

their own ideas and taxonomic methods, but not to upset a nomenclature that has been stable for so long. It may be observed that the Secretary's proposals (*Bull. zool. Nom.* vol. 32, pp. 60-62) involve the direct application of the Code without any use of the plenary powers where the Mollusca are concerned. Dr Starobogatov's proposals invite the use of the plenary powers in a sense contrary to stability and uniformity of nomenclature.

FURTHER COMMENTS ON THE CONCEPTS OF
PARANOMENCLATURE Z.N.(S.) 1973
(See vol. 36, pp. 11-14; vol. 37, pp. 141-144)

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In response to Mr. Melville's reply to my comments on paranomenclature (*Bull. zool. Nom.* vol. 37, pp. 141-142) I acknowledge that there may be whole groups of fossils where a dual taxonomy could prove necessary. I maintain, however, that these groups of fossils are not vertebrates nor do these groups possess the structural complexity found in the vertebrate skeleton.

In defense of paranomenclature, Mr. Melville pointed to the examples of ammonites and their aptychi as well as holothurians and detached spicules; rhyncholites and nautiloids, as areas where paranomenclature concepts could benefit taxonomic problems. However, in all of these invertebrate groups it is an 'either-or' situation. Either one element is present (i.e. nautiloid shell) or the other element is present (i.e. rhyncholite). Among fossil vertebrates it is not a simple 'either-or' situation. The large number of individual elements comprising the vertebrate skeleton vary considerably in their individual diagnosticity and preservability in the fossil record. Vertebrates are represented in the fossil record by material ranging from single elements to hundreds of different elements. The question remains, at what stage of completeness or incompleteness are these fossil vertebrate remains classed as taxa and parataxa.

At the extreme end of incompleteness are the single elements such as the isolated teeth in mammals, elasmobranchs and holocephalians and otoliths in teleostean fishes. The diagnosticity of these elements is so significant as to be of greater taxonomic value than more complete fossils lacking these elements.

It is the degree of structural complexity in the vertebrate skeleton, rarity of complete vertebrate skeletons in the fossil record and the inadequate definition of 'whole' or 'more complete' fossils upon which paranomenclatural concepts rest that are the greatest concerns in the application of paranomenclatural concepts to fossil vertebrates.

If parataxonomy is to be applied indiscriminately to all fossil groups regardless of whether it is needed or not, some system will have to be established to define at what stage of completeness fossil vertebrate remains are considered taxa or parataxa. This distinction between which remains are considered taxa and which are parataxa is not a trivial matter, especially in view of the fact that names for parataxa will not compete for priority with names for taxa. The concept of priority is fundamental. The preamble to the International Code of Zoological Nomenclature states, 'Priority is the basic principle of zoological nomenclature.'

I believe that to apply paranomenclature to fossil vertebrates, in which no

clear delineation between the various degrees of completeness can be made, would generate instability in the nomenclature of this group. This instability would result from the various conflicting independent subjective judgements as what forms compete for priority and which forms do not.

I realise that the concept of paranomenclature is not to provide a separate nomenclature for fragments of any and every kind; it nevertheless gives 'official' sanctions to such activities, which even Mr. Melville agrees (*Bull. zool. Nom.* vol. 37, p. 143) would lead to chaos.

I strongly urge that before a concept such as paranomenclature (affecting the fundamental principle of priority) is incorporated into the Code and applied to all fossil groups, that its potential, far reaching effects are more fully and carefully examined. Mr. Melville has pointed out several areas where such concepts are needed. My concern is for those areas (i.e. vertebrates) which are not in need of paranomenclatural concepts but which would nevertheless be strongly affected by its incorporation into the Code.

The current definition of paranomenclature coupled with the complexity of the vertebrate structure and the imperfection of the fossil record creates a dangerous combination which contributes to the instability of many vertebrate fossil names on a nomenclatural basis.

My concerns do not involve some 'naturally inherent quality of the animals', to quote Mr. Melville, nor does it advocate constraints or barring of taxonomic thought. It is simply a concern that paranomenclature applied to vertebrate fossils will generate instability and confusion as to which fossils would be taxa and which would be parataxa.

What I have tried to explain is not how paranomenclature will affect those groups of invertebrates where Mr. Melville proclaims their necessity, but rather the problem of applying the definition of paranomenclature to those groups possessing such structural complexity as the vertebrates. I see no orderly way to apply paranomenclature to vertebrate fossils without disrupting traditional views on the nomenclature of this group or without affecting an orderly flow of nomenclatural concepts.

Once again I strongly urge that at least fossil vertebrates be excluded from coverage under the proposed concepts of paranomenclature.

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