Problems in the Nomenclature of Higher Taxonomic Categories

Ya. I. Starobogatov
Zoological Institute, Academy of Sciences of the U.S.S.R., Universitetskaya naberezhnaya 1, 199034 Leningrad V-34, U.S.S.R.

Translated by Mark J. Grygier
Sesoko Marine Science Center, University of the Ryukyus, Sesoko, Motobu-cho, Okinawa 905-02, Japan
(current address: 14804 Notley Road, Silver Spring, Maryland 20905, U.S.A.)

Translator's note. This article first appeared in 1984 (see references) and the translation is published with the permission of the author and of Izdatel'stvo Nauka, the publisher of the Russian original.

Dr Starobogatov is a noted Soviet zoologist, a widely respected malacologist and theoretical phylogenist, and a member of the International Commission on Zoological Nomenclature. Since the first publication in Russian of Dr Starobogatov's proposals for the gradual introduction of regulation of the nomenclature of taxonomic categories higher than superfamily, he has applied these proposals himself in several publications concerning various groups of arthropods. His revision of the classification of the Crustacea (Starobogatov, 1986), for example, reached a broad audience after its translation into English (Starobogatov, 1988). I believe that a republication in English of the reasoning and the formal proposals that lie behind his controversial nomenclatural revisions is necessary and overdue. Some slight alterations and abridgements have been made in the text, with Dr Starobogatov's approval, in order to clarify and update certain passages.

A few years ago, in the pages of Paleontologicheskiy Zhurnal, a paper by Rohdendorf (1977) appeared that was devoted to the problem of the nomenclature of higher taxa. [This paper was reproduced in English in Rasnitsyn's (1982) proposal to extend the provisions of the Code to taxa above the family-group (BZN 39: 200–207)]. Rohdendorf was not only a very well known Soviet paleontologist and entomologist, but also a great specialist on problems of zoological nomenclature (he represented the U.S.S.R. on the International Commission of Zoological Nomenclature). It is more often in paleontological studies that the need arises to revise large taxa, and in connection with this, questions arise about the selection of suitable names for them. Zoologists, especially those studying groups with a stable system that has been worked out in detail (for example, vertebrate zoologists), are rather less bothered by these questions, zoologists who study poorly worked out groups being the most interested in them. It is no accident that a detailed paper with an analysis of these problems (Chitwood, 1958) was the work of an eminent specialist on the systematics of nematodes.

The currently valid International Code of Zoological Nomenclature does not regulate the names of taxa higher than superfamily; it is often said that they do not need to be regulated because there are few such names and they are all widely known. In fact, this
is absolutely not the case: they are not regulated only because, in so doing, it would be very difficult not to produce a serious breakdown in existing customs concerning the formation and utilization of names of higher categories. However, sooner or later we will be forced to do so, and it is better to discuss beforehand possible means of regulating the nomenclature of higher categories and possible ways to introduce such regulation, in order that the transition be the least painful. In discussing the nomenclature of higher categories, I do not, however, believe that it is possible to take such categories as kingdom or subkingdom into consideration, mostly because zoological nomenclature can be applied only to one kingdom of animals and two subkingdoms (unicellular and multicellular animals). For those who are interested, questions concerning these categories are considered in the paper by Chitwood (1958) cited above.

The names of higher categories are remarkably non-homogeneous in character. Some of them are more or less tied to the name of one of the genera included within them, that name thereby being the nomenclatural type of the name of the higher-rank taxon. I call such names ‘typified’, following Štys & Kerzhner (1975). Other names are based only on the features of a given taxon (albeit far from always the most characteristic ones) and are not at all connected with the names of genera included in these taxa, and I call such names ‘descriptive’, after the same authors. Examples of typified names: Echinoidea, Sipunculida, Myzostomida, Blattoidea, Gadiformes; they are clearly connected with the genera Echinus, Sipunculus, Myzostoma, Blatta and Gadus. Examples of descriptive names: Arthropoda, Crustacea, Insecta, Orthoptera. It must be emphasized that the differences between these two types of names are most often purely formal. For example, the name of the order Actinodonta, proposed by Douville (1912), may have been based on the generic name Actinodonta, but more likely on one or another peculiarity of the hinge of these bivalve molluscs, even though this generic name already existed in 1912 and without a doubt was known to Douville.

Family-group names also once belonged to these two types, but the descriptive names among them were always considerably fewer, and at the end of the last century these descriptive names were completely displaced by typified ones. This made it possible to introduce rules regulating family-group names in the 1960's. Order-group and higher-rank names are a different matter. It is sufficient to glance through some old nomenclators to understand that descriptive names given to higher-rank taxa are no less abundant than typified ones. In the last few decades a tendency for the introduction of typified names has been clearly evident. They are generally accepted in the systematics of birds, fish, polychaetes and nematodes, and are being introduced into the systematics of molluscs and some other animal groups.

The advantage of typified names is obvious: the usage of such names is easy to regulate, only requiring a small amount of rephrasing (without changing the basic idea) of those Articles of the Code concerned with names in general and with family-group names. In other words, the problems of the availability of names, authorship and date of publication, priority and homonymy could be resolved in the spirit of the established, customary regulations of the Code. In contrast, difficulties often arise with descriptive names. The accumulation of knowledge about any taxonomic group usually leads to a demonstration that the special features expressed in the descriptive name of a group are not characteristic after all or are peculiar to only some of its representatives. This causes some systematists to want to change the names of groups
into ones which are, in their opinion, more appropriate, and which, incidentally, in time also come to be shown not to be entirely suitable. The accumulation of systematic knowledge inevitably also leads to the elevation in rank and subdivision of groups. When this happens, the descriptive names given to these groups are either raised in rank (as has happened with most names, for example Gastropoda and Prosobranchia) or the sense embodied in these names is maintained at the same rank, but narrowed in scope. Thus the customary name Insecta had at the time of Linnaeus the meaning that is now embodied in the name Arthropoda, and it was narrowed down later to its usual sense; furthermore, when the removal of a set of apterygote groups from this class becomes generally accepted, this narrowing will become still greater. Similar transformations first of all refute usual notions about the tradition and convenience of such names, and secondly create nomenclatural difficulties. Crustaceans are currently divided into several classes, for example into nine by Manton (1969). To which of these classes should the name Crustacea belong? Since these classes are contained in a single taxonomic grouping of higher rank (superclass or subphylum), then it may be best to retain this name for the latter grouping. If there were no such higher-rank grouping, then the name Crustacea would probably have suffered the fate of the name Vermes.

Another inconvenience of the descriptive names is connected with a phenomenon that can be called hemihomonymy. Sometimes the spelling of a descriptive name is easy to confuse with that of a typified one, especially if it has a similar standard ending. Yet it turns out that the genus which would be the type of that name, if it were a typified one, does not even belong to that taxon. For example, among gastropod molluscs there is an order-group name Ditremata, but the genus Ditrema is not a mollusc at all, but a fish. This circumstance already long ago compelled malacologists to avoid the name Ditremata, replacing it with another not suffering from such a shortcoming. The same is true for the widely known name of one of the taxonomic groups of cephalopod molluscs, Teuthida, since Teuthis is the generic name of a fish.

All the foregoing speaks in favor of the introduction of typified names for taxa of all ranks; however, carrying out such a reform involves considerable difficulties, the major ones of which we will discuss now.

The first difficult problem is that of standard endings. In the literature there are a great many systems of standard endings (Tables 1–3; see p. 17). More endings have been proposed for ordinal groups than for groups of higher taxonomic rank. Each such system has been constructed starting from the principles of euphony, brevity, and ease of distinguishing rank. However, in doing this, one extremely important requirement of the endings has been forgotten, one which limits our choices very substantially. The endings must be selected so that they completely, or in any case maximally, exclude homonymic coincidences of the names of higher taxa with generic names. As we all know, the Code considers homonyms only within groups (for example, within the genus-group and within the family-group), but not between names belonging to different groups. This is understandable, since homonyms between a genus-group name and a name belonging to the family-group almost cannot arise; names in the genus-group must be in the singular (Article 11g) while plural endings or endings resembling them are used for family-group names. Such cases are only possible in connection with the names of superfamilies; for example, the genus Nuculoidea is included in the superfamily NUCULOIDEA. In this connection, it would be worthwhile to discuss changing the ending recommended by the Code for superfamily names; in place of -oidea, -oideae
would be better. Therefore, in regulating names no higher than those of the family-group, the Code justifiably ignores intergroup homonyms. But in proposing an extensive system of standard endings for higher taxa, we must not forget about this undesirable phenomenon. For example, let us look at the endings suggested by Roh dendorf (1977). The most dangerous one with respect to intergroup homonymy is the ending -ina. We can name thousands of generic names ending with this sequence of letters. Only a number of generic names of bivalve molluscs may be cited: Aphrodina, Argina, Mytilina, Nuculina, Nayadina and many other names. To avoid homonymous coincidences when utilizing this ending for the names of suborders, we must distort the stem of the name of the genus utilized for the name of the suborder, for example Mytileina in contrast to Mytilina (Scar lato & Starobogatov, 1979), and Helixina and Limaxina in contrast to Helicina and Limacina (Schileyko, 1979). Less of a danger in this respect are the endings -oda, -ona, -idea, -oida, -ida, and -omorpha. For proof of the possibility, in principle, of coincidence, here again are enumerated some generic names of bivalve molluscs: Polymesoda, Phymesoda, Amesoda, Nuculoidea, Mytiloidea, Axinopsida, Mytilomorpha, Modiomorpha, Sphenotomorpha. In view of the considerable danger of intergroup homonymy, it is obvious that not a single ending terminating in -a is at our disposal. This danger is practically eliminated with endings terminating in -i, and is considerably weakened with endings terminating in -es and -ae. Among such fortunate endings are those that are generally accepted for the names of the orders of birds and fish and the suborders of fish. Such endings are probably best reserved for orders and suborders. The other endings proposed by me have been worked out not only with regard to the usual requirements, but also primarily with the goal of minimizing the danger of intergroup homonymy (Tables 1–3). The application of standard endings to descriptive names is extremely undesirable. Firstly, this gives an unaccustomed form to such names, which are preserved now only because they are customary, and secondly this makes descriptive names similar to typified ones and thereby increases the danger of confusion connected with the phenomenon of hemihomonymy described above.

The development of standard endings is one of the most difficult questions in the nomenclature of higher taxa. In a number of taxonomic groups of animals in which typified names have long since been adopted, their own sets of endings have become customary, usually very limited sets (for orders and suborders). This adherence to custom can have a negative impact during unification. To arrive at a unanimous opinion will be very difficult and the pursuit of tradition, of apparent stability, can hopelessly wreck the idea of the nomenclatural stability of higher taxa.

The second difficult problem is the coordination of categories. As we all know, groups have been introduced into nomenclature in order to successfully apply the Principle of Coordination. It is important to note that the application of this principle has a two-fold influence on nomenclature. Firstly, the Principle of Coordination lets us reduce the number of names to a greater degree as more ranked categories are coordinated within a group. Secondly, in combination with the Principle of Priority it leads to a breakdown in nomenclatural stability, again to a greater degree as more ranked categories are joined within a group, because the replacement or suppression of a name based on a particular genus leads inevitably to the suppression or replacement of all the names in that group that are based on the same genus. The first action of the Principle of Coordination must be considered positive, the second one obviously negative.
Rohdendorf (1977) mentions order-, class- and phylum-groups only in his discussion of a system of standard endings and never talks about an application of the Principle of Coordination. However, from the examples he presents, it is clear that he personally does not recognize groups higher than the family-group and that he unites all the suprageneric categories into a single family-to-phylum group in which all the categories are coordinated. Such total coordination eliminates disputes about the authorship and date of publication of some families of birds and insects, since typified names (or at least ones typified post hoc — see below) of the orders of birds were published by Linnaeus, and typified names of the orders of insects by Laicharting (1781–1784), while the families appeared much later, in the 19th century. Thus the quantity of names, authors, and dates is reduced. It eliminates difficulties in cases when the rank of a taxon is not specified or is denoted by a little-used term (for example, stirps). However, total coordination has a very serious deficiency that prevents its wide introduction. A revision of the systematics of a higher-rank taxon can involve two processes: first, division or fusion of families, orders, subclasses, etc., and second, transfer of a family from one order to another or from one subclass to another. If, as in the systematics of insects, the first process predominates, then we get all advantages and see practically no deficiencies with total coordination. Possibly this is why Rohdendorf, as an entomologist, cited his own examples with complete coordination. However, if the second process predominates, as in most groups of invertebrates, then the transfer of a family must lead to wholesale name changes for all the higher groups. This danger is already expressed to a high degree in those groups (for example, hydroids) where different stages of the life cycle have been described as different genera and as belonging to different families. There is yet another source of instability with total coordination, taxonomic groups known both in extant form and also, to a greater degree, as fossil remains. In this case the fossil remains (which, of course, cannot be studied with the same completeness as extant organisms) may have been divided into independent families before the modern ones, but further study can seriously change our views on their systematic position. Thus, for many groups of animals the adoption of a scheme of total coordination leads to nomenclatural instability or requires special decisions about the conservation of names contrary to priority. Making special decisions in each individual case generally flouts the very idea of universal rules.

It is more rational to erect a small number of groups (most conveniently order-, class-, and phylum-groups, based on the name of the basic category unique to each group) and to coordinate categories only within a group. In doing so, the quantity of names, authors and dates does not grow very much, and the nomenclatural stability of higher-rank taxa is secured more dependably, since aberrant and little-studied families are the ones most exposed to the danger of transfer from one taxon to another, and the names of higher taxa are based primarily on the best known and characteristic genera. In addition, as we saw earlier, the presence of three groups is more convenient for the gradual introduction of typified names, since it allows us to change the names of lower rank taxa first and those of the highest rank later. In so doing, the name of a taxon may be formed from any available generic name regardless of which family-group name was published earliest. Thus, Laicharting (1781–1784) formed the name of an order from the genus Cancer (incidentally, this name has priority over Decapoda), and a family name based on the same genus first appeared in 1803, but in 1802 Latreille (1802–1803) published a family-group name (astacini) based on the genus Astacus. It is obvious
that this does not have to lead to the replacement of the ordinal name. There are rather many similar cases. The example was cited above of an order-group taxon whose name was typified by the generic name *Actinodonta*. The family name based on the same genus is the youngest in the whole taxon.

With a three-group system of coordination, we can calmly consider names of the order-group and the family-group, even ones based on the same genus, as originating independently, and to ascribe to them different authors and dates of publication. In connection with the names of the orders of insects published by Laicharting that were discussed above, they remain with the same author and date, yet ‘Rasnitsyn, 1976’ is attached after the class, subclass and infraclass names based on the generic name *Scarabeus*, since Laicharting did not propose such names for any unit of the class-group. As for linking the names of higher taxa with the oldest of the family names, this can be done as a supplementary means of stabilization by authors who are newly publishing names of taxa, if they so desire.

The third problem, perhaps the most difficult one, is the transition from contemporary nomenclature with descriptive and typified names to a nomenclature utilizing only typified names. The most simple and radical solution is to reject all descriptive names and change them to typified ones. Many have proposed this, among them Rohdendorf. However the whole history of both zoological and botanical nomenclature shows that such a sudden reform is absolutely impossible since it arouses a resolute protectiveness in all zoologists who are accustomed to certain names for orders, classes, and phyla. The only way out is to introduce typified names gradually in the course of large systematic revisions or as alternatives to descriptive names. It must be remembered here that the nomenclatural inconvenience of descriptive names (that are uncovered in the course of revisions) will itself be the most powerful factor in the introduction of typified ones. I am categorically against immediate changes in such customary names as *Insecta*, *Mollusca* and *Gastropoda* — time itself will take care of these names as it has cleared away the no less customary and understandable names *Zoophyta*, *Vermes*, *Gephyrea*, *Myriapoda* and *Pseudoneuroptera*, and as it is preparing to do with the names *Reptilia* and *Crustacea*. In the course of this process, the three-group system of coordination is good insurance of the gradualness of the transition, since the systematics of orders is subject to revision more often than the systematics of classes and even more often than the systematics of phyla. It must be recommended at the very start not to introduce new descriptive names and not to resurrect forgotten ones (even though so instructed by the adoption in the Code of criteria distinguishing forgotten names from utilized ones). One such recommendation is already strongly reducing the number of descriptive names in use as a regular result. Another basis for suppressing descriptive names is discussed above as hemihomonymy. Names giving rise to nomenclatural confusion should be the first to be suppressed. On the contrary, if hemihomonymy does not arise, then such names may be stabilized by changing them into typified ones. The name of a class of pseudocoelomate worms, *Kinorhyncha*, is descriptive, and up until recently it has not been connected with any available generic name. It has been pointed out that the name of one of the genera of this class, *Trachydemus* (incidentally, this includes the biggest representatives of the class), is a junior homonym, and in this connection it was changed by Sheremetevskii (1974) to *Kinorhynchus*, which also changed the name of the class into a typified one. The question may arise, at what time is the name considered to be introduced into nomenclature, with the date of its
publication within a particular coordination group or with the date of typification? It is apparent that the objective of the stabilization of nomenclature requires that priority in a given case be reckoned from the date of publication. This is to some degree analogous with cases where the Code permits the availability of a generic name published (up to a certain date [1930]) without including any nominal species in it. What we have been talking about opens one more route, albeit not a very effective one, to reduce the number of descriptive names and yet retain customary names.

The difficulties discussed above are, in my view, the most substantial ones on the pathway towards the regulation of the names of taxa of higher rank. Many others will probably arise, hopefully ones that are less serious and easier to overcome. It seems that the process of regulation of the nomenclature of higher rank taxa needs to begin with a system of recommendations on this theme, and actions conducive to a reduction in the number of descriptive names in use and the retention of customary names, as long as they do not cause confusion. Then, in the course of systematic revisions, new typified names will emerge and the number of descriptive ones will become still fewer; in this way typified names will emerge as equivalent alternatives to descriptive ones. Only after this (and the process will probably take several decades) will it be justifiable to raise the question about a more strict regulation of the nomenclature of higher taxa and a supplement of the Code with corresponding Articles.

Therefore, in the conclusion of this paper I would like to set forth a draft of a system of such recommendations in order that all who are interested in the improvement of zoological nomenclature can familiarize themselves with it, and to prepare a basis for further discussion concerning these questions.

A draft of recommendations for the regulation of the nomenclature of taxa of rank higher than superfamily

General features of the names of higher taxa

1. The proposals here do not have the force of the obligatory rules laid out in the Articles of the International Code of Zoological Nomenclature but have the force of recommendations.

2. The names of higher taxonomic categories are divided into typified and descriptive ones. A typified name is one that is formed from the stem of an available name of a nominal genus included in the taxon concerned, that generic name thereby being the nomenclatural type of the name of the higher category taxon. A descriptive name is one that is not connected with any available name of a nominal genus included in the given taxon. The coincidence of the stem of the name of a higher category taxon with the stem of the name of a nominal genus not included in that taxon does not make the name typified.

3. In taxonomic groups in which a standard compound ending is employed, for example -optera in insect systematics, -osauria in reptile systematics, -omonadida in flagellate systematics, etc., a name is considered typified if: (a) after removal of an ending, its stem coincides with the stem of the name of a genus included in the given taxon, (b) it itself, in its entirety, coincides with the stem of the name of a genus included in the given taxon. The generic name with which such a coincidence occurs is considered the nomenclatural type of that typified name.
Example. The name Coelurosauria comes from the generic name Coelurus, and the name Segnosauria from the generic name Segnosaurus: both names are considered typified and the respective generic names are considered the nomenclatural types of the names of the corresponding higher taxa (only in the first case the ending must be considered to be -osaurus and in the second to be -ia).

If both coincidences listed above occur, and the author did not clearly designate the nomenclatural type (or it is not evident from the author’s original text), then the nomenclatural type is established upon the first subsequent designation or upon the first change of ending that unambiguously identifies the nomenclatural type.

4. Within a taxon having a descriptive name, the proposal of a new genus with a name whose stem coincides with that of the name of the given taxon changes the taxon’s name into a typified one, provided that the new generic name is available and is not a junior homonym.

Descriptive names

5. The application of a descriptive name is determined either only by the meaning (content) embodied in it, independent of the rank accorded to it, or only by the rank customarily accorded to it, independent of the meaning (content) embodied in it. In either case the author and date are retained through any changes in rank or content.

Example: In the time of Linnaeus, Insecta was considered a class, although later its content changed substantially in comparison with the original; in contrast, the meaning inherent in the name Bivalvia has changed very little over the same time span, while this taxon’s rank has been raised substantially. In both cases we must place ‘Linnaeus, 1758’ after the name.

6. Descriptive names are available if they: (a) are expressly proposed for a taxon of specified rank and (b) are characterized as to content, as with a list of the subordinate taxa included in the named taxon, or are provided with a diagnosis allowing certain taxa of lower rank to be assigned to it, or are specifically proposed in place of another descriptive name.

7. Descriptive names are not available if they: (a) are first proposed in the synonymy of another available name (descriptive or typified), (b) are proposed conditionally or for a hypothetical group, (c) are proposed expressly in place of an available typified name, (d) are not either characterized as to content or provided with a diagnosis, or (e) are given without specifying the rank of the taxon for which the name is proposed.

8. It is categorically not recommended: (a) to introduce new descriptive names, (b) to utilize descriptive names employed by five or fewer authors in ten or fewer works during the last 50 years, and (c) to replace typified names by descriptive ones that are not generally accepted.

9. If a descriptive name has achieved wide usage, then the question of its retention may only be discussed in those cases where it has priority over a typified name for the same taxon.

10. Confusing typified names. If the stem of a descriptive name coincides with the stem of a name of a nominal genus not included in the given taxon, then the use of that name is undesirable.

11. In dividing a taxon that has a descriptive name into unequal parts of the same rank, it is recommended to give the newly created taxa typified names; the old
descriptive name, in case of its general acceptance, may be retained only for the larger of the created taxa or for a taxon of higher rank uniting the newly created ones.

12. In dividing a taxon that has a descriptive name into several equally-sized ones, or in any other case when it is difficult to determine how to apply the original name, it is recommended to give typified names to the newly created taxa. The original name may then be retained for a taxon of higher rank uniting the newly created ones.

13. In uniting two or more taxa that have descriptive names into a taxon of the same rank, the name of the united taxon is chosen according to the Principle of Priority, provided that the author does not wish to give the united taxon a typified name.

14. In uniting two or more taxa, one or more of which has a typified name, into a taxon of the same rank, it is recommended that the unified taxon have the typified name (or the oldest of the typified names if there are several), provided that this does not require a change in a widely used and generally accepted descriptive name. In the latter case, a typified name is introduced as an alternative to the descriptive one.

15. Homonyms of descriptive names. Of two or more homonymous names (i.e. identical in their stems, but based on different taxa), the one which was introduced earliest is retained, provided that it is not forgotten (point 8(b)) or that one of the more junior names is not widely used. It is recommended to change the rejected descriptive names to typified ones. If homonymy arises between a descriptive and a typified name, the descriptive one is subject to replacement regardless of priority.

16. Synonyms of descriptive names. Of synonymous descriptive names (i.e. applying to the same taxon), the oldest is subject to retention, provided that it is not forgotten (point 8(b)) or that this does not contradict the broad use of one of the more junior names. If a descriptive and a typified name are synonyms, then the descriptive one is retained if the following two conditions simultaneously apply: (1) it has priority over the typified one, (2) it is widely used for denoting the given taxon. The conservation of a descriptive name is not obligatory if authors prefer to make use of a typified name in their works.

**Typified Names**

17. The application of a typified name is determined only by its nomenclatural type, i.e. the type genus, the stem of whose name is the basis for the formation of the name of the higher taxon.

18. A typified name is considered available if it is: (a) expressly proposed for a definite taxon having a specified rank, (b) based on a generic name that is considered valid at the time of proposal of the named taxon or that fulfils point 4, (c) accompanied by a diagnosis or indication (points 20, 21). A name is also available if it is proposed for a taxon considered at the time of its proposal as belonging to the plant kingdom, and in that context meeting the conditions of a validly published name according to the *International Code of Botanical Nomenclature*.

19. A typified name of a higher category taxon published before 1900 in not completely Latinized form is available with its original author and date, but in the appropriate Latinized form, if it meets the criteria of point 18.

20. Indications applicable to typified names of higher taxa are: (1) a bibliographic reference to an earlier published diagnosis irrespective of the rank of the taxon for which the cited diagnosis was published, (2) a characterization of the contents of the named taxon, i.e. an enumeration of the subordinate taxa that go into the newly proposed one, (3) a proposal of a new name expressly as a replacement for an available
name (typified or descriptive) already in existence, (4) publication of a typified name in the synonymy of a descriptive one (but not of a typified one).

21. Up until a date expressly established upon the adoption of this draft, the formation of a new typified name of a higher taxon on the basis of the name, valid at that time, of a nominal genus is considered an indication.

22. Upon the introduction of a new typified name as a replacement for a previously existing descriptive one, and also upon the publication of a new typified name in the synonymy of a descriptive one, a precise designation of rank of the taxon is mandatory.

23. A typified name is not considered available if it: (a) is based on an unavailable generic name, (b) is proposed conditionally or for a hypothetical group, (c) is presented without an indication of the rank of the taxon for which it is proposed, (d) is published in the synonymy of a typified name, (e) after a date to be established is unaccompanied by a diagnosis or an indication.

24. The categories to which typified names of higher taxa belong are divided into three groups — the phylum-group, the class-group and the order-group. For names belonging to a particular category, fixed standard endings are recommended.

25. The phylum-group includes the following categories (recommended standard endings given in parentheses): superdivision (-ozoi), division (-ozoides), subdivision (-ozoidi), superphylum (-ozoacci), phylum (-ozoes), subphylum (-ozoines), infraphylum (-ozoe).

26. The class-group includes the following categories (recommended standard endings given in parentheses): superclass (-idees), class (-iodes), subclass (-iones), infraclass (-ioni).

27. The order-group includes the following categories (recommended endings given in parentheses): cohort (-omorphi), superorder (-iformii), order (-iformes), suborder (-oidei), infraorder (-oinei).

28. Categories are coordinated within a group; i.e. all the categories within a group have equal status in nomenclature and are subject to the same recommendations. A name published for a taxon in any category within a group and based on a given genus is thereby available with its original author and date for all taxa within that group that are based on the same type genus, with corresponding changes in the ending.

29. Raising or lowering the rank of a taxon beyond the limits of the group in which its name was proposed amounts to the proposal of a new taxon based on the same generic name in another group.

30. The name of a higher rank taxon with an ending not corresponding to the recommended one for taxa of the given category is available with its original author and date, but with the corresponding corrected ending.

31. Until a date expressly established upon the adoption of this draft, the utilization of different standard endings in common use in systematic groups is allowed, but it is more desirable to use the recommended ones (points 25, 26, 27).

32. The appraisal of the group membership of a rarely used or undefined category (e.g. stirps, series, etc.) and also of categories used in clearly unusual senses is resolved by the first subsequent determination of their usage.

(1) All categories higher than superfamily and lower than order belong to the order-group.

(2) All categories higher than phylum and lower than subkingdom belong to the phylum-group.
33. The name of a higher rank taxon is formed by adding to the stem of the name of the type genus the special standard ending for each category. The process of name formation is the same as for family-group names. All names are capitalized.

34. A taxon formed by uniting different taxa of the same group is given the oldest of the valid names of the taxa of the same group that make it up, with a corresponding change of ending if required.

35. If a taxon of any group is divided into subordinate taxa of the same group, then the one of them that contains the type genus bears the same name as the divided taxon, but with a corresponding change in ending. Such a taxon is called the nominate subordinate taxon.

36. The name of a taxon of any group is not available if the name of its type genus is a junior homonym.

37. If the name of a type genus is a junior subjective synonym, then the name of the higher taxon based on it is retained, but if it is a junior objective synonym, then it is changed to a name formed from the senior synonym.

38. The names of higher taxa based upon different type genera, but which, due to the similarity of the names of these genera, are identical in spelling, are considered homonymous. Homonyms are subject to elimination by minimal changes in the stem of the more junior of the homonyms, whereby the first publication of such changes is recognized as valid.

39. Of two synonymous typified names (i.e. each applying to a taxon containing the type genus of the other), the more senior one is considered valid regardless of the original ranks of the taxa within the group. The same applies to the presence of several synonymous typified names.

The relative priority of simultaneously published synonymous names belonging to the same group is resolved by the first reviser.

40. If a name was originally introduced as a descriptive one, but was later typified, then it is utilized and competes with other names in respect to priority with its original author and date. If a descriptive name was introduced after a date expressly established upon the adoption of this draft proposal, then after typification it receives the name of the author who typified it and the date of typification, and with this date it competes in priority with other names.

Acknowledgement
Dr Grygier acknowledges a U.S. National Academy of Sciences Soviet and East European Exchange Fellowship which allowed him to visit Dr Starobogatov in Leningrad, and the translation was done while working as a Visiting Foreign Researcher at the Sesoko Marine Science Center, University of the Ryukyus, Okinawa, Japan.
Table 1. Standard endings for categories of the phylum-group according to various authors

<table>
<thead>
<tr>
<th>Category</th>
<th>Poche (1911)</th>
<th>Rohdendorf (1977)</th>
<th>Present proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superdivision</td>
<td>—</td>
<td>—</td>
<td>-ozoi</td>
</tr>
<tr>
<td>Division</td>
<td>—</td>
<td>—</td>
<td>-ozoides</td>
</tr>
<tr>
<td>Subdivision</td>
<td>—</td>
<td>—</td>
<td>-ozoidi</td>
</tr>
<tr>
<td>Supersuperphylum</td>
<td>-acea</td>
<td>-ozeidea</td>
<td>-ozoacei</td>
</tr>
<tr>
<td>Superphylum</td>
<td>-aceae</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Subsuperphylum</td>
<td>-acei</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Phylum</td>
<td>—</td>
<td>-ozoa</td>
<td>-ozoes</td>
</tr>
<tr>
<td>Supersubphylum</td>
<td>-aria</td>
<td>-ozaia</td>
<td>-ozoines</td>
</tr>
<tr>
<td>Subphylum</td>
<td>-ariae</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Infraphylum</td>
<td>-arii</td>
<td>-ozoina</td>
<td>-ozoae</td>
</tr>
</tbody>
</table>

Table 2. Standard endings for categories of the class-group according to various authors

<table>
<thead>
<tr>
<th>Category</th>
<th>Poche (1911)</th>
<th>Rohdendorf (1977)</th>
<th>Present proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supersuperclass</td>
<td>—</td>
<td>-omorphe</td>
<td>-idees</td>
</tr>
<tr>
<td>Superclass</td>
<td>-omorphe</td>
<td>-oda</td>
<td>-iodes</td>
</tr>
<tr>
<td>Subsuperclass</td>
<td>-omorphi</td>
<td>-øda</td>
<td>-iones</td>
</tr>
<tr>
<td>Class</td>
<td>-oidea</td>
<td>-ona</td>
<td>-ioni</td>
</tr>
<tr>
<td>Subclass</td>
<td>—</td>
<td>-ones</td>
<td>—</td>
</tr>
<tr>
<td>Infraclass</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 3. Standard endings for categories of the order-group according to various authors

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>-iformes</td>
<td>-omorphi</td>
</tr>
<tr>
<td>Superorder</td>
<td>—</td>
<td>—</td>
<td>-ica</td>
<td>-oilei</td>
<td>-idea</td>
<td>-formii</td>
</tr>
<tr>
<td>Order</td>
<td>-iformes</td>
<td>-ida</td>
<td>-ida</td>
<td>-oidei</td>
<td>-ida</td>
<td>-iformes</td>
</tr>
<tr>
<td>Suborder</td>
<td>-oidei</td>
<td>-ina</td>
<td>-ina</td>
<td>-oinei</td>
<td>-ina</td>
<td>-oidei</td>
</tr>
<tr>
<td>Infraorder</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>-omorphe</td>
<td>-oinei</td>
</tr>
</tbody>
</table>
References


Schileyko, A.A. 1979. The system of the order Geophila (= Helicida) (Gastropoda Pulmonata). Trudy Zoologicheskogo Instituta, Akademiya Nauk SSSR, 80: 44–69. [In Russian.]


https://doi.org/10.5962/bhl.part.663.

View This Item Online: https://www.biodiversitylibrary.org/item/44489
DOI: https://doi.org/10.5962/bhl.part.663
Permalink: https://www.biodiversitylibrary.org/partpdf/663

**Holding Institution**
Natural History Museum Library, London

**Sponsored by**
Natural History Museum Library, London

**Copyright & Reuse**
Copyright Status: In copyright. Digitized with the permission of the rights holder.
License: http://creativecommons.org/licenses/by-nc-sa/3.0/
Rights: https://biodiversitylibrary.org/permissions

This document was created from content at the Biodiversity Heritage Library, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.