wien*. Vol. 58 (1908), pp. 43-69.

In 1944, the commission issued Opinion 152, which stated, "The generic names in the Order Diptera (Class Insecta) first published in 1800 by J. W. Meigen in his '*Nouvelle Classification des Mouches à Deux Ailes*' are to be treated as having priority as from that date." This opinion was issued in spite of the fact that the majority of dipterists were against using the Meigen 1800 names. Does this mean that the International Commission knows more about Diptera nomenclature than men who have spent their lifetime studying the subject? Secondly Opinion 152 shows that either the commission did not see a copy of the original 1800 paper or ignored Opinion 46, because it is impossible to recognize species from the generic descriptions as given in the 1800 paper.

The purpose of the International Commission on Zoological Nomenclature is to bring order to zoological nomenclature, but because of the ambiguous rules and opinions they have made, much of our nomenclature is no better than before the commission was formed. This matter of the Meigen 1800 names is an excellent example. So far they have given two opinions and neither has answered the question which was submitted for their consideration. They have simply said that it is up to the dipterist to interpret the meaning of their opinions. If it is up to the specialist to interpret the opinions why does the commission continue to publish ambiguous opinions? Are they afraid to offend some scientific worker by disagreeing with him?

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### SCIENTIFIC PAPERS FOR EUROPE

SCIENTIFIC institutions in Europe are, as we all know, greatly in need of the technical literature which has appeared during the war, as well as older works to replace those lost owing to the war. Individual scientific workers can do a good service by sending their papers and others which they are able to obtain. I thought to make a beginning by sending a package of papers to the Congo Museum at Tervueren, Belgium, but it was returned to me as not complying with the necessary requirements. I was not told what these were, but in "News from Belgium," May 19, published by the Belgian Information Center in New York, I read:

The printed-matter service is restricted to:

- (a) Periodicals and newspapers mailed directly by a publisher in this country to a publisher, an agent or a subscriber in Belgium.
- (b) Other articles conforming to the conditions applicable to printed matter, mailed directly by a publisher or commercial firm.