

PROPOSALS FOR THE INTRODUCTION OF A NEW TAXONOMIC CATEGORY WITH A VIEW TO INCLUDE VIRUSES IN THE CLASSIFICATION OF LIVING THINGS

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The more truly a certain system reflects reality, the better. The essential condition of this requirement is the thorough knowledge of the living things to be classified as for their morphology, physiology and phylogenesis. Since there are gaps in the information especially about the latter, the broad classification of the whole living world, true to life and based on phylogenesis, cannot be made in a satisfactory manner at the present time.

As for the consequences of these difficulties, in this paper we will deal only with one of them. This problem is: setting aside viruses in most of the systems of broad classification of organisms (*Copeland* 1938, *Engler* 1954, *Soó* 1965, *Whittaker* 1969, *Leedale* 1974, and others). They are still mentioned by the seventh edition of *Bergey's Manual* (1957) in its *Protophyta Divisio's* third class (*Microtatiobioetes*), second order (*Virales*), but the eighth edition (1974) intentionally avoids mentioning them for the time being. This standpoint, which is obviously to be found in handbooks and manuals, too, is scientifically justified, as a lot of problems concerning viruses arise in this respect, thus: — 1, it has not been deci-

ded yet if they belong to the living world or not; — 2. they differ radically from all the other groups of living things as far as their characteristic features are concerned; — 3. as for their phylogenesis, until now only hypotheses have been made. But didactically this situation is extremely disadvantageous, because it causes uncertainty, and willynilly, it deprives pupils and students of an at least "temporarily" valid, comprehensive view of living matter.

On the basis of this consideration, in order to have a makeshift solution, we propose a new classification based on systems already well-known, chiefly on that of *Whittaker* (1969). The essence of this would be to cover all the living things, including viruses.

Carrying out this conception comes up against a lot of difficulties partly already mentioned. In order to throw this unbridgeable gap into relief between viruses and the rest of the living world as truly as possible, but at the same time to consider them as belonging to living things, thus including them in our scheme, we propose to introduce a new taxonomic category, superior to kingdom, namely "*Mundus*". According to this, living things might be classified as follows:

	Mundus I <i>Acellulatae</i>
	Regnum 1. Viri
Living things	
	Mundus II <i>Cellulatae</i>
	Regnum 1. Procaryotae
	" 2. Fungi
	" 3. Vegetabilia
	" 4. Animalia

Thus, all the forms of the living world could be included in two supreme taxonomic categories (*Mundus*). The first one, *Acellulatae* would cover all the forms of the living substance that have not any cellular organisation (in the course of phylogenesis they either have not reached it, or have lost it); have a genetic code of their own laid down in a single nucleic acid, so being able to perform self-reproduction; possess an extracellular form with welldefined physical structure and chemical composition, being able of spreading from cell to cell, bearing the term virion, and have an absolute and obligate parasite intracellular vegetative form as well (or have only this latter form), which very often may cause morphological and functional modifications in the host-cell. *Mundus Acellulatae* would include one single kingdom, namely Viri. According to the above definition, the viruses of procaryotic as well as of eucaryotic cells are included here. Viroids, after the thorough knowledge of them, should also be included here.

Since the classification of these is carried out by a committee (ICTV) formed by the most competent researchers, who have obtained outstanding results (*Wildy* 1971, *Fenner* 1976, *Matthews* 1979), it is evident that we do not offer any proposals.

What justifies that we place viruses among the living things? The concept of life has not been exactly defined even until now, so we do not know its inferior limit, either. Therefore, to exclude viruses from the living world should not be considered, at least for the present, as well-established. We include viruses in the living world because, in our

opinion, life is such a process in which the incessant self-reproduction is interwoven with the hereditary variability. Viruses and even viroids agree with this criterion.

The omission of viruses from the systems of broad classification (no matter what its motives are) even involuntarily minimalizes their importance. But it must be admitted that either they are placed among the living things or not, their significance in a lot of decisive fields of our life (human and veterinary medicine, phytopathology, pharmaceutical industry, molecular biology etc.) has become so great that the attention should not be diverted from them, but it must be called to them.

The second world, *Mundus Cellulatae* includes the living things with cellular structure, divided in 4 kingdoms (Procaryotae, Fungi, Vegetabilia, Animalia). As for this supreme group, we have no new proposals, only in two controversial questions our views will be presented briefly.

Instead of the term Monera used for the lowest kingdom in the systems worked out by Copeland (1938) and Whittaker (1969), respectively, we consider it more useful to apply the taxon Procaryotae suggested by Murray in 1968 and also accepted by the authors of Bergey's Manual, 8th edition (1974). As for the classification of this kingdom, we agree with that proposed by Bergey's Manual (1974).

Concerning the kingdom Protista placed at the second level in the system of Whittaker (1969) we recognize the advantages of including the unicellular eucaryotes in a single group, but since this solution presents some shortcomings, for the time being we would rather support the modification suggested by Leedale (1974), which classifies both unicellular and multicellular eucaryotes only in three kingdoms (Plantae, Fungi, Animalia). However, this does not preclude the insertion of the kingdom Protista in the classification suggested by us.

Intentionally we do not make any proposals regarding the inferior taxa of the kingdom, considering that this is the troublesome "private affair" of each branch of science.

Conclusions

1. We consider it necessary, especially for didactic purposes, to include viruses in the systems of classification of living things. 2. With a view to solve this problem, we suggest the introduction of a taxonomic category superior to kingdom, termed „*Mundus*“. 3. We divide the living things into two worlds: I. *Mundus Acellulatae* which in a single kingdom comprises viruses and II. *Mundus Cellulatae*, which covers the living things with cellular structure in four kingdoms. 4. We do not make any proposals concerning the taxa inferior to kingdom, but we accept the existing ones.

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