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Review paper

Important changes in the rules of nomenclature, especially those relevant for palaeobotanists

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ABSTRACT

Authors who describe and publish new names of plants, who make new combinations (based on earlier names) and who publish replacement names, should do so in accordance with the rules. These rules can be found in the Code — since the International Botanical Congress in Melbourne in 2011, the Melbourne Code is in effect. The most important changes will be mentioned, with special attention to those rules that apply to what formerly were often indicated as 'fossil plants', now to be called 'plant fossils'.

Besides changes in the rules, from now on, there is also an important change in the publication format of the Code: The rules are kept in one volume, and the continuously growing Appendices will constitute a separate volume.

Besides an alteration to the *name* of the Code, there are two major changes in the rules: the acceptance of certain forms of electronic publication and the abandonment of the morphotaxon concept. Parallel to the latter alteration is a change for mycologists: the abolition of the provision for separate names for fungi with a pleomorphic life history.

In Section 3, some further changes in and rearrangements of rules are discussed, preceded by a paragraph in which the basic concepts of the possible status of a name are presented: effectively published, validly published and legitimate.

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1. Introduction

The rules of nomenclature are adjusted every six years, at the nomenclature sessions that precede the six yearly International Botanical Congresses. The major changes are treated, as well as some smaller

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changes and rearrangements — all insofar as they are relevant to palaeobotanists.

2. Major changes

2.1. The name of the Code

For more than 60 years, we had an *International Code of Botanical Nomenclature* (*ICBN*). Especially among mycologists the view had grown that this term could be misleading — it could imply that the Code only covered green plants and excluded fungi and diverse algal lineages. So at the International Botanical Congress (IBC) in Melbourne in 2011, the name was changed to International Code of Nomenclature for algae, fungi, and plants; abbreviated *ICN* (McNeill et al., 2012).

2.2. Electronic publication permitted

In Melbourne, an earthquake even to occur one year earlier than originally predicted was accepted: from 1 January 2012 on, *electronic publication* of all nomenclatural acts is permitted (the original proposal for this change suggested 2013). 'Nomenclatural acts' — this mainly concerns two fields: *publication of names* and *indication of types* of older names. In Section 3.2, more on the precise requirements under which electronic publication is permitted are discussed.

2.3. Morphotaxon exit, definition of a 'fossil-taxon'

Another major change only concerns *plant fossils*: cancelling of the concept of a morphotaxon, and introduction of this principle: one fossil–one name. To explain this change, here's a little bit of history. From 'Stockholm' up to and including 'Tokyo', i.e. during the second half of the previous century, the concepts of organ genus and form genus existed. These concepts were cancelled at the St. Louis 1999 IBC. Then the concept of a morphotaxon was introduced. At the next IBC in Vienna in 2005, this concept was strongly adjusted/severely restricted.

The change is evident by comparing the St. Louis and Vienna versions of Art. 1.2; the bold & underlined in the citation of rules was done by me:

> St. Louis Art. *1.2*: Fossil taxa may be treated as morphotaxa. A morphotaxon is defined as a fossil taxon which, for nomenclatural purposes, comprises only the part**s**, life-history stage**s**, or preservational state**s** represented by the corresponding nomenclatural type.

Note the plural that is in this article: it may include *several* parts, life-history stages, etc.

In 2005, it was changed into this:

> Vienna Art. *1.2*: Fossil taxa (diatoms excepted) may be treated as morphotaxa. A morphotaxon is defined as a fossil taxon which, for nomenclatural purposes, comprises **only** the one part, life-history stage, **or** preservational state represented by the corresponding nomenclatural type.

Note the change to 'only' *and* 'or', explaining that morphotaxon now had become a very narrow concept.

Therefore in the Vienna Code, this rule is followed by a warning:

> *Note 1*. Any fossil taxon that is described as including **more than one** part, life-history stage, or preservational state **is not** a morphotaxon.

Despite this warning, in many cases after Vienna 2005, people still thought that they had a morphotaxon, whereas it was not any more covered by the definition of this concept in Art. 1.2.

In Melbourne, this confusing concept was abolished. Cleal and Thomas (2010a) gave a thorough discussion of this matter, and arrived at the conclusion that "the concept of morphotaxa is logically flawed and unnecessary in practice, and should be removed from the Code". Their proposal to modify the provisions for naming plant fossils (Cleal and Thomas, 2010b) was accepted in Melbourne. The concept of a morphotaxon was deleted, and the concept of a 'fossil-taxon' was introduced. At the same time, their proposal was accepted to replace in several articles 'fossil plants' by 'plant fossils'.

This resulted in an entirely new Art. 1.2 in the Melbourne Code:

> Art. *1.2*: A taxon (diatom taxa excepted) the name of which is based on a fossil type is a fossil-taxon. A **fossil-taxon** comprises the remains of **one or more** parts of the parent organism, or **one or more** of their life history stages, in **one or more** preservational states, as indicated in the original **or any subsequent** description or diagnosis of the taxon (see also Art. 11.1 and 13.3).

The term 'fossil taxon' already existed with a simple definition: "A taxon the name of which is based on a fossil type" (Glossary of the pre-Melbourne Codes). It was now introduced as a hyphenated term with the above, more comprehensive definition.

This implies that from now on, if two (previous) morphotaxa can be shown to belong to the same organism, their names compete for priority in the normal way.

Parallel to this, there was a decision on names of *fungi*: it is not any more permitted to have different names for the asexual and the sexual phase in the life cycle.

For *fossil-taxa*, even though comparable, the situation *is* different, because it concerns physical objects that exist and can be named, objects to which the rules of nomenclature apply, *and* the organisms from which the fossils were derived, organisms that lived long ago and were not seen by us, and that *only exist as hypothetical reconstructions*. The flexibility that is now permitted for names of plant fossils is clear in Art. 11.1, the first rule in the chapter on priority:

> *11.1*. Each family or taxon of lower rank with a particular circumscription, position, and rank can bear only one correct name, special exceptions being made for nine families and one subfamily for which alternative names are permitted (see Art. 18.5 and 19.8).
> However, the use of separate names is allowed for fossil-taxa that represent different parts, life-history stages, or preservational states of **what may have been** a single organismal taxon or even a single individual (Art. 1.2).