

Comments and Communications

On Paraffin Embedding

I suspect that the reason Popham (*Science*, November 14, 1947, p. 475) is having so much trouble in his paraffin embedding is that he is trying to do it at a room temperature that is some 40° above the boiling point of his paraffin (!). Disconsidering these two obviously typographical errors, may I mention that all cavitations in paraffin embedding are a direct result of contraction of the paraffin in the center of the block after cooling at the borders first. This is purely a problem in physics, a study in coefficients of expansion. The trouble with all techniques of embedding in which the surface of the paraffin is blown upon to form a surface crust, followed by the immersion of the block, is that the block, now solidified at the surface, must still contract in its center. The obvious result is contraction spaces around the embedded object which interfere with its sectioning.

The solution to this problem is simply to fill the paper boat with hot paraffin (I use a temperature of 67°C), let the boat float upon water at room temperature until a thin film forms over the paper, let the specimen drop through the hot upper paraffin upon the congealed layer below, then allow the boat to cool slowly. The top will cool last, contracting as it does so, and concavities will not occur.

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Proposed Changes in Article 25 (the Law of Priority) of the International Rules of Zoological Nomenclature

At the International Zoological Congress held at Budapest in 1927, Article 25 of the International Rules of Zoological Nomenclature was amended by the addition of a third section (Section c), the provisions of which seemed so very reasonable and desirable that few taxonomists even yet have awakened to the nomenclatural confusion that may train from them. The paradox of provisions that can be characterized as reasonable and desirable and at the same time as potential sources of serious confusion and instability arises through their inclusion as mandatory parts of the Rules rather than as Recommendations, advisory in character. As mandatory parts of Article 25, there is a penalty for failure to comply, namely, "no generic name nor specific name published after December 31, 1930 shall have any status of availability (hence, also, of validity) under the rules, unless and until" the provisions of the new Section c are complied with.

In practice, a large percentage of the names proposed since 1930 appear to comply with the provisions of Section c, and with these names there are no difficulties. If

the mandatory form of Section c has helped bring this about, as no doubt it has, that is to its credit. But there is still, and probably will continue to be, a significant percentage of names that are not proposed in compliance with Section c and hence, technically, are unavailable and invalid. For example, sampling indicates that something like 25% of the names proposed since 1930 to replace preoccupied names are invalid for failure to comply with the provisions of Article 25, c 2, as interpreted in Opinion 138. Nevertheless, few workers have recognized the fact. The invalid names enter into nomenclature, are employed again and again, and may become validated, perhaps inadvertently, somewhere in their history, but as of a different date and author.

If the penalty feature of Section c is ever generally recognized and a serious attempt to enforce it is made, great confusion will result, and a tremendous volume of otherwise useless bookwork will have to be undertaken. The penalty thus will not fall so much on the negligent author who earned it as on all subsequent workers who must deal with the name. Since the penalty features that arise through including the provisions of Section c as mandatory parts of the Rules are, in general practice, unenforced, and since their enforcement would create incalculable confusion, no time should be lost in removing these provisions from a mandatory status to an advisory one, from a section of Article 25 to the status of a Recommendation.

The Smithsonian Institution Committee on Zoological Nomenclature, composed of taxonomists of the U. S. National Museum, the Bureau of Entomology and Plant Quarantine, the Geological Survey, and the Fish and Wildlife Service, has considered what action might be taken and has approved the following suggestions for rewording Article 25 of the present Code and for Recommendations to accompany it.

It was the first thought simply to restore Article 25 to its original condition by removing the present Section c and setting up its provisions as Recommendations. Article 25 would then appear to have the advantages of brevity and succinctness—advantages, however, that are more apparent than real. For example, it took a long Opinion (Opinion 1) to interpret the word "indication" alone. Furthermore, some of the Opinions, notably 1 and 138, extend even farther the rigors of Article 25 and the evils that follow from unenforceable penalties. In addition, its coverage was incomplete in a number of important respects. Therefore, a complete rewording of Article 25 was undertaken and, with the accompanying Recommendations, is hereby laid before interested taxonomists in zoology and paleontology for discussion and constructive criticism. If it passes the tests of criticism and meets the approval of various organized groups to which it will be submitted, it is planned to send it to the International Commission on Zoological Nomenclature with the recommendation that it be passed on to the International Congress for consideration as an amendment to the Rules.

This amendment to Article 25, if adopted, will mark a deliberate halt to a dangerous trend that has been

growing more emphatic from decade to decade in the International Commission and reached a climax in Opinion 138 published in 1942. It is possible, if the trend is not reversed, that even more serious mistakes will be committed than the Budapest amendment and Opinion 138. The error is in trying to make the Articles of the Rules, which are theoretically mandatory, require optimum procedures rather than a necessary minimum, leaving the optimum a matter for Recommendations.

It should be stressed that the Rules can be enforced only through the voluntary action of the vast majority of working taxonomists. Taxonomists are only human, few are nomenclatural lawyers, and none are nomenclatural police. As a result, the penalty for failure to observe the rigorous provisions of the Budapest amendment and Opinions 1 and 138 is rarely enforced. The amendment proposed herein will cause little change in present practice and hence a minimum of confusion on the working level. It simply legalizes what is and always has been almost universal practice. At the same time, it is confidently expected that the Recommendations, which cover the provisions of Section c of the present Article 25 and which are couched in emphatic terms, will continue the good influences on nomenclatural practices which those provisions have had.

Suggested Form of Article 25 and Accompanying Recommendations

"The Law of Priority"

Article 25 (Amended [date])

- A. (1) The scientific name of the genus (generic name) is a single word (uninominal).
- (2) The name that must be employed for a genus can be only that name which was first proposed for it in a publication on the condition
 - (a) that the name had not been used previously for another genus, and
 - (b) that the proposal of the name included
 - (1) a written description or diagnosis, or a reference to one previously published, or
 - (2) one or more species (named or unnamed) described, diagnosed, or illustrated in the same publication or a reference to such species in a previous publication or publications, or
 - (3) a reference to a preoccupied generic name that the name proposed was intended to replace.
- B. (1) The scientific name of a species consists of two words (binomial) and has two components, the generic name (see A, above) which may be shared with many species and the specific name peculiar to that species within the genus.
- (2) The specific name that must be employed for a species can be only that which was first proposed, for it in a publication on the condition
 - (a) that the name complies with the provisions of Articles 35 and 36 on homonyms, and
 - (b) that the proposal of the name included
 - (1) a written description or diagnosis, or a reference to one previously published, or
 - (2) an illustration, or a reference to one previously published, or
 - (3) a reference to a preoccupied specific name that the name proposed was intended to replace.
- C. The adoption of the above Article 25 nullifies and repeals the previous Article 25 and those Opinions or

parts of Opinions heretofore adopted not in harmony with it, particularly Opinions 1 and 138. Names previously adjudicated in Opinions contrary to this article are to continue their adjudicated status but under Suspension of the Rules. Such names are hereby added to the official List under the Plenary Power.

Recommendations:

- A. With respect to all names,
 - (1) Authors are urged to provide descriptions or diagnoses that are sufficiently complete to serve for effective recognition or differentiation of the genus or species from other genera or species. It is recommended also that species be illustrated.
 - (2) Authors are urged to give the references referred to above as definite and complete bibliographic references, at least once in the work in which the name is proposed. This reference should include the name of the publishing author, the indicated and actual year of publication (if they are different), the title of the paper or work and of the serial publication, and the number or numbers of the pages where the matter referred to appeared, and of any relevant illustrations.
- B. With respect to generic names, it is extremely important that a type species be clearly and explicitly named as such in the original publication.
- C. With respect to specific names, authors proposing a name are urged (1) to designate a single specimen (whether it be a complete organism or a part of an organism) as the type, preferably a figured specimen, and (2) to publish some means by which that specimen can be identified, such as a museum number or a distinguishing mark on the specimen or its label, and the name of the repository where it is preserved. The sole purpose of the type specimen is to fix the specific name on the species of which that specimen is an example, regardless of the taxonomic vicissitudes through which the name may pass.

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The Situation in Argentine Universities

The American Association of Scientific Workers has received from Buenos Aires a 64-page pamphlet, entitled "The Enslavement of the Argentine University (Avasallamiento de la Universidad Argentina)," recently issued by the Federation of Societies for Defense and Advancement of the Democratic and Free University. Reprinted in the pamphlet is the declaration adopted by the Federation at its organization meeting last year:

The Federation of Societies for the Defense and Advancement of the Democratic and Free University, having formed itself in the city of Rosario, on December 15, 1946, addresses itself to the public of the Nation and to the universities of America, to make known to them the state of the Argentine universities and the reasons which determine our position. We affirm that the universities have been enslaved by essentially political intervention; that they now lack the climate and urge for research, respect for freedom, or interest in the true creative and moral capacities of the youth. We affirm that the universities are now in process of transformation from their free, democratic status into another type, purely totalitarian.

In the face of the above facts, which have resulted in the loss and dispersion of the teaching staffs, with grave consequences for the national culture; in the face of systematic persecution of teachers and students, deprived of all rights and guarantees of law and with their representative socie-