PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(001–010) Proposals on "based on"

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The Melbourne Congress accepted a "motion from the floor" to amend Art. 6.4, 18.3 and 19.6, intended to ensure that the name of a family, or a subdivision of a family, based on a conserved generic name can be used, even though that generic name was initially illegitimate. There is nothing wrong with this intent, but the phrasing that ended up in the *Code* is unfortunate.

A name of a family or a subdivision of a family (the ten exceptions in Art. 18.5 and 19.8 excepted) is based on only one generic name. It is possible for this generic name to be illegitimate, and it is possible for it to be conserved. What is not possible is for this one generic name to be both illegitimate and conserved (Art. 14.1), and it is not possible for a rule that applies only to illegitimate generic names to apply to a conserved generic name. If a name of a family or a subdivision of a family is based on a conserved (and therefore legitimate) generic name, Art. 18.3 and 19.6 do not apply, and thus it is irrelevant what these prescribe. What does matter here is Art. 6.4.

It is unclear what the problem was in phrasing this, but this is a matter of (retroactive) nomenclatural reality, not of historical reality. The phrase "based on" is used extensively throughout the *Code* (multiple dozens of occurrences). Surely, the phrase "is based on" describes a relationship in the here and now. It does not say "was based on when validly published" (compare Art. 52.1). This last would be terribly unhandy. The family name *Proteaceae* is based on the generic name *Protea* L. (1771), not on *Protea* L. (1753). This is straightforward if "based on" is a relationship in the here and now. However, it would be quite awkward if "based on" is supposed to be the relationship when validly published. In 1789, the generic name *Protea* L. (1771) was not conserved, and it is highly uncomfortable even to think how the name *Proteaceae* could have been based on it at that time. For a more extreme example (not quite the same relationship, but the same phrase), the name *Bromus sterilis* L. (1753) is based on *Hubbard 9045* (E), collected in 1932 (Art. 14 Ex. 9), while *Trientalis europaea* L. (1753) is based on a type collected in 2009.

(001) Rephrase the second sentence of Art. 6.4 so that it reads:

"[*6.4.* …] A name that according to this *Code* was illegitimate when published cannot become legitimate later except by the conservation or sanctioning of *(a)* the name itself (Art. 14.1 and 15.1), *(b)* the generic name on which it is based (in the case of the name of a family or a subdivision of a family, see also Art. 18.3 and 19.6), or *(c)* the corresponding family name (in the case of a name of a subdivision of a family, Art. 19.6)."

This is modelled on what was accepted by the Melbourne Congress.

(002) Restore Art. 18.3 to its pre-Melbourne phrasing, so that it reads:

"*18.3.* A name of a family based on an illegitimate generic name is illegitimate unless conserved."

(003) Add an explanatory Note to Art. 18.3:

"*Note n*. When an illegitimate generic name is conserved, it thereby becomes legitimate (Art. 14.1). From that moment onwards, Art. 18.3 no longer applies to it: the name of a family based on a conserved (or sanctioned) generic name is legitimate (see also Art. 52.3)."

To be placed before Art. 18 Ex. 7 which illustrates the point nicely.

(004) Rephrase Art. 19.6 so that it reads:

"*19.6.* A name of a subdivision of a family based on an illegitimate generic name is illegitimate unless the corresponding family name is conserved."

This is not the pre-Melbourne phrasing, but is closer to the present phrasing and to that of Art. 18.3. It looks to be more readable.

(005) Add an explanatory Note to Art. 19.6:

"*Note n*. When an illegitimate generic name is conserved, it thereby becomes legitimate (Art. 14.1). From that moment onwards, Art. 19.6 no longer applies to it: a name of a subdivision of a family based on a conserved (or sanctioned) generic name is legitimate (see also Art. 52.3)."

To be placed before Art. 19 Ex. 8 which illustrates the point nicely.

(006) In Art. 52.3 delete "legitimate" in "legitimate generic name".

A name of a family (or subdivision of a family) that was nomenclaturally superfluous when published and that is based on an illegitimate generic name is thereby illegitimate twice (once under Art. 52.1 and 52.3 and once under Art. 18.3 or 19.6), which surely is overkill. If that generic name is subsequently conserved, the name of the family (or subdivision of a family) would become legitimate under the intent of the provisions adopted at Melbourne, but would appear to remain illegitimate under Art. 52.1 and 52.3. At the time the phrase was adopted (by the 1981, Sydney Congress) it matched the phrasing of Art. 18.1, but the word "legitimate" in Art. 18.1 was eliminated by the 2005, Vienna Congress and there is no longer a match. At best, this word only complicates Art. 52.3.

(007) In Art. 52.3 delete "the stem of".

The 1981, Sydney Congress accepted the inclusion of ", or if it is based on the stem of a legitimate generic name" in (what is now)

Art. 52.3. This matched "the stem of a legitimate name of an included genus" in the then wording of Art. 18.1. The phrase "the stem of a generic name" is a quite troublesome one, and it was otherwise eliminated from the *Code* (by the 1987, Berlin Congress) for that very reason, but somehow not here. Also to be deleted in Art. 52 Ex. 18. Alternatively, replace the entire phrase by ", or if it is the name of a family or subdivision of a family based on a generic name (see Art. 18.1, 19.1)". This would be more explicit and presumably more readable; it also incorporates proposal (006).

(008) In Art. 7.1 delete "ultimately".

With the change of Art. 16.1 in the *Melbourne Code*, suprageneric names are now directly based on generic names, not indirectly. The word "ultimately" is no longer appropriate.

(009) In Art. 10 Ex. 1 delete "ultimate" in "ultimate type".

The type of a genus is a specimen or illustration (Art. 10.1, 10.4). A specimen is not "the ultimate type" of a genus (this would be the case in the zoological *Code*; it was the case before the 1981, Sydney Congress, but no longer).

(010) Replace "based on a generic name" by "formed from a generic name (see Art. 16.1, 18.1, and 19.1)" (mutatis mutandis) in Art. 7.1, 10.6, 10.7, 18.3, 19.6, and 52.3.

As the "based on" in "based on a generic name" is a relationship somewhat different from the "based on" in "based on a basionym", it may help to replace the "based on a generic name" everywhere by a wording close to that in Art. 18.1 to help the reader tell these two apart. This change has already been effected in Art. 18 Ex. 1 and 2, so there is precedent. If proposal (001) is accepted, also in the rephrased Art. 6.4.

(011) Proposal to add a new Recommendation to Rec. 30A

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At the XVIII International Botanical Congress, Melbourne (2011), electronic effective publication of all nomenclatural acts was permitted from 1 January 2012 subject to certain requirements, as mentioned in Art. 29.1. Since then, many electronic publications have appeared, but some of the published articles have restricted access to readers. We feel that nomenclatural novelties, if published in articles with restricted access, are unlikely to reach readers easily. We are therefore proposing a new Recommendation, as follows:

(011) Insert a new Rec. 30A.5:

"*30A.5*. Authors publishing nomenclatural novelties should give preference to electronic publications with open or free access to readers."

This new Recommendation, if followed, would be helpful to make nomenclatural novelties easily available to readers.

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(012–013) Proposals to add two new paragraphs to Rec. 40A and Rec. 9D

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Recommendation 40A.3 states "Specification of the herbarium or collection or institution of deposition (see Art. 40 Note 4) should be followed by any available number permanently identifying the holotype specimen (see also Rec. 9D.1)." This is indeed a very useful Recommendation included in the *Code* for identifying a holotype specimen unambiguously. However, the barcoding of herbarium sheets has not yet started in many herbaria worldwide, while in some others barcoding is ongoing. We are therefore proposing here another Recommendation to help unambiguously identify the holotype specimen.

(012) Insert a new Rec. 40A.5:

"*40A.5*. In the absence of a number permanently identifying the holotype specimen, an author publishing the name should, if possible, annotate the holotype or publish its photograph with a scale."

Similar steps can be taken after designation of a lectotype, epitype or neotype specimen. We are therefore proposing another Recommendation, as follows:

(013) Insert a new Rec. 9D.2:

"*9D.2.* In the absence of a number permanently identifying a lectotype, neotype, or epitype specimen, an author designating the type should, if possible, annotate the specimen or publish its photograph with a scale."

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(014) Proposal to amend Rec. 31B.1

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We have observed that some periodicals do not give the precise date (year, month, and day) of publication, and this may cause inconvenience in ascertaining nomenclatural priority. Hence, we are proposing a small amendment to Rec. 31B.1, to extend this Recommendation to editors, since authors generally do not have control over how dates of publication are indicated in periodicals.

(014) Amend Rec. 31B.1 (change appears in bold):

"*31B.1.* Authors **or editors** should indicate precisely the dates of publication of their works. In a work appearing in parts the last-published sheet of the volume should indicate the precise dates on which the different fascicles or parts of the volume were published as well as the number of pages and plates in each."

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(015) Proposal to add a new paragraph to Rec. 40A

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Concerning compliance with Art. 40.7, i.e., specifying the herbarium or collection or institution in which a type is conserved, Art. 40 Note 4 states "Specification of the herbarium or collection or institution may be made in an abbreviated form, e.g. as given in *Index herbariorum, part I,* or in the *World directory of collections of cultures of microorganisms*." In addition, Rec. 40A.4 states "Citation of the herbarium or collection or institution of deposition should use one of the standards mentioned in Art. 40 Note 4." However, it sometimes happens that authors specify the herbarium in an abbreviated form even when no such form is given in *Index herbariorum, part I.* We feel that in such cases the authors should give the full name of the herbarium or collection or institution, with the location, in order to be precise and to avoid confusion.

(015) Add a new paragraph to Rec. 40A:

"*40A.5.* Citation of the herbarium or collection or institution of deposition should be in full, with the location, when no abbreviated form is given by one of the standards mentioned in Art. 40 Note 4."

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(016–017) Two proposals on Rec. 60

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Names of genera can be composed in an arbitrary manner (Art. 20.1). Their grammatical gender, if not obvious, is to be chosen by a subsequent author (Art. 62.3). Apart from using grammatically agreed adjectival epithets in species names, there is also another grammatical need: formation of adjectives that are based on the genitive form of a noun. Giving the gender and declension pattern (by including the ending of the genitive singular) is a practice in classical dictionaries. Thus for example:

Croton (-*onis*) forms adjectives *crotoni-folius*, not *croti-folius*

Prinos (-*i*) and *Dolichos* (-*i*) (Greek 2nd declension) form *dolichi-carpus*, not *dolicho-carpus*

Erigeron (-*ontis*) forms correctly *erigeront-inus*, not *erigeri-folius*

Latin 3rd declension nouns with -*es* take a variety of genitive endings (e.g. *Abies* -*etis, Fomes* -*itis, Ribes* -*is*, *Cannabis* -*is*), thus *cannabaceus* and *cannabi-folius*, not *cannabidi-folius* and *Cannabidaceae*.

(016) To avoid bad word formation in Latin epithets derived from generic names, add the following new Recommendation to Rec. 60H:

"*60H.2*. Original or subsequent authors should derive adjectival forms from Latin generic names in accordance with classical usage or at least nomenclatural tradition, carefully considering the etymology and rules of classical declension. If such a rule is not obvious, the genitive form should be proposed and effectively published (compare Art. 62.3)."

(017) In Rec. 60G Ex. 3 replace the words "honey (*mel, melitos*)" with "honey (*meli, melitos*)".

Example 3 in Recommendation 60G contains an error in the Greek word for honey: *mel*, genitive *melitos*. This is a confusion with the Latin word *mel*, genitive *mellis*. The proper Greek word for honey is μέλι, which is transcribed into *meli*.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(018–020) Proposals to amend Articles 9.1, 9.2, 9.11 and the Glossary of the *Melbourne Code*

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Article 9.1 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) states that there are two ways to establish a holotype:

"*9.1.* A holotype of a name of a species or infraspecific taxon is the one specimen or illustration (but see Art. 40.4) *used* by the author, or *designated* [emphasis ours] by the author as the nomenclatural type. As long as the holotype is extant, it fixes the application of the name concerned (but see Art. 9.15)."

Thus, a holotype may be (1) designated, as is mandatory nowadays, or it is (2) established *by usage* if it is the only specimen or illustration used by the describing author(s). The criterion of usage applies only before 1958, at which point it became mandatory to indicate a type (Art. 40.1).

Note that under the criterion of usage (before 1958), the single specimen or illustration *does not* have to be indicated (i.e., cited, designated, or mentioned) in the protologue. It serves as the holotype if it was the only element used by the author, whether indicated or not.

The criterion of usage is less familiar to taxonomists today than the first method of explicitly designating a holotype. This probably explains why the *Code* itself *completely misses the idea of usage* in the very next Article, Art. 9.2. Note the omission:

"*9.2.* A lectotype is a specimen or illustration designated from the original material as the nomenclatural type, in conformity with Art. 9.11 and 9.12, if no holotype was indicated [STOP!: Do you see the word *usage* here?] at the time of publication, or if the holotype is missing, or if a type is found to belong to more than one taxon (see also Art. 9.14). For sanctioned names, …"

The same omission occurs in Art. 9.11 on the designation of a lectotype:

"*9.11.* If no holotype was indicated by the author of a name of a species or infraspecific taxon …"

Because Art. 9.2 and 9.11 do not take into account *usage*, i.e., without indication of type, as permitted in Art. 9.1, they must be modified.

Two basic changes need to be made. First, Art. 9.1 would be clearer if it emphasized that a holotype can be established by usage without indication. This would sensitize taxonomists to this second method of establishing a holotype, making them less likely to overlook it. Second, Art. 9.2 and 9.11 must be rephrased to allow for *usage* as permitted in Art. 9.1. Accordingly, we propose the following changes to Arts. 9.1, 9.2 and 9.11. The definition of "holotype" in the glossary would be amended accordingly editorially.

(018) Amend Art. 9.1 to read (deletions in ~~strikethrough~~, insertions in bold):

"*9.1.* A holotype of a name of a species or infraspecific taxon is the one specimen or illustration (but see Art. 40.4) **either *(a)* indicated** ~~used by the author, or designated~~ by the author**(s)** as the nomenclatural type **or *(b)* used by the author(s) when no type was indicated**. As long as the holotype is extant, it fixes the application of the name concerned (but see Art. 9.15)."

And accordingly amend the definition of holotype in the Glossary.

(019) Amend Art. 9.2 to read (deletions in ~~strikethrough~~, insertions in bold):

"*9.2.* A lectotype is ~~a~~ **one** specimen or illustration designated from the original material as the nomenclatural type **if**, in conformity with Art. 9.11 and 9.12, ~~if~~ **the name had** no holotype ~~was indicated~~ at the time of publication, or if the holotype is ~~missing~~ **lost or destroyed,** or if a type is found to belong to more than one taxon (see also Art. 9.14). For sanctioned names, a lectotype may be selected from among elements associated with either or both the protologue and the sanctioning treatment (Art. 9.10)."

And accordingly amend the definition of lectotype in the Glossary.

(020) Amend Art. 9.11 to read (deletions in ~~strikethrough~~, insertions in bold):

"*9.11.* If ~~no holotype was indicated by~~ the ~~author of a~~ name of a species or infraspecific taxon **had no holotype at the time of publication**, or when the holotype or previously designated lectotype has been lost or destroyed, or when the material designated as type is found to belong to more than one taxon, a lectotype or, if permissible (Art. 9.7), a neotype as a substitute for it may be designated."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(021–022) Proposals to amend Art. 40 Note 2 and add a new Example

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According to Art. 40.1 of the *ICN* (*Melbourne Code*; McNeill & al. in Regnum Veg. 154. 2012) the name of a new taxon at the rank of genus or below published on or after 1 January 1958 is validly published only when the type is indicated. Then Art. 40.3 states that, for the name of a new species or infraspecific taxon, mention of a single specimen or gathering, even if that element is not explicitly designated as type, is acceptable as indication of the type. In relation to this, Art. 40 Note 2 explains that "Mere citation of a locality does not constitute mention of a single specimen or gathering." Therefore, if the protologue merely cites a locality without any other details relating to the actual type, such as the collector's name or collecting number or date, the name is not validly published.

The name *Lycium cylindricum* K.Z.Kuang & A.M.Lu may appear to fall into this category because the authors merely cited a locality, Xinjiang province of China, for the type. However, they also cited "无号", i.e., *sine numero*, and the herbarium XJBI. This indicates that the type is an unnumbered specimen or gathering at XJBI. In that herbarium there indeed exists a single specimen from Xinjiang, without a collection number, annotated by one of the authors of the name, Lu, with "*Lycium cylindricum* A.M.Lu, sp. nov." Thus the type was indicated and the name was validly published.

Adding "or herbarium" to Art. 40 Note 2 and a new Example based on *Lycium cylindricum* is proposed here in order to illustrate that this and similar cases can satisfy the requirements for indicating a type. In addition, because citing a unique herbarium barcode or accession number is another way in which a single specimen or gathering could be mentioned, it is proposed that these words also be added to Note 2.

(021) Amend Art. 40 Note 2 to read as follows (changed text in italics):

"*Note 2.* Mere citation of a locality does not constitute mention of a single specimen or gathering. Concrete reference to some detail relating to the actual type *is required, such as the collector's name, collecting number, date, herbarium, or unique herbarium barcode or accession number*."

(022) Add the following Example after Art. 40 Note 2:

"*Ex. 3 bis.* When Kuang & Lu published *Lycium cylindricum* (in Fl. Reipubl. Popularis Sin. 67(1): 158. 1978), they cited '新疆: 无号 (模式标本, Typus! 存新疆生物土壤沙漠研究所标本室)', i.e. "Xinjiang: *s.n.* (Typus! XJBI)", thereby indicating that the type is an unnumbered specimen or gathering at XJBI and validly publishing the name. In that herbarium there indeed exists a single specimen from Xinjiang, without a collection number, annotated by Lu with '*Lycium cylindricum* A.M.Lu, sp. nov.'"

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PROPOSALS TO AMEND THE CODE

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(023–024) Proposals to add a new Article and some Examples under Article 5

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Examples of monstrosities are relatively frequent in nature, and for taxonomy can be problematic, leading to incorrect identification on many occasions. Monstrous specimens have been used to describe new taxa at the rank of genus: *Uropedium* Lindl., Orch. Linden.: 28. 1846, nom. rej. against *Phragmipedium* Rolfe in Orchid Rev. 4: 331. 1896, nom. cons. (Dressler & Williams in Taxon 24: 691–692. 1975); at the rank of species: *Asplenium ramosum* L., Sp. Pl.: 1082. 1753, nom. utique rej. (Zimmer & Greuter in Taxon 43: 303–304. 1994); or at infraspecific ranks: *Actinostemon polymorphus* Müll. Arg. f. *biattenuatus* Müll. Arg. in Linnaea 32: 109. 1863 (basionym of *A. concolor* (Spreng.) Müll. Arg. lus. *biattenuatus* (Müll. Arg.) Müll. Arg. in Candolle, Prodr. 15(2): 1194. 1866). Until 1975 the names linked to monstrous specimens were rejected, this rejection supported by different articles from the Vienna *International Rules of Botanical Nomenclature* (1906: Art. 51), until the Seattle *International Code of Botanical Nomenclature* (1972: Art. 71). However, monstrosities are no longer mentioned within the *Code*, nor does a rank for a monstrosity exist (McNeill & al. in Regnum Veg. 154. 2012).

This situation is problematic. Although some authors (Reveal in Taxon 40: 505–508. 1991) possessed tools to resolve monstrosity characters, other authors have sought conservation (Burtt in Taxon 30: 361. 1981) or outright rejection (Compton & al. in Taxon 53: 574–575. 2004) of names linked to monstrous types. The main problems with the current treatment of the *Code* are: (a) a lack of recognition for the rank of monstrosity, and (b) no delineation of what constitutes a monstrosity. In addition, various competing proposals for treating monstrosities have appeared in the botanical literature: (i) using "l.", "lus." or "lusus" for "*lusus naturae*" (*Carex hudsonii* A. Benn. lusus *leucorhyncha* H. Lév. & L.C. Lamb. in Bull. Acad. Int. Géogr. Bot. 21: 266. 1911); (ii) using "monst." or "monstr." for monstrosity (*Jasione montana* L. monstr. *pedicellata* De Langhe in Bull. Soc. Roy. Bot. Belgique 106: 71. 1973); (iii) naming them at an infraspecific rank (*Lygodium circinatum* Sw. var. *monstruosum* Alderw., Malayan Ferns: 111. 1908); or (iv) in accordance with a previous teratology proposal ("ter.") (Grumman in Taxon 3: 124. 1954).

The current proposal is justified by the necessity of recognition, normalization, segregation and standardization of monstrosities in the *Code*. It is proposed to insert a new Article in "Chapter I. Taxa and their ranks" with two new Examples.

(023) Insert a new Art. 5.2:

"*5.2.* Isolated individuals with aberrant characteristics not caused by an invading foreign organism, and with limited or no sexual and asexual reproduction, which have been formerly designated as lusus naturae, monstrosities, or teratological taxa; or have been misidentified but named as genera, species, subspecies, varieties or formae, are to be named under the infraspecific rank lusus naturae (lus.)."

(024) Add two new Examples after new Art. 5.2:

"*Ex. 1.* The correct name of *Himantoglossum hircinum* monstr. *johannae* Degen (in Magyar Bot. Lapok 11: 308. 1913) is *H. hircinum* lus. *johannae* Degen."

"*Ex. 2.* The lectotype of the name *Rhus hirta* (L.) Sudw. (in Bull. Torrey Bot. Club 19: 81. 1892) is a monstrosity. The infraspecific taxon that includes the type is named *R. hirta* lus. *hirta*, and not *R. hirta* f. *hirta* (Reveal in *Taxon* 40: 491. 1991). On the other hand, while the lectotype of the name *Cissus verticillata* (L.) Nicolson & C.E. Jarvis was considered a "monstrosity", this was caused by the smut *Mycosyrinx cissi* (Poiret) G. Beck, so the infraspecific taxon that includes the type is named *C. verticillata* f. *verticillata* (Nicolson & Jarvis in Taxon 33: 726–727. 1984)."

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(025–027) Proposals to amend Article 41 for incorporating different styles of bibliographic citations

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For the valid publication of a new combination, name at new rank, or replacement name, Art. 41.5 rules that on or after 1 January 1953 a full and direct reference is required to the page or pages where basionyms or replaced synonyms were validly published. The prevailing custom of providing such references has been to give all the relevant bibliographic information, that is the basionym or replaced synonym itself, its author citation, title of the publication or periodical in which an article appears, edition, volume and issue numbers (if any), page or plate reference, and the year of publication. Standard conventions have been developed for abbreviating some of this information, permitting it to be condensed in order to save space.

If properly standardized, this bibliographic information may be treated as full and unambiguous. Still, strictly speaking, such abbreviated references are not direct, although they have been traditionally accepted as such, because to determine the full title from an abbreviated title one must consult additional references, such as the second edition of *Taxonomic Literature* (*TL-2*) and its supplements for book titles and further bibliographic information and *BPH-2* for journal titles and bibliography. Incompletely or incorrectly abbreviated citations, although formally acceptable under Art. 41.5, may pose a serious problem in searching for the place of valid publication indicated by such citations. Besides, the main standard reference books are incomplete and consequently some citations are created ad hoc by the authors, sometimes leading to puzzles when the sources cited are little known or obscure or the abbreviation is ambiguous. Standardizing abbreviations of titles in other than the Latin alphabet may also pose problems. For instance, abbreviations of original Cyrillic titles or their alternatives in other languages, although in wide use, usually do not comply with the standards of *TL-2* and *BPH-2*. Furthermore, citations of the authors of plant names, which are an essential part of the bibliographical reference, may be unclear if not standardized according to Brummitt & Powell's *Authors of Plant Names* (now being continuously updated as part of the International Plant Names Index, IPNI, http://www.ipni.org).

To avoid problems of cryptic notations in such traditional "full and direct" references, some botanical periodicals, most notably the *Nordic Journal of Botany* and *Phytotaxa*, are using the international citation style for bibliographic references in place of traditional nomenclatural citations. In such cases basionyms or replaced synonyms are cited as required in Art. 41.5 (last sentence); plant name authors, unless different from the authorship of the publication, are never abbreviated and are accompanied by the year of publication to form a standard bibliographic reference, with a full and precise citation placed in the list of references at the end of the paper. Page or plate numbers are provided to make the citations direct as required in Art. 41.5 Note 1.

We argue that this style of reference to basionyms or replaced synonyms is not only full and direct as required by Art. 41.5, but also is in compliance with other provisions of the Code. Unlike the traditional style of nomenclatural citations, this style is the only one that provides truly full and unambiguous reference to the places of valid publication without the need to decipher abbreviations explained in other separately published sources.

Citing nomenclatural papers in the list of references instead of only in the text has an additional benefit. Papers cited in the text are not counted in citation ratings, whereas papers cited in references are. The convention of citing nomenclatural and taxonomic literature in text rather than in references has resulted in low citation ratings for papers dealing with nomenclature and taxonomy, particularly papers in which new species have been published. This has additionally resulted in extremely low personal citation rates for researchers in taxonomy, depressing their associated H-factor and reducing their competitiveness in funding opportunities. Additionally, many botanical journals have decided not to publish papers solely dealing with new species because such papers attract few citations and thus have a negative effect on the journal's impact factor, and those journals that do publish these articles are viewed as performing poorly in the eyes of authors and evaluators of academic performance. Citation ratings are especially important for young scientists trying to establish themselves in the field of taxonomy, who find it increasingly difficult to get their research funded in a field that is seen by other biological sciences and other fields using plant names as not worth citing. It is not a good use of their time to write papers that are poorly cited simply due to the convention of in-text citation (or no citation of taxonomic papers at all, which is the convention in many non-taxonomic biological journals). Compare this with the frequent citations of newly found chemical compounds in chemistry journals, and the bleak situation for taxonomy becomes evident. Including full citations of taxonomic papers in the references, which will then be listed as citations in search engines and more likely be encountered by other researchers of the same organisms unfamiliar with the field of taxonomy, will help solve one part of this problem. We would even go further and state that the style of including full references in taxonomic and nomenclatural papers (currently not done by many taxonomic and nomenclatural journals including *Taxon*) contributes to plant taxonomy and nomenclature as a bibliographic resource, making papers more likely to be read and cited and pushing authors of

these papers to verify the bibliographic sources. Unfortunately in the traditional fashion of citation many authors routinely copy protologue abbreviations from indices like *IPNI* and *Tropicos* without verifying the text of the original publication.

Although complying with the rules and being in wide use, both types of citations, the "traditional nomenclatural" style and the "bibliographic citation" style, are still not explicitly explained in the *Code*. We aim at filling this omission by proposing a new Note under Art. 41 with examples illustrating both styles. In addition, we propose to adjust Recommendation 41A.1 accordingly and to introduce a new Recommendation 41B explicitly promoting the consistent use of recognized standards in cases where the author citations and publication titles are abbreviated.

(025) Add a new Note with two new Examples after Art. 41.5 to read:

"*Note Ibis*. Depending on a journal or author's style, a full and direct reference to the place of valid publication can be effected by citation of the abbreviated title of the publication and the standardized author citation (see Art. 46 Note 1), with other particulars as required by Art. 41.5. It can also be effected by providing a standard reference with a page or plate number to a bibliography at the end of the publication where a full bibliographic entry may be found."

"*Ex. 13bis*. The new combination *Harperocallis neblinae* (Steyerm. ex L. M. Campb.) L. M. Campb. & Dorr (in PhytoKeys 21: 46. 2013) was validly published with citation of "*Isidrogalvia neblinae* Steyerm. ex L. M. Campb., Harvard Pap. Bot. 15 (1): 52, fig. 1. 2010", a full and direct reference to the author and place of valid publication of the cited basionym with the journal title abbreviated according to *BPH-2* and the author citation standardized according to IPNI (see Art. 46 Note 1) but with spaces placed between the author's initials and the standard abbreviation of the surname."

"*Ex. 13ter*. The new combination *Criscianthus zambiensis* (R. M. King & H. Rob.) Grossi & J. N. Nakaj. (in Phytotaxa 141: 34. 2013) was validly published with citation of "*Stomatanthes zambiensis* King & Robinson (1975: 465)", a full and direct reference to the author and place of valid publication of the cited basionym published on page 465 in "King, R. M. & Robinson, H. (1975) New species of *Stomatanthes* from Africa (Eupatorieae, Compositae). *Kew Bulletin* 30: 463–465", the place of valid publication being cited in full in the References section of the article of Grossi & al. (2013)."

(026) Amend Rec. 41A as follows (new text in bold, deleted text in strikethrough):

"*41A.1.* The full and direct reference to the author and place of valid publication of the basionym or replaced synonym should immediately follow a proposed new combination, name at new rank, or replacement name. It should not be **placed distantly or** provided by mere cross-reference ~~to a bibliography at the end of the publication or~~ to other parts of the same publication, e.g. by use of the abbreviations "loc. cit." or "op. cit.""

(027) Add a new Recommendation 41B as follows (its beginning to be amended if Proposal 025 fails):

"*41B.1.* In references formed in accordance with Art. 41 Note 1bis (first sentence), the titles of books in bibliographic citations should be abbreviated in conformity with *Taxonomic literature,* ed. 2, by Stafleu & Cowan (in Regnum Veg. 94, 98, 105, 110, 112, 115, 116. 1976–1988; with Supplements 1–6 by Stafleu & Mennega in Regnum Veg. 125, 130, 132, 134, 135, 137. 1992–2000, and 7–8 by Dorr & Nicolson in Regnum Veg. 149, 150. 2008–2009), or by analogy, but with capital initial letters. For journal titles, the abbreviations should follow *BPH-2* by Bridson & al. (2004) or its updated version online (fmhibd.library.cmu.edu/fmi/iwp/cgi?-db=BPH_Online&-loadframes)."

(028) Proposal to amend Recommendation 46A endorsing the use of standardized author citations of names

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I would like to propose rephrasing Rec. 46A Note 1 to better encourage the use of the Brummitt & Powell / IPNI standard when the authors of plant names are not given in full. This will plainly reflect the widespread use of this standard in botanical literature, and the strong need for a single standard to facilitate uniform databasing.

The standard of IPNI does not include spaces, but the most common use of this standard includes spaces between initials and surnames or their abbreviations, or also between multiple initials when present. To allow this practice, a sentence is appended to Note 1.

(028) Amend Note 1 under Rec. 46A to read:

"Note 1. Brummitt & Powell's *Authors of plant names* (1992), updated as necessary from the *International Plant Names Index* (www.ipni.org) and *Index Fungorum* (www.indexfungorum.org), should be followed when standardizing author citations of names. Depending on editorial policy, spaces may be optionally placed between the author's initial(s) or abbreviated names and the surname or its standard abbreviation or contraction, except when the surname is abbreviated to a single letter, and also between surnames and suffixes."

(029) Proposal to add an explanatory Note to Article 9.1

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Concerning designation of a holotype in the protologue of the name of a new species or infraspecific taxon, Art. 9 Note 1 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) explains that: "Any designation made by the original author, if definitely expressed at the time of the original publication of the name of the taxon, is final …"

Errors may occur when making such a designation, either because of personal inadvertence or typographical mistakes, such as in collecting number, herbarium code or other type details. Separate cases of this situation were encountered by Chen (in Ann. Bot. Fenn. 48: 34–36. 2011) and Chen & Zeng (in Türk Bot. Derg. [= Turkish J. Bot.] 37: 656–661. 2013), who both insisted that they had no choice but to accept the erroneous holotype designations in the respective protologues. They each published the name of a new taxon designating as holotype the specimen that the original author(s) had evidently intended to designate. The result was two names that were nomenclaturally superfluous when published and therefore illegitimate under Art. 52.

Such a treatment is based on a purely mechanical application of the *Code*, i.e., following the "letter of the law" at the expense of the "spirit of the law". It seriously disrupts the nomenclature of the taxa concerned and departs from the intent of the original authors. Throughout the *Melbourne Code* we find the concept of correctable errors, such as in basionym citation (Art. 41.3, 41.6, 41.8), Latin terminations (Art. 16.3, 18.4, 19.7, 23.5, 32.2, 60.12) and the form of the name itself including typographical or orthographical errors (Art. 21.4, 23.7, 60, 61). These provisions for correcting errors extend to type designation, such as improper usage of terms (Art. 9.9), taxonomically heterogeneous types (Art. 9.14) and types comprising a single gathering but more than one specimen (Art. 9.17). Unfortunately, no rule in the *Melbourne Code* explicitly permits us to correct other mistakes in the designation of a holotype.

Comparing the *Vienna Code* (McNeill & al. in Regnum Veg. 146. 2006) with the *Melbourne Code*, the latter only added, as Art. 9 Ex. 2, the practice of Yang & Wiersema (in Taxon 55: 511–512. 2006), who corrected the holotype designation of *Phoebe calcarea* S. K. Lee & F. N. Wei rather than publishing the name of a new species. In order to emphasize and encourage this laudable nomenclatural practice, we are proposing a new Note, as follows:

(029) Add an explanatory Note to Art. 9.1:

"*Note Ibis.* If a designation of holotype made in the protologue of the name of a taxon is later found to contain errors (e.g. in locality, date, collector, collecting number, herbarium code, specimen barcode or accession number), these errors are to be corrected provided that the intent of the original author(s) is not changed."

In Art. 9 of the *Melbourne Code*, Ex. 2 should be moved to follow the new Note proposed here.

This proposal, if followed, would guide researchers to recognize holotype specimens without any hesitation even if the type details indicated in the protologue differ, because of error, from the actual facts and the intent of the original author(s). It will also avoid the unnecessary publication of names of new taxa.

Acknowledgements

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(030) To make a clearer definition of "gathering"

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During the course of his research on legume taxonomy, the present author encountered a publication (Zhu & al. in J. Wuhan Bot. Res. 26: 361. 2008) in which the holotype of the name of a new variety, *Glycine soja* var. *cleistogama* C.S. Zhu & S.X. Zhu, was designated as two collection numbers, *C. S. Zhu 060256* and *C. S. Zhu 060257.* Based on the present definition of "gathering" in the Glossary of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154: 156. 2012), two results could be reached. One is that the two collection numbers belong to one gathering and the name of this variety was validly published. The other is that the name of the variety was not validly published because two gatherings were designated as the type and therefore the type was not indicated as required by Art. 40.1 and as permitted by Art. 40.2. It could be misunderstood that a specimen with two collection numbers must automatically represent two gatherings, but this is not

necessarily so according to the present definition of a gathering. For a clearer understanding of what constitutes a gathering, the present author suggests a small addition to the present Glossary definition.

(030) Amend the Glossary entry for "gathering" as follows (addition shown in boldface):

"*gathering*. [Not defined]—used for a collection of one or more specimens made by the same collector(s) at the one place and time **irrespective of whether it bears one or more collection numbers** (Art. 8.2 and 8.3 footnote)."

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PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(031) A proposal to standardize the typography of citations

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Author citations, if they consist of initials, parentheses and shortened surnames, can be typed in many ways in respect of spacing and punctuation. It is observed that various botanical writers apply their own rules, which may be subconsciously adopted from national spelling rules. The typography of citations should be made uniform in order to facilitate querying of taxonomic databases online.

The *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) already contains some detailed typographical provisions relating to names of the taxa (misspellings: Rec. 50F; cultivars: Art. 28 Note 4 and Ex. 1; hybrids: Rec. H.3A) and to author citations (usage of &/et: Rec. 46C; sanctioning: Rec. 50E.3).

The existing inconsistency can be easily proved: the *Code* itself uses standard abbreviations for author citations in conformity with Brummitt & Powell's *Authors of plant names* (1992) by virtue of Rec. 46A.4 and Note 1. However, databases cited in this Note (the International Plant Names Index or IPNI: http://www.ipni.org; and Index Fungorum: http://www.indexfungorum.org) do not seem to follow the typographical style of the *Code*. Examples: the *Code* writes "C. C. Gmel." (Rec. 46A.3) and "A. C. Sm." (Art. 49 Ex. 9), whereas IPNI uses "C.C.Gmel." and "A.C.Sm.", i.e., without any spaces. A fungal taxon typed in the *Code* (Art. 29 Ex. 1) as "*Piromyces polycephalus* Y. C. Chen & al." is typed in Index Fungorum as "*Piromyces polycephalus* Y.C. Chen, C.Y. Chien & R.S. Hseu", i.e., with a space after the initials but not between them. Another style, in which an author's initials are united without full stops (periods), i.e., "CC Gmel." or "AC Sm.", should be also avoided.

(031) Add a new paragraph and a new Example to Recommendation 46A:

"*46A.5.* Author citations should be typed (as in this *Code*) in accordance with the following recommendations: a closing parenthesis and each full stop should be followed by a space. Full stops should not be omitted (except for well-established abbreviations, e.g. "DC." for Augustin Pyramus de Candolle). The plant name should not be followed by a comma."

"*Ex. 5. Epifagus virginiana* (L.) W. P. C. Barton (not "(L.) W.P.C. Barton", nor "(L.) W.P.C.Barton", nor "(L.)W.P.C. Barton", nor "(L.) WPC. Barton")."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(032) Proposal to substitute Art. 9 Ex. 9 with a new Example

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As pointed out previously (Jørgensen in Taxon 63: 132–133. 2014), the newly introduced Art. 9 Ex. 9 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) is inappropriate since the choice of epitype for *Lichen saxatilis* L. is random and based on the only Swedish specimen available in the study from a locality where the original material cannot have originated (there is a wide variation of *Parmelia saxatilis* (L.) Ach. in Sweden)—nor is there any statement why such a choice is necessary.

The best example I have come across among published epitypifications made on fresh, molecularly studied specimens is that of *Salicornia europaea* L. by Kadereit & al. (in Taxon 61: 1227–1239. 2012), and I accordingly propose that as a substitute for the Example in the *Melbourne Code*.

(032) Substitute Art. 9 Ex. 9 with a new Example:

"*Ex. 9.* The lectotype of *Salicornia europaea* L. (Herb. Linn. No. 10.1 (LINN), designated by Jafri & Rateeb in Jafri & El-Gadi, Fl. Libya 58: 57. 1978) does not show the relevant characters by which it could be identified for the precise application of this name in a difficult, critical group of taxa, which are best characterized molecularly. Therefore Kadereit & al. (in Taxon 61: 1234. 2012) designated a molecularly tested specimen from the type locality (Sweden, Gotland, *Piirainen 4222*, MJG) to support the type from which they assumed no molecules could be extracted."

I also want the relevant ruling bodies to consider if this should not be entered as a Voted Example, since it indicates a practice that does not make molecular tests on old, scrappy specimens mandatory under Art. 9.8, where the word "demonstrably" is troublesome in relation to the needs of molecular testing of old type specimens, which might be destroyed by this procedure, and usually for no reason, as it is difficult, if not impossible, to get results by the present techniques.

(033) Proposal to add a new Note with an Example after Art. 11.4

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Creation of a replacement name (avowed substitute, nomen novum, nom. nov.; Art. 6.11) for a taxon below the rank of genus is a routine procedure in the case of unavailability of the final epithet of the earliest legitimate name of the taxon (Art. 11.4). However, in some cases a heterotypic synonym exists that may be the correct name or provide the basionym of the correct name. The clarifying Note and Example proposed here, to be placed after Art. 11.4, will help avoid the introduction of unfamiliar new epithets in replacement names (which could be nomenclaturally superfluous and therefore illegitimate) and will also facilitate reuse of the earliest epithet in future scenarios, as described in Art. 11 Ex. 12.

(033) Add a new Note with an Example after Art. 11.4:

"*Note n*. If applying Art. 11.4 would result in a later homonym or a name not validly published (e.g. a tautonym), the final epithet of the next earliest legitimate name in the same rank is to be used instead."

"*Ex. n*. Transfer of *Polypodium tenerum* Roxb. (1844) to *Cyclosorus* Link (1833) would result in a later homonym due to existence of *Cyclosorus tener* (Fée) Christenh. (2009), based on *Goniopteris tenera* Fée (1866). In this case, the correct name is a heterotypic synonym, *Cyclosorus ciliatus* (Wall. ex Benth.) Panigrahi (1993), based on the next earliest legitimate name of the taxon in the same rank, *Aspidium ciliatum* Wall. ex Benth. (1861)."

Acknowledgements

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(034) Proposal to move Appendix I into the main body of the *Code* as Chapter X

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For the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), the main body of the *Code* together with Appendix I was published simultaneously online and in a printed version, but the remaining Appendices, i.e., App. II–VIII, will be published separately. The present author was astonished by this situation. Why were all Appendices I–VIII not put together?

Historically, "Appendix I" is actually a relic of the *Paris Code* (Lanjouw & al. in Regnum Veg. 8. 1956), in which App. I was "Names of hybrids and some special categories", App. II was "Special provisions concerning fossil plants", App. III was "Nomina generica conservanda et rejicienda", App. IV was "Determination of types", and App. V was "Guide to the citation of botanical literature". In the immediately following *Montreal Code* (Lanjouw & al. in Regnum Veg. 23. 1961), *Edinburgh Code* (Lanjouw & al. in Regnum Veg. 46. 1966), and *Seattle Code* (Stafleu & al. in Regnum Veg. 82. 1972), App. I was still "Names of hybrids and some special categories" but App. II and III became "Nomina familiarum conservanda" and "Nomina generica conservanda et rejicienda", respectively, followed by "Guide for the determination of types" and "Guide to the citation of botanical nomenclature" both as separate sections, not as Appendices. The *Leningrad Code* (Stafleu & al. in Regnum Veg. 97. 1978) and *Sydney Code* (Voss & al. in Regnum Veg. 111. 1983) were the same except "Guide to the citation of botanical nomenclature" was dropped, and the latter *Code* included a new App. IV "Nomina utique rejicienda". The *Berlin Code* (Greuter & al. in Regnum Veg. 118. 1988) dropped "Guide for the determination of types" so that App. I now appeared out of place containing rules and recommendations rather than lists of conserved and rejected names as in the following Appendices. This situation has persisted to the present.

Under the present situation, App. I is very close, logically, to the main body of the *Code*, rather than to the other Appendices (currently App. II–VIII), because it comprises Articles, Notes, Recommendations, and Examples. Within the main body of the *Code*, Art. 3.2, 4.4, 11.9, 20 Note 1, 21 Note 2, 23.6(d), 28 Note 1, 32.4, 32 Note 2, 50.1, and 52 Note 3 are directly related to names of hybrids. Therefore, the present author thinks that there is no reason to place "Appendix I Names of hybrids" in its present position as an Appendix and that it should become Chapter X, comprising Art. 63–74. To move App. I into the main body of the *Code* will help readers more clearly understand the *Code* and the nature and function of the Appendices. The changes proposed are as follows:

(034) Move Appendix I into the main body of the *Code* as Chapter X. Renumber the Articles such that Art. H.1–H.12 become Art. 63–74, with the Recommendations renumbered accordingly. Renumber App. II–VIII as App. I–VII. Editorially adjust the relevant cross-references throughout the *Code*.

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PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(035–037) Three proposals on illustrations with analysis

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(035) Amend Art. 9.3 as follows (new text in bold, deleted text in strikethrough):

"*9.3.* For the purposes of this Code, original material comprises the following elements: *(a)* those specimens and illustrations (both unpublished and published either prior to or together with the protologue) upon which it can be shown that the description ~~or~~**,** diagnosis**, or other material** validating the name **(Art. 38.1(a))** was based; *(b)* the holotype and those specimens which, even if not seen by the author of the description or diagnosis validating the name, were indicated as types (syntypes or paratypes) of the name at its valid publication; and *(c)* the isotypes or isosyntypes of the name irrespective of whether such specimens were seen by either the author of the validating description or diagnosis or the author of the name (but see Art. 7.7, 7.8, and 9.10)."

It seems that the provisions of Art. 38.7 and 38.8 are not incorporated into the wording of Article 9.3. A plate with analysis is not a description or diagnosis but is acceptable as an equivalent of such. This fact is reflected in the proposed correction.

(036) Add a new Example under Art. 9.2:

"*Ex. 2 bis. Adansonia grandidieri* Baill. (in Grandidier, Hist. Phys. Madagascar 34: t. 79B bis, fig. 2 & t. 79E, fig. 1. 1893) was validly published when accompanied solely by two illustrations with analysis (see Art. 38.8). Baum (in Ann. Missouri Bot. Gard. 82: 447. 1995) designated one of the sheets of *Grevé 275* (flowering specimen at P [barcode P00037169]), presumably the very specimen from which most or all of the components of t. 79E, fig. 1 were drawn, as the lectotype of this name."

I feel it would be good to have also Art. 9.2 exemplified, especially with an example of a complicated case when the original material is not obvious and the lectotypification is not straightforward. Another purpose of this example is to show that if a name is validly published when accompanied solely by an illustration with analysis, the illustration is not automatically the holotype of the name as sometimes interpreted.

(037) Add a new Example under Art. 38.9:

"*Ex. 14 bis. Chenopodium caudatum* Jacq. (Icon. Pl. Rar. 2(2): t. 344. Feb–Mar 1789) was validly published when accompanied solely by a plate illustrating a complete plant broken into halves, with a separate figure of a single flower showing details aiding identification. Publication of this illustration predates the corresponding description (Jacquin, Collectanea 2: 325. Apr 1789) and diagnosis (Jacquin, Icon. Pl. Rar. 2: 12. 1795) of the species. Although the main illustration (representing a plant of *Amaranthus viridis* L.) is taxonomically different from the analysis (belonging to an unidentified species of *Chenopodium*), the name is nevertheless validly published."

This is a good example of an illustration that was taxonomically mixed but considered to represent a single species by the original author. Besides, it serves as an example of minimally sufficient compliance with the requirements of Art. 38.9 (only a single detail of the plant is illustrated).

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I am grateful to Pertti Uotila (Helsinki) for the example of *Chenopodium caudatum*. Critical comments and editorial corrections of John Wiersema are greatly appreciated.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(038–039) Two proposals to deal with reprints and translations of publications first printed before the relevant nomenclatural starting-point date, and with recent posthumous publications of pre-Linnaean authors

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Recent discussions about the nomenclatural impact of the German translation of a work by Vaillant, posthumously published after the nomenclatural starting-point date for valid publication of *Spermatophyta* (see Greuter & al. in Taxon 54: 149–174. 2005; Brummitt in Taxon 57: 663. 2008; Greuter in Taxon 57: 1015–1016. 2008), had clearly shown that the problem is greater than protection of a few currently accepted names against those featured in the translation.

First of all, this concerns consistency of treatment of old publications. Among the works of "pre-Linnaean" character but published after 1753, which are listed among opera utique oppressa, there is already a work of Feuillée (*Journal des observations* …) that is a post-Linnaean translation of the pre-Linnaean publication. Developing a common policy instead of dealing with singular cases one by one when they come to light is, I believe, more consistent and productive.

Then, there is the second part of the problem which has been completely overlooked. Since different editions of the same book, with or without alterations, are treated as effectively published (simply because there is no such restriction in the rules), this means that any subsequent reproduction of a historical book is effectively published. By now we have a number of "classical" reprints ranging from Sprengel's edition of Dioscoridis (1829), through the Ray Society classics of the mid-20th century, to the magnificent quarto-sized Dover's Gerard (1975) and Stanford's Fuchs (1999), and, after all, cheap contemporary facsimiles of scanned historical books with mostly electronic circulation. Note that the very recent flow of routine facsimile editions is accompanied with paper versions printed on demand, and also with International Standard Book Numbers assigned, thus satisfying all provisions of effective publication. Several of these books were originally published before the first edition of the *Species plantarum*, and potentially they may be searched for plant names, at least at the level of genus, which have not been accepted in other post-1753 publications.

My original proposal to exclude reprinted and translated pre-1753 books from the nomenclature (Sennikov in Taxon 59: 307–308. 2010) was not accepted in Melbourne; one reason for rejection was probably because the extent of the problem had been underestimated. Hereby I propose this change to the rules again, in a belief that cutting this Gordian knot with a single strike is an efficient action that is free of possible side effects.

(038) Proposal to discard the nomenclatural value of reprints and translations of publications first printed before the relevant nomenclatural starting-point date by adding a new Art. 13.5 with a new Note and a new Example:

"*13.5.* For nomenclatural purposes, all reprints and translations, published after the relevant nomenclatural starting-point date, of original works first published before that date are regarded as having been published only on the original date, with none of the names included therein being validly published."

"*Note 2*. Exempt from the provisions of Art. 13.5 is one part of Linnaeus's *Amoenitates academicae* (vol. 3, 1756)."

"*Ex. 4bis*. "*Helminthotheca*" was not validly published in Steinwehr's translation of Vaillant's work (in Königl. Akad. Wiss. Paris Anat. Abh. 5: 731. 1754) that was originally published before 1753 (Vaillant in Hist. Acad. Roy. Sci. Mém. Math. Phys. (Amsterdam, 8°) 1721: 267. 1725). The generic name *Helminthotheca* is to be correctly attributed to Zinn (1757), who was the first to fulfill conditions of its valid publication after the starting-point date."

The only exception from this new rule is allowed for the Linnaean *Amoenitates academicae* that is an authorized reprint which was published with due corrections and additions when the text was viewed as outdated by the author. Other exceptions may be added if and when found desirable.

A few generic names are currently treated as validly published from the pirated reprint of early Linnaean works, *Opera varia* (1758). Such names were not accepted by Linnaeus in 1758, and ascribing their valid publication to him may be correct under the formal rules but is historically illogical. Besides, one may doubt that the "Linnaean" *Opera varia* may be considered as a place of valid publication at all. According to Art. 36.1, in order to be validly published names are to be "accepted by the author in the original publication". Linnaeus definitely accepted the relevant names in the original publications which had been published before 1753, but he cancelled those names by revising their nomenclature in his subsequent works.

Fortunately, removing *Opera varia* from the market of botanical nomenclature will have very little practical impact, just changing the dates of valid publication of a few generic names.

Should this proposal be accepted, six entries in Appendix III, which were changed in the *Vienna Code* (McNeill & al. in Regnum

Veg. 146. 2006) so as to cite the place of valid publication by Vaillant, would be returned to their state in the *Saint Louis Code* (Greuter & al. in Regnum Veg. 138. 2000). Six additional entries in the list of conserved and rejected names in Appendix III would also need correcting, mostly returning to the stage of the unofficial *Brittonia Rules* (Camp & al. in Brittonia 6: 1–120. 1947). These changes and corrections, which do not affect priority of accepted names, are listed elsewhere (Sennikov, l.c.).

(039) Proposal to eliminate the nomenclatural impact of recent posthumous publications of pre-Linnaean authors by adding a new Art. 30.9:

"*30.9.* First publication on or after 1 January 1900 of works written before 1 May 1753 does not constitute effective publication."

This provison is to outlaw a possible effect of the first publication of pre-Linnaean works, survived in unpublished manuscripts, in recent times when paper and subsequently electronic publication of books became reasonably easy and affordable. Such publications, although of undoubtful historical value, may pose problems to nomenclature should someone treat them formally and seriously as a source of valid publication (e.g., of generic names). However fantastic this possibility may appear, I would like to exclude this problem in general and in advance, to prevent lovers of botanical antiquities from digging the dust.

The starting date of this new provision is established arbitrarily to include the complete 20th century into the period of "recent times" by which plant taxonomists had nearly stopped to look for nomenclatural novelties in works that were not using binomial nomenclature. This date may be changed if deemed necessary.

Acknowledgements

The first proposal results from discussions in the Nomenclature Committee for Vascular Plants. Nicholas Turland (Berlin) is thanked for refined wording of the proposals.

(040–041) Two proposals on certain cases of effective publication

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(040) Add a new Note to Art. 30.3 after Note 2:

"*Note 3.* Electronic supplements and appendices issued separately in Portable Document Format (PDF) and linked to an online publication that complies with provisions of Art. 29.1 are treated as part of that publication."

This new note aims to clarify the status of electronic appendices and supplements, which are commonly used to deposit those parts of the content that are considered too technical or space consuming to be included into the main part of the publication. If such appendices and supplements contain checklists and lists of specimens, possibly with nomenclatural novelties or as parts of protologues of names published in the main publication, they are treated as effectively published if issued in PDF and linked with the main publication in an unambiguous way.

(041) Add a new Article and a new Example after Art. 30.1:

"*30.1bis.* Distribution of printed matter does not constitute effective publication if there is direct evidence within the work that it was not intended for effective publication."

"*Ex. 1bis*. A summary of the dissertation by Krassovskaya, "The genus *Rubus* L. (*Rosaceae*) in East Europe and the Caucasus", defended in 2002, was printed as a booklet lacking an ISBN but with a statement of the name of the publisher and the printer. Article 30.8 notwithstanding, names of new taxa and new combinations included in that work, although accepted by the author and accompanied with Latin descriptions and type statements, or with full and direct references to basionyms, were not effectively published because the title page of that work bears a statement "printed as manuscript"."

This new article is proposed to treat the ephemeral printed matter (primarily booklets) that is published and distributed, although by registered publishers and printing houses, on the same right as duplicated manuscripts. Such are, e.g., summaries of dissertations defended in the Soviet Union and the countries that inherited the Soviet system of academic science, university lectures issued separately, and lists of desiderata published in the past by herbarium exchange societies in the Nordic countries. Printed booklets of this kind were not intended for publication of new scientific content; to denote provisional character of such publications, they bore a statement which may be translated as "printed as manuscript" or "on the rights of manuscript", which was usually printed in the upper right corner of the title page.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(042–043) Proposal to modify Article 9 Note 1 and the Glossary of the *Melbourne Code*

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In the Glossary of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), the definition of "original material" is incomplete because it does not allow for the fact that if the original material comprises the single specimen or illustration that was used by the author, or was designated by the author as the nomenclatural type, then it is the holotype, not an element that may be designated as the lectotype. To remedy this, we propose the following change to the Glossary:

(042) Add to the definition of "original material" in the Glossary (new text in bold italics):

"**original material.** The set of specimens and illustrations from which a lectotype may be chosen (see Art. 9.3***, 9.12*** and Notes 2–4 for details; but see Art. 9.10)***, or the holotype (see Art. 9.1)***."

This discrepancy in the *Code* was brought to our attention by the typification of *Acrostichum crinitum* L. In the protologue, Linnaeus (Sp. Pl.: 1068. 1753) cited only the illustration by Petiver (Pter. Amer.: t. 13, f. 14. 1712). Proctor (in Howard, Fl. Lesser Antilles 2: 216. 1977) indicated Petiver's illustration as a "type", noting it was copied from Plumier (Traité Foug. Amér.: t. 125. 1705) even though Linnaeus did not cite Plumier's publication as he often did for other species. Jarvis (Order out of Chaos: 259. 2007) noted that no specimen of *A. crinitum* exists at LINN and interpreted Proctor's citation of the Petiver plate as "type" as a lectotypification. Petiver's illustration, however, is not a lectotype; it is a holotype because it was the only element used (Art. 9.1). Thus in this case, the original material consists of a single illustration that is the holotype, not part of a set of specimens and illustrations from which a lectotype may be chosen, as currently stated in the definition of "original material" in the Glossary of the *Code*.

This situation with regard to a single element of original material might be emphasized in the *Code*. Original material may consist of an element or "elements"; that is, a single specimen or illustration, or more than one specimen and/or illustration. Because the term "element" is not defined in any Article of the *Code*, we propose adding a parenthetical explanation in Art. 9 Note 1 about what comprises an "element":

(043) Add to Art. 9 Note 1 (new text in bold):

"*Note 1.* Any designation made by the original author, if definitely expressed at the time of the original publication of the name of the taxon, is final (but see Art. 9.11 and 9.15). If the author used only one element **(i.e. specimen or illustration)**, it must be accepted as the holotype. If a name of a new taxon is validly published solely by reference to a previously published description or diagnosis, the same considerations apply to material used by the author of that description or diagnosis (see Art. 7.7; but see Art. 7.8)."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(044) Proposal to amend Article 9.3

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(044) Amend Art. 9.3 as follows: after clause (a), insert a new clause to read:

"*(a bis)* those illustrations of the newly described taxon explicitly referred to or included by the author(s) in the protologue;".

At the Tokyo Congress, a proposal by Silva (in Taxon 42: 167–168. 1993) was passed to specify that illustrations published along with the protologue were to be considered original material, a matter that was covered by the addition of "(both unpublished and published either prior to or together with the protologue)" in what is now Art. 9.3(a) in the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012). General practice is to follow that decision. Nevertheless, a literal interpretation of Art. 9.3 still seems to exclude such illustrations, unless it can be shown that the author based the description or diagnosis on the illustration itself, rather than the specimen(s) that were used to prepare such iconography. That is almost never the case, as was pointed out by Ross (in Taxon 51: 223–224. 2002). To remove the ambiguity, Perry (in Taxon 59: 1909. 2010) proposed an amendment that would have allowed illustrations published along with the protologue "even if not

used by the author of the validating description or diagnosis". Her proposal was rejected on a card vote during the Melbourne Congress (Flann & al. in PhytoKeys 41: 49–50. 2014), presumably fearing that it would have been understood as allowing the designation as lectotype of material entirely unknown to the author.

Similar arguments to those presented by Ross can be put forward also with respect to illustrations (without analysis) that may have been published by the author before the description or diagnosis of a species or infraspecific taxon was published. Consequently, if all possible sources of ambiguity are to be avoided, the same provisions should apply also to that case.

Although illustrations covered under the present proposal might not have been used themselves by the author, they necessarily depict material known to the author, that reflected his or her (or their) original concept of the taxon, and upon which the description or diagnosis validating the name must have been based. If approved, our proposal would adjust the wording of the *Code* to what has long been general practice.

(045) Proposal to permit designation of a new neotype when a previously designated neotype has been lost or destroyed

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According to the *Melbourne Code* (*ICN*, McNeill & al. in Regnum Veg. 154. 2012) if the previously designated lectotype has been lost or destroyed, a new lectotype or a neotype as a substitute for it may be designated (Art. 9.11). However, if a previously designated neotype has been lost or destroyed, the *Code* does not permit explicitly the designation of a new neotype, nor does it confer any particular status to the isoneotypes in such a case, although, paradoxically, it advises the use of the latter term (Rec. 9C).

The loss of a neotype is perhaps a rare event but it does happen. Indeed we have come across a concrete case. The neotype of *Psilocybe atrobrunnea* (Lasch : Fr.) Gillet (*Fungi*) deposited at LE (Borovička & al. in Persoonia 34: 1–9. 2015), according to information received from the curator, is lost.

According to the logic (merely implied) of the *Code*, when a neotype is lost it should be possible to designate a replacement for it: preferably an isoneotype, and if none exists, another suitable element. But, contrary to the Zoological Code (Rede & al., International Code of Zoological Nomenclature, 1999: Art. 75.4.1), the *ICN* does not address this situation in any way. Therefore, such a procedure currently has no formal basis.

Currently, the single explicit "legal" solution in the situation described is to designate an epitype to support the lost neotype. Article 9.8 explicitly states that an epitype may be designated when a holotype, lectotype or a neotype cannot be critically identified for purposes of the precise application of the name to a taxon. Indeed, a lost neotype demonstrably cannot be identified. The *Code* requires that the supported type be cited, but does not specify that it must really (still) exist. However, that epitype would lose its status as soon as the current logical gap in the *Code* is filled and the lost neotype can be replaced (Art. 9 Note 7).

We believe it to be far preferable to avoid the described circuitous practice and directly amend the *Code* instead, as logic demands. We therefore make the following proposal.

(045) Add a new provision after Art. 9.16 (or in any other place the Editorial Committee may find suitable), paralleling provisions in Art. 9.11 and 9.12 for other kinds of type:

"*9.n*. When a previously designated neotype has been lost or destroyed, a substitute for it may be designated from among the isoneotypes, if such exist. If none exists, another suitable element may be designated as neotype."

(046–048) Proposals concerning inadvertent lectotypifications (and neotypifications)

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From an awareness point-of-view, lectotypes have been designated in one of two ways. The first is by authors who are aware that they are designating a lectotype; i.e., they are conscious of their intent and do so explicitly. Thus, when an author states "Lectotype, designated here" and specifies the herbarium or institution in which the specimen is conserved, the author is aware of what is being done (see Art. 7.10, 9.22 and 9.23 of the current *Code*—McNeill & al. in Regnum Veg. 154. 2012). The second way was possible only before 1 January 2001, when many (most?) lectotypifications were made by authors unaware that they were lectotypifying and who never intended to do so. These authors did nothing wrong; they could not have known that their actions would be interpreted in the future as lectotypifications.

An instance of designating a lectotype without meaning to do so is the treatment by Tryon & Stolze (in Fieldiana, Bot., n.s., 27: 15. 1991) of *Megalastrum platylobum* (Baker) A.R. Sm. & R.C. Moran. They listed the following type information for the basionym, *Polypodium platylobum* Baker: "TYPE: [Peru] Mt. Guayrapurima, near Tarapoto (San Martín), *Spruce 4656* (holotype, K!; isotypes, BM!, K!, P!)." By the rules of the current *Code*, there is no holotype for this name because Baker cited only a gathering (i.e., *Spruce 4645*) and did not specify a particular herbarium. Thus, instead of a holotype, there are four syntypes (Art. 9.5). From among these four syntypes, a lectotype may be designated. When Tryon and Stolze cited the specimen at K as the "holotype", their action resulted in that specimen becoming the lectotype (under the current Art. 9.9), yet it was never these authors' intent to designate a lectotype. Thus, Tryon and Stolze unintentionally or "inadvertently" lectotypified. For more details about holotype specimens and type citations see McNeill (in Taxon 63: 112–113. 2014).

Nowadays, taxonomists often incorrectly cite "holotype" for older names where in fact only syntypes exist (e.g., Prado & Moran in *Brittonia* 60: 103–130. 2008). Taxonomists have sometimes not designated lectotypes, even when possible to do so, presumably because they thought (erroneously) that a holotype existed. Also, taxonomists are often unaware that lectotypes may have been designated previously, but inadvertently, by authors before 1 January 2001. In both cases, the result is that "holotype" is cited where in fact there is none.

Having the term "inadvertent lectotypification" in the *Code* would help explain the process. It draws attention to the fact that the types of many older names are syntypes (see Art. 9.5), not holotypes (i.e., in those situations where there was no single specimen used by the author, or designated by the author as the nomenclatural type, and instead several specimens of the original material exist, often in more than one herbarium). Furthermore, awareness that lectotypes may have been designated inadvertently would promote a search by taxonomists for likely places where a name might have been lectotypified non-explicitly before 1 January 2001. For these reasons, we propose to add a new Note and an Example to Art. 9 and an entry to the Glossary.

It should also be noted that inadvertent neotypification was possible before 2001. This could happen for a name that has no existing original material and for which an author cited a specimen as "type", "holotype" or "lectotype", and specified the herbarium in which it was conserved.

(046) Insert a new Note after Art. 9.19:

"*Note n*. Designation of a lectotype or a neotype is also effected, and must be followed, if the typifying author(s) used terms correctable to lectotype or neotype under Art. 9.9, such as "type" or "holotype" or "isotype" and, when the type is a specimen or unpublished illustration, cited the herbarium or institution in which it is conserved. This inadvertent lectotypification or neotypification is possible only before 1 January 2001 (see Art. 7.10, 9.22, and 9.23)."

(047) Add a new Example:

"*Ex. n*. Christensen (in Kongel. Danske Vidensk. Selsk. Skr., Naturvidensk. Math. Afd., ser. 8, 6: 112. 1920) cited for *Dryopteris hirsutosetosa* Hieron.: "Type from Ecuador: Baños-Pintuc, *Stübel nr. 903* (B!)". Later, a duplicate of this specimen was found at BM by Moran & al. (in Amer. Fern J. 104: 161. 2014). These two specimens are syntypes, not holotype and isotype, because in the protologue Hieronymus (in Hedwigia 46: 343–344, pl. 6. 1907) cited only the locality and collecting number, but did not specify a herbarium. By citing the specimen at B as "type", Christensen (l.c.) effectively lectotypified the name. In accordance with Art. 9.9, Moran & al. (l.c.) corrected the term "type" to "lectotype" and attributed the lectotypification to Christensen (l.c.)."

The above is an example of inadvertent lectotypification because it was not the author's intent to designate a lectotype.

(048) Add a new entry to the Glossary:

"**inadvertent lectotypification (or neotypification).** A designation of a lectotype (or neotype) without the intention of the typifying author(s) (see Art. 9 Note *n*)."

(049) Proposal to modify Article 16.3

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The algae are an artificial group of prokaryotic and eukaryotic organisms, in general photosynthetic, that do not have true embryos, which are one of the diagnostic features of land plants (Graham & al., Algae, ed. 2: 616. 2009). This heterogeneity has been hypothesized for quite some time through morphology and biochemistry, and has been more convincingly established with the advances of molecular systematics. Thus, algae are a group with representatives originating at different times through, sometimes, different processes of endosymbiosis and, consequently, segregating into different clades (Archibald in Curr. Biol. 19: 81–88. 2009); one of these processes having culminated in the origin of the land plants (Wodniok & al. in B. M. C. Evol. Biol. 11: 104. 2011). Despite the multiple origins and the variability of circumscription among several authors, the term algae has continued to be used, at least for the group not including the *Cyanobacteria*. Although the groups traditionally treated as algae, including blue-green algae (*Cyanobacteria*), are without a clear definition, their nomenclature is governed by the *ICN* (McNeill & al. in Regnum Veg. 154. 2012).

Article 16.3 of the *ICN* establishes that the termination of names of a phylum or division and a subphylum or subdivision referable for algae should be *-phycota* and *-phycotina*, respectively. However, earlier classifications of algae adopted the termination *-phyta* for the former (e.g., Engler, Syllabus, ed. 3: 233. 1903; Pascher in Beih. Bot. Centralbl., Abt. 2, 48: 317–332. 1931), an ending that, under Art. 16.3, should be exclusively applied to groups of plants. Nowadays, in the major classifications of algae, we still do not observe the use of the endings required by the *ICN*, either intentionally or because of errors. Thereby, the use of the terminations *-phyta* and *-phytina* is common also for algae, even in groups not closely related to land plants (e.g., *Bacillariophyta*, *Dinophyta*, *Haptophyta*, *Heterokontophyta*, etc.), in both more general and the more specific classifications (Round, Biol. Algae, ed. 2: 269. 1973; Round & al., Diatoms: 747. 1990; Van den Hoek & al., Algae: 623. 1995; Medlin & Kaczsmarska in Phycologia 43: 245–270. 2004; Lee, Phycology, ed. 4: 547. 2008). Rare studies and online checklists of algae have applied to names of divisions the endings as ruled by the *ICN* (e.g., Silva & al., Cat. Benthic Mar. Algae Ind. Ocean: 1259. 1996). On the other hand, the endings *-phyceae* and *-phycidae* for class and subclass, respectively, as established in Art. 16.3, have for a long time been used for algae (Silva in Regnum Veg. 103. 1980), whereas *-opsida* and *-idae* are, respectively, applied for these same ranks for plants.

Herein, the delimitation of taxa of algae at divisional or subdivisional level is not a point of discussion nor are the correct names to be adopted, but just the endings of these names. It is clear that the use of the endings for division and subdivision, as ruled by Art. 16.3 of *ICN*, depends of the circumscription of the main groups contemplated by the *ICN* (i.e., algae, fungi, and plants). Fungi are treated as a monophyletic and, therefore, a natural group, and there would not be problems in the application of the endings *-mycota* or *-mycotina* for the component taxa (e.g., *Ascomycota*, *Basidiomycota*, *Blastocladiomycota*, or *Chytridiomycota*; Hibbett & al. in Mycol. Res. 111: 509–547. 2007). For plants and algae, the delimitation is more delicate because there are taxa that transit through these two groups according to different authors, such as *Chlorophyta*, *Glaucophyta*, and *Rhodophyta* (Cavalier-Smith in Proc. Roy. Soc. London, Ser. B, Biol. Sci. 271: 1251–1262. 2004; Judd & al., Sist. Veg., ed. 3: 632. 2009).

Thus, the practice ruled by Art. 16.3 concerning different terminations for names of divisions and subdivisions of algae and plants has not been adopted and, probably, this is due the volatility of the definition of algae. Article 16.3 establishes that endings of names at these ranks that do not agree with the rule should be corrected. However, adoption of *-phyta* and *-phytina* for algae as well as for plants is not confined to the published classifications but also applies to the wide and predominant use of these classifications with their equivocal terminations in several floristic and taxonomic studies.

In order to maintain nomenclatural stability, it is proposed here to modify Art. 16.3, requiring the use of the endings *-phyta* and *-phytina* for divisions/phyla and subdivisions/subphyla, respectively, of algae as well as of plants. These changes would not affect the current taxonomy of groups traditionally treated as algae, including *Cyanobacteria*, but would regulate a practice that for a long time has not agreed with Art. 16.3 of the *ICN*.

(049) Amend Art. 16.3 as follows (deleted text in strikethrough):

"*16.3.* Automatically typified names end as follows: the name of a division or phylum ends in *-phyta*, unless it is referable to the ~~algae or~~ fungi in which case it ends in ~~*-phycota* or~~ *-mycota*~~, respectively~~; the name of a subdivision or subphylum ends in *-phytina*, unless it is referable to the ~~algae or~~ fungi in which case it ends in ~~*-phycotina* or~~ -mycotina~~, respectively~~; the name of a class in the algae ends in *-phyceae*, and of a subclass in *-phycidae*; the name of a class in the fungi ends in *-mycetes*, and of a subclass in *-mycetidae*; the name of a class in the plants ends in *-opsida*, and of a subclass in *-idae* (but not *-viridae*). Automatically typified names not in accordance with these terminations or those in Art. 17.1 are to be corrected, without change of the author citation or date of publication (see Art. 32.2). However, if such names are published with a non-Latin termination they are not validly published."

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(050–051) Proposals to add a new interpretative paragraph with new Examples to Article 36, dealing with certain designations published without explicit acceptance

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Acceptance of a name is the ultimate provision for valid publication of new names under the *International Code of Nomenclature for algae, fungi, and plants* (McNeill & al. in Regnum Veg. 154. 2012). This is stressed in Art. 33.1, which requires that, after fulfilling all the other conditions of valid publication (if fulfilled separately), a name must be explicitly accepted in the place of its valid publication.

However, evidence of such acceptance is not always obvious. An apparently problematic situation is presented by certain types of indices, bibliographic dictionaries and reviews whose purpose is to record botanical names and to deliver these names to the public. It may be stated in introductions to such works that they include accepted names or also synonyms, and certain records may be indicated as such. Nevertheless, a question remains: who is the author who accepted (as required in Art. 33.1 and 36.1) a particular name in such publications?

Most commonly, and explicitly, indices recorded names that were supposed to have been accepted by their original authors. If a name inadvertently happened to appear as new in an index, the recorded place of its stated (presumed) original publication may be considered a reference to its basionym or replaced synonym or to a designation that was not validly published. If a basionym or replaced synonym can be found in the original publication, under Art. 46.3 the citation of the original author is not considered ascription and under Art. 46.2 the author of the index is the author of the new combination or replacement name. If the name of a new taxon is validated by reference to a description or diagnosis associated with a designation that was not validly published (e.g., a provisional name), under Art. 46.2 and Note 2 the new name is attributed to the original authorship unless Art. 46.4 applies. But in both situations, acceptance of a name (Art. 36.1) or explicit acceptance (Art. 33.1) is required by the recorder in the index in order for the new name to be validly published. Such evidence of (explicit) acceptance is typically missing in indices except for those that do contain original taxonomic assessments, for instance, the main volumes and the three first supplements of the *Index Kewensis*.

The title and preface of the first volume of the *Index Kewensis* states that it provides "an enumeration of the genera and species of flowering plants […] together with […] their synonyms", thus being "an Index to the names and authorities of all known flowering plants". From these statements and the typesetting of the plant name list it is completely clear that the *Index Kewensis* was intended to provide accepted names of plant genera and species with their synonyms, in order to serve as a taxonomic and nomenclatural checklist of all plants known to date (actually phanerogams, as follows from the Latin title). From its fourth supplement onwards, the *Index Kewensis* had changed its style and policy, as explained in the introduction with the following statement: "Iterum nomina antea usitata sub nomina nunc utenda recitata sunt; nominibus nudis inter synonyma enumeratis nomina accepta addita sunt" (in English translation: Besides, the names used previously are cited under the names now to be used; accepted names are added to the nomina nuda that appeared in the synonymy). Greuter (in Candollea 40: 211–213. 1985), who translated this sentence, interpreted it as a statement of acceptance on the part of the compilers; however, we can see nothing in these words that goes beyond the mere recording of names accepted by the original authors: a name "now to be used" is a name proposed by a certain author as to be used and is accepted by that author, not necessarily by the compilers. No explicit statement or other evidence can be found concerning the acceptance of names specifically by the compilers of the *Index Kewensis*, and we agree with Meikle (in Biol. J. Linn. Soc. 3: 295–299. 1971), who also argued that in the later supplements "the editors [of the *Index Kewensis*] only included validly published names without passing judgement on them".

Another controversial case, in which explicit acceptance of names by the publishing author is absent, is an early dictionary of botanical terminology by Martinov (*Tekhno-Botanicheskiy Slovar*, published in 1820). Reveal (in Taxon 47: 851–856. 1998) concluded that botanical names that first appeared in Martinov (l.c.) were validly published in this book by the means of indirect references to descriptions in earlier works. However, Sennikov (in Komarovia 4: 138–154. 2006) disagreed, arguing that, as explained in the preface to Martinov's book, its only nomenclatural service was to bring together names in Latin for all the taxa at the ranks of "order" and "family", as well as for some taxa at other ranks, which were used in various, sometimes conflicting, botanical classifications. Plant names in that book were presented as part of botanical terminology, without giving an opinion about the corresponding taxa and thus without explicit acceptance of the listed names.

Reviews of published material such as books and articles may communicate botanical names as part of the contents in the same way as indices and dictionaries do. Even if they do so, unless the authors of such reviews express their personal opinion about them, the names they use cannot be treated as explicitly accepted in the reviews.

Since recorders and reviewers do not usually assess the taxonomy behind the names that are being recorded, such names, even if appearing to be inadvertently "new" because of one or another technical mistake or misunderstanding of the original source, cannot be validly published according to Art. 33.1 and 36.1. To articulate this conclusion

and to remove doubts, we propose a separate clarifying rule that is especially devoted to such cases. A number of Examples is provided to represent various cases in which names were not explicitly accepted by their recorders.

We believe that only minimal disturbance to current nomenclature will be caused by this proposal because the publications affected have only recently been interpreted as sources of validly published names; they can easily be replaced by the more traditional literature that was used before. Moreover, we aim at sparing the time and energy of taxonomists that otherwise will be wasted in fruitless assessments of obscure sources of non-taxonomic nature, and at bringing more clarity to the issue of acceptance of botanical names in general. Besides, we are not introducing a new provision; we are merely stating in a direct manner what is implied by the present Art. 33.1 and 36.1.

To examine the effect of our interpretation, we performed a study of names that had been recorded in IPNI (up until 24 Oct 2014) as validly published in supplements 4–16 of the *Index Kewensis* (we assume that many other such cases may still be found in the *Index Kewensis* by a thorough screening). Of the 126 discovered, only 10 names are currently accepted in major taxonomic sources; the others are treated as synonyms. Seven of these accepted names had previously been credited to later authors, with later places of valid publication being cited. For the three remaining accepted names, other places of valid publication are not available but they were added to *Index Kewensis* only after 2005. Their adoption led to displacement of the names that had formerly been used for the taxa concerned (similarly, recording of two names now placed in synonymy caused displacement of two other established names). Thus, our interpretation of the rules affects only 12 accepted names, returning the authorship of 7 names and resurrecting 5 names that were in use not more than 10 years ago.

The preceding analysis suggests that acceptance of our proposal will contribute to stability. Similarly, because the idea of crediting Martinov with the authorship of certain suprageneric names is only about 15 years old, reverting to the previous attributions of such names (except for those family names that are listed as conserved in App. IIB, whose authorship and date of publication is protected by Art. 14.15) will have minimal impact and would be a minor price to pay for the resulting gain in stability.

(050) Add a new paragraph with new Examples to Art. 36:

"*36.3.* Publication of a name in a dictionary, or a standalone index, or a review that solely purported to report nomenclature or taxonomic systems of previously published works does not constitute acceptance of the name by any author."

"*Ex. n1.* The *Index Kewensis* originally provided a list of names and their synonyms of all species and genera of phanerogams accepted in Kew. In its main volumes and first three supplements, certain species names were printed in Roman type to indicate their acceptance by the compilers, whereas synonyms were printed in Italic type. From its supplement 4 onwards the recording policy was revised and the use of Italic type was discontinued; in the absence of an explicit statement about acceptance of names by the compilers, no nomenclatural novelty may be treated as validly published in supplements 4–21 of this *Index* and in its annual supplements under the title *Kew Index*."

"*Ex. n2. "Micralsopsis"* was not validly published by Buck (in Mem. New York Bot. Gard. 45: 525. 1987) because it was proposed as a provisional name ("gen. nov. prov."). Although this name was included, with a full and direct reference to the presumed protologue, as "considered for all events and purposes to be legitimate" in the list of *Names in Current Use for Extant Plant Genera* (Greuter & al. in Regnum Veg. 129: 698. 1993), it was not validly published in that list because the listed names were not accepted by the compilers but only "declared to be available for use by those who need them"."

"*Ex. n3.* Reuter in *Index generalis Actorum 1–60 Societatis pro Fauna et Flora Fennica* (in Acta Soc. Fauna Fl. Fenn. 61: 164. 1939) registered *Hieracium* "*dodrantale* 12, 4: 23", which was reportedly described as a new species on the given page in *Acta Societatis pro Fauna et Flora Fennica*. By doing so he directly referred to the validly published name *Pilosella dodrantalis* Norrl. (in Acta Soc. Fauna Fl. Fenn. 12(4): 23. 1895). Reuter's citation does not constitute valid publication of *"Hieracium dodrantale"* because he recorded this name as if it were accepted by Norrlin but not necessarily in Reuter's register."

This example of an index to botanical names that appeared in a periodical shows how surprising such sources (and exercises on such sources) may potentially be. The discovery of this particular "validly published name" does no practical harm, but as we have only touched the very tip of this iceberg here, it is difficult to predict the results of screening such sources. But what is the motivation to spend time for such "research", and what is the benefit of such "discoveries"?

"*Ex. n4.* The family designation *"Athanasiaceae"* was not validly published by Martinov (Tekhno-Bot. Slovar: 56. 1820) when he wrote (translated from Russian) that "*Athanasiae* … is the name of 16th family of 15th classis in the system of Augier", thus providing an indirect reference to the description of "Athanasies" in Augier (Essai Nouv. Classif. Vég.: 178. 1801). Martinov's indication of acceptance of this taxon by Augier does not constitute explicit acceptance of the name of this taxon by Martinov."

"*Ex. n5.* Huber (in Bot. Centralbl. 101: 108. 1906) in his review of Braun's article *Neue Formen und Standorte für die Bündner Flora* (in Jahresber. Naturf. Ges. Graubündens 47: 123–132. 1905) referred to the original entry of "*Hieracium squalidum* ssp. *Prinzii* Käser" by citing "*Hieracium Prinzii* Käser". In doing so, Huber had not accepted and thus had not validly published the combination *H. prinzii*."

Greuter (in Euro+Med PlantBase. 2006, published online at http://ww2.bgbm.org/EuroPlusMed/PTaxonDetail.asp?NameId=7706548&PTRefFk=7000000) decided that the name "*Hieracium erucophyllum*", never treated before at the rank of species in taxonomic publications, was inadvertently but validly published by Prain in *Index Kewensis* (Suppl. 4: 112. 1913). For this reason this name replaced the established combination *H. prinzii* (Zahn) Zahn 1921. Nevertheless, "*H. prinzii*" had also inadvertently appeared in print in a book review published in 1906. If such sources are acceptable as places of valid publication, *H. prinzii* still predates *H. erucophyllum* and should be returned to use, but instead of reviving this single name we strongly prefer to abandon this sort of literature and come back to the traditional pool of taxonomic and nomenclatural sources.

"*Ex. n6.* Tzvelev (in Bot. Zhurn. (Moscow & Leningrad) 80(6): 122. 1995) validly published the new generic name *Plastobrassica* (O. E. Schulz) Tzvel. in his critical review of *Atlas Florae Europaeae*, vol. 10. When doing so, Tzvelev explicitly accepted the new name and rejected the earlier position of this taxon."

This is a "positive" Example that may be added as a counterpart to a "negative" Ex. n5 above or the revised current Ex. 5 of proposal (051) below.

"*Ex. n7.* The unsigned text by Borbás & Fekete (in Oesterr. Bot. Z. 39: 223. 1889) was supposed to be a bibliographic review of Fekete's article (in Erdészeti Lapok 1889: 105–106. 1889) but went far beyond the purpose by proposing the species name *Sorbus perincisa* for an unnamed infraspecific variant of *S. torminalis* (L.) Crantz described in Fekete (l.c.) with a brief original description of the taxon and precise

indication of its provenance. The name *S. perincisa* Borbás & Fekete does not fall under Art. 36.3 and is validly published in this work."

This is another Example of a review that was communicating original information instead of reporting on the contents of a reviewed work.

(051) If Prop. (050) is accepted, revise the current Ex. 5 under Art. 46.2 as follows, and move it under the new Art. 36.3.

"*Ex.* [*5*]. In a review of Gay's *Flora chilena*, vol. 1 (1846), the otherwise unnamed author "W." wrote "p. 348. wird die Gattung *Eucryphia* als Typus einer neuen Familie, der *Eucryphiaceae*, angesehen", in this way reporting of the designation "Eucrifiaceas" that denoted a family in Gay (l.c.: 348). This family name was validly published later by Philippi (in Linnaea 30: 292. 1859), who accepted it in his publication about statistical analysis of the flora of Chile, solely by an indirect reference to the description of "Eucrifiaceas" in Gay (l.c.)."

Alternatively, this Example may be deleted as competing with our proposed new Ex. n5.

(052–057) Six proposals to amend Article 41.4 and to revise its Examples

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(052) Revise Art. 41.4 as follows (new text in bold, deleted text in strikethrough):

"*41.4*. If, for a name of a genus or taxon of lower rank published before 1 January 1953, no reference to a basionym is given but the conditions for its valid publication as the name of a new taxon or replacement name are fulfilled, that name is nevertheless treated as a new combination or name at new rank when ~~this was the author's presumed intent and~~ a potential basionym (Art. 6.10) applying to the same taxon exists **and there is no explicit evidence that the author's presumed intent was different**."

The present Art. 41.4 in the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) is a direct descendant of the former Art. 33.3 in the *Vienna Code* (McNeill & al. in Regnum Veg. 146. 2006). It was amended at the Melbourne Congress on the proposal by Turland (in Taxon 59: 1920. 2010). However, the final, published wording of the Article based on this proposal, intended to be "an editorial rewording of Art. 33.3 that did not really change the meaning" (Art. 33 Prop. G, Flann & al. in PhytoKeys 41: 160. 2014), appeared to be quite distant from what was approved by the Congress. In my opinion, the Editorial Committee took the liberty of introducing a new condition into this Article, which made it depart from the original meaning.

The new wording of this Article states that it applies if publishing a new combination or a new replacement name "was the author's presumed intent". This condition, present neither in the former Art. 33.3 ("… if, for a presumed new combination …") nor in Turland's proposal ("… if, for a presumed new combination or status novus at the rank of genus or below …"), is a novelty.

It is often difficult to speculate about intentions of other authors, especially those who published in the remote past. Besides, the requirement "when this was the author's presumed intent" can hardly apply when there is "no reference" (Art. 41.4), not even an indirect or "cryptic" one (Art. 38.14), to the presumed new combination. If we can presume an intent, then we usually have at least an indirect or cryptic reference that serves as evidence of the intent; if we have no reference at all, then normally there is no evidence of such an intent, either.

To resolve this contradiction, I propose to modify Art. 41.4, using the mention of intent only as evidence to the contrary. Another goal of this proposal is to retain the applicability of this Article to the existing Examples under Art. 41.4, from which no evidence of the author's intent can be seen with certainty.

By this change, when no explicit intention of an author is evident (coinciding epithets disregarded), the cases will fall to the positive side of this rule, as originally implied by the wording "if … no reference" in the previous versions of the *Code* before Melbourne. When original authors explicitly stated that they were describing new taxa without any connection to previous names (as "gen. nov.", "sp. nov.", "var. nov.", etc.), the cases will clearly fall to the negative side of Art. 41.4.

(053) Add a new Example under Art. 41.4:

"*Ex. n*. The new names *Cyclachaena* and *Cyclachaena xanthiifolia* were published by Fresenius (1836) with a description of the genus and no reference to the conspecific *Iva xanthiifolia* Nutt. (1818) which was originally collected in another place but along the same Missouri River. As Fresenius stated that he was describing a new genus ("nov. genus") and provided no separate description or diagnosis of its only species which was not necessarily new, his species name is treated as a new combination based on *I. xanthiifolia* because otherwise it would have been a name of new taxon published under Art. 38.5."

In this case, apparently the same, quite conspicuous species was named again but in another genus, without any reference to the previous publication. The distribution area indicated in both publications is narrow enough to be treated as the same, the diagnostic characters unmistakably point to the same species, and the fact that different collections were used by the two different authors does not exclude the possibility to treat the later name as based on the earlier one. Although Fresenius (Ind. Sem. Frankfort/M 1836: 1, 4. 1836) ascribed the species name *Cyclachaena xanthiifolia* to himself, he provided no evidence that he was describing a new species and not making a new combination with a basionym.

(054) Add another new Example under Art. 41.4:

"*Ex. n*. *Sorbus franconica* f. *bakonyensis* Jáv. (in Magyar Bot. Lapok. 25: 87. 1927) was raised to the rank of species by Jávorka (in Kert. Lapok 32: 284. 1928), who supplied a short diagnosis but provided no reference of any kind to the implied basionym. The identity of *S. bakonyensis* (Jáv.) Jáv. and *S. franconica* f. *bakonyensis* is

evident not only from the adopted epithet but also from the diagnostic characters, the first collector, and the distribution area, which coincide in both publications."

These two new Examples illustrate the situation where no reference to the applicable basionym of the new species name, not even an indirect or cryptic one, apparently exists, but the author provided no explicit evidence that his intention was to introduce the name of a new taxon (in its own right, as defined in Art. 6.9). Another example of the complete absence of any reference and apparent evidence of presumed intent is already in the *Code*, i.e., Ex. 9 on the case of *Brachiolejeunea* (Spruce) Steph. & Spruce.

The example of *Sorbus bakonyensis* is borrowed from Somlyay & Sennikov (in Phytotaxa 164: 265–275. 2014).

(055) Revise the current Ex. 7 under Art 41.4 as follows (new text in bold, deleted text in strikethrough):

"*Ex. 7. Scaevola taccada* was validly published by Roxburgh (1814) by **a sole** reference to an illustration in Rheede (Hort. Malab. 4: t. 59. 1683) that ~~appears to be its sole basis~~ **is associated with a description of a species**. As the name applies to the species previously described as *Lobelia taccada* Gaertn. (1788), it is treated as a new combination, *S. taccada* (Gaertn.) Roxb., not as the name of a new species, even though in Roxburgh's protologue there is no reference, either direct or indirect, to *L. taccada*."

These are plainly editorial adjustments to the wording of Ex. 7, in order to bring it closer to the original case. One may also think that a common element in the protologues of *Lobelia taccada* and *Scaevola taccada*, namely a reference to Rheede (Hort. Malab. 4: t. 59. 1683), may be treated as a kind of indirect reference to the presumed basionym in the same way as suggested in Ex. 5 under Art. 41.3 (*Opuntia vulgaris* Mill.), so that the concluding part of the Example ("there is no reference, either direct or indirect") seems to be doubtful.

(056) Add another new Example under Art. 41.4:

"*Ex. n*. The same taxon was described as *Ruta perforata* M. Bieb. (1800) and *Haplophyllum perforatum* Kar. & Kir. (1841). In spite of the coinciding final epithets and inclusion of the presumably original locality of *R. perforata* in the protologue of *H. perforatum*, the latter name has no basionym because Karelin and Kirilov stated that they were describing a new species ("nov. sp.")."

This is an example when the same species was accidentally described twice with the same final epithet but under different generic names. As demonstrated by Linczevski (in Novosti Sist. Vyssh. Rast. [5]: 159–163. 1968), Bieberstein's publication was apparently neglected in subsequent research until the 20th century, and Karelin & Kirilov (1841) compared their new species with *H. acutifolium* (DC.) G. Don, which was well known in the literature. The intention to describe a new species, explicitly expressed by Karelin & Kirilov (l.c.), is against the provisions of Art. 41.4.

(057) Revise the current Ex. 10 under Art. 41.4 as follows and move it under Art. 38.14:

"*Ex.* [*10*]. Sampaio published "*Psoroma murale* Samp." (in Bol. Real Soc. Esp. Hist. Nat. 27: 142. 1927) with the only citation of "*Lecanora saxicola* Ach." in synonymy. By this citation he provided an indirect reference to the treatment of *L. saxicola* (Pollich) Ach. (Lichenogr. Universalis: 431. 1810), where the intended basionym *Lichen muralis* Schreb. (1771) is found in synonymy. The resulting name is to be cited as *P. murale* (Schreb.) Samp."

The present placement and wording of Ex. 10 are inappropriate because the work of Sampaio actually contains an indirect reference to *Lichen muralis*, the presumed basionym of *Psoroma murale*. Although this reference is more indirect than usual, it is still easy to trace and quite unambiguous.

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(058–059) Proposals to add a new Recommendation and two Examples to Rec. 46D

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Brummitt & Powell's *Authors of plant names* (1992), the International Plant Names Index (http://www.ipni.org) and Index Fungorum (http://www.indexfungorum.org) provide unambiguous standard forms for a large number of authors of names of organisms. However, in cases where an author has changed her or his personal name, sometimes two different standard forms are provided for the same author, so that it seems as if the forms refer to two different persons. Therefore, we feel that confusion could be avoided if such authors continued to use the name under which they first published nomenclatural novelties. This would help to identify authors unambiguously.

(058) Add a new Recommendation to Rec. 46D:

"*46D.2.* Authors publishing nomenclatural novelties and changing their personal names should continue to use the name under which they first published."

(059) Add two new Examples after the new Rec. 46D.2:

"*Ex. 1.* Pratibha Jalmi changed her name to Pratibha Ashish Prabhugaonkar after her marriage in 2011, but has published nomenclatural novelties only under her name Pratibha (*Ceeveesubra-*

maniomyces litseae Pratibha & al. in Kavaka 32: 22. 2005 *'litseai'*; *Digitoramispora tambdisurlensis* Pratibha & al. in Mycotaxon 107: 383. 2009; *Jayarambhatia rhizophorae* Pratibha in Mycotaxon 125: 140. 2013)."

"*Ex. 2*. Inger Nordal, Debika Das, Anjali Das, and Sandhyajyoti Das published novelties both under their maiden names and their married names. Two different standard forms (Björnstad and Nordal, D. Das and Debika Mitra, A. Das and Anjali Biswas, Sandh. Das and Phukan, respectively) are provided for each person in Brummitt & Powell's *Authors of plant names* (1992) and the International Plant Names Index (http//www.ipni.org)."

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(060–062) Proposals to allow specific epithets that are eponyms to be formed as nouns in the nominative singular

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(060) Add a new Article and two new Examples after Art. 60.12:

"*60.12bis*. For names of species and infraspecific taxa, epithets formed by analogy with Rec. 60B are admitted."

"*Ex. n*. *Syringa josikaea* J. Jacq. ex Rchb. (Iconogr. Bot. Pl. Crit. 8: 32. 1830, *'Josikaea'*), being named in honour of Countess Rozália Csáky, Baroness Jósika, is not to be corrected to "*josikae*"."

"*Ex. n*. In *Cacalia kleinia* L. (Sp. Pl.: 834. 1753, *'Kleinia'*), the specific epithet is taken from an earlier generic designation (Linnaeus, Hort. Cliff.: 395. 1738) honouring the German zoologist Jacob Theodor Klein. Rec. 60C.1 notwithstanding, it is not to be corrected to "*kleinii*"."

(061) If Prop. (060) is accepted, change Art. 60.12 accordingly (new text in bold):

"*60.12.* The use of a termination (for example *-i*, *-ii*, *-ae*, *-iae*, *-anus*, or *-ianus*) contrary to Rec. 60C.1 is treated as an error to be corrected (see also Art. 32.2). However, terminations of epithets formed in accordance with **Art. 60.12bis and** Rec. 60C.2 are not to be corrected."

(062) If Prop. (060) is accepted, change the first sentence of Rec. 60C.1 accordingly (new text in bold):

"*60C.1.* When personal names are given Latin terminations in order to form specific and infraspecific epithets, formation of those epithets is as follows (but see **Art. 60.12bis and** Rec. 60C.2):"

In the *Berlin Code* (Greuter & al. in Regnum. Veg. 118. 1988) a small but significant change was editorially introduced to what was then Art. 73.10 and is now Art. 60.12. The old wording of this Article, regulating the use of epithets of names of species or infraspecific taxa that are derived from personal names, precluded misuse of terminations of epithets that were either adjectives or nouns in the genitive and that were explicitly listed in Rec. 73C.1 (now Rec. 60C.1). Specific and infraspecific epithets derived from personal names in any other way were not regulated. The new text of the Article limited formation of such epithets to the cases listed in Rec. 73C.1. This means that, starting from 1988 but in effect retroactively, epithets of names of species or infraspecific taxa may be formed only as adjectives or nouns in the genitive; other ways of formation are precluded but seem to be correctable under the present Art. 32.2. First of all, the use of eponyms expressed by nouns in the nominative, i.e., originally intended for generic names and formed as described in Rec. 60B, is precluded.

However, such deviating names, though certainly uncommon, are notable and well established in botanical nomenclature. The beginning of this practice dates back even to Linnaeus, who regularly used old generic designations for his specific epithets when a certain genus failed to meet his reformed taxonomic criteria. For example, Linnaeus reduced to synonymy his own generic name *Kleinia*, which he introduced in *Hortus Cliffortianus* (1738) to honour the German zoologist, Jacob Theodor Klein (1685–1759). When Linnaeus suppressed this generic name, he retained it in the specific epithet of *Cacalia kleinia* L. 1753. Similarly, the generic name *Dubyaea* DC. 1838, commemorating Jean Étienne Duby (1798–1885), was retained in specific epithets when that genus was merged with *Lactuca* L. and then *Crepis* L., i.e., in the species names *Lactuca dubyaea* C.B. Clarke 1876 and *Crepis dubyaea* (C.B. Clarke) C. Marquand & Airy Shaw 1929.

Another well-known example is *Syringa josikaea* J. Jacq. ex Rchb. 1830, published in honour of its discoverer, Countess Rozália Csáky, Baroness Jósika. Its specific epithet accords with our present-day recommendations for names of genera and subdivisions thereof (though in the time of Jacquin, the principles of Linnaeus, largely followed after his *Critica botanica* and *Philosophia botanica*, allowed any name to serve as a specific epithet).

Since these names are very well established in botanical literature and are still recorded in IPNI (http://www.ipni.org) as validly published in their original form, it would be of no benefit to correct these names solely in order to achieve a greater uniformity in eponyms at the rank of species and below. To retain such names in use, I propose a separate provision, complementary to Art. 60.12. I assume that modern practice of coining such names is very limited, and allowing this practice to continue would make no significant disturbance to the system of eponyms regulated by Rec. 60C.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(063–085) Proposals to clarify and enhance the naming of fungi under the *International Code of Nomenclature for algae, fungi, and plants*[1]

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INTRODUCTION

Mycologists were gratified that the various changes in nomenclatural procedures relating to the treatment of fungal names that had been recommended by the 9th International Mycological Congress (IMC9) in Edinburgh in August 2010 (Norvell & al. in Mycotaxon 113: 503–511. 2010; in IMA Fungus 1: 143–147. 2010) had subsequently been put to the 18th International Botanical Congress (IBC) in Melbourne in July 2011, acted on, and incorporated into the new edition of the *Code*, then re-named the *International Code of Nomenclature for algae, fungi, and plants* (*ICN*; McNeill & al. in Regnum Veg. 154. 2012). All the proposals that had been put forward were accepted, some after amendments, apart from one on governance that was referred to a newly formed Special Subcommittee on Governance of the *Code* with Respect to Fungi; that Subcommittee is to report separately and the issue consequently is not commented on further here. Further information on the changes pertinent to fungi enacted at the Melbourne IBC are summarized by Hawksworth (in MycoKeys 1: 7–20. 2011; in IMA Fungus 2: 155–162. 2011), and a record of the debates in the Nomenclature Section meetings is provided by Flann & al. (in PhytoKeys 41: 1–289. 2014).

Subsequent to the 2011 IBC, various ways in which the rules could be further refined were compiled (Hawksworth in IMA Fungus 5: 31–37. 2014). These were presented to the "Genera and Genomes" symposium in Amsterdam in April 2014, where additional suggestions and modifications were made, and the essences distilled into 21 questions included in the packs of all delegates to the 10th International Mycological Congress (IMC10) in Bangkok in August 2014. These proposals were discussed in three Nomenclature Sessions convened during IMC10, and a report of the Sessions and the opinions expressed in response to the questionnaire is provided by Redhead & al. (in IMA Fungus 5: 449–462. 2014). At the conclusion of the Congress, the final plenary session, the General Assembly of the International Mycological Association (IMA), approved a Resolution requesting that the views expressed in the questionnaires be taken into account in formulating changes in the rules governing the nomenclature of fungi.

The proposals made here are in accordance with the IMC10 Resolution, and from further debates and discussions within the International Commission on the Taxonomy of Fungi (ICTF). The ICTF has 25 members who were asked to comment and vote on each proposal. The number voting was 21, although not all voted on every question; the percentage voting "yes" and "no" are indicated in each case, with the number voting on that proposal given in squared parentheses. In some cases, the placement or precise wording of the proposals presented here has been amended from those voted on by the ICTF following consultations with the column editors. The substance of the proposals, however, remains unchanged.

The proposals from the mycological community detailed here are now commended for adoption by the 19th IBC, to be held in Shenzhen, China, in July 2017.

In the proposed amendments detailed below, new text is given in **bold** type, and deleted text in strikethrough (~~strikethrough~~).

PROPOSALS

Conditions for epitypification

In order to be able to designate an epitype, Art. 9.8 requires that the existing type "is demonstrably ambiguous". It has been pointed out by Jørgensen (in Taxon 63: 132–133. 2014) that this phrase requires that attempts to recover DNA from a type have to be made, and fail, before the designation of a modern sequenced epitype can be justified. In many instances making such attempts is either impractical or prohibited, especially in the case of historic collections. For fungi, where molecular data are vital for the precise application of species names, this issue needs to be clarified in order to prevent many of the epitypfications proposed by mycologists in recent years being considered unsound. A few mycologists expressed unease about modifying the existing provision during the IMC10 Nomenclature Sessions (Redhead & al., l.c.), but there was strong support in the questionnaire (67.3% Y[2]) for permitting sequenced epitypes to be designated without having first to establish that DNA was not recoverable from the type they represent. ICTF: Y (95%), N (5%) [21]

(063) Amend Art. 9.8 as follows:

"*9.8.* An epitype is a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or previously designated neotype, or all original material associated with a validly published name, ~~is demonstrably ambiguous and~~ cannot**, in the opinion of the author making the typification,** be critically identified for purposes of the precise application of the name to a taxon. Designation of an epitype is not effected unless the holotype, lectotype or neotype that the epitype supports is explicitly cited (see Art. 9.20)."

Registration of later typifications

At present it is impossible to be sure whether a lectotype, neotype, or epitype has been designated as the type for a previously

1 Also published in IMA Fungus 6(1): 199–205. Jun 2015.

2 Y = Yes. See Redhead & al. (l.c.) for actual counts in all cases in which they are cited in this set of proposals.

published name. There is currently no requirement for such nomenclatural acts to be recorded in a central repository, and typification acts have not been catalogued in the Index of Fungi. This is a particular problem in mycology as there is an increasing need to designate sequenced epitypes to fix the application of a name when molecular data are not available from the type. The "One-Fungus = Which Name?" symposium in Amsterdam in 2012 unanimously supported the proposal that such typifications should be deposited in a database (Anon. in IMA Fungus 3: (10)–(16). 2012), and this suggestion was almost unanimously supported at IMC10 (95.2% Y).

Two of the repositories recognized by the Nomenclature Committee for Fungi for the deposit of the information required for the valid publication of fungal names, Index Fungorum and MycoBank, have responded to this need; Index Fungorum issues a unique identifier, while MycoBank adds a "T" to the repository acronym (i.e., "MBT") preceding a number, although that is not a part of the identifier string itself. Many mycologists are already using this facility voluntarily, and many mycological journals now require information on such acts to be deposited in one of the official repositories as a part of their editorial policies. In order to make depositions of information on later typifications obligatory, this will need to be made a requirement for effective typification. ICTF: Y (100%), N (0%) [20]

(064) Insert a new provision in Art. 7, preceding Note 2:

"*7.11.* For purposes of priority (Art. 9.19, 9.20, and 10.5), designation of a type, on or after 1 January 2019, of the name of an organism treated as fungal under this *Code* (Pre. 8), is achieved only if an identifier (see Art. 42.2) issued by a recognized repository (see Art. 42.3) is cited."

If this proposal is accepted, then the Editorial Committee will need to add Art. 7.11 to the first sentence of Note 2 to make clear this provision relates to later typifications and not holotype designations.

(065) Insert a new paragraph in Art. 7 to follow Note 2:

"*7.12.* For an identifier required by Art. 7.11, the minimum elements of information that must be accessioned for type designations are the name being typified, the author designating the type, and those required by Art. 9.21, 9.22, and 9.23."

(066) Insert a new Note 3 in Art. 7 to follow the proposed new Art. 7.12:

"*Note 3.* Issuance of an identifier by a recognized repository presumes subsequent fulfilment of the requirements for effective type designation (Art. 7.7–7.11) but does not in itself constitute a type designation."

Epitypifications are not currently mentioned in Art. 9.23 and, for consistency with lecto- and neotypfications, the following amendment to that provision is proposed:

(067) Amend Art. 9.23 as follows:

"*9.23.* On or after 1 January 2001, lectotypification**,** ~~or~~ neotypification**, or epitypification** of a name of a species or infraspecific taxon**,** is not effected unless indicated by use of the term "lectotypus", ~~or~~ "neotypus", **or "epitypus"**, its abbreviation, or its equivalent in a modern language (see also Art. 7.10 and 9.9)."

Protected Lists of Names

The *ICN* did not provide formal titles for the new lists of fungal names to be proposed for protection or rejection, and reference to them has become confused, especially with the conserved lists of names. "Protected vs. suppressed" was favoured by the Amsterdam symposium in 2013 (Anon. in IMA Fungus 4: (3)–(4). 2013) and overwhelmingly endorsed at IMC10 (88.4% Y votes). This pair of antonyms has the dual advantage of being distinctive and conveying in the titles the status of the listed names. If this change is accepted here, the Editorial Committee will need to avoid the use of "suppressed" as a synonym of "rejected" in Arts. 56.1 and 56.2, and in the title to App. V.

In order to grant the lists these titles, the following changes are proposed: ICTF: Y (100%), N (0%) [20]

(068) Amend Art. 14.13 as follows:

"*14.13.* In the interests of nomenclatural stability, for organisms treated as fungi (including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*), lists of names may be submitted to the General Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies. **Protected** ~~Accepted~~ names on these lists, which become Appendices of the *Code* once reviewed and approved by the Nomenclature Committee for Fungi and the General Committee, are to be listed with their types together with those competing synonyms (including sanctioned names) against which they are treated as conserved (see also Art. 56.3)."

(069) Amend Art. 56.3 as follows:

"*56.3.* In the interests of nomenclatural stability, for organisms treated as fungi (including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*), lists of names to be ~~rejected~~ **suppressed** may be submitted to the General Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies. **Suppressed** names on these lists, which become Appendices of the *Code* once reviewed and approved by the Nomenclature Committee for Fungi and the General Committee, are to be treated as rejected under Art. 56.1 and may become eligible for use only by conservation under Art. 14 (see also Art. 14.13)."

(070) Amend Art. 56.4 as follows:

"*56.4.* When a proposal for the rejection **or suppression** of a name under Art. 56 has been approved by the General Committee after study by the Committee for the taxonomic group concerned, rejection **or suppression** of that name is authorized subject to the decision of a later International Botanical Congress (see also Art. 14.16 and 34.2)."

(071) Amend Rec. 56A as follows:

"*56A.1.* When a proposal for the rejection **or suppression** of a name under Art. 56 has been referred to the appropriate Committee for study, authors should follow existing usage of names as far as possible, pending the General Committee's recommendation on the proposal (see also Rec. 14A and 34A)."

Many fungal names have not been re-assessed since their introduction. In order to preclude the displacement of names now used by the resurrection of such forgotten names, for example by the discovery and re-examination of original material, or the designation of neo- or epitypes, mycologists have concluded that names accepted in the lists

of protected names had to be safeguarded against all unlisted names in addition to any that might be given as synonyms or homonyms in the lists (Anon. in IMA Fungus 4: (3)–(4). 2013; Kirk & al. in IMA Fungus 4: 381–443. 2013). This need was supported by 88.6% Y at IMC10, and would avoid the need for proposals for conservation or rejection of names in the future as and when early little-used names were discovered. There are precedents for this: (1) in the protection accorded to the list of names in current use for *Trichocomaceae* (Pitt & Samson in Regnum Veg. 128: 13–57. 1993) by a special resolution passed at the Tokyo IBC in 1993 (Greuter & al. in Regnum Veg. 131: x. 1994); (2) the protection afforded to sanctioned fungal names (see below); and (3) in the lists of conserved family names of bryophytes and spermatophytes in App. IIB of the *ICN* (Wiersema & al. in Regnum Veg. 157. 2015). In order to provide the required protection, the current wording needs to be amended, as at present it only refers to protection against listed competing synonyms. Further, if listed names are treated as protected against unlisted names, the obligation to cite known competing synonyms becomes superfluous, although it may be desirable to retain that option as it will be informative to users. The lists will need to be: (1) open for revision by successive congresses; and (2) subordinate to the lists of conserved names to cover instances where two or more names on the protected lists compete in different classifications and the later is preferred. The following proposals address these various requirements:

(072) Amend Art. 14.13 as follows:

"*14.13.* In the interests of nomenclatural stability, for organisms treated as fungi (including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*), lists of names may be submitted to the General Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies. ~~Accepted~~ Names on these lists, which become Appendices of the *Code* once reviewed and approved by the Nomenclature Committee for Fungi and the General Committee, are to be listed with their types ~~together with those~~ **and are treated as conserved against any** competing **listed or unlisted** synonyms **or homonyms** (including sanctioned names) ~~against which they are treated as conserved~~**, although conservation under Art. 14 overrides this protection. Further, the lists of protected names remain open for revision through the procedures described above** (see also Art. 56.3)."

(073) Amend Art. 14.16 as follows:

"*14.16.* When a proposal for the conservation **or protection** of a name has been approved by the General Committee after study by the Committee for the taxonomic group concerned, retention of that name is authorized subject to the decision of a later International Botanical Congress (see also Art. **14.13,** 34.2, and 56.4)."

(074) Amend Rec. 14A.1 as follows:

"*14A.1.* When a proposal for the conservation **or protection** of a name has been referred to the appropriate Committee for study, authors should follow existing usage of names as far as possible pending the General Committee's recommendation on the proposal (see also Rec. 34A and 56A)."

Removal of exemptions for lichen-forming fungi

As lichen-forming fungi had traditionally been excluded from the provisions of the former Art. 59 permitting dual nomenclature, concern was expressed from the floor at the Melbourne Congress that the new Art. 57.2 could be de-stabilizing, and as a result the phrase "including lichenicolous fungi, but excluding lichen-forming fungi and those traditionally associated with them taxonomically, e.g., *Mycocaliciaceae*" was incorporated into Arts. 14.13, 56.3, and 57.2. With the deletion of Art. 57.2 proposed below, the remaining exceptions prohibit lists of names of lichen-forming fungi being proposed for protection or suppression. There are over 30 genera that include lichenized species as well as those with different biologies, some individual species may be lichenized or not, and it is not always clear whether a species is lichenized. Consequently, some species in the same genus may be eligible for protection while others would not. In addition, many orders and families include genera that are lichenized as well as genera that are not. These are biological issues and consequently they should not have a place in the *ICN*. Deletion of the exemptions was soon advocated (Anon. in IMA Fungus 3: (10)–(16). 2012, IMA Fungus 4: (3)–(4). 2013; Kirk & al. in IMA Fungus 4: 381–443. 2013). At IMC10 there was overwhelming support for the rejection of these exceptions (89.4% Y at IMC10), but while the congress was attended by around 60 lichenologists, it was unclear how many had completed the questionnaire. It was therefore felt that the views of the International Association for Lichenology (IAL) should also be sought, and this matter is being referred to the IAL Council for its opinion. ICTF: Y (100%), N (0%) [19]

(075) Amend the first sentence of Art. 14.13 (Prop. 072) as follows:

"*14.13.* In the interests of nomenclatural stability, for organisms treated as fungi ~~(including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*)~~, lists of names may be submitted to the General Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies."

(076) Amend the first sentence of Art. 56.3 (Prop. 069) as follows:

"*56.3.* In the interests of nomenclatural stability, for organisms treated as fungi ~~(including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*)~~, lists of names to be rejected may be submitted to the General Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies."

(077) Instruct the Editorial Committee to delete the following words in Art. 57.2 in the event that Prop. (084) to delete that provision is not accepted:

"fungi ~~(including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*)~~"

Diagnoses

Prior to 1 January 2012, when a description or diagnosis in Latin was a mandatory requirement for the valid publication of a name of a new taxon, it was common practice to fulfil this requirement by providing a short diagnosis in Latin as well as a full description,

generally in another language. Provision of a diagnosis, a statement of the characters distinguishing the new taxon from others, meant that the key features could easily be found without the need to analyse a lengthy description and any following discussion. Diagnoses have proved of such value to mycologists, that a new practice has been emerging now that Latin diagnoses are no longer mandatory: to have a short diagnosis in English as well as a full description. A replacement for Rec. 38B is proposed to encourage this practice in naming new taxa not only in fungi but in all groups covered by the *ICN*.

ICTF: Y (81%), N (19%) [21]

(078) Insert a new paragraph before Rec. 38B.1:

"*38B.1.* When a description is provided for valid publication of the name of a new taxon, a separate diagnosis should also be presented.

(079) Revise the current Rec. 38B.1 and renumber as follows:

"*38B.2.* **Where no separate diagnosis is provided,** the description of any new taxon should mention the points ~~in~~ which **distinguish** the taxon ~~differs~~ from ~~its allies~~ **others**."

Citation of sanctioned names

When the later starting points for the nomenclature of selected groups of fungi were abandoned at the Sydney IBC in 1981 and reverted to 1 May 1753, the concept of sanctioned names was introduced to protect names adopted in the former starting-point works against any competing names, whether treated in those works or not. There is no wish amongst mycologists to change that protection, and it has removed a need for countless conservation proposals. However, the use of the ":" in author citations to indicate the sanctioned status of names, which is recommended in the *ICN* (Rec. 50E.3) but is not obligatory, remains a cause of confusion. Almost 35 years after the introduction of this notation, sanctioned names are still commonly cited only with the author, bibliographic details, and date of the sanctioning work and not with the actual place and date of valid publication of the names. Also, not all authors use the notation today, because of the confusions that can result, including the key nomenclator database, Index Fungorum.

While there was only modest support for ending the use of the of the ":" in the IMC10 questionnaire (71.8%), in the course of discussions in the Nomenclatural Sessions the suggestion of appending "nom. sanct." (nomen sanctum) in formal citations as an alternative was almost unanimously supported. This usage would parallel the use of other widely used indicators of nomenclatural status, for example, "nom. inval." and "nom. illeg.", after bibliographic references in full citations of names. ICTF: Y (95%), N (5%) [20]

(080) Amend Rec. 50E.3 as follows:

"*50E.3.* If a name has been adopted by Fries or Persoon, and thereby sanctioned (see Art. 13.1(d) and 15), ~~": Fr." or ": Pers." should be added in a formal citation~~ **the abbreviation "nom. sanct." (nomen sanctum) should be added in a formal citation, followed by the citation of the place of sanctioning if considered desirable.** The same convention should be used ~~for the basionym of the sanctioned name, if it has one, and~~ for all combinations based on ~~either~~ the sanctioned name ~~or its basionym~~."

The reference to the sanctioning of basionyms adopted in the sanctioning works is proposed for deletion as under Art. 15 these are not sanctioned and so the existing Rec. 50E.3 was misleading.

(081) Instruct the Editorial Committee to revise Rec. 50E Ex. 6 and 7 if Proposal 080 is accepted.

The suggestion that the list of sanctioning works be extended to other works, especially comprehensive global monographic treatments, received limited support at IMC10 (51.8% Y). In the event that a new Appendix of protected works is inserted into the Shenzhen Code in 2017 as a result of an additional proposal to be published separately, there will need to be a discussion as to whether the current sanctioning works should be included in such an Appendix. However, if proposal (072) is adopted, the nomenclatural protection given to names on the new lists of protected names would be the same as that already accorded to sanctioned names. However, the special rules regarding the typification of sanctioned names would not apply to protected names (Art. 9.10). It is therefore preferable to retain the distinction rather than replace "sanctioned" by "protected" throughout.

Homonyms in other kingdoms

The issue of identically spelled generic names in groups of organisms not covered by the *ICN* is a problem for biologists in general. The Prokaryote [Bacterial] Code (Lapage & al., Int. Code Nomencl. Bact. 1992), however, prohibits the use in prokaryotes of generic names already existing for algae, fungi, and protozoa. Rec. 54A of the *ICN* recommends that names existing in bacteriology and zoology be avoided when introducing new generic names under that *Code*. Now that inter-kingdom databases are becoming available, in particular the Catalogue of Life (http://www.catalogueoflife.org/), it is easier to check for homonyms in different groups than ever before. The issue was raised by Hawksworth (l.c. 2014), but not included in the IMC10 questionnaire. Having considered the matter, the ICTF feels that some regulation in relation to microscopic organisms is desirable and should be introduced. ICTF: Y (90%), N (10%) [20]

(082) Add a new clause to Art. 54.1 as follows:

"*(c)* A name published on or after 1 January 2019 for an alga or fungus is illegitimate if it is a later homonym of a bacterial or protozoan name."

(083) Amend Rec. 54A.1 as follows:

"*54A.1.* Authors naming new **plant** taxa under this *Code* should, as far as is practicable, avoid using such names as already exist for zoological and bacteriological taxa."

Ending precedence for sexually typified names

Art. 57.2 aimed to ensure precedence for names typified by a sexual morph over names typified by asexual morphs, when the latter had priority by date of publication. It stated that in cases where both names were "widely used for a taxon", "an anamorph-typified name that has priority is not to displace the teleomorph name(s) unless and until a proposal to reject the former under Art. 56.1 or 56.3 or to deal with the latter under Art. 14.1 or 14.13 has been submitted and rejected". However, it has become clear that there is a general feeling among mycologists that sexually typified names should not have precedence if they do not have priority. There is no automatic penalty under the *ICN* for non-compliance with Art. 57.2, and the implication that an asexually typified name that has priority can only become correct by investing labour and time in publishing a formal proposal to reject or conserve a name that one does not want to be rejected or conserved is bizarre. There is also the subjective matter of when a name is to be considered "widely used", though some ways to obtain an indication

of that have been proposed (Hawksworth in Mycosphere 3: 52–64. 2012; in IMA Fungus 3: 15–24. 2012). With rare exceptions, such as the proposals by Samuels (in Taxon 63: 936–938. 2014) for names in *Hypocrea*, the formal route has been ignored by mycologists, and at IMC10 there was almost total support for the deletion of this provision (93.0% Y). ICTF: Y (95%), N (5%) [19]

(084) Delete Art. 57.2 and Ex. 2 and Ex. 3.

Names with the same epithet

From the Stockholm edition of the *Code* (Lanjouw & al. in Regnum Veg. 3. 1952) mycologists were prohibited from combining names with an asexual type into genera typified by a species with a sexual type. As mycologists were generally keen to retain the same species name when a sexual morph was discovered, a common practice was to use the same specific epithet for the newly discovered sexual morph. With the abandonment of dual nomenclature in 2011, the earliest available species name may not be the asexually typified name bearing the epithet used for the sexually typified name, but a little-known asexually typified name long placed in synonymy. Alternatively, the asexually typified name bearing the epithet used for the sexually typified name may be the earliest legitimate species name, but not eligible for transfer as the binomial is pre-occupied. This is an unusual situation as the previous *Codes* had prevented mycologists from making new combinations when they found new sexual morphs of a known species; the rules had forced them to give new heterotypic names to what they recognized as morphs of a single species.

As the disruption of familiar names, especially of plant pathogens, due to this now obsolete requirement is clearly not in the interests of users of names, it has been suggested (Hawksworth & al. in IMA Fungus 4: 53–56. 2013) that where mycologists used the same epithet for a newly discovered morph, those should be treated as new combinations and not as names of new species. This means that the material designated as the type of the sexual morph name would no longer have its previous nomenclatural status, though it would be available for designation as an epitype showing the sexual features if that was considered desirable. In principle, this idea received overwhelming support in the IMC10 questionnaire (86.9%) amongst the 84 who voted on the question. This proposal is actually the converse of a situation already permitted under later *Codes*, which ruled that where asexually typified names were used as basionyms in sexually typified genera when the new morph was described, the intended combinations were to be treated as new species names and not new combinations despite the clear intent of the author.

Some members of the ICTF viewed this proposal negatively because they felt that these unwanted name changes could be avoided by placing desired names on a list of protected names. In addition they foresaw unintended problems if the type specimen of the name that was deemed to be a new combination was different from that of the basionym, i.e., the connection between the sexual and asexual morphs was not correct. Finally, they suggested that this provision would have a finite use as it was cleaning up an historical situation.

The connection, which subsequently proves to be erroneous, of a newly described morph with one already named parallels the publication of a new combination based on the study of material that later proves to belong to a different species.

ICTF: Y (67%), N (33%) [21]

(085) Insert a new provision in Art. 59:

"*59.2.* If, prior to 1 January 2013, an author publishing a new species name for the morph of a fungus that had an earlier name typified by a different morph adopted the specific epithet of the name of the previously described morph, the newly published name is to be treated as a new combination and not the name of a new taxon with a different type. Designations such as "sp. nov." and ascriptions excluding the earlier name are to be treated as formal errors requiring correction."

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(086) Proposal to amend Article 9.19

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Leong-Škorničková & al. (in Taxon 64: 369. 2015) cited *Jaffray s.n.* (K) as the lectotype of *Kaempferia involucrata* King ex Baker selected by Smith (in Edinburgh J. Bot. 48: 24. 1991) and they designated an unpublished illustration "*Kaempferia involucrata* King // Ic. Herb. Calcutta Copied by G. E. H. 1890" [handwritten] at K as the epitype and stated that it at least partly served J.G. Baker for his description, which means it is a part of original material. In our opinion the name should have been re-lectotypified with the given illustration instead of designating it as the epitype. However, there is no provision in Art. 9.19 in doing so. So we are proposing the amendments as follows.

(086) Amend Art. 9.19 to read (insertions in bold, ~~deletions in strikethrough~~):

"*9.19.* The author who first designates (Art. 7.9 and 7.10) a lectotype or a neotype in conformity with Art. 9.11–13 must be followed,

but that choice is superseded if *(a)* the holotype or, in the case of a neotype, any of the original material is rediscovered; the choice may also be superseded if one can show that *(b)* it is in serious conflict with the protologue and another element is available that is not in conflict with the protologue, ***(c)*** **the choice of lectotype is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name to a taxon and another element of original material is available that is unambiguous and agrees with current usage of the name,** or that *(~~c~~d)* it is contrary to Art. 9.14."

Acknowledgements

We thank Dr. Jana Leong-Škorničková for providing the PDF of their publication and N.J. Turland for his suggestions and refining the manuscript.

(087–090) Proposal to treat the use of a hyphen in the name of a fossil-genus as an orthographical error

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The Nomenclature Committee on Fossils has been dealing with numerous conservation proposals for names of fossil-genera that originally contained a hyphen (Doweld in Taxon 62: 638–642. 2013). Doweld correctly indicated that Art. 60.9 in the *International Code of Nomenclature for algae, fungi, and plants* (the *Melbourne Code*, McNeill & al. in Regnum Veg. 154. 2012) allows removal of hyphens from epithets, but that Art. 60 Note 3 excludes generic names with hyphens from such orthographical correction. Although Doweld uncovered no fewer than 23 generic names that were published with a hyphen, the Committee on Fossils suspects that others exist in the early literature. Hyphenating generic names was a common practice among palynologists and paleobotanists prior to the inclusion of fossils in the main body of the *International Code of Botanical Nomenclature* at the Montreal Congress in 1959. Before this, beginning with the Cambridge Congress in 1930, a separate appendix governing the names of fossils was provided. The 1961 *Code* (Lanjouw & al. in Regnum Veg. 23. 1961) indicated that names of fossil taxa were to be considered and treated no differently from the names of extant organisms covered under the *Code*. Since that time, the use of hyphens in names of fossil plants and palynomorphs was essentially discontinued and largely forgotten, such that compendia including Andrews (in Geol. Surv. Bull. 1300. 1970), for fossil plants, and Jansonius & Hills (in Genera File of Fossil Spores and Pollen, Special Publ., Dept. Geol., Univ. Calgary: 4811 cards. 1976–1990), for plant microfossils, treated the names as if the hyphens were not part of the original spellings. Although hyphenated specific epithets were common for extant taxa, in the case of the names of fossils, hyphens were used primarily in generic names to suggest taxonomic affinity (e.g., *Abies-pollenites*), to offset a suffix indicating the type of fossil organ being named (e.g., *Valvisi-sporites*), or to combine two genera (e.g., *Poa-Cordaites*). These hyphenated forms of the names have been out of general use for at least the past 55 years. However, under the *Code* they take priority over the de-hyphenated variants unless the latter are conserved, an action that Doweld is proposing.

Herein we offer an alternative approach. Dealing with these names collectively through orthographical correction, rather than by laborious and piecemeal conservation and consequent inflation of the list of Conserved and Rejected Names of Genera and Subdivisions of Genera (Appendix III of the *Code*; see Wiersema & al. in Regnum Veg. 157. 2015), is a more efficient and enduring solution, and will eliminate uncertainty over the treatment of these names and their contained species. Therefore, we propose modifications to the *Code* such that use of a hyphen in the name of a fossil-genus is treated as an error to be corrected by deletion of the hyphen. This will circumvent the need to conserve the numerous de-hyphenated names against unused hyphenated forms. We propose changes to Art. 60 of the *Code* to allow this correction, and the addition of a phrase in Art. 20 to add clarity to the naming of fossil-genera.

(087) Amend Art. 60.9 as follows (new text in bold):

"*60.9.* The use of a hyphen in a compound epithet is treated as an error to be corrected by deletion of the hyphen. A hyphen is permitted only when the epithet is formed of words that usually stand independently, or when the letters before and after the hyphen are the same (see also Art. 23.1 and 23.3). **The use of a hyphen in the name of a fossil-genus is in all cases treated as an error to be corrected by deletion of the hyphen.**"

(088) Amend Art. 60 Note 3 as follows (new text in bold):

"*Note 3.* Art. 60.9 refers only to epithets (in combinations), not to names of genera **(fossils excepted)** or taxa in higher ranks; a **non-fossil** generic name published with a hyphen can be changed only by conservation (Art. 14.11; see also Art. 20.3)."

(089) Add the following new Example after Art. 60 Note 3:

"*Ex. 27bis. "Cicatricosi-sporites"* R. Potonié & Gelletich (1932) and *"Pseudo-Araucaria"* Fliche (1896) are names of fossil-genera. They are treated as errors to be corrected by deletion of the hyphen to *Cicatricosisporites* and *Pseudoaraucaria*, respectively."

In order to fully clarify the naming of fossils, we also propose the addition of a cross-reference in Art. 20.3.

(090) Amend Art. 20.3 as follows (new text in bold):

"*20.3.* The name of a genus may not consist of two words, unless these words are joined by a hyphen **(but see Art. 60.9 for names of fossil-genera)**."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(091) Proposal to amend the *Code* by a clearer wording of Article 6.9

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In the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), "name of a new taxon" is defined in Art. 6.9, as follows: "The name of a new taxon (e.g. genus novum, gen. nov., species nova, sp. nov.) is a name validly published in its own right, i.e. one not based on a previously validly published name". However, the final clause, "it is not a new combination, a name at new rank, or a replacement name", is so inconspicuous and fuzzy that it was overlooked not only by taxonomists but also by two nomenclature gurus. The following new wording is therefore proposed.

(091) Change Art. 6.9. as follows (new text in bold):

"*6.9.* The name of a new taxon (e.g. genus novum, gen. nov., species nova, sp. nov.) is a name validly published in its own right, i.e. one not based on a previously validly published name; **a name validly published as a new combination, a name at new rank, or a replacement name in accordance with Art. 41 is not the name of a new taxon**."

If this proposal is accepted, the definition in the Glossary will also need to be amended editorially.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(092) A proposal on author citations

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The author citation of "binary" names validly published based on originally different binary designations is provisioned in Art. 46.4. Naturally, this provision should be also applied to the names of subdivisions of genera and "ternary" names of infraspecific taxa. Additionally, names after designations at different rank (e.g., original designation applying to a subspecies, and then validly published as the name of a variety) should not be attributed to the original author(s). Therefore, we propose following amendment on Art. 46.4.

(092) Amend Art. 46.4 as follows (new text in bold, deleted text in strikethrough):

"*46.4.* When the **final** epithet of a validly published ~~name~~ **combination** is taken up from and attributed to the author of a different ~~binary~~ designation **at the same rank, or to the author of a designation at different rank,** that has not been validly published, only the author of the validly published name may be cited."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(093–094) Proposals to amend Article 53.6 and the Glossary

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Whilst answering feedback for IPNI (International Plant Names Index; http://www.ipni.org) and WCSP (World Checklist of Selected Plant Families; http://apps.kew.org/wcsp/) the authors of the present proposal came across the case of two names, *Oxytropis popovii* Peschkova (in Novosti Sist. Vyssh. Rast. 6: 290. 1970) and *O. popovii* Vassilcz. (in Novosti Sist. Vyssh. Rast. 6: 152. 1970), which were published simultaneously. Article 53.6 and Ex. 19 apply here because the replacement name *O. popoviana* Peschkova (Stepnaya Fl. Baĭkal'skoĭ Sibiri: 73. 1972) was published to replace *O. popovii* Peschkova.

From the feedback we received there seems to be confusion as to the status of homonyms that are published simultaneously (Art.

53.6 of the *Melbourne Code* – McNeill & al. in Regnum Veg. 154. 2012). This may be because the issue is not explicitly exemplified, nor is it cross-referenced in the Glossary. On page 156 only Art. 53.1 is mentioned, which does not include this equal priority for homonyms. To avoid any future ambiguity we propose changing some of the wording as follows.

(093 Amend Art. 53.6 (new text in bold):

"*53.6.* **A name that was a homonym when published is not illegitimate on account of its homonymy if it is spelled exactly like a name based on a different type that was simultaneously and validly published for a taxon of the same rank, unless an earlier homonym exists (see also Art. 11 Note 2).** When two or more homonyms have equal priority, the first of them that is adopted in an effectively published text (Art. 29–31) by an author who simultaneously rejects the other(s) is treated as having priority. Likewise, if an author in an effectively published text replaces with other names all but one of these homonyms, the homonym for the taxon that is not renamed is treated as having priority (see also Rec. 42A.2)."

Articles 52.3 and 53.6 are placed at the end of the corresponding Articles on page 115 under the heading "*Illegitimacy* (*Superfluity*)" and on page 119 under the heading "*Illegitimacy* (*Homonymy*)", respectively. However, both Articles, 52.3 and 53.6, are about legitimate names, and a user of the *Code* might not guess to look for legitimate names under the heading "*Illegitimacy*". The first place where a user would look for a definition of superfluity and homonymy is the Glossary. However, the definition of a superfluous name on page 161 in the Glossary refers to Art. 52.1 and the definition of a homonym on page 156 refers to Art. 53.1, narrowing the use of superfluity and homonymy only to illegitimate names, which is misleading. We recommend amending the references in the Glossary to avoid the impression that all superfluous names and homonyms are illegitimate.

(094) Amend the entries for "homonym" and "superfluous name" in the Glossary by adding "but see" references as follows (shown in bold):

"**homonym.** A name spelled exactly like another name published for a taxon of the same rank based on a different type (Art. 53.1). Note: names of subdivisions of the same genus or of infraspecific taxa within the same species that are based on different types and have the same final epithet are homonyms even if they differ in rank, the rank-denoting term not being part of the name (Art. 53.4**; but see Art. 53.6**)."

"**superfluous name.** A name that, when published, was applied to a taxon that, as circumscribed by its author, definitely included the type of a name that ought to have been adopted, or of which the epithet ought to have been adopted, under the rules (Art. 52.1**; but see Art. 52.3**)."

Acknowledgements

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(095) Proposal to include two terms in the Glossary

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The terms "as synonym" or "pro syn." (pro synonymo) appear in Rec. 50A.1 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), but these are not included in the Glossary. We are therefore proposing to add these terms to the Glossary.

(095) Add the following definition to the Glossary:

"**pro synonymo (pro syn., as synonym).** A name that is not validly published because it was merely cited as a synonym (Rec. 50A)."

Acknowledgements

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PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(096–098) Three proposals to disambiguate certain cases of lectotypification and neotypification

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(096) Add a new paragraph to Art. 7 (and editorially in Note 2 replace "Art. 7.9 and 7.10" with "Art. 7.9–7.11"):

"*7.11*. For purposes of priority (Art. 9.19 and 10.5), designation of a type (lectotype, neotype) may be achieved by referring to the typified name, a later usage or isonym of that name, a new combination, name at new rank, or replacement name based upon that name, or an invalidly published designation that was supposed to be that name, as long as the designated type conforms with the provisions of Art. 9.11–9.13 and 10.2 when the actual protologue is considered."

(097) Add two new Examples under Art. 7.11 (conditional text in square brackets):

"*Ex. 14*. Pfeiffer (Nomencl. Bot. 2: 1200. 1874) indicated *Sorbus domestica* L. as the generic type (lectotype) of "*Sorbus* Medik." referring directly to the revised treatment of *Sorbus* L. in Medikus (Gesch. Bot.: 86. 1793). Since the type of *Sorbus* was not explicitly excluded by Medikus, this lectotypification was effective [and had to be followed until a proposal to conserve the name *Sorbus* L. with a different type was ratified by the XIX International Botanical Congress in Shenzhen in 2017]."

"*Ex. 15. Allium savranicum* (Nyman) Oxner was lectotypified by Krytzka & al. (in Ukrayins'k. Bot. Zhurn. 57: 695. 2000) in the mistaken belief that this name was validly published as the name of new species by Besser (Enum. Pl.: 55. 1822). However, the first validly published name for this taxon was *A. globosum* var. *savranicum* Nyman (Consp. Fl. Eur. 4: 741. 1882), in the protologue of which Nyman indirectly referred to Besser's description of the taxon that appeared without a validly published name in a note under *A. caucasicum* M. Bieb. (Schultes & Schultes, Syst. Veg. 7: 1054. 1830). The typification of Krytzka & al. accords with the provisions of Art. 9.11 and 9.12 and is therefore effective when Nyman's protologue is considered."

There are many cases when earlier or later instances of valid publication, other than previously believed, were discovered for names at the rank of species and below. Some of such names may already have been typified from contexts other than those currently considered as the places of valid publication, and it is logical to accept those typifications if they are found to be correct when the actual protologues are evaluated.

This new provision may be viewed as self-understood, but I feel there is some uncertainty in those cases when a typifying author cites a name of a new taxon from a publication other than the actual place of valid publication. Such lecto- or neotypifications are nevertheless effective provided that the lectotype is selected from the original material of the name or, in the case of a neotype, no original material is extant or it is missing, but they will still be subject to revision under Art. 9.19 and 10.5.

The first of the new Examples illustrates a case when a type was designated from a later context of the same name. The text in square brackets is added in the hope that the relevant proposal (Sennikov in Taxon 63: 1139–1140. 2014) will be accepted by the Congress. The second Example, in which the actual protologue was discovered subsequent to the lectotypification, is treated in detail elsewhere (Sennikov & Seregin in Phytotaxa 161: 97–100. 2014).

(098) Add a new Example under Art. 7.10:

"*Ex. 13bis*. Pfeiffer (Nomencl. Bot. 1: [Praefatio, p. 2]. 1873) explained that he cited species names when he intended to indicate type species for names of genera and sections. This explanation stands as clear indication of the type status for every type designation in this book, even though this indication was not provided for each type designation separately."

Pfeiffer mentioned in the Preface to his *Nomenclator* (see http://biodiversitylibrary.org/page/11291737) that he indicated type species of genera and subdivisions of genera cited as originally described or in their revised circumscriptions. He stated in the original Latin: "Species plantarum in libro meo omnino negliguntur, excepta indicatione illarum, quae typum generis novi aut novo modo circumscripti vel sectionis offerunt." In my English translation: "Plant species are completely omitted in my book, except for those that provide types for new or newly circumscribed genera and sections."

Pfeiffer's *Nomenclator* has been widely used as a valuable index to names of families, subdivisions of families, genera, and subdivisions of genera, all of which are provided there with full and direct references to their protologues and major revisionary treatments. But the second major importance of this book is its being "the first reference book to indicate type species in the sense of the International Code of Nomenclature in a more or less systematic way" (Stafleu & Cowan in Regnum Veg. 110: 224. 1983). Pfeiffer provided many effective designations of generic types, which have priority but are frequently overlooked because of the little attention paid to typifications in the past. Besides, the explanatory note on the mentions of the species in the *Nomenclator* is rather cryptic because a single sentence in the Preface stands for the status of all the type designations in the whole book, in which the term "type" or its equivalent (Art. 7.10) is not added separately next to each mention of the type species (and, unfortunately, the Preface is not included in every bound copy of the book; Stafleu & Cowan, l.c.).

Including this Example directly into the *Code* will hopefully bring attention to Pfeiffer's typifications and reduce the number of superfluous type designations in the future.

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I am grateful to Nicholas Turland (Berlin) for commenting upon critical issues and for editing the text.

(099–100) Two more proposals on the definition of specimens

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Recently the name *Oberonia manipurensis* Chowlu & al. (in Nordic J. Bot. 33: 42. 2015) was validly published with the holotype cited as "India, Manipur, Tamenglong District, Tamenglong (24°48.78′N, 93°32.77′E, 403 m a.s.l.), 7 Jun 2013, Chowlu 00362, 00441 (holotype: CAL, isotype: COGCEHR herbarium, Hengbung, Manipur)." This citation was interpreted by the International Plant Names Index (http://ipni.org/ipni/idPlantNameSearch.do?id=77146539-1) as publication of a name not validly published, with "2 holotype sheets cited contrary to Art. 8.3 ICN (2012)", presumably implying that specimens that are numbered differently may not be part of a single gathering.

However, the *Code* (McNeill & al. in Regnum Veg. 154. 2012) does not specify importance of any numbers in citations of specimens (field numbers, which may be given in the field by collectors, or collection numbers, assigned to collections by curators or monographers, or accession numbers, or barcode numbers, which may be given by curators for entering specimens into a database). When a type of a name of a new species or infraspecific taxon is indicated, as required for valid publication on or after 1 January 1958 (Art. 40.1), an entire, single gathering or part of a single gathering may be cited (Art. 40.2), irrespective of the number of duplicates (Art. 8.3 footnote) that are included.

There is a certain misconception that if a collection of one taxon from one place, made at one time and by the same collector(s), is labelled with different numbers assigned to separate specimens, these specimens are not part of a single gathering but constitute different gatherings. This belief is contrary not only to the requirements of Art. 8 but also to the practice of taxonomic and curatorial work. For example, there are many cases (especially in taxonomically difficult plants) when collectors assigned field numbers to every individual in the field because identification of duplicates was impossible or impractical at the time of collecting. Such field numbers were often discarded in later treatments of collections, especially when duplicates were established and given away. In some cases field numbers may have been deleted, or replaced by collection numbers assigned in further treatments, or retained along with the collection numbers. In some cases field numbers may be indicated in type citations, causing confusion for researchers and curators.

Such type citations are not very rare. Most strikingly there are two cases already mentioned in the *Code*. The first is Art. 40 Ex. 3 and its companion Art. 46 Ex. 20, which concern the name *Baloghia pininsularis* Guillaumin (in Mém. Mus. Natl. Hist. Nat., B, Bot. 8: 260. 1962). Article 40 Ex. 3 states that the name was published "with two cited gatherings: *Baumann 13813* and *Baumann 1382*" and "As the author failed to designate one of them as the type, he did not validly publish the name." Guillaumin provided the following citation in the protologue: "[Nouvelle-Calédonie.] Ile des Pins : creek sur les pentes S.-O. du Pic N'ga, forêt mésophile, serpentine, 30/V/1951 (*Baumann* 13.813, 13.823)." Thanks to the immense effort of the Muséum national d'Histoire naturelle, Paris, in digitizing their vast collections and making them publicly available on the Internet, it was easy to verify that the two specimens cited in the protologue of this name are parts of a single gathering, i.e., one taxon collected in a single place at the same time by the same collector, and their numbers are field numbers of that collector. Although that gathering was not designated as type, the name was validly published because, prior to 1 January 1990, a single gathering was cited in the protologue (Art. 40.3). The label data of these specimens are as follows: P00066568: "NOUVELLE-CALÉDONIE : Ile des Pins : creek sur les pentes S. O. du Pic N'ga | 30 / V / 1951 | M. BAUMANN - BODENHEIM | 13.823"; P00066569: "NOUVELLE-CALÉDONIE : Creek sur les pentes S. O. du Pic N'ga (Ile des Pins) | 30 / V / 1951 | M. BAUMANN - BODENHEIM | 13.813"; see https://science.mnhn.fr/institution/mnhn/collection/p/item/p00066568 and https://science.mnhn.fr/institution/mnhn/collection/p/item/p00066569.

The second case is Art. 46 Ex. 21, in which the name *Pancheria humboldtiana* Guillaumin (in Mém. Mus. Natl. Hist. Nat., B, Bot. 15: 47. 1964) is treated as not validly published because "no type was indicated". The protologue includes the following citation: "[Nouvelle-Calédonie.] Mt Humboldt : sommet S., 1 500-1 600 m, 23/IX/1951 (*Baumann* 15.515, 15.518)." Again, images of the specimens are available online; the data on their labels are as follows: P00143076: "No. 15.515 | Arbuste, 1m | Mt Humboldt, sommet S., 1500–1600m | Date 23 / IX / 1951 leg. Baumann"; P05518244: "No. 15.518 | Arbuste, 1m, capitules rouges | Date 23 / IX / 1951 leg. Baumann"; see https://science.mnhn.fr/institution/mnhn/collection/p/item/p00143076 and https://science.mnhn.fr/institution/mnhn/collection/p/item/p05518244. The case of *P. humboldtiana* is parallel to that of *Baloghia pininsularis*. It is evident that the specimens belong to a single gathering. Although the data of the two labels do not exactly match, they do not conflict and there is no evidence that the locality was different.

To correct these erroneous Examples and to clarify the situation, I propose to delete Art. 40 Ex. 3 and Art. 46 Ex. 20 and 21 from the *Code* and introduce after Art. 8.2 a new Note and a new Example (based on the former Art. 46 Ex. 21) to make it clear that in no case may a difference in numbering of specimens alone mean that more than one gathering is present; other data as required by Art. 8.2 should be taken into account.

These proposals complement Prop. 030 on the Glossary (Zhu in Taxon 63: 1145–1146. 2014), by introducing the clarification explicitly into the main text of the *Code*.

(099) Delete Art. 40 Ex. 3 and Art. 46 Ex. 20 and 21

(100) Add a new Note after Art. 8.2 with a new Example:

"*Note 1.* Field numbers, collection numbers, accession numbers, or barcode numbers alone do not necessarily denote different gatherings."

"*Ex. Ibis*. *Pancheria humboldtiana* Guillaumin (in Mém. Mus. Natl. Hist. Nat., B, Bot. 15: 47. 1964) was validly published with the only gathering cited as "Mt Humboldt : sommet S., 1 500-1 600 m, 23/IX/1951 (*Baumann* 15.515, 15.518)." These are field numbers of two specimens given by the collector (at P, barcodes P00143076 and P05518244, respectively). Since the taxon, locality, collection date, and collector of the two specimens are the same, they constitute parts of a single gathering in spite of their separate numbering."

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(101) Proposal to add a new paragraph to Recommendation 9B

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Authors sometimes designate an epitype without stating why the holotype, lectotype, neotype, or all original material is ambiguous. It is understood that epitypification is done because the holotype, lectotype, previously designated neotype, or all the original material is ambiguous (Art. 9.8 of the *Melbourne Code* – McNeill & al. in Regum Veg. 154. 2012), but we feel that it would be better if the authors explained the reason(s) of the ambiguity. For example, Smith & Garland (in Taxon 52: 811. 2003) designated as the lectotype of *Pancratium rotatum* Ker Gawl. the illustration in the protologue (Bot. Mag. 21: t. 827. 1805) and simultaneously designated a specimen (*R.K. Godfrey 83870*, FSU) as the epitype to support the selected lectotype, but without giving any reason, although the lectotype seems to help in the precise application of the name. However, Dr. Mark A. Garland informed us (pers. comm., 2015) that, although the lectotype shows the flowers and the top parts of two leaves, it does not show the rhizomatous bulbs, the shape of the leaves, the number of ovules in each locule, the absolute sizes of parts, or other characters that help to delimit the species. That is why Smith & Garland designated an epitype for *P. rotatum*. We feel that the ambiguity in such cases should be clearly explained by the author(s) in their publication when designating an epitype. Thus we are proposing the following new Recommendation.

(101) Add a new paragraph to Rec. 9B:

"*9B.2.* Authors designating an epitype should state why the holotype, lectotype, neotype, or all original material is ambiguous such that epitypification is necessary."

Acknowledgements

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(102–103) Proposals to amend Articles 14.1 and 14.4 to extend the conservation of names to all ranks to which priority applies

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Conservation is currently permitted for names of families, genera, and species "In order to avoid disadvantageous nomenclatural changes entailed by the strict application of the rules, and especially of the principle of priority …" and for subdivisions of genera and infraspecific taxa "when it is the basionym of a name of a genus or species that could not continue to be used in its current sense without conservation" (Art. 14.1 of the *ICN*; McNeill & al. in Regnum Veg. 154: 34. 2012). The restriction to these ranks creates a significant potential for instability as was demonstrated by Reveal's assertion ("Latest news on Vascular Plant Nomenclature: Earlier validation of certain

tribal names in *Poaceae*", version 27 Nov 2004, online at http://www.plantsystematics.org/reveal/pbio/fam/NEWS.html, accessed 2 Sep 2014; also Indices Nominum Supragenericorum Plantarum Vascularium, version 17 Feb 2011, online at http://www.plantsystematics.org/reveal/pbio/fam/famPO-PZ.html, accessed 2 Sep 2014) that Martinov (*Techno-botaniicheskii Slovar': Na latinskom I rossikom iazykakh*. St. Petersburg: Imperatorshaja Rossikaja Akademia, 1820) had validly published different and earlier tribal names for the taxa currently known as *Andropogoneae*, *Cynodonteae*, and *Triticeae.* Welker & al. (in Taxon 63: 643–646. 2014) have since demonstrated that Reveal (l.c.) was incorrect, but there is still the possibility that other earlier, validly published names for these and other taxa at ranks not at present covered by Art. 14 will be discovered.

Changes to globally accepted names of well-known taxa for no reason other than priority are not only disruptive – they bring the *ICN*, and by implication taxonomy, into disrepute. Amending Art. 14.1 and 14.4 of the *ICN* to enable conservation of names at all ranks to which priority applies will make it possible to avoid some cases with disadvantageous consequences. With this change, the last sentence of Art. 14.1 becomes unnecessary.

In order to effect this change the following proposals are made:

(102) Amend Art. 14.1 as follows (new text in bold, deleted text in strikethrough); Appendices to be numbered accordingly by the Editorial Committee:

"*14.1.* In order to avoid disadvantageous nomenclatural changes entailed by the strict application of the rules, and especially of the principle of priority in starting from the dates given in Art. 13, this *Code* provides, in App. II–IV, lists of names ~~of families, genera, and species~~ **of taxa at ranks to which priority applies (Art. 11)** that are conserved (nomina conservanda) (see Rec. 50E.1). Conserved names are legitimate even though initially they may have been illegitimate. ~~The name of a subdivision of a genus or of an infraspecific taxon may be conserved with a conserved type and listed in App. III and IV, respectively, when it is the basionym of a name of a genus or species that could not continue to be used in its current sense without conservation.~~"

(103) Amend Art. 14.4 as follows (new text in bold, deleted text in strikethrough):

"*14.4.* A conserved name ~~of a family or genus~~ **at a rank from family to genus, inclusive,** is conserved against all other names in the same rank based on the same type (homotypic, i.e. nomenclatural, synonyms, which are to be rejected) whether or not these are cited in the corresponding list as rejected names, and against those names based on different types (heterotypic, i.e. taxonomic, synonyms) that are listed as rejected[1]. A conserved name ~~of a species~~ **below the rank of genus** is conserved against all names listed as rejected, and against all combinations based on the rejected names."

Acknowledgements

We thank John McNeill, Royal Botanic Garden Edinburgh, and Nicholas J. Turland, Botanischer Garten und Botanisches Museum Berlin, for their assistance in preparing this proposal.

(104–109) Six proposals on the grammar of epithets

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With constantly increasing difficulties in reading classical texts written in the Latin language comes the need for clarification of certain grammatical issues connected with the names of organisms governed by the *ICN* (McNeill & al. in Regnum Veg. 154. 2012). In this contribution I propose to specify that adjectival epithets are to be in the nominative case and may be not only adjectives but also participles used as adjectives. I also propose that when protologues contain names in different inflectional forms, which typically cause difficulties in interpretation, such forms do not preclude valid publication of the names.

(104) Amend Art. 21.2 as follows (new text in bold, deleted text in strikethrough):

"*21.2.* The epithet is either of the same form as a generic name, or a noun in the genitive plural, or ~~a plural~~ **an** adjective **(or participle used as such) in the nominative plural** agreeing in gender with the generic name, but not a noun in the genitive singular. It is written with an initial capital letter (see Art. 32.2 and 60.2)."

This change reflects the practice that subdivisional epithets expressed by plural adjectives or participles used as adjectives (participial adjectives) are to be in the nominative case, as exemplified in Ex. 1 under Art. 21.3. It makes unambiguous that the use of other grammatical cases in protologues is correctable to the nominative because otherwise a name may be validly published in any other case used in a sentence by the original author, apparently contrary to his or her intention, or the validly published form cannot be formally established under the rules.

(105) Amend Rec. 21B.2 as follows (new text in bold, deleted text in strikethrough):

"*21B.2.* The epithet in the name of a subgenus or section is preferably a noun; that in the name of a subsection or lower-ranked subdivision of a genus is preferably ~~a plural~~ **an** adjective **(or participle used as such) in the plural**."

(106) Amend Rec. 21B.3 as follows (new text in bold, deleted text in strikethrough):

"*21B.3.* Authors, when proposing new epithets for names of subdivisions of genera, should avoid those in the form of a noun when other co-ordinate subdivisions of the same genus have them in the form of ~~a plural~~ **an** adjective **(or participle used as such) in the**

plural, and vice-versa. They should also avoid, when proposing an epithet for a name of a subdivision of a genus, one already used for a subdivision of a closely related genus, or one that is identical with the name of such a genus."

(107) Amend Art. 23.1 as follows (new text in bold):

"*23.1.* The name of a species is a binary combination consisting of the name of the genus followed by a single specific epithet in the form of an adjective **(or participle used as such) in the nominative**, a noun **(or word treated as such)** in the genitive, or a word in apposition, or several words, but not a phrase name of one or more descriptive nouns and associated adjectives in the ablative (see Art. 23.6(a)), nor any of certain other irregularly formed designations (see Art. 23.6(b–d)). If an epithet consists of two or more words, these are to be united or hyphenated. An epithet not so joined when originally published is not to be rejected but, when used, is to be united or hyphenated, as specified in Art. 60.9."

(108) Amend Art. 23.6(a) as follows (new text in bold, deleted text in strikethrough):

"*(a)* Descriptive designations consisting of a generic name followed by a phrase name (Linnaean "nomen specificum legitimum") of one or more descriptive nouns and associated adjectives **(or participles used as such)** in the ablative."

Proposals 104–108 are plainly technical changes suggested because epithets can be expressed not only by adjectives but also by participles used as adjectives. As in Prop. 104, Prop. 107 reflects the practice that the species epithet, when expressed by an adjective or a participle used as adjective, is in the nominative. Proposal 107 also includes a mention that some epithets, strictly speaking, may be not nouns but other parts of speech adopted in place of nouns (such as in *Wollemia nobilis* in Art. 60 Ex. 19).

(109) Add a new Note after Art. 32.2 with a new Example:

"*Note 2.* Improper terminations of otherwise correctly formed names or epithets may result from the use of an inflectional form other than that required by Art. 32.2."

"*Ex. Ibis.* Bentham (in Bentham & Hooker, Gen. Pl. 2: 448. 1873) discussed characters of certain species of *Senecio* which, in his opinion, constituted a separate section ("in speciebus … sectionem subdistinctam (*Synotios*) constituentibus"). The sectional epithet was expressed in this sentence by an adjective in the accusative plural because of being used as a direct object, which requires the use of accusative in Latin. Under Art. 21.2 this epithet must be in the nominative plural, and the name was validly published as *Senecio* sect. *Synotii* Benth."

This clarification covers those situations that are not grammatical errors or malformations but rather are results of the synthetic nature of the Latin (and also Greek) language, in which names and epithets, if expressed by nouns or adjectives (or participles used as adjectives), are subject to inflection for case when used in sentences. I propose to exemplify the new provision by an Example that is well known in the relevant taxonomic literature but has been commonly misunderstood because the difference between inflected forms, irregularly formed epithets, and grammatical errors is not always self-evident. In particular, the sectional epithet in this Example has been variously interpreted as validly published with the spelling "*Synotis*" (e.g., Jeffrey & Chen in Kew Bull. 39: 285. 1984) or "*Synotios*" (e.g., Vanijajiva & Kadereit in Kew Bull. 63: 214. 2008), but never as "*Synotii*".

Acknowledgement

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(110) Proposal to add a new Example to Article 38

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Article Art. 38.1(a) of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) requires that the name of a new taxon be accompanied by description or diagnosis of the taxon in order to be validly published. However, Art. 38.3 rules that "The requirements of Art. 38.1(a) are not met by statements describing properties such as purely aesthetic features, economic, medicinal or culinary use, cultural significance, cultivation techniques, geographical origin, or geological age." Here we are proposing to include a new Example under Art. 38.3 to demonstrate that by precisely mentioning objective character states the requirement of Art. 38.1(a) for a "description or diagnosis" can be met. We also demonstrate that, while describing flowers as "fragrant" could be considered as describing a purely aesthetic or subjective property (i.e., the odour is pleasing), it also describes an objective character state (i.e., an odour is present). The cited protologue can be viewed at http://biodiversitylibrary.org/page/31388812.

(110) Add new Example after Article 38.3:

"*Ex. 6bis*. In the protologue of *Ceropegia odorata* Nimmo ex J. Graham (Cat. Pl. Bombay: 118. 1839) Graham provided a very meagre statement: "Flowers yellow, fragrant; so unusual in this genus." This does not describe purely aesthetic features because Graham precisely mentioned two character states of the flowers: their colour (yellow) and the presence of an odour (fragrant); it is also a diagnosis according to Art. 38.2 because in Graham's opinion these character states distinguish *C. odorata* from other (although not all other) species of *Ceropegia*. The requirement of Art. 38.1(a) for a description or diagnosis is therefore satisfied."

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(111) Proposal to amend Recommendation 40A.3

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When, on or after 1 January 1990, an author fulfils all requirements for valid publication of a name of a new species or infraspecific taxon but fails to specify the name of the herbarium or collection or institution in which the holotype (specimen or unpublished illustration) is conserved, the name is considered to be not validly published according to Art. 40.7 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012). If the herbarium or collection or institution is specified, but the type is not in fact conserved there (perhaps because it has yet to be deposited), presently there is no nomenclatural consequence in the *Code* and the name may nevertheless be validly published. When such a name is validly published but its type cannot be found, this creates a problem for future research. Recommendation 40A.3 addresses this problem by recommending citation in the protologue of "any available number permanently identifying the holotype specimen". The present proposal aims to strengthen that advice by explicitly stating that the type should already be conserved in the specified location.

(111) Amend Rec. 40A.3 as follows (new text in bold):

"*40A.3.* Specification of the herbarium or collection or institution of deposition (see Art. 40 Note 4) **should not be done unless and until the specimen is actually deposited there and** should be followed by any available number permanently identifying the holotype specimen (see also Rec. 9D.1)."

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(112–117) Proposals to amend the *Code* by a clearer wording of Article 41

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My proposal is in accordance with Art. 41 Ex. 5, i.e., names fulfilling the conditions for valid publication as a new combination, name at new rank, or replacement name cannot be names of new taxa, and with the praxis introduced by nomenclature gurus of treating names according to Art. 41.8(c).

(112) Change Art. 41.1 as follows (new text in bold):

"*41.1.* In order to be validly published, a new combination, name at new rank, or replacement name (see Art. 6.10 and 6.11), must be accompanied by a reference to the basionym or replaced synonym. **If so, it is not the name of a new taxon regardless of whether the conditions for valid publication as such are otherwise fulfilled.**"

(113) Change Art. 41.3 as follows (new text in bold):

"*41.3.* Before 1 January 1953 an indirect reference (see Art. 38.14) to a basionym or replaced synonym is sufficient for valid publication of a new combination, name at new rank, or replacement name. Thus, errors in the citation of the basionym or replaced synonym, or in author citation (Art. 46), do not affect valid publication of such names. **If so, these are not the names of new taxa regardless of whether the conditions for valid publication as such are otherwise fulfilled.**"

(114) Change Art. 41 Ex. 5 as follows (new text in bold):

"*Ex. 5.* Miller (1768), in the preface to *The gardeners dictionary,* ed. 8, stated that he had "now applied Linnaeus's method entirely except in such particulars …", of which he gave examples. In the main text, he often referred to Linnaean genera under his own generic headings, e.g. to *Cactus* L. [pro parte] under *Opuntia* Mill. Therefore an implicit reference to a Linnaean binomial may be assumed when this is appropriate, and Miller's binomials are accepted as new combinations (e.g. *O. ficus-indica* (L.) Mill., based on *C. ficus-indica* L.) or replacement names (e.g. *O. vulgaris* Mill., based on *C. opuntia* L.: both names have the reference to *"Opuntia vulgo herbariorum"* of Bauhin & Cherler in common) **despite Miller having provided diagnoses and otherwise fulfilling the conditions for the valid publication of names of new taxa**."

(115) Change Art 41.5 as follows (new text in bold):

"*41.5.* On or after 1 January 1953, a new combination, name at new rank, or replacement name is not validly published unless its basionym or replaced synonym is clearly indicated and a full and direct reference given to its author and place of valid publication, with page or plate reference and date (but see Art. 41.6 and 41.8). On or after 1 January 2007, a new combination, name at new rank, or replacement name is not validly published unless its basionym or replaced synonym is cited. **If so, it is not the name of a new taxon regardless of whether the conditions for valid publication as such are otherwise fulfilled.**"

(116) Change Art. 41.6 as follows (new text in bold):

"*41.6.* For names published on or after 1 January 1953, errors in the citation of the basionym or replaced synonym, including incorrect author citation (Art. 46), but not omissions (Art. 41.5), do not preclude valid publication of a new combination, name at new rank, or replacement name. **If so, these are not the names of new taxa regardless of whether the conditions for valid publication as such are otherwise fulfilled**."

(117) Change Art. 41.8 as follows (new text in bold):

"*41.8.* On or after 1 January 1953, in any of the following cases, a full and direct reference to a work other than that in which the basionym or replaced synonym was validly published is treated as an error to be corrected, not affecting the valid publication of a new combination, name at new rank, or replacement name:

(a) when the name cited as the basionym or replaced synonym was validly published earlier than in the cited publication, but in that cited publication, in which all conditions for valid publication are again fulfilled, there is no reference to the actual place of valid publication;

(b) when the failure to cite the place of valid publication of the basionym or replaced synonym is explained by the later nomenclatural starting-point for the group concerned, or by the backward shift of the starting date for some fungi;

(c) when an intended new combination or name at new rank would otherwise be validly published as a (legitimate or illegitimate) replacement name of at least one of the synonyms cited; or

(d) when an intended new combination, name at new rank, or replacement name would otherwise be the validly published name of a new taxon.

If so, it is not the name of a new taxon regardless of whether the conditions for valid publication as such are otherwise fulfilled."

(118–121) Proposals to standardize author citations in the *Code* and to amend Recommendations 46A and 46C

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By long tradition, many authors of plant names are commonly abbreviated. Brummitt & Powell's *Authors of plant names* (1992) provides unambiguous standard abbreviations and is updated as necessary by the International Plant Name Index (http://www.ipni.org). As any abbreviation, these shortened forms of author's names allow savings of time and space, but also to adopt a non-ambiguous standard form. For example, the standard forms allow for distinction in an unequivocal way of homonyms of G. L. Smith:

G.L.Sm. Gary Lane Smith 1939–
G.Lom.Sm. Gerald Lomax Smith 1949–
Glad.L.Sm. Gladys Lucile Smith 1909–

A set of principles has been established by Brummitt & Powell. In particular, they recommend that no space be left after the full-stop (Brummitt & Powell, l.c.: 12). This recommendation is completely justified because the saving of space is the major interest of any abbreviation. Unfortunately, it is not always followed by various botanical writers and taxonomic databases online. So, although this recommendation is followed by the International Plant Names Index (http://www.ipni.org) and the Algaebase (http://www.algaebase.org), it is not followed by the Index Fungorum (http://www.indexfungorum.org) and the Index of Mosses Database (http://www.mobot.org/MOBOT/tropicos/most/iom.shtml). *The Melbourne Code* is itself contradictory because it does not follow in the text its own Rec. 46A.4 Note 1 (McNeill & al. in Regnum Veg. 154. 2012).

Recently, in order to standardize the typography of citations, Sennikov (in Taxon 63: 1144. 2014) and Drobnik (in Taxon 63: 1384. 2014) proposed recommendations. Their recommendations are quite justified with the exception of those concerning the spacing, which disagree with Brummitt & Powell (l.c.: 12): "… spaces may be optionally placed between the author's initial(s) …" (Sennikov, l.c.); "each full stop should be followed by a space" (Drobnik, l.c.).

Another typographic problem to be settled is the use of the word "et" or the ampersand (&) to link two authors or more. To differentiate between citing double authors and citing several authors we thus suggest choosing the ampersand ("&") in the former case and "et al." in the latter.

The current proposals are justified by the necessity of standardization of author citations in the *Code*, in botanical literature and in databases.

(118) Amend Rec. 46A Ex. 3, with removal of spaces, to read:

"*Ex. 3.* R.Br. for Robert Brown; A.Juss. for Adrien de Jussieu; Burm.f. for Burman filius; J.F.Gmel. for Johann Friedrich Gmelin, J.G.Gmel. for Johann Georg Gmelin, C.C.Gmel. for Carl Christian Gmelin, S.G.Gmel. for Samuel Gottlieb Gmelin; Müll.Arg. for Jean Müller argoviensis (of Aargau)."

(119) Amend Rec. 46A Note 1 (deleted text in strikethrough) and add a new Example to read:

"*Note 1.* Brummitt & Powell's *Authors of plant names* (1992) provides unambiguous standard forms for a large number of authors of names of organisms in conformity with this Recommendation. These abbreviations, updated as necessary from the *International Plant Names Index* (www.ipni.org) ~~and *Index Fungorum* (www.indexfungorum.org)~~, have been used for author citations throughout this *Code*."

"*Ex. 5. Rhododendron platyphyllum* (Franch. ex Diels) Balf.f. & W.W.Sm. (not "*R. platyphyllum* (Franch. ex Diels) Balf. f. & W.W. Sm.", nor "*R. platyphyllum* (Franch. ex Diels) Balf. f. & W. W. Sm.")."

(120) Amend Rec. 46C.1 and Ex. 1 to read (new text in bold, deleted text in strikethrough):

"*46C.1.* After a name published jointly by two authors, both authors should be cited, linked by ~~the word "et" or by~~ an ampersand (&)."

"*Ex. 1. Didymopanax gleasonii* ~~Britton et P. Wilson or *D. gleasonii*~~ Britton & P.Wilson **(not "*Didymopanax gleasonii* Britton et P.Wilson")**."

(121) Amend Rec. 46C.2 and Ex. 2 to read (new text in bold, deleted text in strikethrough):

"*46C.2.* After a name published jointly by more than two authors, the citation should be restricted to the first author followed by "et al." ~~or "& al."~~, except in the original publication."

"Ex. 2. Lapeirousia erythrantha var. *welwitschii* (Baker) Geerinck, Lisowski, Malaisse & Symoens (in Bull. Soc. Roy. Bot. Belgique 105: 336. 1972) should be cited as *L. erythrantha* var. *welwitschii* (Baker) Geerinck **et** ~~&~~ al. **(not *"L. erythrantha* var. *welwitschii* (Baker) Geerinck & al.")**."

(122) Proposal to extend the restriction on nothogeneric name length to include bigeneric hybrids

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Article H.6 of Appendix 1 to the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) provides clear instructions concerning the formation of nothogeneric names of intergeneric hybrids. Art. H.6.3, dealing with the names for intergeneric hybrids derived from four or more genera, and Art. H.6.4, dealing with the names of trigeneric hybrids, both explicitly limit the length of all such names to a maximum of eight syllables. Article H.6.2, which deals with the names of bigeneric hybrids, does not stipulate any length restriction, however, and by implication such names may therefore be of unrestricted length. Surely this could not have been the intention when Art. H.6 was originally drafted?

The proposer teaches plant nomenclature to horticulture students and has often experienced that this anomaly in the restriction placed on the length of generic names causes confusion, with students finding it difficult to understand why some names should be subjected to a length restriction and others not. Although it is rather unlikely that nothogeneric names formed according to the provisions of Art. H.6.2 will result in words exceeding eight syllables, the same argument could be applied to the names of hybrids resulting from four or more genera, where the name is simply composed from the name of a person to which the termination *-ara* is added, and for which an explicit length restriction applies.

For the sake of consistency and less ambiguity it is proposed that the eight-syllable restriction be extended to include also the names of bigeneric hybrids. This could be achieved either by removing the length restriction clauses from Art. H.6.3 and H.6.4 and adding a new Article prescribing the length of all intergeneric names, or simply by amending Art. H.6.2 to include a length restriction clause. The second option is preferred since it would require a lesser change to the existing code.

(122) Amend Art. H.6.2 to include a length restriction (new text in bold):

"*H.6.2.* The nothogeneric name of a bigeneric hybrid is a condensed formula in which the names adopted for the parental genera are combined into a single word, **not exceeding eight syllables,** using the first part or the whole of the one, the last part or the whole of the other (but not the whole of both) and, optionally, a connecting vowel."

The impact of this proposal on existing bigeneric hybrid names will be minimal. A search of names in International Plant Names Index (IPNI), http://www.ipni.org/ brought to light only two valid bigeneric hybrid names longer than eight syllables: ×*Aporoheliocereus* Airy Shaw (*Cactaceae*) from *Aporocactus* Lem. × *Heliocereus* Britton & Rose and ×*Coeloglossogymnadenia* A. Camus (*Orchidaceae*) from *Coeloglossum* Hartm. × *Gymnadenia* R. Br.

Should the proposal by Zhu (in Taxon 63: 1385–1386. 2014) to move Appendix 1 into the main body of the *Code* succeed, the current Art. H.6 will require renumbering and this proposal will then also apply to the renumbered Art. H.6.2.

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PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(123–132) Proposals on definitions and indication of ranks

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In recent classifications, rank-denoting terms formed by adding a prefix (e.g., "super-", "infra-", etc.) indicating relative position of the rank are often used. To avoid confusion, such ranks should be defined, termed, and regulated in the *Code*. I propose a new term "satellite rank(s)" for such ranks and the following additions and amendment to the *Code* concerning the "satellite ranks".

(123) Add a new Article after Art. 4.2:

"*4.2bis.* The principal and secondary ranks are collectively known as stem ranks. A satellite rank is a rank denoted by a stem rank term with a single prefix (satellite prefix; e.g. "sub-") indicating relative position of the rank."

(124) Amend Art. 4.3 as follows (new text in bold):

"*4.3.* Further **secondary** ranks may also be intercalated or added, provided that confusion or error is not thereby introduced. **However, no stem rank may be intercalated between another stem rank and its satellite ranks.**"

(125) Add a new Article after Art. 4.3:

"*4.3bis.* Further satellite prefixes in addition to "sub-" may also be used, provided that confusion or error is not thereby introduced."

(126) Add a new Note after Art. 4.3bis:

"*Note Ibis*. A satellite prefix may not be added to rank-denoting terms of satellite ranks. Such usage (e.g. supersuborder) potentially introduces confusion and error."

(127) Add a new Recommendation 4A:

"*4A.1.* When a satellite prefix other than "sub-" is used, its order relative to associated stem ranks should be consistent with common usage, and be consistent throughout a single publication."

(128) Add a new Example after new Rec. 4A.1:

"*Ex. 1.* The following satellite prefixes (in descending sequence relative to associated stem ranks) are commonly used: super-, [stem rank], sub-."

The termination of algal divisions, phyla, subdivisions, or subphyla is updated in the *Melbourne Code*. However, it is uncertain if usage of *-phyta* or *-phytina* for algal taxa is accepted as rank denotation. To clarify this point, I propose a new Note.

(129) Add a new Note after Art. 37.2:

"*Note 0.* The use of a termination inappropriate for a particular group (e.g. use of *-phyta* for an algal division; see Art. 16.3) is acceptable as an indication of the corresponding rank, but such termination is to be corrected (see Art. 16.3, 32.2)."

While Art. 16.3, 17.1, 18.1, 19.1, and 19.3 are provisions for automatically typified names, Art. 37.3 should naturally be applied to both automatically typified names and descriptive names. To clarify this point, I propose a new Note.

(130) Add a new Note after new Note 0 of Art. 37:

"*Note 0bis*. Art. 37.3 applies to both automatically typified names and descriptive names."

The exception provisioned in Art. 37.7, concerning secondary ranks, should also be applied to the satellite ranks (see above). Therefore, I propose an amendment to Art. 37.7.

(131) Amend Art. 37.7 as follows (new text in bold):

"*37.7.* Only those names published with the rank-denoting terms that must be removed so as to achieve a proper sequence are to be regarded as not validly published. In cases where terms are switched, e.g. family-order, and a proper sequence can be achieved by removing either or both of the rank-denoting terms, names at neither rank are validly published unless one is a secondary **or satellite** rank (Art. 4.1**, 4.2bis**) and one is a principal rank (Art. 3.1), e.g. family-genus-tribe, **phylum-subphylum-division,** in which case only names published at the secondary **or satellite** rank are not validly published."

According to Note 1 of Art. 16, "divisio" and "phylum" refer to the same rank, and they are the "same rank-denoting terms" regulated in Art. 37.8. However, they are historically different terms in the 19th century, and should not be considered as the "same term". To unambiguously keep the meaning of Art. 37.8, I propose the following amendment to Art. 37.8.

(132) Amend Art. 37.8 as follows (new text in bold):

"*37.8.* Situations where the same **or equivalent** rank-denoting term is used at more than one non-successive position in the taxonomic sequence represent informal usage of rank-denoting terms. Names published with such rank-denoting terms are treated as unranked (see Art. 37.1 and 37.3**; see also Art. 16 Note 1, Art. 37.7**)."

(133–151) Proposals to clarify certain cases of authorship of names

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When sorting out the nomenclature of *Sorbus* (*Rosaceae*) for the forthcoming volume of *Atlas Florae Europaeae*, we faced significant difficulties in determining authorships of plant names that resulted from ambiguous or inadequate wording of certain articles and the absence of relevant provisions in some other cases. This contribution aims to provide technical corrections and complementing notes and examples to existing rules.

(133) Amend Art. 36.1 as follows (new text in bold):

"*36.1.* A name is not validly published *(a)* when it is not accepted by the author **of the name (see Art. 46)** in the original publication **(Art. 46.6)**; *(b)* when it is merely proposed in anticipation of the future acceptance of the taxon concerned, or of a particular circumscription, position, or rank of the taxon (so-called provisional name); *(c)* when it is merely cited as a synonym; or *(d)* by the mere mention of the subordinate taxa included in the taxon concerned. Art. 36.1(a) does not apply to names published with a question mark or other indication of taxonomic doubt, yet accepted by their author."

This addition reflects the fact that it is the author of the nomenclatural novelty that is implied by this rule. By this clarification and references it would be easier to consider the effect of Art. 46 when determining whether a name was validly published or not, because acceptance of a name, to be considered under Art. 36.1, depends directly on the authorship of the name which is determined under Art. 46. The intimate connection of these Articles is sometimes overlooked, and the direct reference might be useful here.

(134) Add a new Note under Art. 46.1 as follows:

"*Note 0.* An author citation, typically placed next to a name, may function as attribution (Art. 46.2 and 46.5) or ascription (Art. 46.3) of a name to a certain author (or authors), or may serve as an indirect reference to the basionym or replaced synonym (Art. 38.14 and Art. 46 Note 4). In certain cases an author citation may appear as an error (Art. 46.3 and 46.4)."

Stated authorship of a name may have a variety of meanings under the *Code*. As guidance to the users, we propose to articulate these options explicitly in an introductory note. The new Art. 46.3 Note 4 is the subject of Prop. 139 below.

(135) Amend the second sentence of Art. 46.2 and revise Ex. 7 as follows (deleted text in strikethrough, new text in bold):

"A new combination, name at new rank, or replacement name is attributed to the author(s) to whom it was ascribed when, in the publication in which it appears, it is explicitly stated that the same author(s) contributed in ~~some~~ **a relevant** way to that publication."

"*Ex. 7.* Green (1985) ascribed the new combination *Neotysonia phyllostegia* to Wilson and elsewhere in the same publication acknowledged ~~his assistance~~ **him for "nomenclatural advice"**. The name is therefore cited as *N. phyllostegia* (F. Muell.) Paul G. Wilson."

In this context the word "some" is too ambiguous and cannot be used in practice. The word "relevant" is more specific and narrows the meaning by the requirement that a contribution of another author should be expressed in a way that is applicable to the case.

To reflect this change, Ex. 7 is slightly reworded to become more specific in arguments.

(136) Delete Ex. 6 under Art. 46.2.

This example is not unambiguous. There is a full stop between the family name and the text next to it in the quoted reference, "*Elaeocarpeae*. Juss., Ann. Mus. 11, p. 233", and this may mean that the family name is technically unascribed and the name of Jussieu is part of the full bibliographic reference provided by Candolle. We suggest deleting this example and treating the name as not ascribed and therefore cited as *Elaeocarpaceae* Juss. ex DC. or *Elaeocarpaceae* DC., not *Elaeocarpaceae* "Juss."

(137) Amend Art. 46.4 with Ex. 24 as follows (deleted text in strikethrough, new text in bold), move amended Ex. 19, and add three new Examples:

"*46.4.* When ~~the epithet of~~ a validly published name **or its final epithet** is taken up from and ~~attributed~~ **credited** to the author of a different ~~binary~~ designation **or one at a different rank** that has not been validly published, only the author of the validly published name may be cited."

"*Ex. 24.* When publishing *Andropogon drummondii*, Steudel (1854) ~~attributed~~ **credited** the name to "Nees. (mpt. sub: Sorghum.)". This reference to the unpublished binary designation "*Sorghum drummondii* Nees" is not ascription of *A. drummondii* to Nees, and the name is cited as *A. drummondii* Steud., not *A. drummondii* "Nees ex Steud.""

"*Ex. [19].* Following their description of *Hosackia* [unranked] *Drepanolobus*, Torrey & Gray (Fl. N. Amer. 1: 324. 1838) ~~attributed~~ **credited** the name as "*Drepanolobus*, Nutt." This reference to Nuttall's unpublished generic designation is not ascription of *Hosackia* [unranked] *Drepanolobus* to Nuttall~~, but is considered a formal error~~ because Torrey and Gray (on p. 322) stated that they disagreed with Nuttall's view that *Drepanolobus* formed a distinct genus. The name is cited as *Hosackia* [unranked] *Drepanolobus* Torr. & A. Gray."

"*Ex. 24bis.* Reichenbach (1828) based the new generic name *Anoplon* on the description of "*Orobanche* tribus *Anoplon*", which was not validly published by Wallroth (Orobanches Gen. Diask.: 25 & 66. 1825) under Art. 37.6. The resulting name should be cited as *Anoplon* Rchb., not *Anoplon* "Wallr. ex Rchb.""

"*Ex. 24ter.* Tzvelev (in Novosti Sist. Vyssh. Rast. 31: 73. 1998) validly published *Batrachium* subsect. *Peltata*, which he credited to "V. Krecz. ex Tzvel." In this name he used the final epithet from

"*Batrachium* ser. *Peltata* V. Krecz." (in Komarov, Fl. SSSR 7: 349. 1937), a designation that has not been validly published because it was not accompanied with a description or diagnosis in Latin. As the ranks of the validly published name and the original designation were different, the new name cannot be attributed to Kreczetovicz."

"*Ex. 24quater.* Don (in Sweet, Hort. Brit., ed. 3: 636. 1839) validly published subtribe *Pleurothallidinae* G. Don (as "*Pleurothalleae*") with a reference to "Section I. *Pleurothalleae*" of Lindley (Gen. Sp. Orchid. Pl.: 3. 1830), whose rank was denoted by a misplaced term (contrary to Art. 37.6). Since Lindley and Don used different rank-denoting terms, Lindley's name cannot be cited in the authorship."

We propose to change "attributed" to "credited" in Art. 46.4 and Ex. 19 and 24 in order to avoid conflict with Art. 46.2, which suggests that attribution is the authorship of a name that is treated as correct under the rules. A note on formal error in Ex. 19 is deleted as unnecessary.

The present Ex. 19 is not really fitting Art. 46.3 but is rather dealing with epithets taken up from invalidly published designations. It belongs to Art. 46.4 and should be moved to that place.

The effect of Prop. 092 (Nakada & Nagamasu in Taxon 64: 1066. 2015) is incorporated into this text, expanding the effect of that proposal also to the ranks of genus and above. This change completely removes the unnecessary restriction in the present wording of Art. 46.4, to regulate the authorship of not only combinations but also uninomials (generic and possibly suprageneric names).

One new example is borrowed from the analysis of the nomenclature of some *Orobanchaceae* by Nicolson (in Taxon 24: 651–657. 1975) who used this practice long before it was explicitly formulated in the rules. The other new example represents a situation where the invalidly published designation whose epithet was taken up is the same combination but at a rank different from that of the validly published name. The third new example represents a case of suprageneric names.

(138) Amend Art. 46.3 as follows (deleted text in strikethrough, new text in bold):

"*46.3.* For the purposes of Art. 46, ascription is the direct association of the name of a person or persons with a new name or description or diagnosis of a taxon. An author citation appearing in a list of synonyms does not constitute ascription of the accepted name, nor does **a mere** reference to a basionym or a replaced synonym (regardless of bibliographic accuracy) or **a mere** reference to a homonym~~;~~ ~~or a formal error~~ **(see also Art. 46.4)**."

See the explanation under Prop. 139 below. The concept of formal errors was invented for Ex. 19, which is more explicitly covered by Art. 46.4 now (Prop. 137), and is replaced by a reference here.

(139) Add a new Note with two new Examples after Art. 46.3:

"*Note 3bis.* An author citation may simultaneously serve as ascription and as an indirect reference to the basionym or replaced synonym when the provisions of Art. 46.2 (second sentence) apply and a potential basionym or replaced synonym exists."

"*Ex. 23bis.* The name *Hieracium pratense* f. *dimorphum* "Norrl." was published in the article authored by Vainio (in Meddeland. Soc. Fauna Fl. Fenn. 3: 65. 1878) without a description or diagnosis of the taxon. Since Vainio stated that Norrlin provided *Hieracium* names for his study and the basionym *H. dimorphum* Norrl. (in Not. Sällsk. Fauna Fl. Fenn. Förh. 11: 132. 1870) exists, the new combination is therefore attributed to Norrlin and is cited as *H. pratense* f. *dimorphum* (Norrl.) Norrl."

"*Ex. 23ter.* When Prodan (Fl. Român. 1: 553. 1923) published *Sorbus danubialis* "Jáv.", he stated in the introduction to this work that he used an unpublished manuscript written by Jávorka but made no statement that Jávorka provided new plant names. Since *Sorbus cretica* f. *danubialis* Jáv. (in Bot. Közlem. 14: 104. 1915) is a potential basionym applying to the same taxon, the indication of "Jáv." is to be treated as an indirect reference to a basionym, not also as ascription, and the name is therefore cited as *S. danubialis* (Jáv.) Prodan."

This auxiliary clarification, together with the word "mere" added to Art. 46.3 (Prop. 138 above), resolves situations when a name is ascribed to an author who is acknowledged for having contributed to the protologue and at the same time an applicable basionym or replaced synonym by the same author exists. If a reference to the basionym or replaced synonym is indirect, it cannot be distinguished from ascription when Art. 46.2 (second sentence) is applicable. In such cases, the strict wording of Art. 46.3 ("nor does reference to a basionym or a replaced synonym") appears to be contradictory to the conditions of Art. 46.2 (second sentence) because it precludes treating an indirect basionym or replaced synonym reference also as an ascription in those cases when parenthetical authors have not been used.

(140) Amend Art. 46.3 as follows (deleted text in strikethrough, new text in bold, the effect of Prop. 138 in square brackets), and add a new Example:

"*46.3.* For the purposes of Art. 46, ascription is the direct association of the name of a person or persons with a new name or description or diagnosis of a taxon. An author citation ~~appearing in a list of synonyms~~ does not constitute ascription of the accepted name~~, nor does~~ **if it [merely] serves as** reference to a basionym or a replaced synonym (regardless of bibliographic accuracy) or reference to a homonym[~~;~~ ~~or a formal error~~ **(see also Art. 46.4)]**."

"*Ex. 13bis.* Willdenow (Sp. Pl. 3: 1845. 1803) ascribed the name *Artemisia siversiana* Ehrh. ex Willd., commemorating Johann Sievers, to Ehrhart by citing "Artemisia siversiana. *Ehrh*." in synonymy."

The deleted provision is redundant if the unpublished designation, which appeared in synonymy of a new name, is different from the new name (Art. 46.4). If the unpublished designation is the same as the new name, this provision is difficult to apply because in many older books authorship and place of original publication are not indicated directly next to the plant name but under the same name in synonymy. Not accepting such author citations as ascription is contrary to common practice.

(141) Move the second sentence of Ex. 13 under Art. 46.3 into a new Example under Art. 46.8, rewritten as follows:

"*Ex. 38bis. Malpighia emarginata* Moc. & Sessé ex DC. (Prodr. 1: 578. 1824) was published as "*M. emarginata* (fl. mex. ic. ined.)". Elsewhere in the same publication Candolle (l.c.: 70) referred to the same unpublished work as "Sessé et Moç. fl. mex. ic. ined." which constitutes the direct association (Art. 46.3) of the names of Sessé and Moçiño also with the new name *M. emarginata*, following internal evidence in the publication of Candolle as a whole (Art. 46.8)."

Since a publication as a whole should be examined in order to establish the correct author citation (Art. 46.8), we propose to change the current Ex. 13 because of the other evidence found on other pages of the same publication. The revised example may be better placed under Art. 46.8, to which it is most closely relevant.

(142) Amend Art. 46.4 as follows (new text in bold, the effect of Prop. 137 in square brackets) and add a new Example:

"*46.4.* When [~~the epithet of~~] a validly published name **[or its final epithet]** is taken up from and [~~attributed~~ **credited]** to the author of a different [~~binary~~] designation **[or one at a different rank]** that has not been validly published **(orthographic corrections being disregarded)**, only the author of the validly published name may be cited."

"*Ex. 24quinquies. Pietrosia laevitomentosa* Nyár. was validly published by Sennikov (in Komarovia 1: 78. 1999) who took up and corrected the designation "*P. levitomentosa*" (Nyárády in Rev. Biol. (Bucharest) 8: 252. 1963) that was not validly published. This correction of the original spelling does not make the validly published name different from the original designation, and the new name should be attributed to Nyárády to whom both the name and validating description were ascribed by Sennikov."

It would be good to cover also the cases when designations not validly published were validated with minor alterations in spelling. In analogy with the provisions of Art. 61.1, insignificant difference in variants may be allowed and the original authorship may therefore be retained.

The example illustrating the effect of this provision is borrowed from Euro+Med PlantBase (http://ww2.bgbm.org/EuroPlusMed/PTaxonDetail.asp?NameId=7530715&PTRefFk=7000000).

(143) Amend Ex. 9 under Art. 46.2 as follows (new text in bold, deleted text in strikethrough) and move it under Art. 46.6:

"*Ex. [9].* The name and original description of *Verrucaria aethiobola* Wahlenb. (in Acharius, Methodus, Suppl.: 17. 1803) ~~was~~ **were published** in a single paragraph ~~ascribed to~~ **whose authorship was stated as** "Wahlenb. Msc." **Since Wahlenberg is the author of the text of that paragraph,** the name is therefore cited as *V. aethiobola* Wahlenb., not "Wahlenb. ex Ach." nor "Wahlenb. in Ach." (unless a full bibliographic citation is given)**, regardless of the other description of the same taxon provided at the same time by Acharius**."

This change is proposed to make it clear that the authorship in this Example is determined by the authorship of the relevant text rather than by ascription, because the name itself was not directly ascribed in that publication neither to Wahlenberg nor to Acharius. We believe that this Example is more relevant to Art. 46.6, to which it should be moved.

(144) Move the amended Ex. 12 (new text in bold, deleted text in strikethrough) from Art. 46.3 to Art. 46.6:

"*Ex. [12].* The name *Atropa sideroxyloides* was published in Roemer & Schultes (Syst. Veg. 4: 686. 1819), with the name and diagnosis in a single paragraph followed by "Reliq. Willd. MS." As this represents direct ~~association~~ **indication** of Willdenow ~~with~~ **as the author of the text including** both the name and the diagnosis, the name is cited as *A. sideroxyloides* Willd., not *A. sideroxyloides* "Roem. & Schult." nor *A. sideroxyloides* "Willd. ex Roem. & Schult.""

This example should be better treated as a text of one author published in the work of the other author. Besides, the name was not explicitly ascribed to anybody in the text (the authorship of the new name is inferred from the authorship of the publication).

(145) Add a new Example under Art. 46.5:

"*Ex. 29bis*. *Cortinarius balteatotomentosus* was published by Henry (in Bull. Trimestriel Soc. Mycol. France 74: 303. 1958) with a description in Latin but without designation of a type. Henry (in Bull. Trimestriel Soc. Mycol. France 101: 4. 1985) designated a holotype and provided a full and direct reference to the validating description. According to Art. 46.2, the name is to be cited as *C. balteatotomentosus* Rob. Henry, not *C. balteatotomentosus* "Rob. Henry ex Rob. Henry", because Henry in 1985 ascribed the name to himself, not to a different author as in Art. 46.5."

The "ex" citation is sometimes misused when a previously used designation was subsequently validly published by the same author. Nevertheless, Art. 46.5 is quite explicit that "ex" citations are applicable only if the ascribed authorship is different from the authorship of the protologue. A new Example is proposed to bring attention to such cases.

(146) Amend Art. 46.8 (new text in bold) and move the revised Ex. 16 under it:

"*46.8.* In determining the correct author citation, only internal evidence in the publication as a whole (as defined in Art. 37.5) where the name was validly published is to be accepted, including ascription of the name, **direct or indirect references to effectively published works,** statements in the introduction, title, or acknowledgements, and typographical or stylistic distinctions in the text **(but see Art. 46.9)**."

"*Ex. [16].* By citing "*Dichelodontium nitidum* Hook. fil. et Wils.", Brotherus (in Engler & Prantl, Nat. Pflanzenfam. I(3): 875. 1907) published a new combination with an indirect reference to the basionym, *Leucodon nitidus* Hook. f. & Wilson (in Hooker, Bot. Antarct. Voy. 2(2): 99. 1853), and did not ascribe the new combination to Hooker and Wilson because he did not acknowledge their contribution (Art. 46.5). He also validly published the name of a new genus, *Dichelodontium* Broth., with a direct reference to the provisional generic name *Dichelodontium* which appeared without a statement of authorship in the text authored by Wilson. Brotherus's citation of the authorship of "*Dichelodontium* Hook. fil. et Wils." is an error under Art. 46.3."

This provision is practically self-evident because, for Art. 46.3 to apply, the meaning of a stated authorship of a name is to be found by evaluation of external sources that are referred to in the protologue. It may be ascription if it is not a reference to a basionym or replaced synonym (except for the rare cases when it may cover both options), and in order to determine that a possible basionym or replaced synonym is already validly published one should consult external sources. Nevertheless, adding this mention is desirable because of the strict wording of Art. 46.8 ("only internal evidence … is to be accepted").

The use of internal vs. external evidence has much been debated also in the context of Art. 46. Using unpublished sources as manuscripts and notes in collections would have been too impractical to resolve minor questions of correct ascription, whereas the use of published external sources is needed to distinguish between ascription and indirect reference. This means that in any case someone is already required to consult available published sources in order to be sure that a stated authorship is not a reference to the basionym or replaced synonym. As no extra work or any new condition is implied here, we propose to formalize this practice in the wording of this amended paragraph.

The current Ex. 16, reworded as proposed, is probably more at home under this revised paragraph. Wilson's statement "if ever generically separated we propose the name of *Dichelodontium*" (l.c.) does not unequivocally associate (Art. 46.2) the designation *Dichelodontium* with any other author; as evident from the narrative style in other comments of this work, Wilson consistently employed this first-person plural as *pluralis modestiae*, typically of scientific

writing of his time, rather than in indication of the number of persons involved. Considering this argument, the designation may be treated as unascribed and Art. 46 Note 3 applies to determine its ascription (alternatively, it may be treated as ascribed to Wilson himself).

(147) Amend Art. 46.10 as follows (new text in bold):

"*46.10.* Authors publishing nomenclatural novelties and wishing other persons' names followed by "ex" to precede theirs in authorship citation may adopt the "ex" citation in the protologue. **The "ex" citation has no standing, even if it appears in the protologue, when Art. 46.2 or Art. 46.4 apply.**"

This limitation is needed because of the effect of Art. 46.2 or 46.4. The example relevant to Art. 46.2 (Ex. 21) is already in the *Code*.

(148) Add a new entry to Glossary:

"**attribution.** Citation of the authorship of a name that is determined by the provisions of Art. 46."

Ascription may be the authorship as stated in the protologue, whereas attribution is the authorship as accepted under the rules. This is in accord with the wording of most of the Articles and Examples, with a few occasional exceptions as dealt with in the present contribution.

(149) Amend Ex. 2 under Art. 6.3 Note 2 as follows (deleted text in strikethrough, new text in bold):

"*Ex. 2.* In publishing "*Canarium pimela* Leenh. nom. nov.", Leenhouts (in Blumea 9: 406. 1959) re-used the illegitimate *C. pimela* K. D. Koenig (1805), ~~attributing~~ **crediting** it to himself and basing it on the same type. He thereby created a later isonym without nomenclatural status."

(150) Amend Rec. 23A.3(i) as follows (deleted text in strikethrough, new text in bold):

"Not adopt epithets from unpublished names found in correspondence, travellers' notes, herbarium labels, or similar sources, ~~attributing~~ **crediting** them to their authors, unless these authors have approved publication (see Rec. 50G)."

In both cases the wording is not intended for attribution as determined by Art. 46.2 and 46.5.

(151) Add a new Note after Art. 48.1, with a new Example:

"*Note 2bis*. An incorrect attribution of a name, including implications that a potential basionym or replaced synonym exists, without explicit exclusion of the type of that name does not constitute valid publication of a later homonym."

"*Ex. 3bis*. *Ruta perforata* M. Bieb. (1800) and *Haplophyllum perforatum* Kar. & Kir. (1841) are treated as heterotypic names referable to the same species. When citing "*H. perforatum* (M. Bieb.) Kar. & Kir.", Vvedensky (1949) is not considered to have created a later homonym, *H. perforatum* "(M. Bieb.) Vved. non Kar. & Kir." because he did not explicitly exclude the type of *Haplophyllum perforatum* Kar. & Kir."

Linczevski (in Novosti Sist. Vyssh. Rast. [5]: 159–163. 1968) interpreted that Vvedensky (in Shishkin & Bobrov, Fl. SSSR 14: 226. 1949), by citing "*Haplophyllum perforatum* (M. Bieb.) Kar. & Kir.", created a later homonym, *H. perforatum* "(M. Bieb.) Vved. (1949) non Kar. & Kir." This is an unnecessary and inconvenient complication of nomenclature, because in every such case the "later homonyms", necessarily illegitimate, will be only useless additions to synonymy.

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Reminder

Taxon will close for proposals to amend the Code on 31 March 2016 (see Turland & Wiersema in Taxon 62: 1071–1072. 2013). Late submissions received by the end of June 2016 may be accepted at the editors' discretion if no reviewing or major editing is necessary.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(152–189) Thirty-odd proposals to amend the *Code*

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(152) In Art. 6.3 and 12.1, add 14.9 to the "but see Art. 14.15)".

Art. 14.15 provides for a name of a family that "otherwise […] would not be validly published […]". However, such an exception (including names at some other ranks) is also dealt with in Art. 14.9: when a later usage of a name is conserved this creates a new name that otherwise was not validly published.

(153) Rephrase Art. 6 Note 2, so that it reads:

"*Note 2.* Any one name, with one particular spelling (but see Art. 61) and one particular type, can be validly published only once. Any later attempt to re-publish a name (with the same spelling and the same type), an "isonym", has no nomenclatural status. The name is always to be cited from its place of valid publication; isonyms are disregarded (but see Art. 14.15)."

This attempts to avoid internal inconsistencies. Strictly speaking, the same name is not published independently at different times, and it seems better to avoid suggesting that this may be so.

(154) Add an Example to Art. 6 Note 2:

"*Ex. 2bis.* When published, *Dalbergia brownei* (Jacq.) Schinz (1898) was nomenclaturally superfluous because Schinz cited the legitimate *Hedysarum ecastaphyllum* L. (1759) as a synonym; as it has a basionym (*Amerimnon brownei* Jacq.), it is nevertheless legitimate (Art. 52.3). The later attempt at correction "*Amerimnon Brownii* Jacq. […] = *D. Brownei* Urb." (1905) is an isonym that has no nomenclatural status."

To make the point that the phenomenon of the "isonym" is not restricted to names of new taxa, but also occurs with new combinations. Also, that it need not be accidental, or unaware of the earlier publication.

(155) Delete Art. 6 Ex. 13 and the second clause of Art. 6 Note 4.

The term "combination" is defined in Art. 6.7, a definition that is quite uncontroversial; the provision has not been changed for as long as it exists, some sixty years. Any name meeting that definition and being new (per Art. 6.10) is a "new combination". As *Centaurea jacea* var. w*eldeniana* (Rchb.) Briq. meets that definition, at valid publication it was a new combination. Equally, as *Centaurea jacea* subsp. *weldeniana* (Rchb.) Greuter meets that definition, at valid publication it was a new combination. In this respect, the fact that both these names have the same spelling is as relevant as that both have the same basionym (and the same type), that is, not at all. Examples and Notes should not be counter to Rules.

(156) In Art. 9.3, 9.5, and throughout the *Code*, reserve "designate as type" for cases where it concerns a nomenclatural type, and use "assign as type" when it concerns a paratype or syntype.

The word "designate" has gained weight over time and Art. 7.10 gives formal status to the phrase "designated here". Paratypes and syntypes are not nomenclatural types (are not the type of a name), and it would help readability to restrict "designate as type" to those acts that result in a nomenclatural type (or an epitype).

(157) In Art. 14.9 rephrase the third sentence, so that it reads:

"In the latter case the name as conserved is treated as validly published in the later publication, whether or not the name as conserved was accompanied by a description or diagnosis of the taxon named; the original name and the name as conserved are treated as homonyms (see Art. 14.10)."

The third sentence in Art. 14.9 deals with the conservation of a later use of a name, resulting in two names with the same spelling (but with different types), of which the later is conserved. The reference to Art. 53 is not helpful, as Art. 53 deals with later homonyms (which are illegitimate), while what this provision produces is an earlier homonym (which is not illegitimate). Earlier homonyms of conserved names and their status are described in Art. 14.10, so that should be referred to. Also, it seems useful to make explicit that this conservation has established (retroactively) a name treated as validly published, as otherwise the status of the conserved name under Art. 6.3 and 12 might appear uncertain. Perhaps also adjust Art. 32.1.

(158) Add a Note to Art. 14.10:

"*Note 2bis.* Any combination with a rejected earlier homonym is also unavailable for use unless such a combination is accepted as a correct name in the taxon that bears the corresponding conserved or sanctioned name (see Art. 55.3)."

This will usually concern an earlier homonym of a conserved or sanctioned generic name, but earlier homonyms of conserved species names are not excluded. If this is accepted the "(see also Art. 55.3)" in Art. 14.10 will have become redundant. See also Prop. 177 and 189.

(159) In Art. 16.1 replace "the name of an included genus" by "a generic name".

In the Melbourne Synopsis of Proposals (in Taxon 60: 258. 2011), the Rapporteurs pointed out that Art. 18.1 uses "[…] "a name of an included genus" (and not "the name of …"). This means any name applicable to an included genus, not necessarily the correct name." Curiously, the newly rephrased Art 16.1 does use this infamous phrase "the name of an included genus", and as, say, *Caryophyllus* Mill. non L. is not "the name of an included genus" (but rather "a name of an included genus"), names such as *Caryophyllales*, *Caryophyllidae*, etc., are not validly published (Art. 32.1(c)) under the letter of the *Melbourne Code*. The fact that this distinction between "a name" and "the name" proved too subtle for even the Editorial Committee (even when forewarned) just goes to show how hard to read this phrase "a name of an included genus" is.

(160) Add a Recommendation to Art. 18:

"*Rec. 18A.1.* In forming a new family name, preferably a generic name should be selected that is well-known, and is accepted as correct by the author."

As laid down in Art. 18.1, the name of a family may be based on any synonym that applies to any genus included in the family (see Art. 18 Note 2). However, obviously it is advisable to exercise some care, so as to have a recognizable, and hopefully stable, name.

(161) In Art. 20 Ex. 9, add a reference:

"(see Sprague in Bull. Misc. Inform. Kew 7: 318–319, 331–334. 1939)"

(162) Split Art. 21 Ex. 1: an Example to follow Art. 21.2 and an Example to follow 21.3:

"*Ex. 0. Euphorbia* sect. *Tithymalus, Ricinocarpos* sect. *Anomodiscus; Pleione* subg. *Scopulorum; Arenaria* ser. *Anomalae, Euphorbia* subsect. *Tenellae, Sapium* subsect. *Patentinervia*."

"*Ex. 1. Costus* subg. *Metacostus* and *Valeriana* sect. *Valerianopsis* are permitted, but not *"Carex* sect. *Eucarex"*."

In its present form, Ex. 1 mostly illustrates Art. 21.2, so it would help readability to move the relevant cases to follow that paragraph. This would leave a short Example to illustrate Art. 21.3: the *Valeriana* sect. *Valerianopsis* case was included to illustrate something that had been disallowed from the 1952 *Stockholm Code* up to, and including, the 1978 *Leningrad Code*, to be allowed again later, but it is not a desirable form.

(163) Add an Example to Art. 21.2:

"*Ex. 0bis.* In *"Vaccinium* sect. *Vitis idaea"* (Koch, Syn. Fl. Germ. Helv.: 474. 1837), the intended epithet consisted of two separate words unconnected by a hyphen, and this is therefore not a validly published name (Art. 20.3; *"Vitis idæa"* is a pre-Linnaean, binary generic name). The name is correctly attributed to Gray (1846) as *Vaccinium* sect. *Vitis-idaea* (hyphenated when published)."

Like "*Uva ursi*", "*Vitis idæa*" is a pre-Linnaean binary generic name. If used as a specific epithet "*Vitis idaea*" is to be accepted and hyphenated (Art. 23.1), as in *Vaccinium vitis-idaea* L. (1753) (see also Art. 23 Ex. 16). If intended as a generic name, the unhyphenated "*Vitis idaea*" is not to be accepted (Art. 20.3). The situation is similar for a subdivisional epithet, which needs to have "the same form as a generic name" ("or a noun in the genitive plural, or a plural adjective …" neither of which applies here) and thus "may not consist of two words, unless these words are joined by a hyphen". Anyway, the only provisions on hyphens are Art. 60.9 (dealing with hyphens in epithets, present when published), Art. 23.1 (on using hyphens to join two or more words in specific epithets), and Art. 24.2 (in analogy with Art. 23.1, for epithets of infraspecific taxa); none of these apply here. If this is accepted, delete from Art. 60 Ex. 26.

(164) Rephrase Art. 21.4, so that it reads:

"*21.4.* A name with a binary combination instead of a subdivisional epithet, but otherwise in accordance with this *Code*, is regarded as validly published in the form prescribed by Art. 21.1 (without change of author citation or date)."

The readability of Art. 21.4 could be significantly improved by just deleting "Art. 32.1(c) notwithstanding," but the proposed phrasing, inspired by Art 32.2, seems more straightforward.

(165) Rephrase Art. 23.1, so that it starts (addition in bold):

"*23.1.* The name of a species is a binary combination consisting of the name of the genus followed by a single specific epithet**. The epithet is written with an initial lower-case letter and has** the form […]."

This concerns an issue that has been hotly debated for over a century. Allowing an initial capital letter provides an opportunity to make it clear that a specific epithet is a noun; for example, writing *Myrrhis Odorata* emphasizes that *Odorata* is a pre-Linnaean generic name, not an adjective. On the other hand, these days there should be other ways to provide this information and most everybody uses an initial lower-case letter: this helps readability and reinforces the idea that the whole name is a unit. Decapitalization mostly recently failed at Saint Louis (achieving 59.25 %, with 60% being required). Rec. 60F was adjusted in this direction at Vienna on the proposal of Brummitt (in Taxon 53: 1094. 2004) and should be entirely deleted if this is accepted.

(166) Add an Example to Art. 23.1:

"*Ex. 0.* Upon publication, the epithet in *"Æsculus Pavia"* was written with an initial capital letter to indicate a pre-Linnaean generic name. Similarly, in *Gundelia "Tournefortii"* to indicate that it was derived from a personal name and in *Zea "Mays"* to indicate a vernacular name. These names are correctly cited as *Aesculus pavia* L. (1753), *Gundelia tournefortii* L. (1753), and *Zea mays* L. (1753)."

An Example to show the tradition as it once existed, adding perspective.

(167) Rephrase Art. 24.4, so that it reads:

"*24.4.* A name with a binary combination instead of an infraspecific epithet, but otherwise in accordance with this *Code*, is regarded as validly published in the form prescribed by Art. 24.1 (without change of author citation or date)."

The readability of Art. 24.4 could be significantly improved by just deleting "Art. 32.1(c) notwithstanding," but the proposed phrasing, inspired by Art 32.2, seems more straightforward.

(168) Bring Art. 28 Note 4 into accord with the *ICNCP*, so that it reads:

"*Note 4.* An epithet in a name published in conformity with this *Code* may be retained in a name for that taxon under the rules of the *ICNCP* when it is considered appropriate to treat the taxon concerned under that *Code*."

Under the *ICNCP* (these days online at http://www.actahort.org/chronica/pdf/sh_10.pdf) epithets published under the *Code* for algae, fungi, and plants may be retained as, or in, cultivar epithets (*ICNCP* Art. 21.5), in Group epithets (*ICNCP* Art. 22.4), or in grex epithets (*ICNCP* Art. 23.3); in Group and grex epithets, the word "Group", respectively "grex", is part of the epithet (*ICNCP* Art. 22.5, 23.2–4, Rec. 23A.1). There is no requirement to retain an epithet in all cases; as in when two taxa are joined, in which case only one epithet can be retained. An Example directly derived from the *ICNCP* was offered to the Melbourne Congress in Proposal 144 (in Taxon 59: 985. 2010), but the *ICNCP* offers more Examples.

(169) Add an extra Example to Art. 28 Note 4:

"*Ex. Ibis*. If *Cedrus atlantica* 'Aurea' is judged to be part of *Cedrus libani*, it may be renamed *Cedrus libani* 'Atlantica Aurea'."

Another form in which a 'botanical' epithet may be retained in a name under the *ICNCP* (Art. 29 Ex. 3).

(170) In Rec. 30A.3 replace "taxonomic articles" by "taxonomic papers".

In most of the *Code* the word "paper" is used to indicate an article in a journal (i.e. in Rec. 3lC.1 and two dozen Examples). Also, in Art 46.9 delete "or article" (from "publication or article").

(171) In Art. 36.1(a) replace "in the original publication" by "in the publication itself".

Throughout the *Code*, "original" is used in connection with the valid publication of a name. However, Art. 36.1 does not deal with names that are validly published, but with designations, which fail to be validly published. Thus, the word "original" gives the wrong impression.

(172) Delete Art. 38.1(b).

The new Art. 38.1(b) is the continuation of what was Art. 32.1(e) in the 2006, *Vienna Code*. For valid publication a new name has to have a form conforming to Art. 16–27 (Art. 32.1(c)), and also has to meet the requirements of Art. 32–45, where relevant. However, in contrast to Art. 16–27 the provisions in Art. 32–45 consistently stipulate "in order to be validly published …" (or "is not validly published unless …") for each and every provision. Thus, there is no need to have an extra, general rule to require what has already been made a requirement in each of the specified provisions. Another option would be to maintain Art. 38.1(b) and to strip out the phrase "in order to be validly published …" (and "is not validly published unless …") in all the rules throughout Art. 32–45, but this would be a much bigger change.

(173) In Rec. 40A.2 and 46B.2 replace "Roman script" and "Roman letters" by "Latin script".

Names of taxa are written in the Latin alphabet (Art. 32.1), but names of authors should be written in Roman letters (Rec. 46B.2), while type specimens should be published in Roman script (Rec. 40A.2). A "Roman letter" can have three meanings "a letter from (or to) Rome", "upright, not bold and not italic", and "a letter in Roman script". Standardizing on "Latin script" seems preferable.

(174) In Art. 45 footnote 1, add "(when applied to a name)", so that it reads:

"The word "available" (when applied to a name) in the *International Code of Zoological Nomenclature* is equivalent to "validly published" in this *Code*."

Although this footnote has been part of the *Code* for a considerable time (in this form since the 1961, *Montreal Code*), it is not particularly accurate. The word "available" in the zoological *Code* has three meanings, or rather applications, and roughly corresponds to "effectively published" and "validly published" lumped together (an "available work" corresponds to an "effectively published work"). The proposed phrasing is considerably more accurate, although it remains debatable how closely an "available name" corresponds to a "validly published name", as the zoological *Code* recognizes species-group names (a specific name and subspecific name, that is, the second part of a binomen, respectively third part of a trinomen) as names in their own right, instead of as just being part of names.

(175) Instruct the Editorial Committee to bring the citation of autonyms throughout the *Code* in accordance with Art. 22.1 and 26.1.

Autonyms are automatically created names, and do not have an author; Art. 22.1 and 26.1 prescribe "not followed by an author citation". Nevertheless, the *Code* consistently cites autonyms including an author citation, not for the name itself, but for the genus or species it belongs to (for example, "*Rosa gallica* L. var. *gallica*"). This is the only case where the *Code* includes such author citations of other names (not "*Rosa gallica* L. var. *eriostyla* R. Keller": see Art. 46 Ex. 1). Such an author citation is really superfluous: although there may be more than one name spelled *Rosa gallica*, there can be only one name with the form *Rosa gallica* var. *gallica* (Art. 27.2, see also Art. 22.5): an author citation for the species (or genus) adds no information. Alternatively, change the *Code* so as to provide for this way of citing autonyms, which is not all that uncommon in taxonomic literature.

(176) In Art. 55.1 and 55.2 replace "epithet was originally placed under an illegitimate" by "epithet is combined with an illegitimate".

The Examples (Art. 55 Ex. 1–3) show what the intent is; and this is less complicated than Art. 55.1–2 themselves make it appear to be. The word "original" serves no function here; these epithets were not only originally placed so, but have remained so ever since: the implied dichotomy does not exist.

(177) In Art. 55 add a Note:

"*Note 1.* A name as indicated in Art. 55.1 and 55.2 is unavailable for use, but, if not otherwise illegitimate, may serve as basionym of another name or combination based on the same type."

Copied from Art. 14.10, which already deals with this situation of names that are legitimate but that nevertheless may not be used as the correct name of a taxon. Alternatively, replace 55.1 and 55.2 by "A combination with an illegitimate name is unavailable for use, but is not thereby illegitimate (see also Art. 22.5 and 27.2), and, if not otherwise illegitimate, may serve as basionym of another name or combination based on the same type."

(178) Rephrase Art. 55 Ex. 4, so that it reads:

"*Ex. 4.* Upon publication, *Alpinia languas* J. F. Gmel. (1791) and *A. galanga* (L.) Willd. (1797) were assigned to *Alpinia* L. (1753). When the name *Alpinia* was conserved from a later publication (Art. 14.9), as *Alpinia* Roxb. (1810), these two species were included in the newly named genus and their names are to be accepted without any change in status under this *Code*."

Art. 55.3 is not all that easily readable, so it would help to have it supported by a more easily readable Example (see also the original proposal, in Taxon 15: 307. 1966)

(179) Split Art. 60, while promoting Rec. 60C.1 and Rec. 60G to Rules: one Article on original spelling (Art. 60.1–3, the first half of 60.7, 60.13), one on allowable characters (Art. 60.4–6, 60.9–11), one on personal names (the second half of Art. 60.7, Art. 60.12, Rec. 60C.1), and one on compounds (Art. 60.8 and Rec. 60G).

Art. 60 is very long, running to over ten pages, almost half of which are devoted to provisions on personal names, which, however, have to be searched for in three separate places. It would help readability to split Art. 60, and to promote the "backdoor rules" of Rec. 60C.1 and Rec. 60G to full rules. The Melbourne Congress has eliminated the "backdoor rule" in Art. 16, and it would be nice if Art. 60 could have the same treatment. The remaining Recommendations to be rearranged accordingly.

(180) Add an Example to Art. 60.3:

"*Ex. 8bis.* When Franco made the combination *Pseudotsuga menziesii*, its basionym *Abies menziezii* (honouring "le naturaliste Menziez") had not been used at all, and he was at liberty to correct."

To make the point that usage of a name is a factor in considering whether or not to correct a spelling. In this case, the basionym is correctly formed by internal evidence, but not by external evidence, honouring Archibald Menzies (1754–1842).

(181) Add an Example to Art. 60.6:

"*Ex. 12bis.* Tilde to be suppressed: *Vochysia "kosñipatae"*, named after the valley of Kosñipata, is correctly cited as *Vochysia kosnipatae* Huamantupa (2005)."

(182) In Art. 60 Ex. 26 replace "*rolandii-principis* (see Art. 60.12)" by "*rolandi-principis*".

In *rolandi-principis* the first part of the epithet is not correctable as (a) the *-i* is not a termination of an epithet (it is in the middle of an epithet; Rec. 60G is more likely to apply than 60C.1) and (b) this concerns a first name that possesses a well-established latinized form (Rolandus from Roland, Roeland, Rolando, Orlando) and Rec. 60C.2 would apply if *rolandi* were an epithet (or the final part of an epithet).

(183) Add an Example to Art. 60.9:

"*Ex. 26bis*. The insertion of a hyphen in *Loranthus "pseudo-odoratus"* (in Flora of China 5: 224. 2003) is an error not to be followed."

Apparently Art. 60.9 keeps leading to confusion, so an Example seems called for illustrating that a hyphen is never to be inserted in epithets that were unhyphenated when published. Hyphens may be used to join up words that together make up an epithet (Art. 23.1, 24.2), but that is the limit of it.

(184) Instruct the Editorial Committee to add an Example to Art. 60.11 of an 18th century name, not by Linnaeus, with an abbreviation in its epithet.

Art. 60.11 was added based on a proposal from the floor, with no supporting evidence provided. As a result, it is rather nebulous what exactly it applies to, and what its effect is. It is well known that Linnaeus used abbreviations (and symbols), but he is provided for (or should be) in Art. 23. Given that Art. 60.11 is a retroactive rule, and thus has a potential to destabilize nomenclature, a solid, classic Example would surely help.

(185) In Art. 60.12, rephrase the second sentence, so it reads:

"However, epithets formed in accordance with Rec. 60C.2 are to be accepted as correct."

If epithets are formed in accordance with Rec. 60C.2 they are thereby formed correctly. As they already are correct, they can not be "corrected", but must be accepted as they are. Epithets formed in accordance with Rec. 60C.2 don't really have terminations, as they are words already in Greek or Latin, or having a well-established latinized form; Latin grammar applies.

(186) In Rec. 60E.1, replace "The epithet in a name of a new taxon or replacement name should be written […]" by "A new epithet should be formed […]".

This is shorter and more accurate.

(187) Rephrase Rec. 60H.1, so that it reads:

"*60H.1.* The etymology of new generic names should be given and also that of new epithets when the meaning of these is not obvious."

The present wording does not take replacement names into account (compare Rec. 60E.1). The proposed wording is that of the 1952, *Stockholm Code*, which had it right already.

(188) In Art. H.5 Ex. 2 replace "nothospecific designation" by "nothospecific name".

In recent editions of the *Code* the term "designation" has been increasingly used to indicate something that has not been validly published and that thus is not a name (in the sense of the *Code*). In Ex. 2 the intent is to indicate a name, not a designation.

(189) In the Glossary add an entry:

"*unavailable for use.* [Not defined] – not available for use as the correct name of a taxon, but in itself legitimate (and available to serve as a basionym); (1) a rejected earlier homonym of a conserved or sanctioned name (Art. 14.10, 15.2), (2) a homonym that was rejected in favour of a simultaneously published homonym (Art. 53.6), (3) a combination with a rejected homonym (but see Art. 55.3), or (4) a combination with an illegitimate name (Art. 55.1–2)."

This concerns an odd category of names (names that, although legitimate, may never be used as the correct name for a taxon, no matter what taxonomic viewpoint is adopted), not dealt with in Art. 6, and not particularly prominent, but of some significance. It is just the kind of concept that a non-expert user of the *Code* may well have difficulty with, turning to the Glossary expecting to find help.

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(190–192) Three proposals concerning validating descriptions

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(190) Add a new paragraph after Art. 9.3 with three new Examples:

"*9.3bis*. If the description or diagnosis validating the name was reproduced, literally or with modifications, from a previously published work of the same or another author, elements upon which either of the two descriptive statements was based can be considered as original material."

"*Ex. 2bis*. *Sorbus aucuparia* L. (Sp. Pl.: 477. 1753) was published

with the validating diagnosis copied almost literally from the account of *Sorbus* species 1 in Haller (Enum. Meth. Stirp. Helv. 1: 350. 1742), with a reference to the source. Although Haller's original plant was believed to be taxonomically different from the material used by Linnaeus, Sennikov (in Taxon 65: 364. 2016) designated Herb. Linnaeus No. 644.1 as the lectotype of the name."

"*Ex. 2ter. Portulaca officinarum* Crantz (Inst. Rei Herb. 2: 428. 1766) was published with the validating diagnosis copied literally from the protologue of *P. oleracea* L. (Sp. Pl.: 445. 1753), although without mention of that name. Because of this diagnosis Uotila & al. (in Willdenowia 42: 26. 2012) treated *P. officinarum* as based on the type of *P. oleracea*."

"*Ex. 2quater. Erigeron acris* L. (Sp. Pl.: 863. 1753) was validly published with a diagnosis reproduced verbatim from Linnaeus, *Hortus cliffortianus* (1738). Although the material that was the original basis for this diagnosis is preserved in the collection of Clifford at BM, the lectotype of this name was designated by Huber (in Veröff. Geobot. Inst. E.T.H. Stiftung Rübel Zürich 114: 44. 1993) from the collection of Linnaeus at LINN."

When Perry (in Taxon 41: 599. 1992) proposed the current definition of original material, she intended this wording to apply also to cases where the validating description was written by one author but published by another author. In such cases, the original material is that on which the validating description was based, even if that material was not seen by the validating author.

Applying the same logic, Heath (in Calyx 4: 113–114. 1994) stated that the type of *Rosa cinnamomea* L. (1753), similarly validated with the diagnostic phrase-name copied from Haller (Enum. Meth. Stirp. Helv. 1: 348. 1742), should be selected from the context of Haller (1742), not from the material used by Linnaeus. This interpretation of the rules assumes that if the validating description was reproduced (minor alterations notwithstanding) from a work of a previous author, the material of the validating author may not be used in typification because, strictly speaking, the original basis of the validating description was the material used by the original author, not by the author who adopted the description in his publication.

While this "historical" interpretation seems to be logically correct, it is not reflected by the practice of taxonomic work. Should it be followed, dozens of adequate Linnaean types would have to be replaced by more obscure material of pre-Linnaean authors; and such material may no longer be in existence (if it ever had been preserved). Besides, Linnaean interpretation of taxonomic legacy was not always correct, and his misinterpretations can be seen in both examples quoted above, of *Rosa cinnamomea* and *Sorbus aucuparia*. The common assumption is that the elements used by the validating author may be original material even if the validating statement was reproduced from previous works (e.g., the lectotypification of *R. cinnamomea* by Rowley in Taxon 41: 568. 1992).

Although the common interpretation is also accepted in most influencing indices of Linnaean typifications (e.g., Jarvis & al., A List of Linnaean Generic Names and their Types. 1993; Jarvis, Order out of Chaos. 2007), it is not directly reflected in the letter of the rules. The proposed addition is intended to explicitly treat descriptions reproduced from previously published works as if they belonged also to the authors who adopted them in protologues.

If this proposal is accepted, a reference to this provision will be needed in Art. 9.3.

(191) Revise Art. 7.7 to read (new text in bold), with cross reference to new Art. 9.3bis added if Prop. 190 is adopted:

"*7.7.* A name of a new taxon validly published**, not by the reproduction of (see Art. 9.3bis), but** solely by reference to a previously and effectively published description or diagnosis (Art. 38.1(a)) is to be typified by an element selected from the entire context of the validating description or diagnosis, unless the validating author has definitely designated a different type, but not by an element explicitly excluded by the validating author (see also Art. 7.8)."

I suggest to reword the first part of this provision to say more explicitly to which cases it applies and to which cases it does not.

(192) Revise Ex. 10 under Art. 9.9 as follows (new text in bold):

"*Ex. 10.* Borssum Waalkes (in Blumea 14: 198. 1966) cited Herb. Linnaeus No. 866.7 (LINN) as the holotype of *Sida retusa* L. 1763. However, illustrations in Plukenet (Phytographia: t. 9, fig. 2. 1691) and Rumphius (Herb. Amboin. 6: t. 19. 1750) were cited by Linnaeus in the protologue **and evidently used by him in preparation of the validating description**. Therefore the original material of *S. retusa* comprises three elements (Art. 9.3), and Borssum Waalkes's use of holotype is an error to be corrected to lectotype."

I take an opportunity to bring this example closer to the wording of Art. 9.3, which requires that in order to be recognised as part of the original material, an illustration should have been used, not just cited by the author of the protologue.

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(193) Proposal to add a new Example to illustrate Article 7.10 and Article 9.23

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Article 9.23 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) requires that "On or after 1 January 2001, lectotypification or neotypification of a name of a species or infraspecific taxon is not effected unless indicated by use of the term "lectotypus" or "neotypus", its abbreviation, or its equivalent in a modern language …" and Art. 7.10 requires that "… designation of a type is achieved only

…, on or after 1 January 2001, if the typification statement includes the phrase "designated here" (hic designatus) or an equivalent." However, in many monographic and taxonomic works published on or after 1 January 2001 the requirements of Art. 7.10 and 9.23 were not met, and this may yet happen in the future. I am therefore proposing to include a new Example under Art. 9.23 to help taxonomic workers better understand the requirements of the above-mentioned two Articles for publication of effective lectotypifications or neotypifications on or after 1 January 2001.

(193) Add one of the following paragraphs as a new Example under Art. 9.23:

"*Ex. n*. Bentham (Labiat. Gen. Spec.: 744. 1835) described *Leucas longifolia* Benth. based on material collected by Jacquemont from near "Pounah" and mentioning specimen(s) from Paris, but without designating a type. The original material comprises three specimens of *Jacquemont 343*, two at P and one at K, hence a lectotype may be designated under Art. 9.11. When V. Singh (in J. Econ. Taxon. Bot., Addit. Ser., 20: 110. 2001) wrote "*Holotype*: India, Poona, *Jacquemont* 343 (P)", this citation of "holotype" cannot be corrected to a (first-step, see Art. 9.17) designation of lectotype under Art. 9.9 because the phrase "designated here" or an equivalent (Art. 7.10) was not used. R.K. Singh (in Telopea 18: 410. 2015) designated the lectotype with the statement "Lectotype (here designated): India, Maharashtra state, Poonah [Pune], without date, *V. Jacquemont 343* (P351887!); isolectotypes: K929516! and P351886!".

"*Ex. n*. Hooker (Fl. Brit. India 5: 159. 1886) described *Litsea membranifolia* Hook. f. based on material from "Upper Assam; Mishmi Hills, and woods at Yen", mentioning specimen(s) collected by Griffith and distributed by Kew ("*Kew Distrib.* 4310"), but without designating a type. Three relevant specimens collected by Griffith are extant, two at K and one at GH, hence a lectotype may be designated under Art. 9.11. When Ngernsaengsaruay & al. (in Thai Forest Bull., Bot. 39: 72. 2011) wrote "Type: India, East Bengal, *Griffith 4310* (holotype K!)", this citation of "holotype" cannot be corrected to a (first-step, see Art. 9.17) designation of lectotype under Art. 9.9 because the phrase "designated here" or an equivalent (Art. 7.10) was not used. Singh & al. (in Bangladesh J. Pl. Taxon. 22: 78. 2015) later designated the lectotype with the statement "*Type*: India. Arunachal Pradesh, Dibang Valley, Mishmi Hills, *s.d.*, *W. Griffith s.n.* [*Kew Distrb. 4310*] (lectotype K-000357530!, here designated; isolectotypes K-000793176!, GH-00415039!)."

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(194) Proposal to add a new paragraph to Recommendation 7A

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According to Art. 40.7 of the *ICN* (McNeill & al. in Regnum Veg. 154: 88. 2012), for the valid publication of the name of a new species or infraspecific taxon on or after 1 January 1990, the single herbarium, collection, or institution in which the type is conserved must be specified. In some cases, new taxa are validly published by citing the name of a herbarium, collection, or institution that is not listed in *Index herbariorum*, part I, or the *World directory of collections of culture of microorganisms*, either as the full name or as the locally used abbreviation, which sometimes matches the already recognized code of another herbarium, collection, or institution. For example, Sasi & Sivalingam (in Asian J. Pl. Sci. Res. 2: 515–517. 2012) described *Pogostemon rajendranii* Sasi & Sivalingam citing the holotype deposited at MH and an isotype deposited at "BUH". The latter referred to Bharathiar University Herbarium, Coimbatore, Tamil Nadu, India, but the authors were apparently unaware that BUH is the herbarium code listed in *Index herbariorum* for the University of Baghdad, Iraq (see http://sweetgum.nybg.org/science/ih/). More recently, Krishna & al. (Prop. 015 in Taxon 63: 207. 2014) proposed to include a new paragraph in Rec. 40A: "*40A.5.* Citation of the herbarium or collection or institution of deposition should be in full, with the location, when no abbreviated form is given by one of the standards mentioned in Art. 40 Note 4."

During a recent taxonomic study we tried to consult the type specimens of two names of brown algae, namely *Feldmannia renienii* Nettar & Panikkar and *F. sahnienii* Nettar & Panikkar (Nettar & Panikkar in Seaweed Res. Utilis. 31: 11–16. 2009), said to be deposited at S.N. College, Kollam, Kerala, India. However, we found that there is no such herbarium maintained by that institute. Furthermore, we could not trace the type specimens of these validly published names, even after consulting the authors. We have also noticed that many type specimens are kept under the custody of the authors of the relevant names, rather than being deposited in a herbarium. Soon after these authors retire from their duties, their successors are not even aware of their predecessors' publications or type specimens. This practice creates much difficulty in tracing type specimens and confirming whether or not they have been lost.

Therefore we feel it is important that type specimens be deposited in any one of the herbaria recognized by *Index herbariorum* or in the *World directory of collections of culture of microorganisms* for the better preservation and maintenance of these valuable materials to carry forward future research. We propose a new Recommendation, not in Rec. 40A, which is concerned with *indication* of the type of the name of a new taxon, but in Rec. 7A, which is concerned with general provisions of typification. Our proposed Recommendation

could apply not only to holotypes and isotypes, as illustrated above, but to lectotypes, neotypes, and epitypes.

(194) Add a new paragraph to Rec. 7A:

"*7A.2.* Type specimens should be deposited in any one of the herbaria or collections or institutions listed in *Index herbariorum* or in the *World directory of collections of culture of microorganisms*."

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(195–197) Proposals with regard to gatherings from cultivated material

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Many names of geophytes and succulents are based on cultivated material that was originally collected from the wild. If the original wild collection was made by the same collector(s) at one place and at one time, it qualifies as a single gathering, as implicitly defined in Art. 8.2 and 8.3 footnote of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012). If the material is preserved permanently, e.g., as one or more herbarium specimens, one of these specimens can be designated as the holotype. If the original wild gathering is instead kept alive and cultivated, either as an individual or as propagated stock, the holotype may not be a living organism (Art. 8.4), but it can be a specimen preserved permanently from a subsequent gathering made from the cultivated material. Such a specimen is not a part of the original wild gathering. So far, this complies with the *Code*. However, it is not an uncommon practice for multiple gatherings to be made from the cultivated material on different dates and put together to create what may seem like a more complete and useful specimen, e.g., one comprising both flowering and fruiting material. However, such a "specimen" cannot be a specimen as defined in the *Code* (Art. 8.2) because it is not "a gathering, or part of a gathering, of a single species or infraspecific taxon made at one time". Instead, it is more than one specimen. Because it is not a single specimen, it cannot be a holotype, which (when not an illustration) must be a single specimen (Art. 8.1). Moreover, a name published on or after 1 January 1958 is not validly published unless the type is indicated (Art. 40.1). The type may be indicated "by reference to an entire gathering, or a part thereof, even if it consists of two or more specimens" (Art. 40.2), but not by reference to more than one gathering. Therefore, under the current rules, a post-1957 name with a "holotype" that comprises more than one gathering is not validly published. Indeed, to illustrate this, Art. 8 Ex. 1 claims the following:

"*Ex. 1. "Echinocereus sanpedroensis"* (Raudonat & Rischer in Echinocereenfreund 8(4): 91–92. 1995) was based on a "holotype" consisting of a complete plant with roots, a detached branch, an entire flower, a flower cut in halves, and two fruits that, according to the label, were taken from the same cultivated individual at different times and preserved, in alcohol, in a single jar. This material belongs to more than one gathering and cannot be accepted as a type. Raudonat & Rischer's name is not validly published under Art. 40.2."

Validating such names is certainly a field of activity for individuals who desire to attach their names to the work done previously by others. With access to the JSTOR Global Plants database (http://plants.jstor.org/), this can be easily accomplished without any botanical education. In my opinion, such activities are not desirable. Therefore, the following new wording of Art. 40.2, a new Note under Art. 8.2, and an amendment to Art. 8 Ex. 1 are proposed. With these changes, names such as *Echinocereus sanpedroensis* become validly published and the "holotype" becomes syntypes from among which a lectotype may be chosen.

(195) Replace Art. 40.2 with the following:

"*40.2.* For the name of a new species or infraspecific taxon, indication of the type as required by Art. 40.1 can be achieved by reference to:

(a) the holotype (see also Art. 40.7);

(b) syntypes belonging to one gathering made by the same collector(s) at the same place on the same day (see also Art. 40.7); or

(c) syntypes belonging to gatherings made by the same collector(s) at the same place from one cultivated individual, or from one cultivated stock that was derived from a single wild gathering, the latter made by the same collector(s) at the same place on the same day (see also Art. 40.7).

Syntypes in *(b)* and *(c)* can be referred to simply by indication of the entire gathering, or a part thereof, even if it consists of two or more specimens as defined in Art. 8. Referring to the syntypes described in *(c)* as the original wild gathering is a correctable error."

(196) Add a new Note after Art. 8.2:

"*Note 1.* Herbarium specimens prepared from cultivated stock derived from a wild gathering are not parts of that wild gathering."

(197) Amend Art. 8 Ex. 1 as follows (new text in bold, deleted text in strikethrough):

"*Ex. 1. "Echinocereus sanpedroensis"* (Raudonat & Rischer in Echinocereenfreund 8(4): 91–92. 1995) was based on a "holotype" consisting of a complete plant with roots, a detached branch, an entire flower, a flower cut in halves, and two fruits that, according to the label, were taken from the same cultivated individual at different times and preserved, in alcohol, in a single jar. This material belongs to more than one gathering **made by the same collector(s) at the same place from one cultivated individual,** and ~~cannot~~ **can therefore** be accepted as a type. Raudonat & Rischer's name is ~~not~~ validly published under Art. 40.2."

(198) Proposal to add a new Example to Article 9.5

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The species *Solanum purpureilineatum* was described by Sabnis & Bhatt. (in Bull. Bot. Surv. India 12: 258. 1972), but those authors designated two specimens as types: "India: Gujarat State: Baroda District, Baroda, L. V. Palace compound, 2.10.60, *Sabnis* 2762, 2763 (Herbarium, The M. S. University of Baroda, Holotype)". The specimens are extant at BARO and both are hand-annotated in pen as "Holotype" by Sabnis. They are evidently part of single gathering, made by same collector at one place and time (see Art. 8.2 and 8.3 footnote). Art. 9.5 rules that "A syntype is any specimen cited in the protologue when there is no holotype, or any one of two or more specimens simultaneously designated in the protologue as types (see also Art. 40 Note 1). Reference to an entire gathering, or a part thereof, is considered citation of the included specimens." Therefore, *Sabnis 2762* and *Sabnis 2763* are syntypes (and a lectotype designation is allowed under Art. 9.2 and 9.11). However, it may be somewhat confusing that they were simultaneously designated as "holotype" of *S. purpureilineatum*, as a name can have only one holotype (Art. 9.1). In this case "holotype" is treated as an error to be corrected under Art. 9.9 to "syntypes". Moreover, the name was validly published because the requirements of Art. 40 were met; in particular, Art. 40.2, which permits a type to be indicated "by reference to an entire gathering, or a part thereof, even if it consists of two or more specimens as defined in Art. 8".

(198) Add a new Example after Art. 9 Ex. 3:

"*Ex. 3bis*. In the protologue of *Solanum purpureilineatum* Sabnis & Bhatt. (1972), two specimens in the same herbarium, collected by the same collector at one place and time were designated as the "holotype". Because both specimens belong to the same gathering, the name is validly published (see Art. 40.2) and the specimens are in fact syntypes."

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(199–201) Proposals to add the term lectoparatype to the *Code*

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A proposal was made by Linczevski & Gubanov (in Taxon 30: 229–230. 1981; Prop. 123, = Guide for the Determination of Types Prop. A, Voss & Greuter in Taxon 30: 141. 1981) to add a new term "lectoparatype" to the *Code*. The proposal was rejected by the Sydney Congress of 1981 (Greuter in Taxon 30: 910. 1981; Greuter & Voss in Englera 2: 102. 1982). Three years later, Hansen & Seberg (in Taxon 33: 707–711. 1984) proposed a new type term in botany, "paralectotype", but not as a proposal to amend the *Code*. Essentially, both terms were to apply to the remaining syntypes after one of the syntypes had been designated as the lectotype (and excluding isolectotypes in Hansen & Seberg's definition). However, Vorster (in Taxon 35: 316–317. 1986) argued that there is no need to call the remaining syntypes by any term because they have ceased to have value for typification, and they should not be cited with the lectotype, but among those specimens consulted for the taxonomic treatment of the taxon concerned. In response to this, we would say that herbaria or people used to donate, sell, or purchase duplicates and fragments of type material, and citations to clarify the location of such extant material in a formal nomenclature paragraph is of the utmost importance, instead of citing them among other specimens consulted.

Before it was proposed as an additional term in the *Code*, lectoparatype had been used already by Frizzell (in Amer. Midl. Naturalist 14: 655. 1933), Exell & Stace (in Bull. Brit. Mus. (Nat. Hist.), Bot. 3: 1–46. 1963), and Brummitt (in Kew Bull. 22: 375–386. 1968). Later on, after the proposal made by Hansen & Seberg (l.c.), the use of the term lectoparatype was further supported by Brummitt (in Taxon 34: 501–502. 1985) and Porter (in Taxon 36: 435–436. 1987). Despite that the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) does not provide a special term for the syntypes remaining after designating a lectotype, botanists are using the term lectoparatype (see, e.g., Molloy & St George in New Zealand J. Bot. 32: 415–421. 1994; Molloy & Webb in New Zealand J. Bot. 32: 423–428. 1994; Heenan in New Zealand J. Bot. 33: 439–454. 1995; Belyaeva & Sennikov in Kew Bull. 63: 277–287. 2008; Hopkins & Bradford in Adansonia, sér. 3, 31: 103–135. 2009; Väre in Phytotaxa 47: 1–98. 2012) and other, in our opinion inappropriate terms such as "other syntypes" or "residual syntypes" (see, e.g., Moraes in Harvard Pap. Bot. 19: 143–155. 2011; Wilson in Telopea 16: 9–12. 2014; Briggs in Telopea 18: 217–220. 2015), implying a strong demand to provide any term to address such syntypes.

According to Porter (l.c.), addition of the term lectoparatype to the *Code* will make the process and results of lectotypification more precise. Besides providing an unambiguous status for every specimen pertaining to type material, the term will bring consistency in typification practices and terminology, consequently reducing effort in tracing type material for future lectotypification, should the need arise. We therefore strongly urge the addition of term lectoparatype to the *Code* through a new Article with a new Example and Note.

We propose lectoparatype in a slightly different sense to the term paralectotype used in the *International Code for Zoological Nomenclature* (*ICZN*, ed. 4, International Commission for Zoological Nomenclature, 1999). Art. 73.2.2 of the *ICZN* defines a paralectotype as follows: "Specimens that were syntypes prior to the valid designation of a lectotype … are no longer syntypes after such designation; by that action they become lectotype and paralectotypes …; the latter have no name-bearing function and do not regain status as syntypes if the lectotype is lost or destroyed." For the *International Code of Nomenclature for algae, fungi, and plants* we do not suggest that a lectoparatype should cease to be eligible as the replacement lectotype should the previously designated lectotype be lost or destroyed.

(199) Insert a new Article after Art. 9.5:

"*9.5bis*. A lectoparatype is any syntype after designation of a lectotype that is neither the lectotype nor an isolectotype (Rec. 9C)."

(200) Add the following Example under the Article of Prop. 199:

"*Ex. n*. *Aegilops triuncialis* f. *hirsuta* H. Lindb. was lectotypified by Väre (in Phytotaxa 47: 6. 2012) on a specimen from Morocco, *Lindberg 3680* (H-1182940) with three isolectotypes (H-1182941, H-1182942, MPU-009626). The remaining syntype from Spain, *Lindberg 821* (H-1182920), was cited as a lectoparatype."

(201) Add the following Note under the Article of Prop. 199:

"*Note n*. The term lectoparatype is used only on or after designation of a lectotype."

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(202) Proposal to add a new Example after Article 9.19

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Prado & al. (Prop. 046–048 in Taxon 64: 651. 2015) proposed to add a new Note after Art. 9.19 and an Example of inadvertent lectotypification with it. We feel it would be better if an Example of inadvertent neotypification were also included.

(202) Add a new Example after Art. 9.19, after the new Note (if accepted) of Prop. 046:

"*Ex. n.* Although Herb. Linn. 749.2 (LINN) is not original material for *Ocimum gratissimum* L. (1753), the absence of any original material means that Cramer's citation of it as "type" (in Dassanayake & Fosberg, Revised Handb. Fl. Ceylon 3: 112. 1981) is to be accepted as designation (Art. 7.10) of a neotype, pre-dating the explicit neotypification by Paton (in Kew Bull. 47: 411. 1992)."

The above is an example of inadvertent neotypification because it was not the author's intent to designate a neotype. It also illustrates Art. 9.19 in that the author who first designates a neotype must be followed.

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(203) Proposal to add two new Examples to Article 9.19

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Article 9.19 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) provides the requirements to supersede a choice of a lectotype or a neotype. Three main conditions are established for it: *" ... if (a) the holotype or, in the case of a neotype, any of the original material is rediscovered; the choice may also be superseded if one can show that (b) it is in serious conflict with the protologue and another element is available that is not in conflict with the protologue, or that (c) it is contrary to Art. 9.14"*.

Example 13, under Art. 9.19, exemplifies the situation where a type designation did not conform to Art. 9.12, that stipulates which original material is required to be chosen and the order of choice in a lectotype designation. As this Example indicates, designations that contravene Art. 9.11–9.13 of the *Code* have no standing and can be ignored.

However, there are no Examples under this Article of the supersession of a previously designated lectotype or neotype. In order to demonstrate the application of provision (b) and (c) of Art. 9.19, below we are proposing two new Examples to be added:

(203) Add two new Examples after Art. 19.9:

"*Ex. 13bis.* (b) Fischer (in Feddes Repert. 108: 115. 1997) designated Herb. Linnaeus No. 26.58 (LINN) as lectotype of *Veronica agrestis* L. (1753). However, Martínez-Ortega & al. (in Taxon 51: 763. 2002) established that the designated lectotype was in serious conflict with Linnaeus's diagnosis and that three sheets of original material not conflicting with the protologue were available in the Celsius herbarium. One of them was designated as the new lectotype of *V. agrestis*, superseding the choice of Fischer."

"*Ex. 13ter.* (c) Navarro & Rosúa (in Candollea 45: 584. 1990) designated a sheet at G-DC as lectotype of *Teucrium gnaphalodes* L'Hér. (1788), but this preparation contains more than one gathering and a heterogeneous mixture of more than one species, not all of which matched L'Héritier's diagnosis. Ferrer-Gallego & al. (in Candollea 67: 38. 2012) superseded the previous lectotype in choosing one of the specimens on the same preparation that corresponds most nearly with the original diagnosis."

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(204) Proposal to permit supersession of a new epitype when a previously designated epitype is rediscovered

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The concept of an epitype was established by the *Tokyo Code* (*ICBN*, Greuter & al. in Regnum Veg. 131. 1994), thus it has been in use for about 20 years. An epitype is a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or previously designated neotype, or all original material associated with a validly published name, is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name to a taxon (Art. 9.8).

According to the *Melbourne Code* (*ICN*, McNeill & al. in Regnum Veg. 154. 2012) the author who first designates an epitype must be followed, and a different epitype may be designated only if the original epitype is lost or destroyed (Art. 9.20). In the case of the designation of a lectotype or neotype that choice is superseded if the holotype or, in the case of a neotype, any of the original material is rediscovered (Art. 9.19). However, the *Code* does not permit explicitly the supersession of a new epitype in the case when a previously designated epitype is rediscovered. As the usage of epitypes is rather limited at the moment, there probably have not been many cases when the epitype has been lost and later rediscovered. Nevertheless, such situations could occur over time more and more frequently. It is also obvious that the first epitype selected is the most important because of Art. 9.20 of the *Code* (i.e., "the author who first designates an epitype must be followed"). To be better prepared for such occurrence (when the epitype is rediscovered) we therefore make the following proposal:

(204) Amend the first sentence of Art. 9.20 (new text in bold):

"*9.20.* The author who first designates (Art. 7.9 and 7.10) an epitype must be followed; a different epitype may be designated only if the original epitype is lost or destroyed **but that choice is superseded if the original epitype is rediscovered**."

(205) Proposal to require precedence of isoepitypes in designating a replacement epitype

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According to the *Melbourne Code* (*ICN*, McNeill & al. in Regnum Veg. 154. 2012), the author who first designates an epitype must be followed, and a different epitype may be designated only if the original epitype is lost or destroyed (Art. 9.20). However, there is no rule in the *Code* on how to designate the replacement epitype in such a case. It means that anyone can select any specimen for this purpose. If we accept that the first epitype selected is the most important (i.e. "the author who first designates an epitype must be followed"), it follows that isoepitypes, if such exist, should be given precedence in designating a replacement epitype. A similar situation is required in the procedure of lectotype designation, in which "an isotype must be chosen if such exists, or otherwise a syntype if such exists", or otherwise the lectotype must be chosen "from among the paratypes if such exist" (see Art. 9.12).

We therefore make the following proposal to establish the precedence of any isoepitypes in replacement epitypification:

(205) Amend Art. 9.20 as follows (new text in bold):

"*9.20.* The author who first designates (Art. 7.9 and 7.10) an epitype must be followed; a different epitype may be designated only if the original epitype is lost or destroyed**, in which case the replacement epitype must be designated from among the isoepitypes, if such exist**. A lectotype or neotype supported by an epitype may be superseded in accordance with Art. 9.19, or in the case of a neotype with Art. 9.18. If it can be shown that an epitype and the type it supports differ taxonomically and that neither Art. 9.18 nor 9.19 applies, the name may be proposed for conservation with a conserved type (Art. 14.9; see also Art. 57)."

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(206) Proposal to add a new paragraph to Recommendation 9A

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Type specimens are the most valuable asset in any herbarium and their value multiplies as years elapse. The importance of type specimens can be felt by their singularity and the need for taxonomists to return again and again to these definitive reference materials to address nomenclatural and classificatory questions. Since type specimens are irreplaceable, any annotations concerning latest identifications, taxonomic updates or categorisation of types (into syntype, isotype, lectotype, etc.) should neither be written directly on herbarium sheets nor on previous annotations or original labels. A serious and common issue in recent taxonomic studies all over the globe, especially concerning nomenclature and typification, where taxonomists are trying to connect a species name with a type specimen, is that the name of a person who annotated a type specimen and the date of the annotation is not indicated, thereby limiting the use of such annotations for addressing taxonomic issues. Despite standard procedures that exist for annotating herbarium specimens, taxonomists follow inconsistent practices. It is this concern that prompted the authors to propose an additional Recommendation to the *Code:*

(206) Proposal to add a new paragraph to Recommendation 9A:

"*9A.5.* Any annotation on a herbarium specimen, especially a type, should include the name of the person providing the annotation and the date."

Acknowledgements

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(207–213) Proposals to specify the eligible journal for submitting proposals or requests to the General Committee

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According the *International Code of Nomenclature for algae, fungi, and plants* (*ICN*; McNeill & al. in Regnum. Veg. 154. 2012) proposals to conserve names (Art. 14.12 and 14.13), proposals to reject names (Art. 56.2 and 56.3), proposals to suppress works (Art. 34.1), and requests for binding decisions on valid publication (Art. 38.4) and homonymy (Art. 53.5) must be submitted to the General Committee. Traditionally these proposals and requests are so submitted by means of publication in *Taxon*. In spite of this apparently obvious place of publication we have been asked to review some proposals to conserve and reject names submitted to different scientific journals. Turland, in *The Code Decoded* (Regnum Veg. 155: 75–76. 2013), indicates that "Submission of a proposal is by publication in *Taxon*, the journal of the International Association for Plant Taxonomy". In addition, McNeill & al. (in Taxon 64: 163–166. 2015) make it clear that publication in *Taxon* constitutes submission to the General Committee. However, this information does not appear explicitly as a rule or even a recommendation in the *ICN*. Thus there is no formal impediment to publication in other journals, whether or not they have a taxonomic focus. Evidently, if the authors want their proposals or requests to be considered by the General Committee they either need to publish them in a scientific journal or send a letter to the Committee.

We consider that these proposals and requests must be published in one or a few eligible taxonomic journals in order to maintain standardization and for best management and review by the General Committee. There would be nothing to preclude, at a future International Botanical Congress, the *ICN* being amended to permit one or two new eligible journals. However, at this time, by tradition, the eligible journal is *Taxon*. We are therefore suggesting the following amendments:

(207) Amend Art. 14.12 as follows and add a footnote (new text in bold):

"*14.12.* The lists of conserved names will remain permanently open for additions and changes. Any proposal of an additional name must be accompanied by a detailed statement of the cases both for and against conservation. Such proposals must be submitted **by publication in the journal *Taxon*[1]** to the General Committee (see Div. III), which will refer them for examination to the committees for the various taxonomic groups (see also Art. 34.1 and 56.2)."

[footnote] **1 *Taxon* is the journal of the International Association for Plant Taxonomy (IAPT).**

(208) Amend Art. 14.13 as follows (new text in bold):

"*14.13.* In the interest of nomenclatural stability, for organisms treated as fungi (including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*), lists of names may be submitted **by publication in the journal *Taxon*** to the General Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies. […]."

(209) Amend Art. 34.1 as follows (new text in bold):

"*34.1.* Names in specified ranks included in publications listed as suppressed works (*opera utique oppressa*; App. VI) are not validly published. Proposals for the addition of publications to App. VI must be submitted **by publication in the journal *Taxon*** to the General Committee (see Div. III), which will refer them for examination to the committees for the various taxonomic groups (see Rec. 34A; see also Art. 14.12 and 56.2)."

(210) Amend Art. 38.4 as follows (new text in bold):

"*38.4.* When it is doubtful whether a descriptive statement satisfies the requirement of Art. 38.1(a) for a "description or diagnosis", a request for a decision may be submitted **by publication in the journal *Taxon*** to the General Committee (see Div. III), which will refer it for examination to the Committee for the appropriate taxonomic group. […]."

(211) Amend Art. 53.5 as follows (new text in bold):

"*53.5.* When it is doubtful whether names or their epithets are sufficiently alike to be confused, a request for a decision may be submitted **by publication in the journal *Taxon*** to the General Committee (see Div. III), which will refer it for examination to the committee(s) for the appropriate taxonomic group(s). […]."

(212) Amend Art. 56.2 as follows (new text in bold):

"*56.2.* The list of *nomina utique rejicienda* (suppressed names) will remain permanently open for additions and changes. Any proposal for rejection of a name must be accompanied by a detailed statement of the cases both for and against its rejection, including considerations of typification. Such proposals must be submitted **by publication in the journal *Taxon*** to the General Committee (see Div. III), which will refer them for examination to the committees for the various taxonomic groups (see also Art.14.12 and 34.1)."

(213) Amend Art. 56.3 as follows (new text in bold):

"*56.3.* In the interest of nomenclatural stability, for organisms treated as fungi (including lichenicolous fungi, but excluding lichen-forming fungi and those fungi traditionally associated with them taxonomically, e.g. *Mycocaliciaceae*), lists of names to be rejected may be submitted **by publication in the journal *Taxon*** to the General

Committee, which will refer them to the Nomenclature Committee for Fungi (see Div. III) for examination by subcommittees established by that Committee in consultation with the General Committee and appropriate international bodies. […]."

Acknowledgements

We are grateful to N. Turland for valuable comments to improve this text. AFPM is supported by FAPESB fellowship (No. BOL0563/2014).

(214–216) Proposals to add examples of correct usage of Latin compounds to Article 23

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My analogous proposal (in Taxon 59: 984. 2010) was refused as descriptive and partly grammatically incorrect six years ago. Therefore I now formulate it non-descriptively and explain the grammatical background.

I propose that Art. 23.5 and Examples 5–8 be extended to comply with Latin language usage.

Nouns in the first declension ending *-gena* are derived from the verb *nasci*. Adjectives ending *-genus*, *-a*, *-um* are derived from the verb *gignere*. The noun *alpigena*, *-ae* means ***born in the Alps***, the adjective *alpigenus*, *-a*, *-um* means ***bearing the Alps***, which is nonsense. The noun *nubigena*,*-ae* means ***born in the clouds***, the adjective *nubigenus*, *-a*, *-um* means ***bearing clouds***, which is nonsense. It can be checked in any good dictionary.

Nouns in the first declension ending *-fuga* are derived from the verb *fugere*. Adjectives ending *-fugus*, *-a*, *-um* are derived from the verb *fugare*. The noun *calcifuga*, *-ae* means ***limestone-fleeing***, the adjective *calcifugus*, *-a*, *-um* means ***limestone-chasing***, which is nonsense. Indeed, there existed the noun *aquifuga*, but not the adjective *aquifugus* in the meaning ***water-fleeing***. In contrast, the adjective *nubifugus* means ***cloud-chasing*** and not ***cloud-fleeing*** or ***cloud-shunning***. There existed the noun *lucifuga* meaning ***light-shunning***. The preceding can be checked in any good dictionary. There also existed the adjective *lucifugus* the meaning of which is confused in dictionaries. In my opinion, its meaning is ***light-chasing***, i.e., it denotes a person which using lies and by slyness makes things obscure, metaphorically chases light. My reasoning can be found at https://www.researchgate.net/publication/284719621_On_the_meaning_of_the_adjective_lucifugus-a-um

All three types of adjectives ending *-colus*, *-genus*, *-fugus* were often used incorrectly in botanical literature, which is not a reason for doing it further.

(214) Change Art. 23.5 by inserting the word *demonstrably* and removing the last sentence as follows (new text in bold, deleted text in strikethrough):

"*23.5.* The specific epithet, when adjectival in form and not **demonstrably** used as a noun, agrees grammatically with the generic name; when it is a noun in apposition or a genitive noun, it retains its own gender and termination irrespective of the gender of the generic name. Epithets not conforming to this rule are to be corrected (see Art. 32.2). ~~In particular, the usage of the word element *-cola* as an adjective is a correctable error.~~"

(215) Add the following Note after Art. 23.5:

"*Note n.* In particular, the usage of the word elements *-cola*, *-gena* in the meaning ***born in***, *-fuga* in the meaning ***fleeing*** as an adjective is a correctable error, and the word elements *-fer*, *-fera*, *-ferum*, *-ger*, *-gera*, *-gerum* are adjectival."

(216) Extend Ex. 5, 6 and 8 after Art. 23.5 as follows (new text in bold, deleted text in strikethrough):

"*Ex. 5.* Names with adjectival epithets: *Helleborus niger* L., *Brassica nigra* (L.) W. D. J. Koch, *Verbascum nigrum* L.; *Rumex cantabricus* Rech. f., *Daboecia cantabrica* (Huds.) K. Koch (*Vaccinium cantabricum* Huds.); *Vinca major* L., *Tropaeolum majus* L.; *Bromus mollis* L., *Geranium molle* L.; ***Erigeron florifer*** **Hook.,** ***Townsendia florifera*** **(Hook.) A. Gray**; *Peridermium balsameum* Peck, derived from the epithet of *Abies balsamea* (L.) Mill. treated as an adjective."

"*Ex. 6.* Names with a noun for an epithet: *Convolvulus cantabrica* L., *Gentiana pneumonanthe* L., *Lythrum salicaria* L., *Schinus molle* L., all with epithets featuring pre-Linnaean generic names. *Gloeosporium balsameae* Davis, derived from the epithet of *Abies balsamea* (L.) Mill., treated as a **genitive singular** noun. ***Macaranga calcicola*** **Airy Shaw;** ***Macaranga calcifuga*** **(Whitmore) R. I. Milne;** ***Gentiana nubigena*** **Edgew.**"

"*Ex. 8.* ***Townsendia "florifer"*** **is a correctable error for** ***Townsendia florifera*** **(Hook.) A. Gray because** ***"florifer"*** **was not demonstrably used as a noun in its basionym** ***Erigeron florifer*** **Hook.;** ~~When Blanchard proposed *Rubus "amnicolus"*, it was~~ **is** a correctable error for *R. amnicola* Blanch. (1906)**;** ***Mesembryanthemum "nubigenum"*** **is a correctable error for** ***Mesembryanthemum nubigena*** **Schltr.**"

(217–218) Proposals to amend Article 30 by adding a condition of effective publication and an associated Recommendation

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Protologues should be freely accessible to researchers all over the world without limitation. It is frustrating if the protologues cannot be legally copied, stored and disseminated as arguments. Nowadays, when electronic publication can be effective, it is easy to publish protologues in cheaply produced and therefore freely reproducible and storable electronic university journals and electronic university booklets. Researchers are no longer dependent on commercial journal publishers.

(217) Add a new Art. 30.8bis, as follows:

"*30.8bis*. Publication on or after 1 January 2018 is not effective unless the publication contains a statement that all protologues contained in it may be reproduced, stored and disseminated by all means without limitation and free of charge."

(218) Add a new Rec. 30A.4bis, as follows:

"*30A.4bis*. If the copyright holder of a publication dated before 1 January 2018 refuses free reproduction, storage or dissemination of protologues contained in it, this should be considered sufficient grounds for including the publication among the opera utique oppressa (Art. 34)."

(219–220) Proposals to add new Recommendations and an Example to Recommendation 30A and 41A

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Since 1 January 2012 certain electronic-only publications have been accepted as effectively published (Art. 29.1). Electronic material can be effectively published in Portable Document Format (PDF) in an online publication with an International Standard Serial Number (ISSN) or an International Standard Book Number (ISBN). Most electronic publications are paginated in their final versions. However, the editors of the International Plant Names Index (http://www.ipni.org) have come across un-paginated electronic-only publications. Although the page numbers are indicated in PDF-reading software, no page numbers appear on the actual pages of the publications. If the pages were printed and deposited in libraries, as recommended (Rec. 29A.2(c)), there would be no page numbers visible (unless they were printed by the software in use). Also, for un-paginated publications (whether printed or electronic), there are no set standards on how to cite the exact page where the protologue is published, and a "page or plate reference" is required for new combinations or replacement names to be validly published (Art. 41.5).

For example, the new species *Crocus antalyensioides* Rukšāns was published electronically in *International Rock Gardener* (ISSN 2053-7557), in the un-paginated PDF of Volume 64, April 2015. The citation for the protologue for this new name could be "Int. Rock Gard. 64: unpaginated. 2015", or "Int. Rock Gard. 64: [6 of 38]. 2015" or "Int. Rock Gard. 64: [6]. 2015". To avoid this uncertainty and facilitate compliance with Art. 41.5 we propose the following two new Recommendations:

(219) Add a new Recommendation to Art. 30A:

"*30A.2.* Authors and editors are strongly recommended to include page numbers on the actual pages of publications, such that if electronic publications are printed, these page numbers are visible."

(220) Add a new Recommendation with an Example to Rec. 41A:

"*41A.2.* If electronic publications are not paginated, page numbers should be referenced with square brackets."

"*Ex. 1.* The name *Crocus antalyensioides* Rukšāns was published electronically in *International Rock Gardener* (ISSN 2053-7557), Volume 64, April 2015, in Portable Document Format (PDF), without page numbers included on the actual pages of the publication, although they are indicated in PDF-reading software. The reference should be cited as Int. Rock Gard. 64: [6]. 2015."

(221–222) Two proposals on Recommendation 31B

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Bhattacharjee & al. (Prop. 014 in Taxon 63: 207. 2014) pointed out that authors generally do not have control over how dates of publication are indicated in periodicals and they proposed to insert the words "or editors" after the word "Authors" in Rec. 31B.1. However, in most cases, the date of publication is controlled by the publisher. On the other hand, the editors or the authors may at the same time be the publishers. Hence, I propose a small further amendment to extend this Recommendation to apply also to publishers.

(221) Amend Rec. 31B.1 as follows (new text in bold):

"*31B.1.* **Publishers or editors or** authors should indicate precisely the dates of publication of their works. In a work appearing in parts the last-published sheet of the volume should indicate the precise dates on which the different fascicles or parts of the volume were published as well as the number of pages and plates in each."

At the XVIII International Botanical Congress in Melbourne in 2011, effective electronic publication of all nomenclatural acts was permitted on or after 1 January 2012. It is possible to indicate the precise date of effective publication for an electronic publication. I therefore propose to add a new paragraph after Rec. 31B.1.

(222) Add a new paragraph after Rec. 31B.1:

"*31B.2.* In electronic material, the precise dates (year, month, and day) of effective publication should be included."

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(223–225) Proposals to amend Articles 38.5 and 38.6 for valid publication

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Neupane & al. (in Taxon 64: 299–322. 2015) raised *Hedyotis* sect. *Involucrella* Benth. & Hook. f. (in Gen. Pl. 2: 57. 1873) to generic rank and designated *Involucrella coronaria* (Kurz) Neupane & N. Wikstr. (≡ *Scleromitrion coronarium* Kurz [in J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46: 136. 1877]) as the type, as this name was thought to be based on the earliest validly published and legitimate name conspecific with material cited in the protologue of the section. Therefore, they regarded *Hedyotis merguensis* Hook. f. to be a "nom. nud.", although this was published simultaneously with *Hedyotis* sect. *Involucrella* as its only species, along with the citation of a voucher (*Griffith s.n.* from Mergui). They thus accepted the valid publication of this new section, but not that of "*Hedyotis merguensis*", but no provisions of the *ICN* (*Melbourne Code*; McNeill & al. in Regnum Veg. 154. 2012) pertaining to this decision were mentioned in a Nomenclature Editor's (= Gerry Moore's) footnote. This treatment is obviously contrary to the usage by Dutta & Deb (in Tax. Revis. Hedyotis Ind. Subcont.: 90–91. 2004) and Chen & Taylor (in Fl. China 19: 166. 2011), who all recognized *H. merguensis* as an accepted name.

The arguments in this circumstance are probably caused by the unclear and incomplete explanation of Art. 38.5 and Art. 38.6 in the *Melbourne Code*, which neglects the cases occurring at the rank of subdivision of a genus (e.g., section, subgenus, etc.). The rigid understanding and slavish application to these rules has resulted in unreasonable and improper nomenclatural treatment in general practice.

In order to maintain nomenclatural stability and remove the ambiguity, amendments are here proposed for these two Articles of the *ICN*.

(223) Revise Art. 38.5 as follows (new text in bold):

"*38.5.* The names of a genus **(including subdivisions, the same below)** and a species may be validly published simultaneously by provision of a single description (descriptio generico-specifica) or diagnosis, even though this may have been intended as only generic or specific, if all of the following conditions are satisfied: *(a)* the genus is at that time monotypic (see Art. 38.6); *(b)* no other names (at any rank) have previously been validly published based on the same type; and *(c)* the names of the genus and species otherwise fulfil the requirements for valid publication. Reference to an earlier description or diagnosis is not acceptable in place of a descriptio generico-specifica."

(224) Revise Art. 38.6 as follows (new text in bold):

"*38.6.* For the purpose of Art. 38.5, a monotypic genus **(including subdivisions, the same below)** is one for which a single binomial is validly published even though the author may indicate that other species are attributable to the genus."

(225) Add a new Example under Art. 38.5:

"*Ex. 7bis.* The species "*Hedyotis merguensis* Hook. f." was published simultaneously with the monotypic *Hedyotis* sect. *Involucrella* Benth. & Hook. f. (Gen. Pl. 2: 57. 1873) and both names were validly published by provision of a single description for the section."

(226) Proposal to add a new Example to Article 41

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As per Section 3, Art. 41 of the *Melbourne Code* (McNeill & al. in Regnum. Veg. 154. 2012), it is necessary to provide a reference to the basionym or replaced synonym for effective and valid publication of a new combination, name at new rank, or replacement name. In Art. 41.3: "Before 1 January 1953 an indirect reference to a basionym or replaced synonym is sufficient for valid publication of a new combination, name at new rank, or replacement name. Thus, errors in the citation of the basionym or replaced synonym, or in author citation, do not affect valid publication of such names." Here we are proposing to add an Example to Art. 41.3 which demonstrates that an indirect reference to a basionym or replaced synonym is sufficient for valid publication of a new combination, name at new rank, or replacement name. The cited protologue can be viewed at http://www.biodiversitylibrary.org/item/97891#page/552/mode/1up.

(226) Add a new Example after Article 41.3:

"*Ex. n.* The name *Dioscorea belophylla* was validly published by Haines (Forest Fl. Chota Nagpur: 530. 1910) and ascribed to "Voight". Previously Prain (Bengal Pl. 2: 1065, 1067. 1903) had validly published *D. nummularia* var. *belophylla* "Voigt (sp.)", an apparent reference to "*Dioscorea belophylla* Voigt" (a nomen nudum in Hort. Suburb. Calcutt.: 653. 1845). The mention by Haines of "Voight" is regarded as an indirect reference through Voigt to Prain's varietal name, and thus *Dioscorea belophylla* (Prain) Voigt ex Haines is treated as a new combination."

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(227) Proposal to amend the *Code* by adding a new Article 41.1bis

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When, in the protologue of a name, a validating description or diagnosis is provided, a type is designated, and a single synonym is referred to, is the newly published name *de jure* that of a new taxon or is it *de facto* a replacement name with the single synonym as its replaced synonym? In my opinion, such a name should be regarded as the name of a new taxon only when its description or diagnosis and type are different from those of the single synonym referred to.

(227) Add the following Art. 41.1bis:

"*41.1bis*. Reference to a single synonym is to be regarded as a reference to the replaced synonym unless the author(s) *(a)* provided a description or diagnosis with the newly published name that is different from the validating description or diagnosis of the synonym referred to, and *(b)* designated a type of the newly published name that is different from the previously or simultaneously designated type of the synonym referred to."

(228) Proposal to add a new Recommendation H.5B

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Article H.5.1 rules that the appropriate rank of a nothotaxon is that of the postulated or known parent taxa or, if they are unequally ranked (Art. H.5.2), the lowest rank of the parent taxa. When the name of a nothotaxon is in a rank inappropriate to the hybrid formula, it is incorrect in relation to that hybrid formula, but it may nevertheless be correct or become correct later (Art. H.5 Note 1) by applying it to another hybrid formula with different ranks. On rare occasions, however, only one nothotaxon between two species is known, and one or both of the parent taxa are at an infraspecific rank. A nothospecific name published for such a hybrid will be in a rank inappropriate to the hybrid formula. It would be possible to publish additionally an infraspecific name, but in order to be validly published it would have to have a different type to the nothospecific name (Art. 26.2), and then the infraspecific name and the resulting autonym would be taxonomic synonyms. We feel that such attempts to publish a name in the appropriate rank would lead to more confusion, and that in such cases the hybrid formula is informative enough. Therefore, we propose a new Recommendation after Rec. H.5A, as follows:

(228) Add a new Recommendation H.5B:

"*H.5B.1.* If the known or postulated parent taxa of an interspecific hybrid are at different ranks, and no nothospecific name has been previously published for a hybrid between those species, the hybrid formula should be used instead of publishing a nothospecific name that would be in a rank inappropriate to that hybrid formula."

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(229) Proposal to amend Article H.6.2 on the form of nothogeneric names

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(229) Add a sentence at the end of Art. H.6.2; add an apposite reference to Art. H.6.2 under Art. 60 Note 3 (new text in bold):

"*H.6.2.* The nothogeneric name of a bigeneric hybrid is a condensed formula in which the names adopted for the parental genera are combined into a single word, using the first part or the whole of one, the last part or the whole of the other (but not the whole of both) and, optionally, a connecting vowel. **The use of a hyphen rather than a connecting vowel is treated as an error to be corrected by deletion of the hyphen.**"

[Art. 60] "*Note 3.* Art. 60.9 refers only to epithets (in combinations), not to names of genera or taxa in higher ranks; a generic name published with a hyphen can be changed only by conservation (Art. 14.11; see also Art. 20.3**; but see Art. H.6.2**)."

The Editorial Committee may wish to add an Example under Art. H.6.2, such as:

"*Ex. n.* The nothogeneric name ×*Anthematricaria* Asch. (in Ber. Deutsch. Bot. Ges. 9: (99). 1892), proposed for hybrids with the parentage *Anthemis* L. × *Matricaria* L., was originally published as ×*"Anthe-Matricaria"*."

Before there were rules on the formation of nothogeneric names, use of a hyphen in otherwise correctly formed such names was not uncommon. Names so published are generally deemed to be acceptable. They are not. Under Art. H.6.2, nothogeneric names must consist of "a single word", no hyphen being permitted. Under Art. 32.1(c), names not in accordance with that rule are not validly published. Currently, one is bound to scan the world's literature (not indexed for that purpose) to find the first author who used an originally hyphenated nothogeneric name without a hyphen, thus probably though inadvertently validating it; or if none can be found, a later nothogeneric name may have to be accepted, or a new one coined. Also, no binomial published prior to the date of valid publication of the nothogeneric name can be validly published under it (Art. 35.1), which would inevitably affect currently accepted species nomenclature, too.

The purpose of the foregoing proposal is to remedy this unfortunate situation. There are two ways to achieve this: the one proposed here or, alternatively, to add "or a hyphen" after "a connecting vowel", at the end of Art. H.6.2. The effect on validity would be the same, but under the second option the offending hyphen would be maintained rather than deleted. As, generally speaking, I consider hyphens in generic names a nuisance I have given preference to the first option, but would be happy to embrace the second alternative, should the Nomenclature Section so wish.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(230–233) Proposals to exclude protozoans potentially causing confusion from the *Code*

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In the *Melbourne Code*, microsporidians ("*Microsporidia*") are clearly excluded from the *Code* (Pre. 8). However, there are several protozoans more closely related to algae and plants than animals. Among them, apicomplexans, ciliophorans (or ciliates), foraminiferans, and radiolarians (in traditional sense) include significant numbers of genera and are traditionally treated under the *International Code of Zoological Nomenclature* (these protozoan groups were not included in the *NCU-3: Names in Current Use for Extant Plant Genera*, 1993). Acceptance of these groups as algae or their relatives would result in several problematic cases of priority. To explicitly exclude such groups, I submit the following proposals. To avoid confusion between "names" under the *Zoological Code* and names under the *ICN*, italicized forms are avoided in these proposals.

(230) Amend phrase in the second parentheses of Preamble 8 as follows (new text in bold, deleted text in strikethrough):

"but excluding ~~*Microsporidia*~~ **apicomplexans, ciliophorans (ciliates), foraminiferans, microsporidians, and radiolarians [in traditional sense, including acantharians, phaeodarians, and polycystineans]**"

(231) Add a new paragraph to the end of Art. 13.1(e):

"Names of apicomplexans, ciliophorans (ciliates), foraminiferans, and radiolarians are governed by the *International Code of Zoological Nomenclature* (see Pre. 8)."

(232) Add a new Note after Note 1 of Art. 45:

"*Note Ibis.* Names of apicomplexans, ciliophorans (ciliates), foraminiferans, and radiolarians are not covered by this *Code* (see Pre. 8 and Art. 13.1(e)) even when they are considered as algae having lost their photosynthetic ability."

(233) Add a new Example after Art. 54 Note 1:

"*Ex. 1. Triadinium* Dodge (1981), a dinophycean algal genus, is not a later homonym of "*Triadinium* Fiorentini, 1890", which is available under the *International Code of Zoological Nomenclature*, as a ciliate generic name (see also Pre. 8)."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(234–241) Some proposals to resolve problems relating to the conservation or rejection of names, suppression of works, and binding decisions

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In the course of work compiling the Appendices to the *Melbourne Code* (Wiersema & al. in Regnum Veg. 157. 2015) and in the editing of conservation/rejection proposals and requests for binding decisions for publication in *Taxon*, some previously overlooked issues have come to light that these proposals to amend the *ICN* (McNeill & al. in Regnum Veg. 154. 2012) seek to resolve.

Conservation of a replaced synonym together with its replacement name

Article 14.1 was modified in Melbourne as a result of Proposal 243 (Perry in Taxon 59: 1915–1916. 2010) to permit "the conservation of the name of an infraspecific taxon and of a subdivision of a genus when that name is the basionym of the name of a species or genus proposed for conservation." The additional Proposal 245 by Perry (l.c.), also accepted in Melbourne, stipulated that "each of those names listed in Appendix III and Appendix IV of the *Vienna*

Code as being the basionym of a conserved name with a conserved type, is to be treated as conserved on the same date and with the same type as the conserved name under which it is cited." This was implemented in these Appendices in the manner suggested by Perry in her proposal, as seen in this entry, to indicate that both names are conserved:

Stipa robusta (Vasey) Scribn. in U.S.D.A. Bull. (1895–1901) 5: 23. 19 Feb 1897 ≡ ***S. viridula*** var. ***robusta*** Vasey in Contr. U.S. Natl. Herb. 1: 56. 13 Jun 1890 [Angiosp.: Gram. / Gram.]. Typus: U.S.A., New Mexico, 1881, Vasey (US No. 993051) (typ. cons.).

But Perry's proposals do not take into account the fact that there is at least one entry in App. IV, with a type explicitly conserved, where the infraspecific taxon listed is a replaced synonym, not a basionym:

Cenomyce stellaris Opiz, Böh. Phan. Crypt. Gew.: 141. 1823 (*Lichen rangiferinus* var. *alpestris* L., Sp. Pl.: 1153. 1 Mai 1753). Typus: Herb. Dillenius No. 107.29E, right-hand side specimen (OXF) (typ. cons.).

Despite the fact that it was the intent of the original proposal (Ahti & DePriest in Taxon 54: 185. 2005) to conserve the type of both names, the *ICN* does not currently provide for this, as the infraspecific name is not a basionym but a replaced synonym. This means that the replaced synonym is to be typified in its own right, i.e. by a specimen belonging not to *Cenomyce stellaris* but to *Cladonia evansii* Abbayes (1939), with the result that *Cladonia alpestris* (L.) Rabenh. (1887) threatens to displace the currently accepted name *Cladonia evansii*. To ensure that the types of both names are conserved and they remain homotypic, and thus to obviate the need for a proposal to preserve usage of *C. evansii*, the following amendment to Art 14.1 is proposed:

(234) Amend the last sentence of Art. 14.1 as follows (new text in bold):

"*14.1.* […] The name of a subdivision of a genus or of an infraspecific taxon may be conserved with a conserved type and listed in App. III and IV, respectively, when it is the basionym **or replaced synonym** of a name of a genus or species that could not continue to be used in its current sense without conservation."

Status of combinations and replacement names based on a conserved name

In the course of compiling the entries for Appendix IV of the *Melbourne Code* (Wiersema & al., l.c.), we evaluated the status of the 127 combinations, 68 of these newly added, currently listed in this Appendix and cross-referenced to their conserved basionyms or replaced synonyms. In most cases, the reason to conserve the latter was a threat to the listed combinations. As is customary, in order to maintain the usage of a name, it was its basionym or replaced synonym, if it had one, that was proposed for conservation. Conservation of a basionym or replaced synonym confers certain attributes to the names or combinations based on it. For example, under Art. 7.3 and 7.4 the type of a conserved basionym or replaced synonym will also be the type of any name based on it, and under Art. 61.4 a conserved spelling of a basionym will also apply to names or combinations based on it. Likewise, the latter are protected against names or combinations based on a rejected name by Art. 14.7: "A rejected name, or a combination based on a rejected name, may not be restored for a taxon that includes the type of the corresponding conserved name." This does not mean that the conserved name must always provide the final epithet for such a taxon. When a combination with a conserved basionym is a later homonym, it is not protected by Art. 14.10: "A conserved name, with any corresponding autonym, is conserved against all earlier homonyms." This is actually a desirable outcome: blanket conservation of any combination based on a conserved basionym against earlier homonyms might often have undesirable consequences. It was therefore necessary to separately conserve *Asterophora lycoperdoides* (Bull.) Ditmar (1809), nom. cons., based on *Agaricus lycoperdoides* Bull., nom. cons., against *Asterophora lycoperdoides* Fr. (1817), nom. rej., although this need was confused in the original proposal.

Article 14.1 states that "conserved names are legitimate even though initially they may have been illegitimate", but, as already noted, in virtually all cases only a basionym has been proposed and approved for conservation, not the combinations based on it. This becomes even more problematic when one considers the impact of the second sentence of Art. 6.4: "A name that according to this *Code* was illegitimate when published cannot become legitimate later unless Art. 18.3 or 19.6 so provide or unless it is conserved or sanctioned." The two mentioned Articles relate to names at the rank of family or below, and the species names under consideration (combinations with a conserved basionym) have generally not themselves been proposed for conservation, so any superfluous combinations that might have been illegitimate prior to conservation of what is now their basionym would remain so. An investigation into the cross-referenced combinations in App. IV has revealed several that, although the purpose of conservation of their once-illegitimate basionyms was to stabilize their nomenclature, remain illegitimate despite assumptions to the contrary. Among these are the alga *Porphyra purpurea* (Roth) C. Agardh; the fungi *Cladonia bacillaris* (Ach.) Genth, *Milospium graphideorum* (Nyl.) D. Hawksw., and *Teloschistes flavicans* (Sw.) Norman; the bryophytes *Brachythecium salebrosum* (Hoffm. ex F. Weber & D. Mohr) Schimp. and *Tritomaria exsecta* (Schmidel) Loeske; the spermatophytes *Dillenia suffruticosa* (Griff. ex Hook. f. & Thomson) Martelli, *Olgaea thomsonii* (Hook. f.) Iljin, *Onobrychis cornuta* (L.) Desv., and *Pycreus sanguinolentus* (Vahl) Nees; and the fossil plant *Danaeopsis marantacea* (C. Presl) Schimp. There is evidently a widespread belief, across all groups governed by the *ICN*, that such names would also have been conserved. Such a belief, while reinforced by statements in the introductions to App. IV from the *Tokyo Code* (Greuter & al. in Regnum Veg. 131. 1994) onward that "combinations based on a conserved name are therefore, in effect, similarly conserved", is plainly not supported by the current provisions of Art. 14.

It is not necessary or even desirable that such combinations be themselves conserved. As the examples above indicate, a means to overcome illegitimacy in parallel with their basionyms is all that is required to preserve their usage. Although they lacked a basionym, necessarily legitimate, at the time of publication, upon conservation they have received one, so that Art. 52.3 ["A name that was nomenclaturally superfluous when published is not illegitimate on account of its superfluity if it has a basionym (which is necessarily legitimate; see Art. 6.10)"] provides a basis for legitimacy of these formerly illegitimate combinations. To allow this conclusion requires a slight change to the wording of Art. 6.4, as proposed below. In addition, an Example to illustrate this situation is offered for Art. 52.

(235) Amend Art. 6.4, last sentence, as follows (new text in bold):

"*6.4.* […] A name that according to this *Code* was illegitimate when published cannot become legitimate later unless Art. 18.3 or 19.6 so provide or unless it**, or, if a superfluous name (Art. 52), its basionym,** is conserved or sanctioned."

The Editorial Committee may wish to add the following Example after Art. 52.3:

"*Ex. 18bis*. *Wormia suffruticosa* Griff. ex Hook. f. & Thomson (1872), nom. cons., was nomenclaturally superfluous when published because of the inclusion of *W. subsessilis* Miq. (1861), nom. rej. With conservation, the previously illegitimate *W. suffruticosa* became available to serve as basionym of *Dillenia suffruticosa* (Griff. ex Hook. f. & Thomson) Martelli (1886), a superfluous name when published in that it also included *W. subsessilis* but with a basionym now legitimate."

Effective date of the action of conservation or rejection

As Principle VI indicates "The rules of nomenclature are retroactive unless expressly limited." However, retroactivity does not extend to nomenclatural actions taken under the rules, such as type designations, as can be seen from the provisions in Art. 22.2, 26.2, 48.2, and 52.2, and conservation of a name, as is evident from Art. 48.2 and 52.2. While one can date a type designation from the date of its effective publication (Art. 7.9), what is the effective date of a conservation/rejection action, which is nowhere specified in the *ICN*, in terms of its effects on other names? Is it the date of publication of the respective *ICN* Appendix, which prior to the *Melbourne Code* coincided with the date of publication of the *Code* itself? Is it the date on which a decision is ratified by a plenary session of an International Botanical Congress, or is it the date on which the approval of the General Committee occurs, or the date on which that approval is published? For current conservation/rejection proposals the last of these is the most appropriate date for the purposes of Art. 14.16, 56.4 and their precursors that have been in force back to Art. 22 in the Cambridge Rules (Briquet, Int. Rules, Bot. Nomencl. 1935).

Some concrete examples where this date comes into play may help to clarify its importance:

(1) The name *Eriastrum* Wooton & Standl. was published as an avowed substitute (replacement name) for *Hugelia* Benth. (1833), non *Huegelia* Rchb. (1829). However, when *Eriastrum* was published in 1913, such a replacement name already existed in *Welwitschia* Rchb. (1837). *Eriastrum* would thus have been a superfluous, illegitimate name for *Welwitschia* Rchb., but for the conservation of *Welwitschia* Hook. f. (1862), approved on 18 May at the 1910 Congrès international de Botanique in Brussels (Briquet in Actes IIIme Congrès Int. Bot. 1: 83. 1912) and first listed as such in the 1912 Brussels Rules (Briquet, Règles Int. Nomencl. Bot. 1912) published in Jul–Aug 1912 (Stafleu & Cowan in Regnum Veg. 94: 329. 1976). As Art. 14.10 indicates, a conserved name is conserved against all earlier homonyms, in this case *Welwitschia* Rchb., which although not made illegitimate by conservation of *Welwitschia* Hook. f. had become unavailable for use by 1913 by this conservation, so that when *Eriastrum* was published *Welwitschia* Rchb. ought not to have been adopted, despite the citation of its type (i.e. that of *Hugelia* Benth.) by Wooton & Standley. In relation to this example, whether the effective date of conservation of *Welwitschia* Hook. f. was the date of publication of the Brussels Rules or the date of the decision to add *Welwitschia* to the list of nomina conservanda would not affect the situation, but, had *Eriastrum*, published on 12 February 1913, been published prior to the effective date of conservation, it would have been illegitimate.

(2) There is a current nomenclature proposal (Turner in Taxon 63: 682–683. 2014) to conserve the name *Echites paniculatus* Roxb. (1832), non Poir. (1812). Upon conservation, Roxburgh's binomial becomes the basionym of *Anodendron paniculatum* A. DC., giving the latter four years of priority over one competing synonym and equal priority to another, *E. parviflorus* Roxb. Establishing priority of *A. paniculatum* over *E. parviflorus* will require the publication of an effective choice under Art. 11.5, but such a choice is only possible "between legitimate names of equal priority in the corresponding rank", i.e., once *E. paniculatus* Roxb. has been made legitimate through conservation. Any choice published before the date on which conservation takes effect has no standing.

The dates of acceptance of conservation proposals accepted by the 1905 Vienna and 1910 Brussels Congresses are readily established from the proceedings of these Congresses (17 June 1905 and 18 May 1910, see below). No decisions on conservation of names were taken at the IV International Botanical Congress (IBC) in Ithaca, New York in 1926 or at the V IBC in Cambridge (U.K.) in 1930. The VI IBC in Amsterdam in 1935 established Special Committees with authority to take decisions on conservation of names but in fact only one of those Committees reported, the Special Committee for Phanerogamae and Pteridophyta (in Bull. Misc. Inform. Kew 1940(3): 81–134. 1 Jun 1940), and this should be taken as the effective date of conservation for those names. The VII IBC in Stockholm in 1951 approved recommendations on conservation proposals on names of fungi but referred all other conservation proposals to what were termed Special Committees, the predecessors of the current Permanent Nomenclature Committees for particular groups. The first report of the General Committee on conserved names appeared in *Taxon* in 1954 (3: 155–156), and covered Special Committee reports on all names proposed in the *Synopsis of Proposals concerning the International Rules of Botanical Nomenclature submitted to the Seventh International Botanical Congress – Stockholm 1950* (Lanjouw, 1950). Since any proposals submitted prior to that time, not already approved through the actions of the Vienna, Brussels or Amsterdam Congresses, would not have been evaluated by the General Committee, this date must be taken into account as that of the first set of decisions by the General Committee. Because outright (utique) rejection of a name became possible only in 1978, the issue of date prior to the establishment of the General Committee procedure does not arise there.

(236) Amend Art. 14.16 as follows (new text in bold) and add a new Note:

"*14.16.* When a proposal for the conservation of a name has been approved by the General Committee after study by the Committee for the taxonomic group concerned, retention of that name is authorized subject to the decision of a later International Botanical Congress (see also Art. 34.2 and 56.4). **Before 1 January 1954, conservation takes effect on the date of decision taken or authorized by the relevant International Botanical Congress. On or after that date, it takes effect on the date of effective publication (Art. 29–31) of the General Committee's approval.**"

"*Note 4.* The effective dates for International Botanical Congress (IBC) decisions on conservation of names made before 1954 are as follows:

(a) Conservation of names in the 1906 Vienna Rules became effective on 17 Jun 1905 at the II IBC in Vienna (see Verh. Int. Bot. Kongr. Wien 1905: 135–137. 1906).

(b) Conservation of names in the 1912 Brussels Rules became effective on 18 May 1910 at the III IBC in Brussels (see Actes Congr. Int. Bot. Bruxelles 1910: 67–83. 1912).

(c) Conservation of names in the 1952 Stockholm Code include:

(i) Those of the Special Committee for Phanerogamae and Pteridophyta, which became effective on 1 Jun 1940 under authority of the VI IBC of Amsterdam 1935 (see Bull. Misc. Inform. Kew 1940(3): 81–134).

(ii) Those of the Special Committee for Fungi, which became effective on 20 Jul 1950 at the VII IBC in Stockholm (see Regnum Veg. 1: 549–550. 1953).

After 1954, the date of the General Committee decision on a particular conservation proposal can be determined by consulting the proposals database at http://botany.si.edu/references/codes/props/index.cfm."

(237) Amend Art. 56.4 as follows (new text in bold) and add a new Note:

"*56.4.* When a proposal for the rejection of a name under Art. 56 has been approved by the General Committee after study by the Committee for the taxonomic group concerned, rejection of that name is authorized subject to the decision of a later International Botanical Congress (see also Art. 14.16 and 34.2). **Rejection takes effect on the date of effective publication (Art. 29–31) of the General Committee's approval.**"

"*Note 1.* The date of the General Committee decision on a particular rejection proposal can be determined by consulting the proposals database at http://botany.si.edu/references/codes/props/index.cfm."

Effective dates of suppression of publications, and binding decisions on descriptive statements or homonymy of confusable names

In contrast to formal nomenclature decisions relating to conservation or rejection of names, the effects of which are not retroactive, those relating to suppressed works and binding decisions must necessarily be retroactive. A "name" in a specified rank from a particular suppressed work, which upon the suppression of this work under Art. 34 is ruled as not validly published, must always be considered so. Thus at no time could it have affected the legitimacy of any name due to considerations of homonymy or superfluity. The same must also be true of names ruled as not validly published under Art. 38.4, whereas those ruled as validly published under this Article are considered to have always been so, with consequent effects on homonymy and superfluity.

Likewise, names ruled by binding decisions under Art. 53.5 to be treated as homonyms have always been so. The implication of this retroactivity can be seen in two contrasting cases: (1) *Forsellesia* Greene (1893) was published as a nomen novum (replacement name) for *Glossopetalon* A. Gray (1853), non *Glossopetalum* Schreb. (1789); (2) *Saharanthus* M.B. Crespo & Lledó (2000) was published as a nomen novum for *Lerrouxia* Caball. (1935), non *Lerouxia* Mérat (1812). Whereas *Glossopetalum* and *Glossopetalon* have by binding decision been considered not to be treatable as homonyms, leaving *Glossopetalon* as the correct name for what some have called *Forsellesia*, the binding decision on whether *Lerouxia* and *Lerrouxia* should be treated as homonyms has been strongly recommended by the Committee for Vascular Plants, and if carried forward will lead to adoption of the name *Saharanthus* for *Lerrouxia*. In both cases the desired outcome of these decisions will be consistent with their being retroactive, making *Forsellesia* an illegitimate superfluous name for the legitimate *Glossopetalon* and *Saharanthus* a legitimate replacement name for the illegitimate *Lerrouxia*. Were these effects not made retroactive, *Saharanthus* would have been illegitimate when published and in need of conservation, and *Forsellesia* would not have been available to replace *Glossopetalon* should the binding decision on that name have been reversed.

To make it clear that such decisions are retroactive requires the following three proposals:

(238) Amend Art. 34.2 as follows (new text in bold, deleted text in strikethrough):

"*34.2.* When a proposal for the suppression of a publication has been approved by the General Committee after study by the committees for the taxonomic groups concerned, suppression of that publication, ~~is authorized~~ subject to the decision of a later International Botanical Congress (see also Art. 14.16 and 56.4)**, takes retroactive effect**."

(239) Amend Art. 38.4 as follows (new text in bold):

"*38.4.* When it is doubtful whether a descriptive statement satisfies the requirement of Art. 38.1(a) for a "description or diagnosis", a request for a decision may be submitted to the General Committee (see Div. III), which will refer it for examination to the Committee for the appropriate taxonomic group. A recommendation, whether or not to treat the name concerned as validly published, may then be put forward to an International Botanical Congress and, if ratified, will become a binding decision **with retroactive effect**. These binding decisions are listed in App. VII."

(240) Amend Art. 53.5 as follows (new text in bold):

"*53.5.* When it is doubtful whether names or their epithets are sufficiently alike to be confused, a request for a decision may be submitted to the General Committee (see Div. III), which will refer it for examination to the committee(s) for the appropriate taxonomic group(s). A recommendation, whether or not to treat the names concerned as homonyms, may then be put forward to an International Botanical Congress and, if ratified, will become a binding decision **with retroactive effect**. These binding decisions are listed in App. VIII."

Epitypes and types of conserved names

Article 9.8 defines an epitype as "a specimen or illustration selected to serve as an interpretative type **when the holotype, lectotype, or previously designated neotype, or all original material associated with a validly published name**, is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name to a taxon. Designation of an epitype is not effected unless the **holotype, lectotype, or neotype** that the epitype supports is explicitly cited (see Art. 9.20)." Note that this provision does not establish the means of selecting an epitype to interpret a type of a name of a species or infraspecific taxon conserved under Art. 14.8 or 14.9, or of a generic name conserved under Art. 10.4. A Note added to Art. 9.8 might make this clearer, lest someone propose an epitype for an existing conserved name that might change its intended application.

(241) Add a new Note under Art. 9.8 on epitypes:

"*Note 5bis*. Designation of an epitype to support a specimen or illustration that is the type of a name conserved in App. III or IV is not provided for by this Article."

Despite the lack of a provision for designating an epitype to support a specimen or illustration that serves as the type of a conserved name, it should be pointed out that there is nothing to prevent such a designation to support an eligible type **before** conservation is achieved. In fact, there are currently three names listed in Appendix IV (the alga *Coleochaete orbicularis* Pringsh., the fungus *Agaricus lycoperdoides* Bull., and the bryophyte *Jungermannia palmata* Hedw.) of the *Melbourne Code* with indicated epitypes to support illustrations indicated or designated as holotypes or lectotypes when conservation was originally proposed. In addition, there is another proposal currently under consideration for conservation (No. 2198, *Agaricus laterinus* Batsch) with a designated epitype. Although it may have been preferable to propose the epitype as a conserved type in these cases, assuming a proposal would be successful, a proposed conserved type would lack any standing if the proposal were unsuccessful. The provisions of Art. 9.20 and 14.8 will preserve its standing vis-à-vis the listed type upon conservation of the associated name.

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(242–245) Proposals on descriptive names

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According to Art. 16.1(b) of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), descriptive names "may be used unchanged at different ranks". However, when a descriptive name is used at a rank different from that at which it was first validly published, it is not clear whether or not it is a name at new rank as defined in Art. 6.10. To clarify this point, I submit the following proposals.

(242) Add a new Note after Art. 6.10:

"*Note 2bis*. A descriptive name used at a rank different from that at which it was first validly published is not a name at new rank because descriptive names may be used unchanged at different ranks (see Art. 16.1(b))."

(243) Amend the end of Art. 16.1 as follows (new text in bold):

"[…] or *(b)* descriptive names, not so formed, which may be used unchanged at different ranks **(see also Art. 6 Note 2bis)**."

(244) Add a new Note after Art. 46 Ex. 11:

"*Note 1bis*. The authorship of a descriptive name (Art. 16.1(b)) is not changed if the name is used at a rank different from that at which it was first validly published because it is not a name at new rank (see Art. 6 Note 2bis; see also Art. 49.2)."

(245) Add a new Example after Art. 46 Note 1bis:

"*Ex. 11bis*. *Streptophyta* Caval.-Sm. (in Lewin, Origins of Plastids: 340. 1993) was originally published as a name at the rank of infrakingdom (used as a rank between subkingdom and phylum). When the name is used at the rank of phylum, it is still cited as *Streptophyta* Caval.-Sm. (1993)."

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(246–247) Two proposals to amend the *Code* concerning type designation

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Isotypes of a name usually consist of several duplicates that were cited or not cited by the author(s) of the name. Both cited and uncited isotypes are original material, and they can be candidates in lectotype designation when the holotype is lost or destroyed. Art. 9.12 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) states the precedence of different kinds of types and other original material that must be followed in lectotype designation. It does not distinguish between a cited isotype and an uncited isotype, and it implies that a syntype (which is necessarily cited; Art. 9.5) has equal precedence to an isosyntype (duplicate of a syntype, which is necessarily uncited, otherwise it would be a syntype). In practice, a cited isotype or a syntype has usually been seen by the author(s) of a name, whereas an uncited isotype or an isosyntype may not have been seen by the author(s) of a name. Recommendation 9A.1 recommends that lectotypification should only be carried out with an understanding of the author's method of working. Therefore, I think that a cited isotype or a syntype should have precedence over an uncited isotype or an isosyntype in lectotype designation, i.e. in Art. 9.12. Because Art. 9.12

is retroactive, it seems that such a change to the *Code* would make an unknown number of existing lectotypifications ineffective. However, selecting an isotype as the lectotype is only carried out when the holotype has been lost or destroyed, and such cases are relatively rare. As far as I know, few authors have selected an isosyntype as the lectotype when syntype exists, and I believe that such cases are relatively rare too. On the other hand, I think that it should not be encouraged to select a lectotype from material possibly not seen by the author(s) of a name. I therefore propose the following amendments to Art. 9.12.

(246) Reword Art. 9.12 as follows:

"*9.12.* In lectotype designation, the following precedence applies: an cited isotype or a syntype must be chosen if such exists; otherwise an uncited isotype or an isosyntype (duplicate of a syntype) must be chosen if such exists; otherwise a paratype must be chosen if such exists; otherwise the lectotype must be chosen from among the uncited specimens and cited and uncited illustrations that comprise the remaining original material, if such exist."

When Chen (in Acta Phytotax. Sin. 16(1): 94. 1978) published the name *Asparagus kansusensis*, he indicated the type as "郝景盛 (K. S. Hao) 416 (♂和♀模式标本 Typus!)". In the herbarium PE, three sheets of *Hao 416* are found. The sheet PE00034519, with a staminate branch and a pistillate branch, is annotated as the type by Wang & Tang. Lin & Yang (in Novon 21: 69–70. 2011) incorrectly regarded the holotype as belonging to two gatherings and thus treated the name as not validly published. They published the name again (l.c.) designating the staminate branch on sheet PE00034519 as the holotype. However, the material on all three sheets of *Hao 416* was collected at one time and belongs to a single species. Therefore, it is one gathering, not two gatherings as Lin & Yang believed. The following Example will help to illustrate Art. 8.2, in that a single gathering and a single specimen may consist of parts of more than one organism.

(247) Add a new Example following Art. 8.2:

"*Ex. Ibis*. The holotype of *Asparagus kansuensis* F. T. Wang & Tang ex S. C. Chen (1978), *Hao 416* (PE00034519), is part of a gathering of a single species made at one time. It consists of a staminate branch and a pistillate branch, i.e. parts of two organisms (the species is dioecious), mounted on a single herbarium sheet."

Acknowledgements

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(248–258) Proposals clarifying the status of admixtures and parts of taxonomically mixed type specimens

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(248) Amend Ex. 1 under Art. 8.2 as follows (new text in bold):

"*Ex. 1.* "*Echinocereus sanpedroensis*" (Raudonat & Rischer in Echinocereenfreund 8(4): 91–92. 1995) was based on a "holotype" consisting of a complete plant with roots, a detached branch, an entire flower, a flower cut in halves, and two fruits that, according to the label, were taken from the same cultivated individual at different times and preserved, in alcohol, in a single jar. **Since** this material **was collected at more than one time, it** belongs to more than one gathering and cannot be accepted as a type. Raudonat & Rischer's name is not validly published under Art. 40.2."

This change is desirable to indicate more explicitly the situation to which this example applies.

(249) Add a new paragraph with new Examples under Art. 8.2 as follows:

"*8.2bis*. For the purpose of Art. 8.2, a gathering (as to included elements) is defined by the original author (for holotypes, syntypes or other original material) or by the typifying author (for lectotypes, neotypes or epitypes)."

"*Ex. Ibis.* Ormerod (in Taiwania 51: 157. 2006) designated the right-hand plant of *Hamer 178* in AMES as the holotype of *Goodyera polyphylla* Ormerod, whereas he considered the other plant on the same sheet as belonging to the similar *G. brachyceras* (A. Rich. & Galeotti) Garay & G.A. Romero."

"*Ex. Iter.* Deng & al. (in Nordic J. Bot. 32: 594–597. 2014) designated *Wang & Deng 2358* as the holotype and cited *Wang & Deng 2359* as a paratype of the species name *Spiradiclis coriaceifolia* R.J. Wang. Both specimens were collected in the same place and at the same time; they belong to the same distylous taxon in the opinion of the original authors but represent different flower morphs. Art. 8.2 notwithstanding, the two specimens are not part of the same gathering because of the effect of Art. 8.2bis."

"*Ex. Iquater.* Ghazanfar (in Nasir & Ali, Fl. West Pakistan 113: 4. 1977) designated Herb. Linn. No. 1123.1 (LINN) as the "type" (correctable to lectotype) of *Myriophyllum spicatum* L. (1753). Aiken & McNeill (in Bot. J. Linn. Soc. 80: 218. 1980) determined that only the sterile right-hand plants on that sheet belong to *M. spicatum* and designated Herb. Burser VII(1): 79 (UPS) as the lectotype. Ericsson (in Nordic J. Bot. 27: 139. 2009) recognised priority of Ghazanfar's choice and restricted the type designation to the right-hand plants, which however are an admixture to the type specimen because the original diagnosis was based solely on inflorescence characters."

"*Ex. Iquinquies.* Kirkbride (Biosyst. Monogr. Gen. Cucumis: 104. 1993) designated a sheet of *Mueller s.n.* (K) with a single label as

the "neotype" of *Cucumis jucundus* F. Muell. (1859). The elements on this sheet are taxonomically different and comprise original material of both *C. jucundus* and *C. picrocarpus* F. Muell. (1859). Kirkbride's usage of the term neotype is correctable to lectotype under Art. 9.9, and this type designation is to be restricted to the original material of *C. jucundus* (now K000634446) with exclusion of the element belonging to *C. picrocarpus* as admixture under Art. 9.14. A further lectotypification by Telford & al. (in PhytoKeys 5: 23–24. 2011) on the same element, which was proposed because Kirkbride's type indication was viewed to be referable to more than one gathering, was unnecessary."

In the definition of specimen (Art. 8.2), one of the defining characteristics (a specimen should belong to a single species or infraspecific taxon) is subject to individual opinions. Taxonomic opinions of the original author and subsequent monographers may differ (and they frequently do). To avoid conflicts of taxonomic interpretations, a new paragraph is proposed to clarify that for the purpose of typification the content of the type specimen must match the original author's circumscription of the taxon, and the elements that were not included in the original concept of the taxon cannot be added even if they are treated as taxonomically indistinct by later authors.

In some circumstances, authors prefer to exclude morphologically deviating specimens from the type even if otherwise they may be treated as duplicates of a single gathering under Art. 8.2 and 8.3 (i.e. specimens that are collected in the same place and at the same time, and are taxonomically indistinct). If such deviating specimens are cited as paratypes in the protologue, or excluded without any mention in the protologue, one may still argue that this citation or exclusion is a technical error and the cited specimens are not paratypes but isotypes.

If this provision is not introduced, a logical difficulty remains. Regarding the example of *Spiradiclis coriaceifolia* R.J. Wang provided above, the paratype specimen may be treated as an isotype because it can be considered as part of the same gathering under Art. 8.2; although under Art. 9.1 Note 1 any designation made by the original authors is final, this provision concerns only designated holotypes because isotypes and paratypes are not designated but established by definition.

If the proposal is accepted, the definition of gathering in the Glossary needs to be amended editorially.

(250) If Prop. 249 is accepted, revise Footnote 2 under Art. 8.3 as follows (new text in bold, deleted text in strikethrough):

"Here and elsewhere in this *Code*, ~~the word duplicate is given its usual meaning in curatorial practice. A~~ **a** duplicate is part of a single gathering of a single species or infraspecific taxon made by the same collector(s) at one time**, unless the content of the gathering has been restricted by the original or a typifying author**. The possibility of a mixed gathering must always be considered by an author choosing a lectotype, and corresponding caution used."

I propose to delete part of the first sentence of this footnote because the curatorial practice tends to follow the circumscription of the gathering given by its collector and may be in conflict with a taxonomic opinion of the original or typifying author. The added text is supposed to cover the interpretation that may be given by the author of the taxon or, when appropriate, by the typifying author. If this proposal is not accepted, a number of paratypes (specimens intentionally listed as paratypes by the authors) will become isotypes if collected on the same date and in the same place with the holotype, apparently contrary to the intention of those who assigned the types.

(251) Replace Footnote 1 under Art. 8.1 with a new paragraph (new text in bold) and add two new Examples:

"*8.3bis.* **For the purpose of typification an** illustration is a work of art or a photograph, e.g. a picture of a herbarium specimen or a scanning electron micrograph, depicting a feature or features of an organism. **It may consist of a single figure, or of a group of figures that are assembled together and presumably derived from a single source (notwithstanding admixtures).**"

"*Ex. 5bis.* The illustration of *Gladiolus fistulosus* Jacq. (Pl. Hort. Schoenbr. 1: t. 16. 1797) shows two plants, of which one (incomplete plant) is more typical of the taxon and the other (complete plant with three separate fragments) may be a hybrid. These two figures were apparently derived from different sources (plants); Goldblatt & al. (in Bothalia 43: 134. 2013) designated a single element, the left-hand plant on the illustration, as the lectotype of this name."

"*Ex. 5ter.* The lectotype of *Chaetanthera pinnatifida* Humb. & Bonpl. (Pl. Aequinoct. 2(17): 170, t. 136. 1817), designated by Vuilleumier (in Contr. Gray Herb. 199: 140. 1969), is the illustration published in the protologue, which consists of drawings of a complete plant with an analysis of eight details that were presumably derived from the same plant."

Specimens that are elements eligible as types are defined in a separate paragraph, but the definition of illustrations is placed in a footnote. I propose to convert the present Footnote 1 of Art. 8 into a paragraph of Art. 8 and to add a sentence clarifying that an illustration may be represented by a group of logically connected figures that may therefore be eligible for type designation as a whole.

(252) Amend Art. 9.14 as follows (new text in bold, deleted text in strikethrough) and add three new Examples:

"*9.14.* When a type (herbarium sheet or equivalent preparation) contains parts belonging to more than one taxon ~~(see Art. 9.11), the name must remain attached to the part (specimen as defined in Art. 8.2) that corresponds most nearly with the original description or diagnosis~~ **an admixture (usually a minor ingredient) may be excluded without a separate nomenclatural act if it can be demonstrated that the validating description or diagnosis does not apply to the admixed elements; otherwise a type should be narrowed to a single element by way of a subsequent lectotypification or neotypification in conformity with Art. 9.11**."

"*Ex. 11bis.* On the slide with the holotype of the name *Navicula latelongitudinalis* R.M. Patrick (in Proc. Acad. Nat. Sci. Philadelphia 111: 98. 1959) there are individuals of another diatom species that can be distinguished "only by smaller valves and slightly different shape of the conopeum". Potapova (in Proc. Acad. Nat. Sci. Philadelphia 162: 8. 2013) disregarded those individuals as admixture because it "is obvious from the valve dimensions" given in the protologue that Patrick did not consider them to belong to his new taxon."

"*Ex. 11ter.* The name *Tetrapterys alternifolia* Cuatrec. (in Webbia 13: 435. 1958) of *Malpighiaceae* was published with *Dugand & Jaramillo 2850* (US) as the designated holotype, the parts of which were considered taxonomically identical by Cuatrecasas. Anderson (in Contr. Univ. Michigan Herb. 25: 91. 2007) discovered that this type was mixed and the sterile stem with alternate leaves, to which the epithet refers, does not belong to *Malpighiaceae*; in order to maintain the application of the name, Anderson designated the flowering stem as the lectotype."

"*Ex. 11quater.* Snogerup (in Davis & al., Fl. Turkey 9: 20. 1985) designated Herb. Linnaeus 449.27 (LINN) as the lectotype of *Juncus bulbosus* L. (1753). Two plant fragments on that sheet, one sterile and

the other in fruit, both agree with the original description stating "foliis linearibus canaliculatis, capsulis obtusis" and thus belong to the original material of the name. Proćków (in Taxon 51: 551. 2002) made a restricting choice and designated the fragment in fruit because the sterile plant appeared to belong to a species of *Carex*."

Originally Art. 9.14 was intended to cover the cases when a type specimen that was found to be taxonomically mixed contains admixtures, and it instructs that such admixtures are to be disregarded (Art. 8.2). The present wording of Art. 9.14 is in agreement with this intention and serves the purpose well. However, Ex. 11, which is to illustrate that Article, tells us that part of the mixed specimen should be designated as a lectotype, and selecting a lectotype from discordant elements is a procedure that is different from treating admixtures.

I propose to introduce a distinction between treating admixtures (parts of a specimen that became unknowingly immixed contrary to the intention of the author) and parts of an originally heterogeneous specimen (when elements belonging to more than one taxon were knowingly added by the author). The procedure in each case is different. Admixtures can be handled in the same way as already ruled by Art. 9.14; no change is proposed here except for the following rewording. I suggest to replace the requirement of corresponding "most nearly with the original description or diagnosis" by applying the same provision as used for determining original material (Art. 9.3): part of a specimen is admixture if the validating description or diagnosis does not apply to it. The new Example of *Navicula latelongitudinalis* is provided to illustrate how admixtures can be identified and excluded.

If there are taxonomically different elements of a type specimen that cannot be treated as admixture, such a type can be subject to subsequent lectotypification or neotypification because the provision of "corresponding more nearly" is often impossible to apply in cases when the description is applicable to more than one part of a mixed specimen. Which of those parts corresponds "more nearly" is a matter of opinion, as some characters in the validating description or diagnosis may be borrowed from one taxon and the other characters from another taxon. To avoid ambiguity and logical difficulties, all parts of a mixed type specimen (disregarding admixtures) may be technically treated as syntypes if they match the validating description or diagnosis (i.e. if they were basis of certain statements in the validating description or diagnosis). The cases of *Tetrapterys alternifolia* and *Juncus bulbosus* are provided as Examples to demonstrate the situations when a holotype (the first case) or a lectotype (the second case) appeared to be taxonomically mixed and neither of their parts may have been excluded as admixture.

(253) Amend Art. 9.11 as follows (new text in bold):

"*9.11.* If no holotype was indicated by the author of a name of a species or infraspecific taxon, or when the holotype or previously designated lectotype has been lost or destroyed, or when the material designated as type is found to belong to more than one taxon **(but see Art. 9.14 for admixtures)**, a lectotype or, if permissible (Art. 9.7), a neotype as a substitute for it may be designated."

A reference to the procedure of dismissing admixtures is also required in Art. 9.11.

(254) If Prop. 252 is accepted, amend the revised Art. 9.14 as follows (new text in bold):

"*9.14.* When a type (herbarium sheet or equivalent preparation**, or illustration**) contains parts belonging to more than one taxon, the admixture (usually a minor ingredient) may be excluded without a separate nomenclatural act if it can be demonstrated that the validating description or diagnosis was not based upon the admixed elements; otherwise the type should be narrowed to a single element by way of a subsequent lectotypification or neotypification in conformity with Art. 9.11."

Since illustrations may also consist of several figures (e.g. those which may serve in place of validating descriptive matter under Art. 38.7–38.9), these portions may be accidentally mixed and represent more than one taxon. Such cases are proposed to be included in Art. 9.14 by analogy with designation of lectotypes from a mixed specimen.

(255) Amend Art. 9.17 as follows (new text in bold):

"*9.17.* A designation of a lectotype or neotype that later is found to refer to a single gathering but to more than one specimen must nevertheless be accepted (subject to Art. 9.19), but may be further narrowed to a single one of these specimens by way of a subsequent lectotypification or neotypification **(for taxonomically mixed type designations, see Art. 9.14)**."

When a designated type belongs to one taxon but is represented by more than one specimen, a further choice between such specimens is possible under Art. 40.2 (for holotype designations) and Art. 9.17 (for lectotype and neotype designations). If a designated type belongs to more than one taxon, such situations are dealt with under Art. 9.14. A reference to Art. 9.14 is desirable in Art. 9.17 in order to reflect this difference.

(256) Amend Art. 40.2 as follows (new text in bold), and add a new Note after Art. 40.2 Note 1:

"*40.2*. For the name of a new species or infraspecific taxon, indication of the type as required by Art. 40.1 can be achieved by reference to an entire gathering, or a part thereof, even if it consists of two or more specimens as defined in Art. 8 (see also Art. 40.7) **or is found to be taxonomically mixed**."

"*Note Ibis*. When the type specimen is found to be taxonomically mixed, its parts are syntypes unless the admixture can be excluded under Art. 9.14."

These changes are proposed to clarify the status of taxonomically different parts of a type specimen, in cases when a holotype specimen is found to be taxonomically heterogeneous.

(257) Delete Ex. 11 under Art. 9.14.

The present Ex. 11 under Art. 9 is supposed to illustrate a situation when a [nomenclatural] type, originally indicated or later designated, is found to contain more than one taxonomic element. In such cases Art. 9.14 prescribes the selection of an element of the type that corresponds most closely with the original description or diagnosis.

However, the protologue of *Tillandsia bryoides* Griseb. ex Baker (in J. Bot. 16: 236. 1878), also available at http://www.biodiversitylibrary.org/item/35887#page/254/, demonstrates a situation where the name was originally introduced (as nomen nudum) by one author (Grisebach) on labels of specimens collected by Lorentz in Argentina, and then validly published by another author (Baker) with citation of *Lorentz 128* and four other gatherings kept "in the London herbaria". All five gatherings cited by Baker are syntypes of *T. bryoides* under Art. 9.5, and the specimen originally identified by Grisebach has no other status because Baker did not designate a holotype and more than one specimen was cited in the protologue. Without regard to the original description, which was presumably based on mixed elements, Smith (in Proc. Amer. Acad. Arts 70: 194. 1935) designated part of the Lorentz gathering by the residue method (the present Rec. 9A.4) because the other taxon mixed in this collection

had already been named as *T. tricholepis* Baker (18. However, a further examination of the original collections of *T. bryoides* (Donadío in Darwiniana 49: 131–138. 2011) revealed only plants referable to *T. tricholepis* rather than what was assumed to be *T. bryoides* s.str.; consequently, the latter name was synonymised and the species was redescribed under a new name.

For this reason the case of *T. bryoides* cannot exemplify Art. 9.14, and Ex. 11 of Art. 9 should be deleted as erroneous.

(258) Add a new Recommendation to Rec. 9A with a new Example:

"*9A.5.* When a specimen (as defined in Art. 8.2) consists of several individuals or parts of individuals and is preserved in a single preparation, lectotypification should not be narrowed to an element of that preparation unless there are taxonomic or historical grounds to do so."

"*Ex. 1.* Price (in Candollea 57: 50. 2002) designated the left-hand specimen in the upper row on the sheet of *Swartz s.n.* (G) as the lectotype of *Weissia calycina* Hedw. because in Hedwig's herbarium multiple individuals or groups of individuals "may have been attached to sheets at different times"."

This Recommendation is to discourage unnecessary restrictive type designations made e.g. from fragments of a single specimen mounted on a single herbarium sheet when the fragments are homogeneous both taxonomically and historically.

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(259) Proposal to require precedence of isolectotypes when a previously designated lectotype has been lost or destroyed

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According to Art. 9.11 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), a lectotype may be designated in the following three cases: (1) if no holotype was indicated by the author of a name of a species or infraspecific taxon; (2) when the holotype or previously designated lectotype has been lost or destroyed; or (3) when the material designated as type is found to belong to more than one taxon. According to Art. 9.19, the author who first designates a lectotype must be followed (so long as the exceptions stipulated in Art. 9.19 do not apply). Moreover, in Art. 9.12 there are clear rules on precedence in designating a lectotype:

"*9.12*. In lectotype designation an isotype must be chosen if such exists, or otherwise a syntype if such exists. If no isotype, syntype or isosyntype (duplicate of syntype) is extant, the lectotype must be chosen from among the paratypes if such exist. If no cited specimens exist, the lectotype must be chosen from among the uncited specimens and cited and uncited illustrations that comprise the remaining original material, if such exist."

We propose that in the case when a previously designated lectotype has been lost or destroyed, the replacement lectotype must be designated from among the isolectotypes (duplicates of lectotypes), if such exist, or otherwise according to Art. 9.12 (see above). In this way, existing isolectotypes have precedence over all other kinds of types and other original material listed in sequence in Art. 9.12. The proposed procedure parallels the requirement to designate a lectotype firstly from among isotypes, if such exist (Art. 9.12) and accords with the rule that the author who first designates a lectotype must be followed (Art. 9.19). This proposal will strengthen nomenclatural stability, as the replacement lectotype will be a duplicate specimen (if such exists) of the previous lectotype. This proposal also parallels Prop. 045 (Ferrer-Gallego & al. in Taxon 64: 650. 2015), in which a substitute neotype must be designated firstly from among isoneotypes, if such exist.

(259) Add a new Article after Art. 9.15 and include a reference to it at the end of Art. 9.12:

"*9.15bis*. When the previously designated lectotype has been lost or destroyed, the replacement lectotype must be designated from among the isolectotypes (Rec. 9C.1), if such exist, or otherwise according to Art. 9.12."

"*9.12.* […]. **See also Art. 9.15bis.**"

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(260) Proposal to clarify and enhance Article 9.14 of the *Code* with respect to the exigencies of subsequent typifications

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Article 9.11 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) rules: "[…] when the material designated as type is found to belong to more than one taxon, a lectotype […] as a substitute for it may be designated."

In addition, Art. 9.14 rules: "When a type (herbarium sheet or equivalent preparation) contains parts belonging to more than one taxon (see Art. 9.11), the name must remain attached to the part (specimen as defined in Art. 8.2) that corresponds most nearly with the original description or diagnosis."

Finally, Art. 9.19 rules: "The author who first designates […] a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice is superseded if […] *(c)* it is contrary to Art. 9.14."

In a case where a holotype, lectotype, or neotype (that is not an illustration) contains parts belonging to more than one taxon, attaching the name to the appropriate specimen, as required by Art. 9.14, is achieved by lectotypification (in the case of a holotype) or by subsequent lectotypification or neotypification in the case of a lectotype or neotype, respectively. However, there is no such wording in Art. 9.14. There is a somewhat analogous situation in Art. 9.17, where the procedure that may be followed is clearly stated: "A designation of a lectotype or neotype that later is found to refer to a single gathering but to more than one specimen […] may be further narrowed to a single one of these specimens by way of a subsequent lectotypification or neotypification."

The case of Art. 9.14 is even more important than that of Art. 9.17 because a type specimen must not contain parts belonging to more than one taxon. In such a case the subsequent typification is crucial to maintain nomenclatural stability. Therefore, in order to clarify and enhance Art. 9.14, we propose to supplement it with the following wording:

(260) Amend Art. 9.14 as follows (new text in bold):

"*9.14.* When a type (herbarium sheet or equivalent preparation) contains parts belonging to more than one taxon (see Art. 9.11), the name must remain attached to the part (specimen as defined in Art. 8.2) that corresponds most nearly with the original description or diagnosis. **This is achieved by designation of a lectotype when a holotype is taxonomically heterogeneous; or by a subsequent designation of lectotype or neotype, respectively, when a lectotype or neotype is superseded under Art. 9.19(c).**"

Acknowledgement

We gratefully acknowledge Nicholas Turland (B) for suggesting improvements to the text.

(261) Proposal to permit that an epitype found to be more than one specimen can be subsequently typified

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Article 9.17 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) rules: "A designation of a lectotype or neotype that later is found to refer to a single gathering but to more than one specimen […] may be further narrowed to a single one of these specimens by way of a subsequent lectotypification or neotypification." However, there is also another kind of a type specimen that can be selected at any time, if necessary, i.e. an epitype (Art. 9.8), which was established by the *Tokyo Code* (Greuter & al. in Regnum Veg. 131. 1994). It is obvious that in the future it will also be possible to find a designation of an epitype that refers to a single gathering but to more than one specimen. In such a case the *Melbourne Code* does not permit a subsequent epitypification, and there is no other rule explaining how to proceed. Moreover, Art. 9.20 rules: "The author who first designates […] an epitype must be followed; a different epitype may be designated only if the original epitype is lost or destroyed" – therefore the first choice of epitype cannot be challenged.

As epitypes have already been in use for about 20 years, we propose to supplement Art. 9.17 so that it is no longer limited to subsequent lectotypification or neotypification, but also permits subsequent epitypification.

(2611) Amend Art. 9.17 as follows and add a reference to Art. 9.20 (new text in bold, deleted text in strikethrough):

"*9.17.* A designation of a lectotype**,** ~~or~~ neotype**, or epitype** that later is found to refer to a single gathering but to more than one specimen must nevertheless be accepted (subject to Art. 9.19), but may be further narrowed to a single one of these specimens by way of a subsequent lectotypification**,** ~~or~~ neotypification**, or epitypification**."

"*9.20.* The author who first designates (Art. 7.9 and 7.10) an epitype must be followed; a different epitype may be designated only if the original epitype is lost or destroyed **(see also Art. 9.17)**. […]."

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(262) A proposal concerning the valid publication of suprageneric "autonyms"

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The *Berlin Code* (Greuter & al. in Regnum Veg. 118. 1988) provided for autonyms at three taxonomic levels: subdivisions of families (Art. 19.3–19.4), subdivisions of genera (Art. 22.1–22.2), and infraspecific taxa (Art. 26.1–26.2). Autonyms were accepted as validly published names (Art. 32.6). The status of names, in these rank groups, that included the type of the adopted name of the family, genus, or species to which they were assigned but were not autonyms was not explicitly defined. The latter names violated Art. 19.3, 22.1, or 26.1, respectively:

"The name of any [subdivision of a family, subdivision of a genus, infraspecific taxon] that includes the type of the adopted, legitimate name of the [family, genus, species] to which it is assigned is to [be based on the generic name equivalent to that type, repeat that generic name unaltered as its epithet, repeat the specific epithet unaltered as its final epithet]."

As Art. 32.1 of the *Berlin Code* required that "In order to be validly published, a name of a taxon (autonyms excepted) must […] have a form which complies with the provisions of Arts. 16-27", one could by implication conclude that such names were not validly published.

In the case of infraspecific taxa and subdivisions of genera, the fact that names that did not conform to the autonym provisions were not validly published was made explicit in the *Tokyo Code* (Greuter & al. in Regnum Veg. 131. 1994), in Art. 22.2 and 26.2, respectively. But while the quoted portions of Art. 32.1 and Art. 19.3 (which had become Art. 19.4) in the *Tokyo Code* remained unchanged, the names of subdivisions of families covered by Art. 19.4 were no longer considered autonyms, and there was no corresponding provision to the effect that names that did not conform to Art. 19.4 were not validly published. The reason for this divergence of treatment was the fact that names of subdivisions of families are not combinations; and although it is customary to do so, there is no obligation to assign the named taxa in these ranks to a validly named family. At present it must be inferred that names published in contravention of Art. 19.4, while incorrect, can nevertheless be validly published, but we believe that it is desirable to make this conclusion explicit by adding an apposite Note to Art. 19.

(262) Proposal to add the following Note to Art. 19.4 of the *Melbourne Code*:

"*Note 2bis*. A name of a subdivision of a family that includes the type of the adopted, legitimate name of the family to which it is assigned, but is not formed from the generic name equivalent to that type, is incorrect but may nevertheless be validly published and may become correct in a different context."

The following Example could be added to Art. 19:

"*Ex. 4bis*. The name *Lippieae* Endl. (Gen. Pl.: 633. 1838), designating a tribe of *Verbenaceae* J. St.-Hil. that includes both *Lippia* L. and *Verbena* L., the name from which the accepted name of the family is formed, was nevertheless validly published by Endlicher. Although originally incorrect, it may become correct if used for a tribe of *Verbenaceae* that includes *Lippia* but excludes *Verbena*."

(263) Proposal to amend Article 29.1 with regard to ISSN and ISBN

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Nowadays, an International Standard Serial Number (ISSN) or an International Standard Book Number (ISBN) is widely accepted in publications. The ISBN is in use in more than 150 countries (http://www.isbn.org), and the ISSN has 89 member countries and is used by more than one million serial publications in print or online (http://www.issn.org). In the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), there are two places that mention ISBN and ISSN. Under Art. 29.1, publication on or after 1 January 2012 of electronic material in PDF (portable document format) in an online publication with an ISSN or ISBN constitutes effective publication. Under Art. 30 Note 4, an ISBN is regarded as internal evidence that a thesis is intended to be effectively published. With the development of printing techniques, it is often difficult to distinguish printed matter that is not intended to be effectively published from that which is. Nomenclatural novelties have been included in ephemeral printed matter without an ISBN distributed at conferences or symposia. The number (print run) and distribution of such publications are often limited and they may therefore be difficult to find. Novelties appearing in such ephemeral publications fulfil the requirements for valid publication, even though they may not have been intended to be published there and were later re-published elsewhere. Often the original place of publication of such novelties is overlooked by later authors. Therefore, I propose to amend Art. 29.1 to require that, starting in 2019, a publication must have an ISSN or ISBN in order to be effectively published.

(263) Amend Art. 29.1 as follows (new text in bold):

"*29.1.* Publication is effective, under this *Code*, by distribution of printed matter (through sale, exchange, or gift) to the general public or at least to scientific institutions with generally accessible libraries. Publication is also effected by distribution on or after 1 January 2012 of electronic material in Portable Document Format (PDF; see also Art. 29.3 and Rec. 29A.1) in an online publication with an International Standard Serial Number (ISSN) or an International Standard Book Number (ISBN). **Publication on or after 1 January 2019 is not effective unless the publication has an ISSN or an ISBN.**"

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(264–271) Proposals to refine Articles 29–31 with regard to effective publication of electronic material

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The following proposals aim to address the happily few "teething problems" that have occurred since the effective publication of electronic material became possible on 1 January 2012, following the decisions of the Melbourne Congress in 2011.

(264) Delete clause (c) of Rec. 29A.2:

"*29A.2.* Authors of electronic material should give preference to publications that are archived and curated, satisfying the following criteria as far as is practical (see also Rec. 29A.1):

(a) The material should be placed in multiple trusted online digital repositories, e.g. an ISO-certified repository.

(b) Digital repositories should be in more than one area of the world and preferably on different continents.

~~*(c)* Deposition of printed copies in libraries in more than one area of the world and preferably on different continents is also advisable (but see Rec. 30A.2).~~"

Recommendations in the *Code* should be realistic. It is not realistic to expect libraries to deal with potentially huge numbers of what are essentially reprints. If authors wish to print copies of electronic publications and deposit them in libraries, they are free to do so, and the libraries can decide whether or not to accept or curate them.

(265) Amend Art. 30.2 as follows (new text in bold, deleted text in strikethrough):

"*30.2.* An electronic publication is not effectively published if there is evidence within or associated with the publication that it**s content** is merely ~~a~~ preliminary ~~version that~~ **and** was, or is to be, replaced by ~~a version~~ **content** that the publisher considers final, in which case only **the version with** that final ~~version~~ **content** is effectively published."

The aim here is to more clearly establish that it is the *content* of an electronic publication that must not be preliminary in order for

publication to be effective. For the definition of content, see prop. 268 below.

(266) Add a new Note after Art. 30.2:

"*Note n*. An electronic publication may be a final version even if details, e.g. volume, issue, or page numbers, are to be added or changed, provided that those details are not part of the content (see Art. 30.2bis)."

This Note is to clarify that page numbers are not part of the content of a publication and are therefore to be excluded from the question of what is a preliminary or final version. For Art. 30.2bis, see prop. 268 below. This makes explicit the rejection of the amendment to Art. 29 Prop. B at the Nomenclature Section of the Melbourne Congress (see Flann & al. in PhytoKeys 41: 118–119. 2014). From the floor it was proposed that the word "paginated" be inserted in what are now the last words of Art. 29.1 (i.e. "…in an online [paginated] publication with an International Standard Serial Number (ISSN) or an International Standard Book Number (ISBN).") – the amendment was defeated by a show of hands.

(267) Move Art. 30 Note 1 and Ex. 5 to Art. 29.

This is editorial. Article 30 Note 1 and Ex. 5 belong in Art. 29, not in Art. 30. Moreover, Ex. 5 does not even illustrate Note 1. The PDF publication mentioned in the Example does not contain an ISSN or ISBN, so there is no "citation … of an inappropriate ISSN or ISBN". The Editorial Committee should consider replacing or repositioning this Example.

(268) Convert Art. 30 Note 2 to an Article, as follows (new text in bold, deleted text in strikethrough):

"~~*Note 2*~~ ***30.2bis***. Content ~~in~~ **of an electronic publication includes that which is visible on the page, e.g. text, tables, illustrations, etc., but it excludes volume, issue, and page numbers; it also excludes** external sources accessed via a hyperlink or URL (Uniform Resource Locator) ~~embedded in text is not part of the publication; nor is associated information that does not form part of the text itself, such as page numbers (if preliminary or lacking) or watermarks. Content is that which stands alone as the version that the publisher considers final (see Art. 30.2)~~."

Art. 30 Note 2 is promoted to an Article and amended so as to define what content is and especially what it is not. See prop. 271 below for a Recommendation on the positioning of the date of publication as part of the content.

Art. 30.3 could be editorially moved to immediately precede Art. 30.4. It would be welcome if someone could find a good Example to illustrate Art. 30.3.

(269) Add to Rec. 30A.1 (new text in bold):

"*30A.1.* Preliminary and final versions of the same electronic publication should be clearly indicated as such when they are first issued. **The phrase "Version of Record" should only be used to indicate a final version in which the content will not change.**"

The phrase "Version of Record" is commonly used by publishers to indicate the final version of an electronic publication. This addition is to encourage its use and to discourage its misuse for what is in fact a preliminary version.

(270) Add a new paragraph after Rec. 30A.1:

"*30A.1bis*. To facilitate citation, final versions of electronic publications should contain final pagination."

Many journals publish final versions of articles individually in advance of completion of an issue (e.g. "online first" or "issue in progress" articles). In some cases, the pagination of such articles is preliminary, later to be repaginated when the articles are arranged in an issue in a sequence other than that in which they were published. Preliminary pagination can cause difficulty in accurately citing the publication, especially after both preliminarily and definitively paginated PDFs of the same publication have been published. "Citation-ready" publications, in which the final version is published only with final pagination, avoid such problems. We realize that some journals have good reasons for arranging articles in a particular, non-chronological sequence. Nevertheless, we hope this Recommendation will help move citation-ready publications toward standard practice.

When it is necessary to cite an article that only has preliminary pagination, e.g. when it is not possible to wait until the final pagination becomes available, it could be helpful to indicate in the citation that the pagination is preliminary. We suggest the Editorial Committee seek examples of good practice in citation for inclusion as Examples in the *Code*.

(271) Reword Rec. 31B.1 as follows:

"*31B.1.* The date of effective publication should be clearly indicated as precisely as possible within a publication as part of the content. When a publication is issued in parts, this date should be indicated in each part."

This is a simplification and modernization of the present Recommendation, which contains wording left over from the days when only printed matter could be effectively published. It also specifies that the date should be indicated in the *content* of the publication, which is especially important in electronic material where the date might otherwise appear far less usefully, e.g., on an associated web page.

(272–275) Is wrong better than nothing? Proposals to change or make more precise Article 41.6

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It is both the common sense and the information theory view, that wrong (incorrect) information is worse than a lack of information, the latter being zero, but the former being negative ("below zero") knowledge. However, the literal meaning of Art. 41.6 would imply, that *any* error in the citation of a basionym or replaced synonym is permissible, as long as it is not an omission of elements enumerated in Art. 41.5. In the Ex. 14, a case of wrong publication date is given as not preventing valid publication. So, it may be inferred, that if the citation includes wrongly given page (or plate) number, it would not make the citation invalid either, although this will cause the same problem for the reader as the omission of this number altogether, i.e. necessity to search for the right page/plate throughout the cited paper. Moreover, this may cause ambiguity, if descriptions or plates that might refer to a potential basionym or replaced synonym were to be found in multiple places within the same work. Therefore I would propose two alternative changes (one being Proposals 272 to 274, the other Proposal 275) to be considered.

(272) Amend Art. 41.6 as follows (new text in bold, deleted text in strikethrough):

"*41.6.* For names published on or after 1 January 1953, errors in the citation of the basionym or replaced synonym, including incorrect **but not omitted** author citation (Art. 46), ~~but not~~ **and bibliographic** omissions (Art. 41.5), **as far as they do not cause ambiguity as to the real place of the protologue or valid publication of the basionym or replaced synonym within the cited work,** do not preclude valid publication of a new combination, name at new rank, or replacement name."

This would lessen the strictness of Art. 41.6, with a clause of condition under which this situation (bibliographic omission) would be permissible, allowing citations of works where page(s)/plate number are omitted to be acceptable if there is only one place in the publication where the name and/or protologue of the basionym/replaced synonym is printed (tables of contents and indexes notwithstanding). This would however affect also Note 1 and Example 12 under Art. 41.5, as the situation depicted there, i.e. giving the reference of the whole paper's pagination, would be equivalent to citing a separate publication without reference to a particular page. So, if the Proposal (272) is accepted, then the two following Proposals should also be voted:

(273) Convert Note 1 under Art. 41 into Rec. 41A.2, amended as follows (new text in bold, deleted text in strikethrough):

"*41A.2.* For the purpose of Art. 41.5, a page reference (for publications with a consecutive pagination) ~~is~~ **should be** a reference to the page or pages on which the basionym or replaced synonym was validly published or on which the protologue appears, but not to the pagination of the whole publication unless it is coextensive with that of the protologue (see also Art. 30 Note 2)."

(274) Amend Ex. 12 under Art. 41 as follows (new text in bold, deleted text in strikethrough):

"*Ex. 12.* When proposing "*Cylindrocladium infestans*", Peerally (in Mycotaxon 40: 337. 1991) cited the basionym as "*Cylindrocladiella infestans* Boesew., Can. J. Bot. 60: 2288–2294. 1982". ~~As~~ **Although** this refers to the pagination of Boesewinkel's entire paper, not of the protologue of the intended basionym alone **(which was on p. 2290, but nowhere else in the paper an alternative protologue could be found),** the combination was ~~not~~ validly published by Peerally; **this practice is however strongly discouraged**."

Another way of making the Article 41.6 more consistent would be:

(275) If Proposals (272–274) fail, amend Art. 41.6 as follows (new text in bold):

"*41.6.* For names published on or after 1 January 1953, errors in the citation of the basionym or replaced synonym, **as far as they do not cause ambiguity as to the real place of the protologue or valid publication of this name within the cited work,** including incorrect author citation (Art. 46), but not omissions (Art. 41.5), do not preclude valid publication of a new combination, name at new rank, or replacement name."

This would make the Art. 41.6 more strict, by excluding also citation errors that would render the identification of the real place of valid publication of a name ambiguous.

(276–279) Proposals to provide for registration of new names and nomenclatural acts

Special Committee on Registration of Algal and Plant Names (including fossils)
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The Melbourne Congress of 2011 authorized a Special Committee on Registration of Algal and Plant Names (including fossils), which was established the following year (Wilson in Taxon 61: 878–879. 2012). Its explicit mandate was "to consider what would be involved in registering algal and plant names (including fossils), using a procedure analogous to that for fungal names agreed upon in Melbourne and included in the *Code* as Art. 42", but expectations at the Nomenclature Section in Melbourne went farther than that. There was the hope that registration systems for at least some of the main groups would soon be set up, to be used and tested on a voluntary basis and, if found to be generally accepted, would persuade the subsequent Congress in Shenzhen, in 2017, to declare registration of new names an additional requirement for valid publication.

The Melbourne Congress also approved mandatory registration of nomenclatural novelties in fungi, starting on 1 Jan 2013. The new Art. 42 of the *Code* (McNeill & al. in Regnum Veg. 154. 2012) requires authors to register any fungal nomenclatural novelty, prior to publication, with a recognized repository, whereupon they are provided with a unique identifier for each name, to be included in the protologue along with other *Code*-mandated information. Years before registration became mandatory, mycologists had been encouraged, often prompted by journal editors, to register their nomenclatural novelties prior to publication. Most complied. Consequently, when mandatory registration was proposed, it had strong support from the mycological community.

There are currently three recognized repositories for fungal names. They vary somewhat in how they operate, but they share records of their registered novelties as soon as publication has been effected. One consequence of implementing mandatory registration is that locating new fungal names and combinations and associated protologue information is much simpler now than it was before. This makes it easier to incorporate the information into taxonomic studies and to update taxonomic treatments, inventories, and indices. A corollary is that, no matter what publication outlet an author chooses, the name cannot fail to be noticed.

The positive experience in mycology makes extension of the registration concept to plants and algae a compelling idea. That experience shows that the best way to make mandatory registration of nomenclatural novelties palatable to botanists and phycologists is the establishment of trial registration at repositories with a history of involvement in and commitment to the indexing of names. Trial registration enables users to acquaint themselves with registration procedures, make suggestions on how they might be improved, and appreciate, by personal experience, the benefits of registration.

Unfortunately, the task of establishing such repositories proved to be more complex and time-consuming than had been foreseen. Substantial progress has been made in the establishment of such centres (Barkworth & al., in this issue, pp. 670–672) but the Committee is not in a position to make firm proposals to regulate registration procedures, even less to make registration mandatory from a concrete future date. Nevertheless, the Committee sees it as imperative that the Shenzhen Congress be offered the opportunity to move forward with registration without having to wait six more years. In this spirit, we offer the proposals below. Proposal (276) would declare registration an ongoing concern of the botanical, mycological, and phycological community and provide the basic structure for making it possible. Proposal (277) and Prop. (278) would, in addition, define a flexible framework within which a system of voluntary registration could be developed for various categories of organisms. Proposal (279) would provide for future mandatory registration in a way that does not depend on the six-year intervals between International Botanical Congresses. Presentation of each proposal is followed by a summary of the support received from members of the Committee.

(276) In Div. III.2, add a new permanent nomenclature committee, as follows:

"*(8)* Registration Committee, charged with assisting the design and implementation of repositories for new names and nomenclatural acts, monitoring the functioning of existing repositories, and advising the General Committee on relevant matters. It is chaired by the Secretary-General of the International Association for Plant Taxonomy or his/her deputy and includes at least 5 members appointed by the Nomenclature Section selected, in part, to ensure geographic balance, and representatives from: *(1)* the other permanent nomenclature committees, *(2)* prospective or functioning repositories, *(3)* the International Organisation of Palaeobotany, *(4)* the International Phycological Society, *(5)* the International Mycological Association, and *(6)* the International Association of Bryologists."

Committee vote: in favour 39, against 0, abstain 0.

Of the four proposals, the first is basic. Registration is of too great ongoing importance to the nomenclatural infrastructure of taxonomy to be entrusted to the care of just another Special Committee. If the nomenclatural community feels that there is merit in further exploring the potential and feasibility of a system of registration of new names and nomenclatural acts, creation of a permanent nomenclature committee with appropriate membership is the first necessary step. None of the following proposals need be accepted to justify acceptance of the proposed Registration Committee, but none will be able to function in its absence.

(277) In Art. 42, add two new introductory paragraphs:

"*42.0.* An interested institution, in particular one with expertise in nomenclatural indexing, may apply for recognition as a nomenclatural repository under this *Code*. A nomenclatural repository takes charge, for specified categories of organisms, of registering nomenclatural novelties (names of new taxa, new combinations, names at new ranks, or replacement names) and/or other nomenclatural acts requiring effective publication such as type designations (Art. 7.9 and 7.10), or choices of name (Art. 11.5 and 53.6), orthography (Art. 61.3), or gender (Art. 62.3)."

"*42.0bis.* Applications for recognition as a nomenclatural repository are to be addressed to the General Committee, which will refer them to the Registration Committee and act upon its recommendation. Prior to such a recommendation, mechanisms and modalities of registration, and definition of coverage, will be developed in consultations among the applicant, the Registration Committee, and the permanent nomenclature committee(s) for the group(s) concerned, and be widely publicized in the taxonomic community; a public trial run of at least one year must have shown that the procedure works efficiently and sustainably. The General Committee has the power to suspend or revoke a granted recognition."

Committee vote: in favour 38, against 0, abstain 1.

This and the following proposals would not by themselves make registration mandatory. They would enable the Registration Committee to assess both what is desirable and what is feasible in matters of registration, so that, without being restricted to specific protocols and data categories, it may move forward in fulfilling its mandate: to assist in the design and implementation of nomenclatural repositories. Proposal (277) defines the responsibilities of a potential repository

and outlines the procedures to be followed before it may be officially recognized; for which purpose it must, for at least one year, have been publicly available and demonstrated its ability to operate both efficiently and sustainably. The proposal also refers to the necessity of involving the permanent nomenclature committees for the groups concerned in the planning and testing process.

(278) In Art. 42, add another introductory paragraph, with a Note:

"*42.0ter.* Registration may be proactive and/or synchronous and/or retrospective; that is, it may occur before and/or simultaneously with and/or after the valid publication of a nomenclatural novelty or the effective publication of a nomenclatural act."

"*Note 0.* For ways in which proactive registration of nomenclatural novelties functions, see Art. 42.1 and 42.2, relevant for fungal names."

Committee vote: in favour 36, against 2, abstain 1.

The third proposal defines three different modes of registration and allows for all three being taken into consideration. They are not mutually exclusive, and each has its particular merits and potential disadvantages. It would be unwise at this stage to give preference to one of them. The registration system devised by the Tokyo Congress and tested before the Saint Louis Congress was retrospective; the mandatory registration that has operated successfully for fungi in the last three years is proactive. Synchronous registration may become both feasible and desirable in the near future. The above proposal provides for flexibility during test phases. Eventually, users will decide which mode (or modes) suits them best.

(279) At the end of Art. 42, add the following paragraph and Note:

"*42.4.* For specified categories of organisms other than fungi, the General Committee, upon recommendation of the Registration Committee and the permanent nomenclature committee(s) for the group(s) concerned, has the power to declare registration through a recognized nomenclatural repository to be an additional requirement for *(1)* valid publication of nomenclatural novelties and/or *(2)* the achievement of nomenclatural acts. Such a decision must be widely publicized at least one year before the requirement can take effect. The General Committee has the power to cancel such a requirement, should the repository mechanism, or essential parts thereof, cease to function. Decisions made by the General Committee under these powers are subject to ratification by a subsequent International Botanical Congress."

"*Note 1bis.* For nomenclatural novelties published after the date on which registration becomes a condition for valid publication in the group concerned, Art. 33.1 applies."

Committee vote: in favour 36, against 2, abstain 1.

The last proposal is put forward for the benefit of those who are impatient to see registration made mandatory if and when the required mechanisms are in place and are unwilling to wait for six more years before it can happen. In times when technology and habits evolve at unprecedented speed, it may be appropriate to delegate some decision-making power to the body representing nomenclature between Congresses.

The proposal would provide a mechanism by which the General Committee, upon positive advice from the Registration Committee and other pertinent permanent committees, may declare registration mandatory for given groups of organisms and data categories. The General Committee must advertise its intent at least one year before such a decision can take effect, and the subsequent International Botanical Congress has the power to override the decision, which the General Committee itself can also, if need be, revoke. These safeguard clauses are, in essence, parallel to those that mycologists have devised for the registration provisions for fungal names (the current Art. 42).

(280–281) Proposals on definitions of "treatment as algae, fungi, or plants"

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In the context of homonymy, names of any organisms once treated as algae, fungi, or plants must be considered under the *Code* (Art. 54). However, "treatment as algae, fungi, or plants" is not well defined in the *Code*. In recent years, many experts and amateurs "publish" personal websites introducing their own classification systems. However, "treatments" in such websites are difficult to be followed, and should not be considered in the context of homonymy.

In another confusing case, Nozaki & al. (in J. Molec. Evol. 56: 485–497. 2003) included many protozoan lineages ("*Kinetoplastida*", "*Heterolobosea*", "*Apicomplexa*", and "*Ciliophora*" [or ciliates, not the fungal genus *Ciliophora* Petr.]) in *Plantae*, based on phylogenetic analyses. When this is interpreted as treatments as plants, names of taxa belonging to these protozoan lineages are subject to the rules of priority and homonymy of the *ICN*, although the authors did not intend such nomenclatural consequences (Nozaki, pers. comm.).

To restrict these considerations only to those resulting from effective publications and to avoid confusing consequences from ambiguous treatments, "treatment as algae, fungi, or plants" should be clearly defined, and I propose the following amendment to Art. 54.1.

(280) Amend Art. 54.1 as follows (new text in bold):

"*54.1.* Consideration of homonymy does not extend to the names of taxa not treated as algae, fungi, or plants, except as stated below:

(a) Later homonyms of the names of taxa once treated as algae, fungi, or plants **in effective publications** are illegitimate, even when the taxa have been reassigned to a different group of organisms to which this *Code* does not apply.

(b) A name originally published for a taxon other than an alga, fungus, or plant, even if validly published under this *Code* (Art. 32–45), is illegitimate if it becomes a homonym of an algal, fungal,

or plant name when the taxon to which it applies is first treated as an alga, fungus, or plant **in an effective publication** (see also Art. 45.1).

***(c)* For the purpose of Art. 54, simple statements on affinities of taxa to algae, fungi, or plants, without explicit statements on the treatment, or associated nomenclatural proposals, under this *Code*, are not considered as treatments as algae, fungi, or plants.**"

(281) Add two new Examples after Art. 54 Note 1:

"*Ex. 1. Micromonas* Borrel (1902) is listed in *Index Nominum Genericorum* as a member of "Flagellata?" without explicit statements on the treatment, or associated nomenclatural proposals, under this *Code*. Doweld (Prosyllabus Tracheophytorum: LXXIII. 2001) proposed *Micrinomonas* Doweld as a new name for *Micromonas* I. Manton & M. Parke (1960) citing *Micromonas* Borrel as an earlier homonym under the *Code.* Therefore, Doweld (2001) first treated *Micromonas* Borrel as algae, fungi or plants."

"*Ex. 2.* Nozaki & al. (in J. Molec. Evol. 56: 485–497. 2003) included many protozoan lineages ("*Kinetoplastida*", "*Heterolobosea*", "*Apicomplexa*", and "*Ciliophora*") in *Plantae*, based on phylogenetic analyses. However, no explicit statements on the treatment, or associated nomenclatural proposals, under this *Code* are in the publication, and these assignments are not considered as treatments as algae, fungi, or plants under Art. 54."

(282–283) Proposals to add a new paragraph with new Examples to Article 55 dealing with names originally assigned to later homonyms and subsequently assigned to respective earlier homonyms

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Article 55.3 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) rules that the names of species or subdivisions of genera earlier assigned to genera the names of which are earlier rejected homonyms are legitimate, without change of authorship or date, when assigned to genera the names of which are the corresponding later conserved or sanctioned homonyms. For example (Art. 55 Ex. 4), the names *Alpinia languas* J. F. Gmel. (1791) and *A. galanga* (L.) Willd. (1797), originally assigned to *Alpinia* L. (1753), are legitimate, with the same authorships and dates, when assigned to the conserved later homonym *Alpinia* Roxb. (1810).

In my recent studies, I found a somewhat similar situation in which species names originally assigned to genera the names of which are later illegitimate homonyms are subsequently assigned (or "transferred") to genera the names of which are the corresponding earlier legitimate homonyms. According to Art. 55.1, such names published under later illegitimate homonyms may be legitimate, but I consider that there is no explicit provision in Art. 55 for the names to be re-assigned to the earlier homonyms. Obviously, it is unnecessary in such cases to publish new combinations, because this would result in later "isonyms", which would have no nomenclatural status (Art. 6 Note 2). Hence, the names when re-assigned should remain legitimate with no change to authorship and date, parallel to what is permitted by Art. 55.3. I therefore propose to add a new paragraph with new Examples to Art. 55.

The first Example concerns the re-assignment of a species name from a later to an earlier generic homonym when those homonyms are applied taxonomically to different genera. The second and third Examples concern the re-assignment of species names from a later to an earlier generic homonym when those homonyms are applied to the same genus.

(282) Add a new paragraph to Art. 55:

"*55.4.* The epithet of the name of a species or subdivision of a genus that was originally placed under a generic name that is a later homonym, or the final epithet of the name of an infraspecific taxon that was originally placed under a species name that is a later homonym, may be placed under the respective legitimate earlier homonym without change of authorship and date."

(283) If Prop. (282) is accepted, add up to three new Examples to Art. 55:

"*Ex. 5.* The epithet of *Haplanthus hygrophiloides* T. Anderson (1867) was originally placed under the illegitimate generic name *Haplanthus* T. Anderson (1867), a later homonym of *Haplanthus* Nees (1832). When *H. hygrophiloides* is considered to belong instead to *Haplanthus* Nees, it is so accepted without change of authorship and date."

"*Ex. 6.* When the homonyms *Acidosasa* B. M. Yang (1981) and *Acidosasa* C. D. Chu & C. S. Chao (1982) are considered to apply to the same genus, *A. chinensis* C. D. Chu & C. S. Chao (1982) is so accepted even though its epithet was originally placed under the illegitimate *Acidosasa* C. D. Chu & C. S. Chao (1982)."

"*Ex. 7.* When the homonyms *Dendrocalamopsis* Q. H. Dai & X. L. Tao (1982) and *Dendrocalamopsis* (L. C. Chia & H. L. Fung) Keng f. (1983) are considered to apply to the same genus, *D. oldhamii* (W. Munro) Keng f. (1983) and seven other simultaneously published species names are so accepted even though their epithets were originally placed under the illegitimate *Dendrocalamopsis* (L. C. Chia & H. L. Fung) Keng f. (1983)."

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(284–285) Proposals to add a voted Example to Article 60.9 in order to end the confusion over the maintenance or omission of hyphens in epithets formed from names containing a preposition or a definite article

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Article 60.9 currently states: "The use of a hyphen in a compound epithet is treated as an error to be corrected by deletion of the hyphen. A hyphen is permitted only when the epithet is formed of words that usually stand independently, or when the letters before and after the hyphen are the same (see also Art. 23.1 and 23.3)."

In epithets formed from names containing a preposition or definite article, such as "Le Testu", "De Laet", or "Van Meel", examples of omission, maintenance, and insertion of the hyphen are in current use. The wording of Article 60.9 as regards whether or not the words making up an epithet can "usually stand independently" has been interpreted differently by different authors.

To end the confusion regarding the omission, maintenance, or insertion of hyphens in such epithets we present two alternative proposals to add a voted Example to Art. 60.9:

(284) Add a voted Example to Art. 60.9:

"**Ex. 24bis*. Hyphen to be omitted: *Peperomia lasierrana* Trel. & Yunck. (1950 as "*la-sierrana*"), not "*la-sierrana*"; hyphen not to be inserted: *Synsepalum letestui* Aubrév. & Pellegr. (1961 as "*Le Testui*"), not "*le-testui*"."

(285) Add a voted Example to Art. 60.9:

"**Ex. 25bis*. Hyphen to be maintained: *Peperomia la-sierrana* Trel. & Yunck. (1950), not "*lasierrana*"; hyphen to be inserted: *Synsepalum le-testui* Aubrév. & Pellegr. (1961 as "*Le Testui*"), not "*letestui*"."

A vote for either of these two proposals will remove the current ambiguity that exists in the interpretation of the wording of Art. 60.9. To date, in the International Plant Names Index (IPNI), there are 135 records that would require editing if Prop. 284 were to be accepted; in the World Checklist of Selected Plant Families (WCSP), 209 records would need to be edited (see Table 1). A vote for Prop. 285 would also require some editing of the IPNI and WCSP databases, but because these records cannot be easily searched for we do not know how many epithets would be affected and they would have to be dealt with as and when they come to light in the course of our work or via user feedback.

Recommendation 60C.5(c) provides examples of how a prefix consisting of an article or containing an article should be united to the name: "*leclercii* after Le Clerc, *dubuyssonii* after DuBuysson, *lafarinae* after La Farina, *logatoi* after Lo Gato". However, this Recommendation is strictly concerned with the formation of **new** epithets based on personal names and does not refer to the treatment of hyphens.

Table 1. Use of a hyphen in epithets formed from names containing a preposition or definite article.

Hyphenated preposition or article	Number of epithets in IPNI	Number of epithets in WCSP
le-	29	96
la-	3	2
de-	42	30
von-	1	2
van-	60	79
Total number of epithets	**135**	**209**

(286) Proposal to replace Division III of the *International Code of Nomenclature for algae, fungi, and plants*

Special Committee on By-laws for the Nomenclature Section
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At the XVIII International Botanical Congress in Melbourne in 2011 a Special Committee on By-laws for the Nomenclature Section was established with the mandate "To formalise the procedures by which changes to the *Code* are considered and voted upon by the Nomenclature Section". The Committee's extensive discussions have resulted in the following proposal to replace in the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) the current Division III (Provisions for the governance of the *Code*) with the following revised Division III. The Committee approves the following proposal unanimously (all 18 members in favour). This proposal is accompanied and explained by the Report of the Special Committee (Knapp & al. in Taxon 65: 665–669. 2016), and the two documents should be read alongside each other. In the interests of clarity and transparency, the results of the Committee's separate votes after discussion of each proposed Article are presented in Tables 1 and 2 of the Report. The numbering of Articles and Recommendations below is provisional. Should the proposal be accepted, the Editorial Committee will no doubt devise a numbering system that both facilitates citation and avoids confusion.

(286) Replace Division III of the Code with the following new version:

DIVISION III.
PROVISIONS FOR GOVERNANCE OF THE CODE

1. General provisions for governance of the Code

1.1. The *International code of nomenclature for algae, fungi, and plants* is governed by its users, who are represented by members of a Nomenclature Section of an International Botanical Congress acting under the authority of that Congress and, between such Congresses, by the Permanent Nomenclature Committees and any Special-purpose Committees.

1.2. The *Code* may be modified only by action of a plenary session of an International Botanical Congress on a resolution moved by the Nomenclature Section of that Congress.

1.3. In the event that there should not be another International Botanical Congress, authority for the *International code of nomenclature for algae, fungi, and plants* shall be transferred to the International Union of Biological Sciences or to an organization at that time corresponding to it. The General Committee is empowered to define the machinery to achieve this.

1.4. The *Code* is provided with logistical and financial support by the International Association for Plant Taxonomy (IAPT), which liaises with the Permanent Nomenclature Committees and the Bureau of Nomenclature. The nomenclatural publications[1] required by Div. III are published as specified by the General Committee (currently in the journal *Taxon*).

[1] [*footnote to 1.4*] The nomenclatural publications required by Div. III include proposals to conserve and reject names or suppress works, requests for decisions, reports of Permanent Nomenclature Committees and Special-purpose Committees, proposals to amend the *Code* and a synopsis of these proposals, notices of institutional votes, and the results of the preliminary guiding vote and Congress-approved decisions and elections of the Nomenclature Section.

2. Proposals to amend the Code

2.1. Proposals concerning the Preamble, Div. I–III, App. I, and the Glossary are submitted by publication (see 1.4) to the Nomenclature Section of an International Botanical Congress.

2.2. Proposals concerning App. II–VIII, i.e. proposals to conserve or reject names (Art. 14.12, 14.13, 56.2, and 56.3), proposals to suppress works (Art. 34.1), and requests for decisions (Art. 38.4 and 53.5), are submitted by publication (see 1.4) to the General Committee.

2.3. At least three years prior to an International Botanical Congress, the Rapporteur-général publishes an announcement that proposals to amend the *Code* may be published between specified dates.

2.4. Approximately six months prior to an International Botanical Congress, a synopsis of proposals to amend the *Code* is published. It is compiled by the Rapporteur-général and Vice-rapporteur, includes their comments on the proposals, and may include opinions of the specialist committees on certain proposals.

2.5. A guiding vote on proposals to amend the *Code* is organized by the Bureau of Nomenclature in conjunction with the International Association for Plant Taxonomy (IAPT) to coincide with the publication of the synopsis of proposals. No accumulation or transfer of votes is permissible in this vote. The following persons are entitled to vote:

(1) individual members of the IAPT;
(2) authors of proposals to amend the *Code*;
(3) members of the Permanent Nomenclature Committees.

2.6. The purpose of the guiding vote is to advise the Nomenclature Section of the International Botanical Congress of the level of support for proposals to amend the *Code*. The results of the vote and any specialist committee opinions are provided at the Nomenclature Section (see also 5.5).

3. Institutional votes

3.1. Prior to an International Botanical Congress, the Committee on Institutional Votes updates the list of institutions from the previous Congress and allocates to each institution 1–7 votes (see 5.9(2)). The list must be approved by the General Committee and published (see 1.4) prior to the Congress. No single institution, even in the wide sense of the term (e.g. mycological and botanical divisions together), is entitled to more than 7 votes.

3.2. Prior to an International Botanical Congress, any institution desiring to vote in the Nomenclature Section and not listed as having been allocated any votes in the previous Nomenclature Section should notify the Rapporteur-général of its wish to be allocated one or more votes and provide relevant information regarding its level of taxonomic activity (e.g. number of active staff, size of collections, current publications). An institution allocated one or more votes in the previous Nomenclature Section and desiring to alter its number of votes may similarly notify the Rapporteur-général.

3.3. An institution wishing to exercise its vote(s), as allocated in the published list (3.1), must provide its official written authorization to be presented at the Nomenclature Section by its delegate (5.9(2)).

3.4. A delegate who is a member of an institution that has not previously applied for, or been allocated, votes may apply in person for one institutional vote at the Nomenclature Section.

4. Nomenclature Section

4.1. The Nomenclature Section is part of an International Botanical Congress and meets prior to a plenary session of the Congress.

4.2. Registration for the Nomenclature Section is through the International Botanical Congress. Only registered members of the Nomenclature Section are entitled to vote at the Nomenclature Section.

4.3. The Nomenclature Section has the following functions:

(1) approves the previous *Code* as published as a basis for discussion by the Section;
(2) decides on proposals to amend the *Code*;
(3) appoints ad hoc committees to consider specific questions and report back to the Section;
(4) authorizes Special-purpose Committees, with a specific mandate, to be appointed by the General Committee and report back to the Nomenclature Section of the next Congress;
(5) elects the ordinary members of the Permanent Nomenclature Committees;
(6) elects the Rapporteur-général for the next Congress;
(7) receives the reports of the Permanent Nomenclature Committees and Special-purpose Committees;
(8) decides on the recommendations of the General Committee.

4.4. The decisions and appointments of the Nomenclature Section become binding upon their acceptance by a subsequent plenary session of the same International Botanical Congress acting on a resolution moved by the Nomenclature Section (see 1.2).

4.5. The Bureau of Nomenclature of the International Botanical Congress comprises the following officers: President of the Nomenclature Section; up to five Vice-presidents; the Rapporteur-général; the Vice-rapporteur; the Recorder. The Bureau of Nomenclature defines the sequence and timing of debates; appoints Tellers to collect and count voting cards in the event of a card vote; and advises the President on procedural matters.

4.6. The President of the Nomenclature Section is elected by the General Committee prior to the Congress. The President chairs the debates and is responsible for their harmony and timely conclusion; recognizes and silences speakers; may end a debate; decides on procedural matters not covered in Div. III; and is authorized to move a

resolution on behalf of the Nomenclature Section at a plenary session of the same International Botanical Congress that the decisions and appointments of the Nomenclature Section be approved.

4.7. The Vice-presidents are appointed by the Bureau of Nomenclature, either in advance of the International Botanical Congress or from those present at the Nomenclature Section. A Vice-president serves in place of the President if and when requested.

4.8. The Rapporteur-général is elected by the previous International Botanical Congress. The Rapporteur-général is responsible for: presentation of nomenclature proposals to the subsequent Congress; general duties in connection with the editing of the *Code* resulting from that Congress; and deposition in the IAPT nomenclature archives of unpublished relevant material.

4.9. The Vice-rapporteur is appointed by the Rapporteur-général and approved by the General Committee no later than three years prior to the Congress. The Vice-rapporteur assists and, if necessary, serves in place of the Rapporteur-général.

4.10. The Recorder is appointed by the Organizing Committee of the International Botanical Congress in consultation with the Rapporteur-général. The Recorder is responsible for all local facilities needed by the Nomenclature Section, such as the venue and its equipment, and in particular for the detailed recording of the proceedings of the Section and for facilitating the voting.

4.11. The Nominating Committee comprises members who must be unavailable to serve on the Permanent Nomenclature Committees or as Rapporteur-général. They are proposed by the President of the Nomenclature Section, in consultation with the other members of the Bureau of Nomenclature, and are elected by the Nomenclature Section.

4.12. The Nominating Committee is charged with preparing lists of candidates to serve on the Permanent Nomenclature Committees, in consultation with the current secretaries of those committees, and to propose the Rapporteur-général for the next International Botanical Congress. The nominations of the Nominating Committee are subject to approval by the Nomenclature Section.

Rec. 4A. The Nominating Committee shall represent the different taxonomic groups covered by the *Code* and, so far as is practicable, be geographically balanced.

5. Procedure and voting at the Nomenclature Section

5.1. A qualified majority (at least 60%) of votes cast is required for the following decisions:

(1) accepting a proposal to amend the *Code*;
(2) accepting a motion to end discussion and proceed to a vote (to "call the question");
(3) accepting a motion to set a time limit for a debate.

5.2. A simple majority (more than 50%) of votes cast is required for all other decisions, including the following:

(1) electing the Nominating Committee for the Nomenclature Section;
(2) accepting the *Code* that arose from the previous International Botanical Congress as the basis for discussion at the Nomenclature Section;
(3) choosing between two alternative proposals;
(4) accepting an amendment to a proposal;
(5) referring items to the Editorial Committee;
(6) establishing an ad hoc committee;
(7) establishing and referring items to a Special-purpose Committee;
(8) accepting recommendations of the General Committee;
(9) approving the nominations made by the Nominating Committee.

5.3. When a report of the General Committee contains more than one recommendation, the Nomenclature Section may vote separately on an individual recommendation if such a procedure is proposed by a member of the Section, supported (seconded) by 5 other members (see 5.7), and approved by a simple majority (more than 50%) of the Section.

5.4. When a vote to approve a singled-out General Committee recommendation does not achieve the required majority (5.2(8)) that recommendation is cancelled and the matter is referred back to the General Committee. Retention or rejection of a name or suppression of a work is no longer authorized (Art. 14.16, 56.4, and 34.2).

5.5. Any proposal to amend the *Code* that receives 75% or more "no" votes in the preliminary guiding vote is automatically rejected at the Nomenclature Section unless a proposal to discuss it is moved by a member of the Section and supported (seconded) by 5 other members.

5.6. Any proposal to amend the *Code* that concerns only Examples (excluding voted Examples), Notes, or the Glossary is automatically referred to the Editorial Committee unless a proposal to discuss it is moved by a member of the Section and supported (seconded) by 5 other members (but see 5.5).

5.7. A new proposal to amend the *Code* (i.e. one not previously published) or an amendment to an existing such proposal may be introduced at the Nomenclature Section by a member of the Section only when supported (seconded) by 5 other members.

5.8. A member of the Nomenclature Section may propose a friendly amendment to a proposal to amend the *Code*; if accepted by the original proposer(s), such an amendment does not require the support of other members (seconders).

5.9. There are two kinds of votes at the Nomenclature Section:

(1) Personal votes. Each member of the Section has one personal vote. No accumulation or transfer of personal votes is permissible.
(2) Institutional votes (see 3.1–3.4). An institution may authorize in writing any member of the Section as a delegate to carry its votes.

No single person will be allowed more than 15 votes, including personal vote and institutional votes.

5.10. A card vote requires members of the Nomenclature Section to deposit anonymous cards printed to indicate the kind and number of votes, which are counted by the Tellers. A card vote may be conducted when the required majority cannot be detected by other means or may be requested in advance of the vote by at least 5 members.

6. After an International Botanical Congress

6.1. Certain publications, which may be electronic or printed or both, appear as soon as feasible after an International Botanical Congress, not necessarily in this sequence:

(1) the Congress-approved decisions and elections of the Nomenclature Section including the results of the preliminary guiding vote;
(2) the announcement of Special-purpose Committees and their membership;
(3) the new edition of the *Code*, including Appendix I and the Glossary;
(4) the remaining Appendices of the *Code* (App. II–VIII);
(5) a transcript of the Nomenclature Section.

7. Permanent Nomenclature Committees

7.1. There are 8 Permanent Nomenclature Committees, including 5 specialist committees (4–8):

(1) General Committee;
(2) Editorial Committee;
(3) Committee on Institutional Votes;
(4) Nomenclature Committee for Vascular Plants;
(5) Nomenclature Committee for Bryophytes;
(6) Nomenclature Committee for Fungi;
(7) Nomenclature Committee for Algae;
(8) Nomenclature Committee for Fossils.

Membership

7.2. Members of the Permanent Nomenclature Committees are elected by an International Botanical Congress (except where indicated otherwise). The committees have power to elect officers as desired, to fill vacancies, and to establish temporary subcommittees in consultation with the General Committee.

7.3. The General Committee has, in addition to its ordinary (elected) members, the following ex-officio members: the secretaries of the 5 specialist committees (7.1(4–8)), the Rapporteur-général, the Vice-rapporteur, and the President and Secretary-general of the International Association for Plant Taxonomy.

7.4. The Editorial Committee comprises individuals who were present at the Nomenclature Section of the previous International Botanical Congress and includes at least one specialist in each of vascular plants, bryophytes, fungi, algae, and fossils; the Rapporteur-général and Vice-rapporteur of that Congress serve as Chair and Secretary, respectively, of the Editorial Committee.

7.5. The Committee on Institutional Votes comprises 6 members, each to represent a different continent, plus the Rapporteur-général, who serves as its chair.

7.6. Each specialist committee includes the Rapporteur-général, the Vice-rapporteur, and the Secretary of the General Committee as non-voting ex-officio members.

Rec. 7A. Each committee should, so far as is practicable, be geographically balanced. In the General Committee and specialist committees, the number of members entitled to vote should be a multiple of 5.

Functions

7.7. The General Committee is charged with receiving proposals to conserve or reject names, proposals to suppress works, and requests for decisions (Art. 14.12, 14.13, 34.1, 38.4, 53.5, 56.2, and 56.3) and for referring these proposals or requests to the specialist committee(s) concerned (receipt and referral of proposals and requests are automatic upon their publication). The General Committee is also charged with considering recommendations of the specialist committees and either approving those recommendations or referring them back to the specialist committees for further consideration. The General Committee may also communicate an international standard format in addition to, or as a successor to, Portable Document Format (PDF) for effective publication of electronic material (Art. 29.3) and is empowered to ratify a list of institutional votes drawn up by the Bureau of Nomenclature.

7.8. Each of the five specialist committees examines proposals to conserve or reject names, proposals to suppress works, and requests for decisions (Art. 14.12, 14.13, 34.1, 38.4, 53.5, 56.2, and 56.3) referred to them by the General Committee, to which they submit their recommendations. They may also submit opinions on proposals to amend the *Code* to the Bureau of Nomenclature. The Committee for Fungi has a mandate under Art. 14.13 and 56.3 with respect to lists of names proposed for approval and under Art. 42.3 with respect to repositories for fungal names.

7.9. The Editorial Committee is charged with the preparation and publication of the *Code* in conformity with the decisions approved by the previous International Botanical Congress. It is empowered to make any editorial modification not affecting the meaning of the provisions concerned, e.g. to change the wording of any Article, Note, or Recommendation and to avoid duplication, to add or remove non-voted Examples, and to place Articles, Notes, Recommendations, and Chapters of the *Code* in the most convenient place, while retaining the previous numbering in so far as possible.

7.10. The Committee on Institutional Votes maintains a list of institutions and their allocated votes for the upcoming International Botanical Congress (see 3.1).

Procedural rules

7.11. A specialist committee, provided that a qualified majority (at least 60%) of its members supports or opposes a proposal, may make any of the following recommendations to the General Committee: conserve or not conserve a name; reject or not reject a name; suppress or not suppress a publication. In the case of binding decisions on valid publication (Art. 38.4) and homonymy (Art. 53.5), the qualified majority decides whether or not a binding decision should be recommended, then a simple majority (more than 50%) decides between the two alternatives: i.e. treat a name as validly published or not validly published; treat names as homonyms or not homonyms. If a specialist committee is unable to make a recommendation after voting 3 times, the committee is considered to have recommended against the proposal or against making a binding decision.

7.12. The General Committee may approve a recommendation of a specialist committee provided that a qualified majority (at least 60%) of the General Committee members supports the recommendation. In this case, the General Committee makes its own recommendation, which is subject to the decision of a later International Botanical Congress (see also Art. 14.16, 34.2 and 56.4). If the required majority is not achieved, the matter is referred back to the specialist committee for further consideration.

Rec. 7B. The General Committee and the specialist committees should publish their recommendations at least annually.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(287–296) Proposals on distinguishing between later homonyms and isonyms, with further notes on type designations

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This series of proposals deals with cases where it is necessary to decide, in the absence of type designation, whether an instance of later usage of a name can be treated as publication of a later homonym or an isonym. It also takes into account cases where original material has never been in existence, as well as some cases where type specimens are mounted on more than one preparation. A concluding proposal concerns lectotypes and neotypes that are in conflict with the protologue.

(287) Add a new paragraph after Art. 53.1:

"*53.1bis*. For the purposes of Art. 53.1 and 53.4, a name spelled exactly like an earlier name is treated as based on a different type if the two do not share any of these: *(a)* types previously designated or established in the protologue (holotypes) or by other authors (lectotypes or neotypes); or *(b)* holotypes or original types established under Art. 40.3; or *(c)* types previously conserved under Art. 14.9; or *(d)* at least one syntype under Art. 9.5 or element eligible as type under Art. 10.2; or *(e)* in the absence of designated or established types, at least one element of original material under Art. 9.3(a) (see also Art. 48.1)."

(288) Add a new Note and two new Examples after Art. 53.1 or new Art. 53.1bis:

"*Note 1bis*. When an author uses the same name for the same taxon and does not definitely exclude its type as specified in Art. 48.1, no new name is considered to have been published by that author (see also Art. 6.3bis)."

"*Ex. 7bis*. *Allium globosum* was described independently by Candolle (in Redoute, Liliac. 3(30): ad tab. 179. 1807) on living material originating from Marschall von Bieberstein, and then by Bieberstein (Fl. Taur.-Caucas. 1: 262. 1808). Although the original material of these names did not overlap, both authors were describing the same species from the same source. No nomenclatural novelty was published by Bieberstein."

"*Ex. 7ter.* The generic name *Catalpa* Scop. (1777) was based on *Bignonia catalpa* L. (1753). Later, Walter (1788) accepted *Catalpa* with a new generic description and included a single species, *C. bignonioides* Walter (1788), but with no citation of Scopoli or of the Linnaean species name. Walter's treatment of *Catalpa* does not constitute publication of a new generic name because Scopoli and Walter applied the same name to the same taxon and the original type of Scopoli was not explicitly excluded by Walter."

Art. 53.1 and 53.4 in their current wordings are impossible to apply when presumed homonyms have no designated types. Nevertheless, it would be impractical to omit such cases from the scope of Art. 53 because they are too numerous and the majority of them are easy to decide (especially when the named taxa are taxonomically or geographically remote). Besides, it would be questionable whether renaming such untypified homonyms is legitimate before their typification is resolved. To allow Art. 53.1 and 53.4 to be applicable to all cases, we propose criteria for determining when names are based on different types, similar to the analogous criteria defined in Art. 48.2 for exclusion of a type. The example of *Allium globosum* was borrowed from Sennikov & Seregin (in Taxon 64: 1294–1300. 2015).

The new Art. 6.3bis is the subject of Prop. 289 below.

(289) Convert Art. 6.3 Note 2 into a separate paragraph and amend its text as follows (new text in bold, deleted text in strikethrough), and add a new Example:

"*Art. 6.3bis*. The same name based on the same type, published independently at different times perhaps by different authors, **or re-used for the same taxon without exclusion of the type of its name (Art. 48.1),** is termed an isonym. Only the earliest of these ~~"~~isonyms**"** has nomenclatural status **(can be treated as a nomenclatural novelty)**. The name is always to be cited from its original place of valid publication, and later isonyms may be disregarded (but see Art. 14.15)."

"*Ex. 2bis. Euphorbia villosa* Waldst. & Kit. ex Willd. (1799) was validly published by Willdenow with a reference to the then unpublished work of Waldstein & Kitaibel, *Descriptiones et icones plantarum rariorum Hungariae*. A later description of the same species by Waldstein & Kitaibel does not constitute valid publication of a homonym."

Similar to the problem with later homonyms, according to the present definitions isonyms can be recognized only when the type has already been designated. In other cases, the criterion of type exclusion may be used when a name has not been typified. A desire for this change has been already expressed by Choo & al. (in Taxon 63: 921–922. 2014).

We believe that it would be more convenient to users of the *Code* to have the definition of isonyms explicitly formulated in a separate paragraph, not in a Note.

If this proposal is accepted, the corresponding entry in the Glossary can be adjusted editorially.

(290) Amend Art. 9.7 as follows (new text in bold) and add a new Example:

"*9.7.* A neotype is a specimen or illustration selected to serve as nomenclatural type if no original material is extant **or has been in existence**, or as long as it is missing (see also Art. 9.16)."

"*Ex. 6bis. Vriesea fenestralis* Linden & André (in Ill. Hort. 22: 124. 1875) was stated to have been described solely on the basis of living plants ("Ad viv. desc.") introduced from Brazil in 1872 and cultivated in the garden of Jean Jules Linden. In the absence of any original material, Plate CCXV accompanying the protologue was designated as the "lectotype" (correctable to neotype) of the name by Loyola de Moura & al. (in J. Torrey Bot. Soc. 140: 330. 2013)."

There were numerous cases in the past, especially among cultivated plants, when new species or infraspecific taxa were described on the basis of living material only and no specimens were preserved. In such cases there had never been any physical material eligible for designation as a lectotype, and consequently no original material by definition (Art. 9.3).

(291) Add a new Note after Art. 7.1:

"*Note 1.* As long as a name is not typified or its type is missing, its application may be determined by established interpretation of other elements of the protologue."

This Note aims to legalize what is a common understanding in plant nomenclature, starting from Linnaeus or even before. A side aim of this Note is that it may discourage individuals from insufficiently researched typifications that are published solely on the belief that a plant name must be typified before its use of any kind.

(292) Amend the second sentence of Art. 40.3 to read (new text in bold, deleted text in strikethrough):

"~~Similarly~~ **For the purpose of Art. 40**, for the name of a new species or infraspecific taxon, mention of a single specimen or gathering (Art. 40.2) or illustration (when permitted by Art. 40.4 or 40.5), even if that element is not explicitly designated as type, is acceptable as indication of the type (but see Art. 40.6)."

Dating from the *Berlin Code* (1988), the predecessor of the present-day Art. 40.3, then Art. 37.3, allowed the name of a species or an infraspecific taxon to be validly published on or after 1 January 1958 if a single element was mentioned in the protologue. Later this was translated into the provision that a single specimen or illustration may be mentioned to qualify for indication of the type. In the *Berlin Code*, original material (footnote to Art. 7.4) was defined to include "illustrations examined by an author prior to publication of a name and associated by the author with the concept of the named taxon".

However, this provision came into conflict with the definition of original material when it was more precisely formulated in the *Tokyo Code* (1994). From that time onwards, original material was defined to include only those "illustrations (both unpublished and published either prior to or together with the protologue) upon which it can be shown that the description or diagnosis validating the name was based". This definition excludes illustrations that may have been cited or reproduced in the protologue but still not used by the original author for the validating descriptive matter.

To avoid this conflict, a change to Art. 40.3 is proposed. Without this change, in the absence of explicit type designation or cited specimens any single illustration cited in the protologue of a species name automatically qualifies for indication of the holotype. This is definitely contrary to the established practice; if strictly followed, this rule may lead to change, among others, lectotypes of dozens of Linnaean names that are specimens designated in the presence of references to single illustrations.

One may assume that as Art. 40.1 only concerns names published on or after 1 January 1958, the provisions of Art. 40.3 do not apply to earlier publications. In the absence of any direct restriction (as placed in Art. 40.4 and 40.5), its effect is apparently applicable to other names, too. Adding this restriction also to Art. 40.3 is deemed to be the simplest and safest solution, making no harmful effect on species and infraspecific names published on or after 1 January 1958. There is no need to expand this restriction to names of new genera or subdivisions of genera because names of originally monospecific genera have always been assumed to have types established in the protologue (since in such cases there is no need to designate a type from a single element).

(293) Amend Art. 9.1 Note 1 as follows (new text in bold, deleted text in strikethrough):

"*Note 1.* Any designation made by the original **or typifying** author, if definitely expressed at the time of the original publication of the name of the taxon **or upon a later type designation**, is final (but see Art. 9.11, ~~and~~ 9.15**, 9.19, 9.20**). If the **original** author used only one element, it must be accepted as the holotype. If a name of a new taxon is validly published solely by reference to a previously published description or diagnosis, the same considerations apply to material used by the author of that description or diagnosis (see Art. 7.7; but see Art. 7.8)."

The present wording of Art. 9.1 Note 1 seems to be limited to holotypes (referring to "original author") although, by extension, it can be logically applied to all kinds of type designations.

(294) Add a new Example after Art. 8.3:

"*Ex. 5bis*. The neotype of *Ceratozamia fuscoviridis* W. Ball, originally labelled "Hort. Bot. Glasnevin, 1881" (K), consists of a single leaf mounted on three herbarium sheets and a cone preserved in liquid, which have been cross-labelled as parts of the same specimen (sheets 1–3 and a jar) by herbarium curators shortly before the type designation made by Calonje & Sennikov (in Taxon, in press)."

This example is placed under Art. 8.3 but also serves to exemplify the amended Art. 9.1 Note 1. It demonstrates that cross-labelling of specimens for the purposes of typification can be done at any time but prior to the type designation.

(295) Add a new Example after new Art. 8.2 Note 1 (see Taxon 64: 1338. 2015):

"*Ex. 1ter. Solidago ×snarskisii* Gudžinskas & Žalneravičius (in Phytotaxa 253: 148. 2016) was validly published with a single gathering at BILAS indicated as type, whose parts have been numbered separately in the field, mounted on separate sheets and designated as follows: 76801 (generative shoot) and 76802 (vegetative shoot), holotype on two cross-labelled sheets; 76803 and 76804, isotypes."

This example, complementing Ex. 1bis proposed earlier (Sennikov in Taxon 64: 1338. 2015), demonstrates that field numbers can be different on each sheet within the holotype specimen mounted on more than one sheet and also its duplicates (isotypes).

(296) Amend Art. 9.19 to read (new text in bold, deleted text in strikethrough):

"*9.19.* The author who first designates (Art. 7.9 and 7.10) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed,

but that choice is superseded if *(a)* the holotype or, in the case of a neotype, any of the original material is rediscovered; the choice may also be superseded if one can show that *(b)* **in the case of a lectotype designated from uncited specimens or cited or uncited illustrations, or in the case of a neotype,** it is in serious conflict with the ~~protologue and another element is available that is not in conflict with the protologue~~ **validating description or diagnosis, or other material validating the name (Art. 38.1(a))**, or that *(c)* it is contrary to Art. 9.14."

This change is proposed because the present wording of Art. 9.19 is controversial and too difficult to apply, and also because it is in a certain contradiction with Art. 9.3. At present, under the provisions of Art. 9.19(b), a lectotype or neotype may be changed if it is in serious conflict with the protologue. However, syntypes, paratypes and their duplicates are automatically excluded from this rule because they are cited in the protologue (Art. 9.5); forming part of the protologue, such citations cannot be in any conflict with it. In addition, a protologue may also include elements for which their value in typification is limited or doubtful (e.g., the frequently debated cases of incomplete provenance in Linnaean protologues when lectotypes may come from outside the "original" distribution area, or neotypes designated from outside the locus classicus which are in that way in a certain conflict with the protologue).

This means that it is only those lectotypes that are designated from uncited specimens or cited or uncited illustrations that may fall into Art. 9.19(b). The status of such elements as original material is determined by their agreement with the validating description or diagnosis (Art. 9.3(a)); for this reason it would be logical to specify that such lectotypes can be superseded if in conflict with the validating description or diagnosis. At the same time the supplementary restriction "if … another element is available that is not in conflict with the protologue" becomes unnecessary because the elements that are in conflict with the validating description or diagnosis cannot be part of original material and thus such lectotype designations are correctable to neotypes (which can be superseded under Art. 9.19(a)).

The earlier Prop. 190 (Sennikov in Taxon 65: 406–407. 2016) on the sources of original material should not be interpreted as permitting type designations from any uncited elements but those "upon which the description or diagnosis validating the name was based" (Art. 9.3). If one author used descriptive matter of another author, for the purposes of Art. 9.3(a) the relevant materials of both authors can be treated as original if it can be shown that on these materials the validating description or diagnosis was based. No conflict of such material with the validating statement is assumed under the proposed wording of Art. 9.19.

Regarding neotypes, the same considerations about parts of the protologue may apply. Validating descriptions or diagnoses are the most important part of the protologue; if anything may resolve the conflict, it should logically be the validating descriptive matter. In the case of neotypes, the restrictive clause "if … another element is available that is not in conflict with the protologue" is logically not applicable.

The effect of Prop. 35 (Sennikov in Taxon 64: 182. 2015) is taken into account in the proposed correction.

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(297–304) Proposals to better define "replacement names" (Article 6.11 and 7.5), and four other proposals on Article 6

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My interest in the question of what is, and what is not, a replacement name dates back almost half a century, when in one of my early papers on plant nomenclature (Greuter in Candollea 23: 263–265. 1969) I discussed the case of *Astragalus penduliflorus* Lam. One conclusion was that the *Code* definition of *nomen novum* was (a) not immediately recognisable as such and (b) not fully compatible with traditional and current usage.

The expression *nomen novum* first appears in the *Stockholm Code* of 1952, Appendix I (Determination of types), thus defined: "a new name or epithet published as an avowed substitute for an older one which is not available". The same text was transferred to the body of the *Paris Code* of 1956, Art. 7 Note 4, and remained in the same article, with but little change, throughout the following editions, up to and including the *Vienna Code* of 2006, where it reads (in Art. 7.3): "A new name published as an avowed substitute for an older name". The central part of the definition is the expression "avowed substitute". According to current dictionaries, the adjective "avowed" describes something that has been admitted or stated in public; the criterion for a *nomen novum*, therefore, is the author's stated intent to replace the earlier name.

In the *Melbourne Code*, the former Art. 7.3 was split. The portion corresponding to the definition is now in Art. 6.11; the remainder, pertaining to typification, is Art. 7.4. In Art. 6.11, the definition reads: "A replacement name (avowed substitute, nomen novum, nom. nov.) is a new name based on a legitimate or illegitimate, previously published name". Confining to parenthetical mention the words "avowed substitute", formerly the main criterion to distinguish a replacement name from a name of a new taxon, does not help to make the definition better applicable than before. My first proposal, therefore, aims at restoring the pre-Melbourne definition of *nomen novum*:

(297) Reword Art. 6.11 (new text in bold, deleted text in strikethrough):

"*6.11.* A replacement name (~~avowed substitute,~~ nomen novum, nom. nov.) is a new name **published as an avowed substitute for** ~~based on~~ a legitimate or illegitimate, previously published name, which is its replaced synonym. The replaced synonym, when legitimate, does not provide the final epithet, name, or stem of the replacement name (see also Art. 58.1)."

The following example is provided for possible use by the Editorial Committee: Gussone (1844) described plants from the Eolie Islands near Sicily as *Helichrysum litoreum* Guss., citing in synonymy *Gnaphalium angustifolium* Lam. (1788). At the end of the protologue, Gussone wrote: "nomen [*G. angustifolium* Lam.] mutavi confusionis vitendi gratia" [I changed the name to avoid confusion]. He thereby declared that *H. litoreum* is a replacement name based on the type of *G. angustifolium* (from Posillipo near Naples), not on the material described and cited by himself.

Whether a name has been published as a replacement name or as a name of a new taxon is irrelevant for its form, authorship and date for purposes of priority. The single reason why it is useful to make a distinction is typification: a replacement name has the same type as its replaced synonym, a name of a new taxon has a type used or cited by its author. It is therefore sensible, and has for long been general practice, to treat as replacement names those names that necessarily have the same type as an earlier name, even though the author may not have stated that they are replacement names. In particular, it is both logical and traditional to consider automatically typified names that are illegitimate under Art. 52 as replacement names. The two following proposals are made to provide a legal basis for that practice:

(298) Add a new paragraph after Art. 6.11:

"*6.11bis.* A name not avowedly proposed as substitute for an earlier name is nevertheless a replacement name *(a)* if it is validated solely by reference to that earlier name or *(b)* under the provisions of Art. 7.5."

(299) Reword Art. 7.5 (new text in bold, deleted text in strikethrough):

"*7.5.* A name that is illegitimate under Art. 52 is **either a replacement name,** typified ~~either~~ **automatically** by the type of the name **(the replaced synonym)** that ought to have been adopted**, or of which the epithet ought to have been adopted,** under the rules (**Art. 7.4**~~automatic typification~~), or **it is the name of a new taxon, when** ~~by~~ a different type **was** designated or definitely indicated ~~by the author of the illegitimate name. However, if no type was designated or definitely indicated and the type of the earlier name was included~~ **in the protologue, e.g. by inclusion** (~~see~~ Art. 52.2) **of the type of the name causing illegitimacy** in a subordinate taxon that did not include the ~~evidently~~ intended type of the illegitimate name~~, typification is not automatic~~. Automatic typification does not apply to names sanctioned under Art. 15."

The really problematic issues, however, are those in which past and current nomenclatural practice is at odds with the letter of the *Code.* Numerous legitimate names validated by their own descriptive matter, even if not designated as replacement names in the protologue, were and are considered as homotypic with an earlier name cited as synonym: a legitimate name of which the epithet was unavailable in the required combination or an illegitimate later homonym. The alleged "replaced synonym" is then considered to provide the type of the corresponding new name, even though that type, in most cases, was not used or cited by the author of the validating description. The most critical cases are those in which the material used by the new author and the type of the so-called "replaced synonym" differ taxonomically.

The following proposal offers a flexible solution by which both options are available, depending on the merits of each individual case: to treat the names in question as replacement names, as has been customary in perhaps a majority of cases; and to consider them as pertaining to new taxa, as was appropriate by strict adherence to the *Code.* Preponderance of usage is the criterion for choosing between these options, and type designation is the mechanism by which the choice is operated.

(300) Add another new paragraph after Art. 6.11:

"*6.11ter.* A name not avowedly proposed as substitute for an earlier name may be treated either as a replacement name or as the name of a new taxon if in the protologue both a potential replaced synonym is cited and, independently, all requirements for valid publication of the name of a new taxon are met. Decision on the status of such a name is to be based on preponderant usage and is to be effected by means of apposite type designation (Art. 9 and 10)."

The following example might be suitable: When describing *Astragalus penduliflorus* Lam. (1779) using material from the French Alps, Lamarck also cited in synonymy *Phaca alpina* L. (1753) [non *Astragalus alpinus* L. 1753], described from Siberia. It is questionable whether Linnaeus's and Lamarck's plant belong to the same species. Greuter (in Candollea 23: 265. 1969) designated different types for the two names, so that, in conformity with preponderant usage, *A. penduliflorus* is treated as the name of a new, European species.

The four following proposals concern various other aspects related to Art. 6. They are independent from the replacement name issues considered above. They aim at clarification of the current provisions in a sense that supports the way in which they are generally understood.

Proposal (301) spells out what is in fact commonplace and is spelled out under some of the individual relevant provisions: that for nomenclatural purposes text or images are relevant only when they are effectively published, otherwise they do not count and can be ignored. In several relevant paragraphs this restriction is not mentioned but must be inferred. For instance, the requirement of effective publication is not mentioned in Art. 38.1(a), 43.1, 44.1 (descriptive matter accompanying names of new taxa), 41 (reference to the basionym or replaced synonym; see also Art. 30 Ex. 11), 38.8, 43.2, and 44.2 (illustrations accompanying names of new taxa); whereas it is made explicit in Art. 32.1(a) for the names themselves, 38.1(b), 43.1–2, 44.1–2 for previously published descriptive matter or illustrations to which reference is made, and 7.9 for type designations.

The general provision proposed below is the easiest and most efficient way to remove this apparent disparity of treatment. It would enable the Editorial Committee to simplify the current text of several Articles by eliminating the then redundant effective publication requirement (optionally replacing it by a general Note, in Art. 32, referring to Art. 6.1). The "specified exceptions" referred to in the proposed addition are, to my knowledge: Art. 9.3(a), 9.22 (unpublished illustrations serving as types), and Rec. 9A.3 (manuscript notes to guide lectotypification). If the proposal is approved, the Editorial Committee is asked to insert the words "published or unpublished" ahead of "illustration", in Art. 8.1, so as to avoid any possible doubt.

(301) Add a sentence at the end of Art. 6.1 (new text in bold):

"*6.1.* Effective publication is publication in accordance with Art. 29–31. **For the purposes of this *Code*, save specified exceptions, only material that is effectively published is taken into account.**"

Proposal (302) addresses the not infrequent cases in which names, when first published, are assigned an inappropriate nomenclatural status. Frequent examples are alleged new combinations for which an illegitimate name is cited instead of a basionym, or alleged replacement names for which a misapplied name is cited instead of a replaced synonym. In both cases, the conditions of valid publication of a name with a different status may be fulfilled, provided, as is generally assumed, that correction of the status is permissible. One sometimes finds names published as "nom. nov." with a stated type that differs from the type of the presumed replaced synonym, so that either the type or the status must be corrected. As there is no provision that would permit a change of the stated holotype, proposal (302) would make it clear that it is the status that must be corrected.

(302) Add another new paragraph after Art. 6.11:

"*6.11quater.* A factually incorrect statement of a name's status as defined in Art. 6.9-6.11 does not preclude its valid publication as a name with a different status; it is treated as a correctable error (see also Art. 41.4 and 41.8)."

Proposals (303) and (304) deal with a point not otherwise covered in the *Code.* It is tacitly assumed that names with a basionym (new combinations and/or names at new rank) cannot themselves serve as basionyms or replaced synonyms of other names. Indeed, Art. 41 Ex. 20 is based on that assumption. If *Cladium iridifolium* (Bory) Baker were acceptable as basionym of Koyama's intended combination *Machaerina iridifolia* – and I can find no provision in the *Code* that would preclude it –, the latter combination, contrary to what the example states, would be validly published.

(303) Add a phrase in Art. 6.10 (new text in bold):

"*6.10.* A new combination (combinatio nova, comb. nov.) or name at new rank (status novus, stat. nov.) is a new name based on a legitimate, previously published name, which is its basionym. The basionym **does not itself have a basionym; it** provides the final epithet, name, or stem of the new combination or name at new rank. (see also Art. 41.2)."

(304) Add a phrase in Art. 6.11 (new text in bold):

"*6.11.* A replacement name (avowed substitute, nomen novum, nom. nov.) is a new name based on a legitimate or illegitimate, previously published name, which is its replaced synonym. The replaced synonym **does not itself have a basionym;** when legitimate, **it** does not provide the final epithet, name, or stem of the replacement name (see also Art. 58.1)."

(305–307) Three more proposals on typification and the definition of a gathering

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Recently the name *Oberonia manipurensis* Chowlu & al. was published (Chowlu & al. in Nordic J. Bot. 33: 42. 2015), in which the holotype was designated with two collection numbers: *Chowlu 00362* and *Chowlu 00441*. As required by Art. 40.1 and permitted by Art. 40.2 of the *ICN* (McNeill & al. in Regnum Veg. 154. 2012), the name was not validly published because two gatherings were designated as the type and consequently the type was not indicated. In fact, the name has now been validated by Chowlu (in Nordic J. Bot. 34: 384. 2016) with the type citation "India, Manipur, Tamenglong District, Tamenglong (24°48.78′ N, 93°32.77′ E, 403 m asl), 7 Jun 2013, *K. Chowlu 00362* (holotype: CAL), *K. Chowlu 00441* (isotype: Centre for Orchid Gene Conservation of Eastern Himalayan Region, Herbarium, Hengbung, Manipur)." Because here the holotype and isotype bear different collection numbers, we ask is it permissible for the latter specimen to be an isotype under Art. 9.4 of the *ICN*?

To this question, we found an answer in Prop. 100 (Sennikov in Taxon 64: 1337–1338. 2015), which proposed a new Note after Art. 8.2: "Field numbers, collection numbers, accession numbers, or barcode numbers alone do not necessarily denote different gatherings."

Sennikov in his proposal (l.c.) also postulated that "the *Code* […] does not specify importance of any numbers in citations of specimens". However, in our opinion, the importance of collection numbers can be felt in Art. 9.4 of the *Code*, which defines an isotype to be any duplicate of the holotype; "duplicate" not only in the sense of plant material, but also the field details associated with the holotype including collection number or field number. Recently Kurşat & al (in Turkish J. Bot. 39: 89. 2015) validly published *Artemisia bashkalensis* Kurşat & Civelek with the holotype citation as "C10 Hakkari: 58 km from Hakkari to Van, roadside, slopes, steppe, 20.09.2007, 1805 m, (37°47.817′ N, 44°05.156′ E) *M. Kurşat & Ş. Civelek 1057* (FUH)" along with one of paratypes cited as "C10 Hakkari: the highway between Van and Hakkari provinces, 58 km to Hakkari Province, found at roadsides and slopes, steppe, 20.09.2007, 1805 m, (37°47.817′ N, 44°05.156′ E) *M. Kurşat & Ş. Civelek 1057*." In this case, all the details pertaining to the "paratype", including collection number, are the

same as those of the holotype, and hence this "paratype" must in fact be an isotype.

In conclusion, we would say that the change to the definition of gathering currently provided in the *Code*, as proposed by Zhu (Prop. 030 in Taxon 63: 1145–1146. 2014), is not required, and neither is the addition of a Note, as proposed by Sennikov (l.c.). Instead, we urge the removal of ambiguity associated with the concept of "duplicate" in the *Code* by deletion of the footnote to Art. 8.3 and the addition of a new paragraph in Art. 8. The footnote also contains the advice "while choosing a lectotype for the name, the possibility of mixed gathering must always be considered by an author", which we consider would be better transferred to a new paragraph in Rec. 9A.

(305) Add a new paragraph after Art. 8.3:

"*8.3bis*. A duplicate is part of a single gathering of a single species or infraspecific taxon made by the same collector(s) bearing same collection number and details."

(306) Add a new paragraph after Rec. 9A.2:

"*9A.2bis*. The possibility of a mixed gathering must always be considered by an author choosing a lectotype, and corresponding caution used."

(307) Delete the footnote to Art. 8.3.

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(308–310) Proposals to permit DNA sequence data to serve as types of names of fungi

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Numerous novel fungi are being discovered among molecular sequences recovered from environmental samples, from the ranks of phylum (Jones & al. in Nature 474: 200–203. 2011) and class (Rosling & al. in Science 333: 876–879. 2011) down to species (e.g., Hinchcliff & al. in Proc. Natl. Acad. Sci. U.S.A. 112: 12764–12769. 2015; Grantham & al. in PLoS ONE 19: e122105. 2015; Nilsson & al. in MycoKeys 12: 29–40. 2016). In 2012, there were 43,290 sequences not named to species in GenBank (http://www.ncbi.nlm.nih.gov/genbank), of which 11,429 were not even named to genus (Schoch in Biodivers. & Conservation 21: 2425–2433. 2012). The problem is most dramatic in the case of voucherless sequences obtained from next-generation sequencing of environmental samples, such as SFF (Roche 454), Illumina Native, Illumina SRF, AB SOLiD Native, and AB SOLiD SRF (O'Brien & al. in Appl. Environm. Microbiol. 71: 5544–5550. 2005; Taylor & al. in Molec. Ecol. Resources 8: 742–752. 2008; Buée & al. in New Phytol. 184: 449–456. 2009; Lumini & al. in Environm. Microbiol. 12: 2165–2179. 2010; Unterseher & al. in Molec. Ecol. 20: 275–285. 2011; Dai & al. in Canad. J. Microbiol. 58: 81–92. 2012; McGuire & al. in Microbial Ecol. 63: 804–812. 2012; Shokralla & al. in Molec. Ecol. 21: 1794–1805. 2012). In 2014, the Sequence Read Archive SRA (http://www.ncbi.nlm.nih.gov/sra) had amassed over 12 million sequence reads of the fungal ITS barcoding locus, from only about 700 biosamples corresponding to fewer than 50 studies performed over just five years, compared to fewer than 1 million voucher-based fungal ITS sequences accumulated in GenBank over 25 years (Lücking in IMC10 Book of Abstracts: O 8.6.1, Abstract ID ABS0123; http://www.fabinet.up.ac.za/newsitem/112-IMC10 eBook of Abstracts.pdf). This corresponds to a 100 : 1 ratio in sequence data generation, a ratio likely to further increase. SRA sequence reads assigned to the recently described genus *Archaeorhizomyces* Rosling & T.Y. James, with two formally recognized species (Rosling & al. in Science 333: 876–879. 2011; Menkis & al. in Fungal Biol. 118: 943–955. 2014) suggest the existence of hundreds of undescribed taxa in this clade (Lücking, l.c.; Smith & Lücking, unpub. data), and other clades of ecologically cryptic fungi appear to show similar patterns (Jones & al., l.c.). These taxa require scientific names in order to facilitate communication about them. Under the current *Code* (McNeill & al. in Regnum Veg. 154. 2012), such lineages cannot be formally named in the absence of any physical material attributable to a given sequence (either dried specimens or cultures preserved in a metabolically inactive state) or illustration that can serve as the holotype. This is contrary to the objective of the *Code*, which aims to provide a stable system of applying names (Pre. 1) to all algae, fungi, and plants where they are required.

How this issue should be handled under the *Code* has become an increasing concern among mycologists (Hibbett & al. in Fungal Biol.

Rev. 25: 38–47. 2011; Hawksworth & al. in IMA Fungus 2: 105–112. 2011; Hibbett in Science 351: 1150–1151. 2016). The issue was mentioned repeatedly during the 10th International Mycological Congress (IMC10) in Bangkok in 2014 and specifically addressed in presentations (e.g., Lücking, l.c.), but time did not permit it to be discussed in the Nomenclature Sessions held during that Congress; nevertheless, 44% of Congress members voting supported the concept of naming of such taxa (Redhead & al. in IMA Fungus 5: 449–462. 2014). We suspect that percentage would now be greater in view of the papers that have since appeared, and continue to appear, showing the scale of the problem.

We do not consider it an option to let this issue drift. Authors are already free to use any characters, including molecular sequences, in diagnoses, but are precluded from allocating names to environmental sequences obtained through voucherless sequencing techniques by the inability to designate a physical holotype corresponding to particular sequence data. The current *Code* is, therefore, failing to meet the needs of the mycological community.

DNA sequence data have already been used in rare cases as sole diagnostic characters, even if a physical environmental specimen from which the sequence was obtained was available as type, to overcome the current nomenclatural constraints (Kirk in Index Fung. 1: 1. 2012). This approach is not ideal, as recovery of the sequence from the material in the long term, i.e., validation of the diagnostic characters, cannot be guaranteed. However, the same problem already exists with other ephemeral characters, such as the oil bodies in *Hepaticae* (von Konrat & al. in PhytoKeys 8: 13–36. 2012), which are not technically excluded by the *Code* to serve as a diagnostic feature.

The *Code* does not prohibit the use of any category of characters for the separation of taxa, that being a matter of taxonomy and not of nomenclature; thus DNA sequence data as a sole diagnostic character are acceptable. The situation encountered with voucherless environmental sequence data therefore needs to be addressed. In order to remedy this, we propose that DNA sequence data alone should be permissible as types for fungi when no physical specimen is available for technical reasons.

(308) Insert a new paragraph after Art. 8.5 as follows:

"*8.6.* In fungi, when DNA sequence data corresponding to a new taxon have been detected, but no physical specimen has been found to serve as the type of the name of the new taxon (Art. 8.1–8.4), the type may be composed of DNA sequence data deposited in a public repository."

(309) Add a new Recommendation 8C:

"*8C.1.* When the type is composed only of DNA sequence data (Art. 8.6), the new taxon should be described with reference to a published phylogenetic analysis; both the phylogenetic tree and the DNA sequence alignment that was used to create the phylogenetic tree should be deposited in a publicly accessible repository."

"*8C.2.* A new taxon typified only by DNA sequence data should be represented by multiple sequences obtained in independent studies, of which one is designated as the holotype."

"*8C.3.* DNA sequence data used for typification should be drawn from the molecular regions that are appropriate for delimiting species, based on prevailing best practices as determined by the relevant taxonomic communities."

(310) Amend Art. 9.1 as follows:

"*9.1.* A holotype of a name of a species or infraspecific taxon is the one specimen, **or sequence (Art. 8.6)**, or illustration (but see Art. 40.4) used by the author, or designated by the author as the nomenclatural type. As long as the holotype is extant, it fixes the application of the name concerned (but see Art. 9.15)."

Should this suite of proposals pass, the Editorial Committee will need to consider making small changes in Art. 40, in particular in Art. 40.2, 40.3, 40.4, and perhaps 40.5, to ensure consistency with them, as well as adding a "but see" reference in Art. 8.1. In addition, the Nomenclature Section may consider it desirable to add "algae" to these proposals, in line with the special provisions for cultures in Art. 8.4.

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(311–312) Proposals to upgrade Recommendation 9C.1 to a new provision of Article 9, and to amend Article 9.12

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Recently, three proposals were published to amend Art. 9 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) that would use the terms isoneotype, isoepitype, and isolectotype (respectively: Prop. 045 – Ferrer-Gallego & al. in Taxon 64: 650. 2015; Prop. 205 – Proćków & Proćków in Taxon 65: 413. 2016; Prop. 259 – Proćków & Proćków in Taxon 65: 650. 2016). If these proposals

are accepted in Shenzhen, it would be rather strange for Rec. 9C.1 to recommend use of these terms when at the same time they are applied to elements that have particular significance under the rules in Art. 9 (cf. the Preface of the *Melbourne Code*: p. xv). In our opinion these terms should be defined in a new provision in Art. 9. This would allow general usage of terminology related to duplicates of type specimens in subsequent provisions of that Article, also avoiding the need to define such terms when they are used, as is currently done for a fourth term, isosyntype, in Art. 9.12. It would be logical to define "isosyntype" also in the new provision rather than retain the existing parenthetical definition in Art. 9.12, especially since the word "isosyntypes" also appears in Art. 9.3 without definition.

Moreover, in Art. 9.12, it is implicit that syntypes and isosyntypes have equal precedence in lectotype designation, although the wording is somewhat unclear. There was a proposal to the Melbourne Congress of 2011 (Art. 9 Prop Z = Prop. 021 – Niederle in Taxon 58: 660. 2009) to amend what is now Art. 9.12 to place syntypes ahead of isosyntypes in the precedence of lectotype designation, but this proposal was defeated in the preliminary mail vote with 79% "no" votes (McNeill & al. in Taxon 60: 1512. 2011). This suggests that the rule had generally not been interpreted in the sense that Niederle wanted to make explicit. We prefer that syntypes and isosyntypes have equal precedence and therefore propose an additional small change to the wording of Art. 9.12 to make this clear.

(311) Upgrade Rec. 9C.1 to an Article in Art. 9, to be placed where the Editorial Committee finds suitable, and reword it as follows (new text in bold, deleted text in strikethrough):

"*9.n*. Duplicate specimens of a **syntype,** lectotype, neotype, and epitype ~~should be referred to as~~ **are** isosyntypes, isolectotypes, isoneotypes, and isoepitypes, respectively."

(312) Amend Art. 9.12 as follows (new text in bold, deleted text in strikethrough):

"*9.12.* In lectotype designation, an isotype must be chosen if such exists, or otherwise a syntype **or isosyntype** if such exists. If no isotype, syntype or isosyntype ~~(duplicate of syntype)~~ is extant, the lectotype must be chosen from among the paratypes if such exist. If no cited specimens exist, the lectotype must be chosen from among the uncited specimens and cited and uncited illustrations that comprise the remaining original material, if such exist."

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(313–314) Proposals on neotypes, to add a new clause to Article 9.19 and a new paragraph to Recommendation 9B

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In situations where the protologue is ambiguous, Art. 9.13 of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) provides no limitations on the selection of a neotype:

"*9.13.* If no original material is extant or as long as it is missing, a neotype may be selected. […]"

The only guidance is in Rec. 9B.1, which fails to mention the possibility that one may refrain from selecting a neotype:

"*9B.1.* In selecting a neotype, particular care and critical knowledge should be exercised because the reviewer usually has no guide except personal judgment as to what best fits the protologue; if this selection proves to be faulty it may result in further change."

These rules are problematic for some older names. Names published before 1958 could be validly published without a type (Art. 40.1). Many such names were published with only a very brief and sometimes ambiguous description or diagnosis, sometimes as little as one sentence. As a result, the name might be applied to two (or more) different taxa. In other cases, the name might be applied to one taxon even though its description or diagnosis seems more applicable to another taxon. A new Recommendation is desirable, to urge that authors refrain from selecting a neotype if it is not clear which taxon is described in the protologue.

More problematic is that, if a neotype has been selected for such an ambiguously described taxon, it cannot generally be superseded, even if later evidence shows that the selection was incorrect:

"*9.19.* The author who first designates […] a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice is superseded if […] it is in serious conflict with the protologue and another element is available that is not in conflict with the protologue […]."

A neotype selected for a taxon with an ambiguous description or diagnosis will rarely be "in serious conflict" with the description or diagnosis. This is true even if other post-protologue evidence (such as correspondence, records, or other publications) makes it very unlikely that the neotype selected represents the correct taxon. Contrast these standards with a neotype selected pursuant to Art. 9.16 to replace a lost or destroyed holotype or lectotype if the remaining original material differs taxonomically from the lost or destroyed type. In that case, Art. 9.18 provides:

"*9.18.* A neotype selected under Art. 9.16 may be superseded if it can be shown to differ taxonomically from the holotype or lectotype that it replaced."

Consistent with Art. 9.18, Art. 9.19 should permit a neotype to be superseded if it differs taxonomically from the taxon represented by the protologue. Accordingly, the following addition to Art. 9.19 and a new Recommendation are proposed.

(313) Add a new clause at the end of Art. 9.19 (new text in bold):

"*9.19.* The author who first designates (Art. 7.9 and 7.10) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be

followed, but that choice is superseded if *(a)* the holotype or, in the case of a neotype, any of the original material is rediscovered; the choice may also be superseded if one can show that *(b)* it is in serious conflict with the protologue and another element is available that is not in conflict with the protologue, or that *(c)* it is contrary to Art. 9.14**, or that *(d)* in the case of a neotype it differs taxonomically from the taxon described in the protologue (taking into account all available evidence to determine such taxon)**."

(314) Add a new paragraph to Rec. 9B:

"*9B.2.* Authors should refrain from designating a neotype if all available evidence cannot determine with reasonable certainty which taxon is described in the protologue."

(315–319) Proposals to amend Article 11.8 and its Examples to remove ambiguity in the sanctioning of dual nomenclature for dinoflagellates, and an emendation of Article 11.7, Example 29

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Dinoflagellates are predominantly single-celled organisms with a life cycle that includes a motile stage and, in some species, also a resting cyst (hereafter "cyst"). With rare exceptions, only the cyst, or more properly its wall, is geologically preservable. The deep fossil record of dinoflagellates extending down to the Middle Triassic is based almost exclusively on fossilized cysts. This has led to the development of two systems of classification and resulting nomenclature at the generic level and below: one for modern (non-fossil) organisms, which is usually based on the motile stage but potentially encompasses all aspects of the life cycle including the cyst; and another based exclusively on fossil cysts. Since the 1960s, cysts recovered from modern marine sediments have been assigned an existing fossil-based name where available. Where no such name exists, these modern cysts have often been treated as fossils and new fossil-based names given accordingly. This practice is facilitated under Art. 13.3 of the *International Code of Nomenclature for algae, fungi, and plants* (the *Melbourne Code*, McNeill & al. in Regnum Veg. 154. 2012), which distinguishes as fossil any material having stratigraphic context at the site of original occurrence.

Meanwhile, life cycle studies of living dinoflagellates have succeeded increasingly in establishing equivalencies between the names based on the motile stage (the non-fossil species name) and those based on the cyst (the fossil-species name). This has resulted in dual nomenclature, where a non-fossil species name can be used alongside a fossil-species name even when the two names represent specimens belonging to the same biological species. Hence the name *Tuberculodinium vancampoae* (Rossignol) D. Wall (1967), which is based on a fossil type, can still be used for the cyst now known to be produced by the non-fossil species *Pyrophacus steinii* (Schiller) D. Wall & B. Dale (1971). While dual nomenclature unconventionally allows two parts of the life cycle of a single living organism to carry different names, it: (1) links the motile stage to the fossil record of its cyst and those of its relatives; (2) recognizes that the two names represent different concepts because one is based on the entire life cycle but typified usually by reference to the motile stage, and the other (the fossil-taxon name) on the morphology of the cyst alone; and (3) acknowledges the dominant nomenclatural practice of those who study fossil and modern cyst distributions, a practice that extends back more than 40 years and has left an extensive literature.

Dual nomenclature in dinoflagellates is supported by Art. 1.2, 11.1, and 11.7 of the *Code*. Article 1.2 states that "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". This acknowledges a fossil-taxon that is distinct from its living (non-fossil) counterpart. Article 11.1 states that "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)". This allows names for fossil cysts even when it is accepted that they represent only part of the life cycle of the organism. Article 11.7 states that "For purposes of priority, names of fossil-taxa (diatom taxa excepted) compete only with names based on a fossil type." This specifically sanctions dual nomenclature in that names of fossil cysts can be used alongside names of equivalent taxa based on living (non-fossil) types without consideration of priority. In the above example, the cyst-based species name *Tuberculodinium vancampoae* (Rossignol, 1962) D. Wall (1967) can be used alongside *Pyrophacus steinii* (Schiller, 1935) D. Wall & B. Dale (1971), even though the latter has priority.

Whereas Art. 1.2, 11.1, and 11.7 effectively sanction dual nomenclature in dinoflagellates, Art. 11.8 states "Names of organisms (diatoms excepted) based on a non-fossil type are treated as having priority over names of the same rank based on a fossil type". This article is meant to address the priority of names based on a

non-fossil type that are considered to be synonyms of those based on a fossil type when these names are applied to a non-fossil taxon. However, it could be interpreted to mean that a name based on a non-fossil type must also be applied to a fossil-taxon if both non-fossil and fossil-taxa are considered equivalent, such as when they represent different parts of the same life cycle. This would then be at odds with dual nomenclature and potentially contradict Art. 11.7.

A key feature of dual nomenclature is that the non-fossil taxon and its equivalent fossil-taxon are conceptually different. Their respective names can be united or combined by life cycle studies, but this equivalency does not automatically mean that they are synonyms.

Given the ambiguity created by the present Art. 11.8, we propose the following amendments to the *Code*.

(315) Amend Art. 11.8 as follows (new text in bold):

"*11.8.* Names of organisms (diatoms excepted) based on a non-fossil type are treated as having priority over names of the same rank based on a fossil type **where these names are treated as synonyms for a non-fossil taxon**".

Examples 31 and 34 create ambiguity with respect to our proposed emendation of Art. 11.8 because their use of "combined" and "united", terms not defined in the *Code*, might be confused with "equivalency" in dual nomenclature. For the sake of clarity, we propose the following two amendments to the *Code*.

(316) Amend Art. 11.8 Ex. 31 as follows (new text in bold, deleted text in strikethrough):

"*Ex. 31.* If *Platycarya* Siebold & Zucc. (1843), a non-fossil genus, and *Petrophiloides* Bowerb. (1840), a fossil-genus, are ~~united~~ **treated as heterotypic synonyms for a non-fossil genus**, the name *Platycarya* is correct ~~for the combined genus, although~~ **even though** it is antedated by *Petrophiloides*."

(317) Amend Art. 11.8 Ex. 34 as follows (new text in bold, deleted text in strikethrough):

"*Ex. 34.* Boalch and Guy-Ohlson (in Taxon 41: 529–531. 1992) ~~united~~ **synonymized** the two non-diatom algal genera *Pachysphaera* Ostenf. (1899) and *Tasmanites* E. J. Newton (1875) *(Prasinophyta). Pachysphaera* is based on a non-fossil type and *Tasmanites* on a fossil type. Under the *Code* in effect in 1992, *Tasmanites* had priority and was therefore adopted. Under the current Art. 11.8, which excepts only diatoms and not algae in general, *Pachysphaera* is **the** correct **name** for ~~the combined~~ **a non-fossil** genus **that includes both of these heterotypic synonyms**."

We introduce a new example for our amended Art. 11.8 that illustrates how dual nomenclature is supported when the names of fossil-taxa are not required to compete for priority with those based on non-fossil types.

(318) Add a new example under Art. 11.8 as follows:

"*Ex. 34bis.* Reid (in Nova Hedwigia 29: 429–462. 1977) indicated that his new fossil-species *Votadinium calvum* was the resting cyst of the non-fossil dinoflagellate *Peridinium oblongum* (Auriv., 1898) Cleve (1900). Contrary to the opinion of Lentin & Williams (in Contr. Ser. Amer. Assoc. Stratigr. Palynologists 28: viii+1–856. 1993), *V. calvum* can be used as the correct name for the cyst fossil-species because it has a fossil type and therefore does not compete for priority with *P. oblongum*."

In relation to *Votadinium calvum*, Fensome & Williams (in Contr. Ser. Amer. Assoc. Stratigr. Palynologists 42: 681. 2004) cited Art. 52.1, with the implication that citation of the name of a non-fossil species in the synonymy of the name of a new fossil species would render the latter superfluous. In fact, this would not be a threat to the name of the cyst fossil-species (in this case *V. calvum*) because Art. 52.1 includes the phrase "a name that ought to have been adopted". From the practice of dual nomenclature, it follows that the name of the living (non-fossil) species need not be adopted.

Dual nomenclature in dinoflagellates derives from equivalency at the species level, and cannot usually be applied between genera, where different sets of taxonomic criteria apply to cysts and motile stages. Consequently, we propose the following amendment to the *Code*.

(319) Amend Art. 11.7 Ex. 29 as follows (new text in bold, deleted text in strikethrough):

Ex. 29. The name ~~*Tuberculodinium* D. Wall (1967)~~ ***Tuberculodinium vancampoae*** **(Rossignol, 1962) D. Wall (1967)** may be retained for a ~~fossil-genus~~ **fossil-species** of cysts even though cysts of the same kind are known to be part of the life cycle of the non-fossil ~~genus *Pyrophacus* F. Stein (1883)~~ **species *Pyrophacus steinii* (Schiller, 1935) D. Wall & B. Dale (1971)**.

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(320) Proposal to amend Article 20.2

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(320) Amend Art. 20.2 as follows (new text in bold):

"*20.2*. The name of a genus may not coincide with a Latin technical term in use in morphology at the time of publication unless it was published before 1 January 1912 **or after 31 December 2011** and was accompanied by a species name published in accordance with the binary system of Linnaeus."

Article 20.2 of the *ICN* (*Melbourne Code*; McNeill & al. in Regnum Veg. 154. 2012) rules that certain technical terms are not to be used as generic names, specifically terms that "coincide with a Latin technical term in use in morphology at the time of publication". This provision was first proposed by Ross (in Taxon 7: 260. 1958) and was recommended for acceptance by the Rapporteur in the synopsis of proposals for the Montreal Congress (Lanjouw in Regnum Veg. 14: 31. 1959). It was subsequently introduced into the *Montreal Code* (Lanjouw & al. in Regnum Veg. 23: 26. 1961) as an amendment to Art. 20, with the following wording:

"The name of a genus may not coincide with a technical term currently used in morphology unless it was published before 1 Jan. 1912 and was accompanied, when originally published, by a specific name published in accordance with the binary method of Linnaeus."

The specific provision later became Art. 20.2 in the *Leningrad Code* (Stafleu & al. in Regnum Veg. 97: 19. 1978) and was not substantially altered from its original form in subsequent versions of the *Code*, except for adding the word "Latin" to "technical term" and changing "currently used" into "in use in morphology at the time of publication".

Unfortunately, neither the original proposal nor the synopsis provide any specific rationale for introducing or accepting this amendment in the *Montreal Code*. What is more, the Example originally added to the *Code*:

"The generic name *Radicula* Hill (Brit. Herbal 264. 1756) coincides with the technical term *radicula* (radicle) and, when originally published, was not accompanied by a specific name in accordance with the Linnaean method. The name must be attributed to Moench (Meth. 262. 1794), who first combined it with specific epithets, but at that time he included in the genus the type-species of the generic name *Rorippa* Scop. (Fl. Carn. 520. 1760). *Radicula* Moench must therefore be rejected in favour of *Rorippa*)."

This Example was published as an incomplete phrase "The generic name *Radicula* …" [sic] in both the original proposal and in the synopsis, and it is unclear how the complete Example was coined. This makes it difficult to determine the reason why this amendment was added to the *Code* and what context justifies its existence; we ourselves can not see any good reason for its inclusion. Perhaps its intention was to avoid possible confusion between intended publication of generic names and mistaking technical terms used in passing in Latin descriptions as inadvertently published generic names. This assumption is supported by the notion that technical terms as generic names were allowed until 31 December 1911 if associated with a specific epithet, thus making the intention as generic name clear.

In the course of a discussion about the potential application of Art. 20.2 to two recently published generic names in lichen fungi, viz. *Caeruleum* Knudsen & Arcadia (in Arcadia & Knudsen, Opusc. Philolich. 11: 19–25. 2012) and *Carbonicola* Bendiksby & Timdal (in Taxon 62: 940–956. 2013), various shortcomings of this Article became obvious. These shortcomings, together with our view that the Article does not serve, and never has served, a useful purpose, led us to the conclusion that the Article should cease to operate.

The principal sentence of Art. 20.2, "The name of a genus may not coincide with a Latin technical term in use in morphology at the time of publication […]" raises various problems that make interpretation and application of this rule difficult, and perhaps impossible. The term "coincide with" is imprecise, and it is unclear whether it means "identical with" or, for example, "coincides in spelling with". For instance, the Latin word *Caeruleum* exists as a noun and also as (the neuter gender of) an adjective. The generic name *Caeruleum* is the noun, as indicated in the protologue, but it coincides in spelling, though not in meaning, with the adjective in neuter form *caeruleum*. If the latter is considered a "Latin technical term in use in morphology", and "coincides with" means "has the same spelling as", the generic name *Caeruleum* would not be validly published. However, if "coincide with" means "identical with", that would not be the case.

The wording "Latin technical term" might also cause confusion. It is unclear whether "Latin" refers to words that are unambiguously Latin, or whether it includes purposely latinized words taken from other languages, such as Greek. Many words in a language are at first regarded as foreign loanwords (e.g., the word *schadenfreude* in contemporary English), but they may gradually become assimilated (e.g., the word *person* in contemporary English, originally a loanword from French, which got it from Latin, which got it from Etruscan). Particularly relevant for our purposes are the many words used in Latin borrowed from Greek. For instance, could the fictive generic name "Plectenchyma" be validly published? It is of Greek origin, but it has been used in both Latin and English descriptions. One could argue that this problem is automatically remedied by assuming that any term used in a Latin description or a scientific text entirely in Latin is considered Latin, regardless of its origin. However, the above example of plectenchyma, a word that can be used in either a Latin or an English context, could then by extension mean that even a Latin technical term was allowed as a generic name if the term has been absorbed into English (or another modern, non-Latin) language. Furthermore, the word "technical" is also unclear, as a Latin description or text is a mixture of technical and non-technical nouns and adjectives and non-technical fill terms and the difference is not always clear. For instance, the Latin word "*excelsum*" for height could perhaps be considered a technical term if used in a description, but it has a much broader context outside botany or mycology or science in general. Is this then to be considered a technical term, or could the fictive generic name "*Excelsum*" be validly published?

Further, substantial problems are caused by the phrase "in use in morphology at the time of publication". Does "in use" include a single use in a publication in a little-known journal of local or regional distribution? Or does it have to be "established" and what would "established" mean? A second use by subsequent, different authors? What is the time span defined by "at the time"? In the same year, in the same decade? For instance, if a technical term is replaced by another term, which is used from that point onward, does the previous term become "available" for publication as a generic name? Does the term "morphology" refer to all morphology, including zoology, bacteriology and virology, or only morphology of organisms governed by the *Code* (which seems to be assumed but is not specifically stated)? What is the scope of the term "morphology"? The general consensus is that it covers the form and structure of organisms, but some authors restrict the term to outward appearance whereas others also include internal morphology, i.e., anatomy. Thus, depending on its definition, anatomical technical terms would either be allowed or not as generic names. Colours are part of morphological and anatomical descriptions, but are they to be considered morphological and technical terms? Some specific colours used from a patented colour scheme might perhaps be considered technical, but what about other colours? Valid publication of the name *Caeruleum* Arcadia, for instance, depends in part on whether the scope of "morphology" is considered to include colours.

Finally, does this Article make sense if commonly used elements of descriptions are excluded? For instance, if the term morphology is narrowly defined, so as to exclude attributes such as chemistry, ecology or geography, the (presumed) original purpose of Art. 20.2 would

be defied, since such elements may contain very specific, technical terms. Is the word "Norsticticum" allowed as a generic name, because chemistry (norstictic acid is a secondary compound frequently found in lichen fungi) is not morphology? What about the published generic name *Carbonicola*, which coincides with a technical term used in substrate ecology but not in morphology (growing on burnt wood)? In other words, if fictive generic names such as "Flavum", "Saxicola" or "Phaeophytinum" or published names such as *Caeruleum*, *Carbonicola*, and *Chlorophyllum* are allowed, what reason is there to deny the use of a set of technical terms used in a narrowly defined scope of (botanical and mycological) morphology, and more so if such terms we allowed until 1912?

Because Art. 20.2 is both unnecessary and subject to a broad range of interpretations, we consider that it should never have been part of the *Code*. Unfortunately, removing it entirely is impractical, as some names that have long been considered not validly published would become validly published, which would lead to instability. We propose a retroactive end date in line with the end date of the requirement for a Latin description or diagnosis (Art. 39), since this would remove any ambiguity as to the published names discussed here, but as a minimum, we consider that it should cease to be applicable from the date of the next Congress. We are concerned that the alternative solution, namely a broad interpretation of the term morphology or, by extension, the application of Art. 20.2 to any Latin technical term or technical term used in Latin descriptions, including anatomy, chemistry, ecology, and geography, will render not validly published certain names published in recent decades that have been regarded as validly published. In addition, it would make the application of the *Code* absolutely impractical, since there would have to be a continuous screening of technical terms to be included in the scope of Art. 20.2. Switching off the Article retroactively is the most beneficial solution, with the least amount of nomenclatural disruption. The proposed date is in line with abandoning Latin descriptions and hence the principle source of confusion, but also with the two names discussed here in lichen fungi, published in 2012 and 2013, respectively. We are unaware of any similar cases in botanical and mycological nomenclature published after the first inclusion of this provision into the *Montreal Code* in 1961.

(321) A proposal relating to infraspecific names (Article 24)

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(321) Reword Art. 24.3 (new text in bold, deleted text in strikethrough), and add two Examples:

"*24.3.* Infraspecific names with final epithets such as *genuinus, originalis, originarius, typicus, verus,* and *veridicus,* **or with the prefix *eu-*, when** purporting to indicate the taxon containing the type of the name of the next higher-ranked taxon, are not validly published unless they ~~are autonyms (Art. 26)~~ **have the same final epithet as the name of the corresponding higher-ranked taxon (see Art. 26.2 and Rec. 26A.1 & 3)**."

"*Ex. 2bis*. "*Hieracium piliferum* var. *genuinum*" (Rouy, Fl. France 9: 270. 1905) was based on "*H. armerioides* var. *genuinum*" of Arvet-Touvet (Hieracium Alp. Franç.: 37. 1888), an invalid designation under Art. 26.2. As circumscribed by Rouy, the taxon does not include the type of *H. piliferum*, but it does include the type of the name of the next higher-ranked taxon, *H. piliferum* subsp. *armerioides* (Arv.-Touv.) Rouy. Therefore, "*H. piliferum* var. *genuinum*" is not a validly published name of a new variety."

"*Ex. 2ter*. "*Narcissus bulbocodium* var. *eu-praecox*" and "*N. bulbocodium* var. *eu-albidus*" were not validly published by Emberger & Maire (in Jahandiez & Maire, Cat. Pl. Maroc: 961. 1941) as they were placed, respectively, in *N. bulbocodium* subsp. *praecox* Gattef. & Maire (in Bull. Soc. Hist. Nat. Afrique N. 28: 540. 1937) and *N. bulbocodium* subsp. *albidus* (Emb. & Maire) Maire (in Jahandiez & Maire, Cat. Pl. Maroc: 138. 1931) and their epithet purports inclusion of the type of the higher-ranked name in the subordinate variety."

A left-over from the time when infraspecific taxa had autonyms, Art. 24.3 does partly duplicate the provisions of Art. 26.2 – but not entirely. Both Examples here suggested aim at illustrating the complementary aspect of the two provisions, which the current Examples fail to do (indeed, Art. 24 Ex. 3 would be better placed under Art. 26.2).

Whereas Art. 24.3 is thus still meaningful, its present wording is flawed. Infraspecific names with the same final epithet as the name of the next higher-ranking taxon are widely used, and their use is indeed recommended explicitly (Rec. 26A). Yet they are apparently, no doubt unintentionally, proscribed by Art. 24.3, as their epithet indeed "indicates the taxon containing the type of the name of the next higher-ranked taxon". A phrase at the end of the Article replacing the reference to autonyms is here proposed to repair this apparent anomaly.

We also propose to mention the prefix *eu-* in addition to the examples of potentially inadmissible epithets given in the Article. Such addition is in essence editorial: *eu-,* placed before the final epithet in the name of the next higher-ranking taxon, does indicate a taxon containing the type of that name. There are two good reasons to make this fact explicit. The first is that the *Eu-* prefix is explicitly disallowed at the ranks of subdivision of a genus (Art. 21.3), so that its not being mentioned for infraspecific names might be wrongly construed to imply that there the *eu-* prefix is allowed. The second reason is more subtle. For subdivisions of genera, there is no provision, equivalent to Art. 24.3, disallowing epithets that indicate inclusion of the type of the name of the next higher-ranking taxon other than

the genus itself. In fact, Art. 21.3 deals merely with a special case of what is covered more fully in Art. 22.2 (and the two Articles might well be editorially combined). It is therefore useful to clarify that the proscription of *eu-* prefixed infraspecific epithets falls under the wider coverage of Art. 24.3, not under Art. 26.2 (the infraspecific equivalent of Art. 22.2). Be it understood, however, that epithets with the prefix *eu-* are not disallowed in all cases: only when the prefix precedes the epithet in the name of the next higher taxon does it indicate that the latter's type is included.

(322–326) Proposals to amend Article 30 and Recommendation 30A

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Allowing electronic material in PDF in an online publication with an ISSN or ISBN to be effectively published was one of the most important changes to the *ICN* adopted at the XVIII IBC in Melbourne in 2011. This progress presently does not cause major difficulties in final, purely online or print publications. However, despite several Examples given in the current version of the *ICN* (McNeill & al. in Regnum Veg. 154. 2012), there remains some uncertainty regarding dates of effective publication. This concerns journals with versions of articles that appear online first but are later published in print ("fast-track", "prepub", "online first", etc.), and in many journals these online versions are routinely replaced later by a version that is near-identical to the printed version. The original web address may change during this process (if no DOI has been assigned, this can make it difficult to trace publications), and journals are not required to give the date of effective publication on the online pre-print versions and their replacements. Many journals with particular emphasis on botanical, phycological, and mycological taxonomy voluntarily provide such information, but nomenclatural novelties are also published in other journals without such a policy. In journals with such a policy, the respective dates of different versions of the same publication may appear at different places even within the same journal, e.g. on the PDF document directly, the cover page of the issue, and/or the website of the journal. The loss or absence of such bibliographic information or its scattered distribution can in some cases make correct citation difficult. Besides, what is replaced cannot logically be claimed as "final". Moreover, in many journals, the bibliographic information of volume and page numbers is missing or preliminary in the pre-print online version; and some publishers allow or make further edits to the content, while others do not. It should also be emphasized that in some journals no difference exists between the online pre-print version and the printed version.

The distinctions and Examples of Art. 30 about different flavours of preliminary and final versions of basically the same publication leave some ambiguity, as several terms are used that do not have a clear definition. For example, the term "pre-print" might indicate a version that might still be edited further in one journal, while another journal might consider this the version that cannot be altered anymore. The present wording of Art. 30 gives the publisher the mandate to decide which version is considered "final" or, technically, the "Version of Record" (Art. 30 Ex. 6). When the first online version is expressly labelled as "preliminary publication", "proof", or equivalent terms, then it is obviously not the final version. Publishers are, however, not obliged to present unambiguous distinctions between preliminary and final versions, and they are not always aware that this distinction has an effect on effective publication and therefore the validity of nomenclatural novelties. It depends, then, on the reader to interpret whether the first online or a later version is to be considered final based on "evidence within or associated with the publication" (Art. 30.2). However, journal policy will determine at which point a PDF can no longer be replaced by another version, and such policy might change over time. After some years it will likely be impossible to establish which policy was followed at which time by a specific journal, as journals are not obliged to keep records of changes to their policies.

In addition, if the first-published PDF is later replaced by a version with final pagination, the original version generally cannot be retrieved afterwards. The current *ICN* does encourage the deposition of electronic material (i.e., PDFs) in repositories (Rec. 29A), but it does not require it. Furthermore, there is no statement clarifying that the first "final" version should be deposited. This renders it practically impossible to tell whether the content of a certain publication has undergone edits between the first and the final version and to retrieve the "evidence within or associated with the publication" to assess whether it was meant as the final version. As a consequence, Art. 30.3, which rules that "Any such alterations are not themselves effectively published", seems hard to operate, as these alterations might be practically undetectable after some time.

In order to avoid problems in correctly interpreting differing policies and practices of individual publishers or journals at a given time, and in retrieving mostly lost bibliographic information, a clear-cut rule is proposed here, suggesting that only the version with the final pagination should be considered as effectively published.

(322) Add a new sentence to Art. 30.2 (new text in bold):

"*30.2.* An electronic publication is not effectively published if there is evidence within or associated with the publication that it is merely a preliminary version that was or is to be replaced by a version the publisher considers final, in which only that final version is effectively published. **On or after 1 January 2019, among different versions of an electronic publication, only the version bearing the**

final pagination and full bibliographic information is effectively published and not any previous version later replaced."

Alternatively, by omitting the starting date of 1 January 2019, our proposal for effective electronic publication could become retroactive to 1 January 2012 (see Art. 29.1) and would then read as follows. In that case, Art. 30 Ex. 6, 7, and 8 would become superfluous and would have to be deleted, since they present examples of effective electronic publications without final pagination.

(323) Add a new sentence to Art. 30.2 (new text in bold) and delete Art. 30 Ex. 6, 7, and 8:

"*30.2.* […] **Among different versions of an electronic publication, only the version bearing the final pagination and full bibliographic information is effectively published and not any previous version later replaced.**"

Changing Art. 30.2 also requires a change to Art. 30 Note 2, in which we propose deletion of part of the text, as follows.

(324) Amend Art. 30 Note 2 as follows (deleted text in strikethrough):

"*Note 2.* Content in external sources accessed via a hyperlink or URL (Uniform Resource Locator) embedded in text is not part of the publication~~; nor is associated information that does not form part of the text itself, such as page numbers (if preliminary or lacking) or watermarks. Content is that which stands alone as the version that the publisher considers final (see Art. 30.2)~~."

The alternative solution to these proposed changes would be to make it mandatory for authors to deposit the first "final" version in specified repositories. This does not seem to be a practical solution, though, as it would involve a post-publication action, which would have to be ruled by additional paragraphs. In addition, legal issues, such as copyright or access rights, would further complicate matters.

The advantage of using final pagination and other bibliographic information such as the publication date as an objective marker for valid publication is that it can be applied as a clear-cut rule to all kinds of publications and avoids the present confusion about different policies among journals and publishers as well as about correct citation of bibliographic information of newly published names. The scientific community has largely accepted the impact factor produced by the ISI (Institute for Scientific Information, Thomson Reuters). When calculating this impact factor, only the version with the final pagination and assigned to a volume is considered, not the preceding online versions without final bibliographic information (Tort & al. in PLoS ONE 7(12): e53374. 2012; Heneberg in PLoS ONE 8(4): e59877. 2013). At least all journals with an impact factor have records of the date of final publication, because these records are essential for evaluation of the journals by the ISI.

A disadvantage of the proposed new rule is that there will be a period of time for some journals during which new names are visible to the general public before the date of effective publication. As a consequence, during this interim period another author could unscrupulously publish a name for the same taxon. During the several years prior to the *Melbourne Code*, when publication could be effected only by the distribution of printed matter, pre-publication of new names in electronic material was a common practice and cases of scientific misconduct such as that described above occurred only very rarely (not a single case is known to the present authors). If such misconduct were to happen, there might still be the possibility to propose to reject the name that was published slightly earlier. We think that accepting even the retroactive proposal (Prop. 343) will cause problems with very few, if any, names. However, retroactive introduction will avoid the confusion of having periods with deviating requirements for effective publication of electronic material.

(325) Delete Art. 30 Ex. 4.

Article 30 Ex. 4 concludes with a citation from a journal website interpreted as a preliminary version: "Final citation details, e.g. volume/issue number, publication year and page numbers, still need to be added and the text might change before final publication." This example is misleading, since it merges two criteria, namely final bibliographic information and final text. In the present version of Art. 30, however, final bibliographic information is not considered relevant for defining the final version, but only the content (Art. 30 Note 2). If the proposed changes to Art. 30 are accepted, Ex. 4 will become superfluous. We therefore propose deleting this Example regardless of whether our above proposals are accepted or not.

As information regarding the date of online publication might be lost over the course of time, we also propose to insert the following Recommendation after Rec. 30A.1.

(326) Add a new Recommendation after Rec. 30A.1:

"*30A.1bis.* Publishers should provide the date of publication on each individual article."

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(327–328) Proposals to clarify certain aspects of the rules on alternative names

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Recent analysis (Mosyakin in Phytotaxa 258: 164–170. 2016) of the status of the name *Erysimum talijevii* published by Klokov (presumably as an alternative name, but in fact merely as a previously unpublished provisional name or synonym) simultaneously with the explicitly accepted name *Syrenia talijevii* Klokov (in Trudy Inst. Bot. Kharkivs'k. Derzhavn. Univ. 1: 107. 1936), as well as our analysis of

selected similar cases, indicated that the articles covering (directly or indirectly) the concept of alternative names are among the most ambiguous provisions of the *ICN*. There are logical contradictions in some Articles of the *Code* (McNeill & al in Regnum Veg. 154. 2012) applicable to alternative names, and these discrepancies often lead to situations in which nomenclaturally identical cases of alternative (or presumably alternative) names are treated differently.

According to Art. 33.1, "… the name must always be explicitly accepted in the place of its valid publication"; however, that sentence was most probably intended to apply specifically to situations in which the various conditions for valid publication were not simultaneously fulfilled – and not generally (general cases are covered by Art. 36.1), but that is not made at all clear. Rewording the sentence in Art. 33.1 to "explicitly accepted in **this** place of valid publication" might make this clearer and should be considered by the Editorial Committee. By contrast with Art. 33.1, Art. 36.1 turns the requirement around and makes it much less demanding in stating that "A name is not validly published *(a)* when it is not accepted by the author in the original publication".

Even the Examples in Art. 36.1 and Art. 36.2 are somewhat contradictory and misleading. In particular, Art. 36 Ex. 11 (Ducke's alternative names in *Brosimum* Sw. and *Piratinera* Aubl.) is a good example to analyse in this context. There is nothing in Ducke's publication (in Arch. Jard. Bot. Rio de Janeiro 3: 23–29. 1922) indicating that he does not accept the names in *Piratinera*; on the other hand, it seems perfectly clear from the text that he was not explicitly accepting them either – rather he explicitly accepted the names in *Brosimum* but provided the alternative names in *Piratinera* for those legalistic followers of the *American Code* who preferred to follow the principle of strict priority. Thus, Ducke's names in *Piratinera* were only conditionally (with an "if-statement") accepted by the publishing author and thus, with some imagination, can be also treated as provisional names ("… merely proposed in anticipation of the future acceptance of the taxon concerned, or of a particular circumscription, position, or rank of the taxon" – Art. 36.1(b)), and nevertheless they are considered validly published alternative names.

On the other hand, if we consider Art. 36 Ex. 4 (the provisional name *Conophyton* proposed by Haworth), it can be argued that that case is nomenclaturally very similar to (if not identical with) the one described in Art. 36 Ex. 11: when proposing *Mesembryanthemum* sect. *Minima* Haw. (Rev. Pl. Succ.: 81. 1821) Haworth mentioned that "If this section proves to be a genus, the name of *Conophyton* would be apt" (Haworth in Rev. Pl. Succ.: 82. 1821), which can be also viewed as some form of conditional acceptance (with an "if-statement") of the provisional generic name by the publishing author. However, this is not considered a validly published generic name, in contrast to Ducke's names in *Piratinera* (also conditionally accepted and proposed with an "if-statement"). However, there is one important difference: Ducke (l.c.) in the footnote clearly indicated the **acceptability** of his names proposed in *Piratinera* under the **already existing** and competing (in fact, alternative) *American Code*: "Selon la priorité absolue appliquée aux États Unis, oe nom devrait être substitué par *Piratinera* Aubl.; les noms des espèces observées dans L'État de Pará seraíent alors: [list of species]" (translation: "According to the absolute priority applied in the United States, the name [*Brosimum*] should be substituted by *Piratinera* Aubl.; the names of species observed in the State of Pará would then be: [list of species following].")

Alternative names are currently defined in the *Code* (Art. 36.2 and Glossary) as "two or more different names based on the same type … proposed simultaneously for the same taxon by the same author". However, since Art. 36.2 in fact regulates **exceptions** to Art. 36.1, that wording can be interpreted as "proposed simultaneously but not necessarily accepted simultaneously". Various situations are possible: (1) two (or more) names proposed and all accepted, (2) two (or more) names proposed and neither one explicitly accepted; (3) two (or more) names proposed and one of them accepted, (4) two (or more) names proposed and one of them conditionally accepted, etc.

In our opinion, this situation requires clarification and the provisions to be made less ambiguous, which can be effected by the proposed amendments to Art. 36.2, Art. 36 Ex. 11, and the Glossary.

(327) Amend Art. 36.2 with Ex. 11 as follows (new text in bold):

"*36.2.* When, on or after 1 January 1953, two or more different names based on the same type are proposed simultaneously for the same taxon by the same author **and accepted as alternatives by that author in the same publication** (so-called alternative names), none of them is validly published. This rule does not apply in those cases where the same combination is simultaneously used at different ranks, either for infraspecific taxa within a species or for subdivisions of a genus within a genus (see Rec. 22A.1–2 and 26A.1–3), nor to names provided for in Art. 59.1."

"*Ex.11.* The species of *Brosimum* Sw. described by Ducke (in Arch. Jard. Bot. Rio de Janeiro 3: 23–29. 1922) were published with alternative names under *Piratinera* Aubl. added in a footnote (pp. 23–24)**, in which Ducke indicated acceptability of these names under the competing (alternative)** ***American Code***. The publication of both sets of names, being effected before 1 January 1953, is valid."

(328) Amend Glossary (entry *alternative name*) as follows (new text in bold):

"***alternative names*.** Two or more different names based on the same type proposed simultaneously for the same taxon by the same author **and accepted as alternatives by that author in the same publication** (Art. 36.2)."

The proposed amendments will better regulate the application of the concept of alternative names and will minimize the cases of occasional recognition as alternative names of the names not accepted by the publishing author (e.g., published as synonyms or provisional names).

Acknowledgements

This text was largely stimulated by discussions in the course of preparation of an article on *Erysimum talijevii* by Sergei Mosyakin, and we gratefully acknowledge various comments and opinions (sometimes conflicting) on alternative names made by Werner Greuter, Alexander Sennikov, Kanchi Gandhi, and John Wiersema.

(329–330) Proposals to expand Article 38.5 to cover a name of a subdivision of a genus

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Article 38.5 states that the names of a monotypic genus and a species may be validly published simultaneously by provision of a single description (descriptio generico-specifica). Similar cases also exist in the names of a subdivision of a genus and a species, but they are not covered by this rule. While Art. 40.6 allows indication of the type of a species name alone to be sufficient for the name of a monotypic new genus or subdivision of a genus with the simultaneously published name of a species, no similar provision in Art. 38 permits a single description or diagnosis to validate both a monotypic subdivision of a genus and a species. In my opinion, the names of a subdivision of a genus and a species should also be validated by a single description or diagnosis. Therefore, I propose to amend Art. 38.5 and Art. 38.6 as indicated below. My proposals have the same purpose as Prop. 223–225 (in Taxon 65: 417–418. 2016) but offer some improvements in wording. An additional example is also provided.

(329) Amend Art. 38.5 as follows (new text in bold):

"*38.5.* The names of a **new** genus **or subdivision of a genus** and a species may be validly published simultaneously by provision of a single description (descriptio generico-specifica **or descriptio infragenerico-specifica**) or diagnosis, even though this may have been intended as only generic **or infrageneric** or specific, if all of the following conditions are satisfied: *(a)* the genus **or subdivision of a genus** is at that time monotypic (see Art. 38.6); *(b)* no other names (at any rank) have previously been validly published based on the same type; and *(c)* the names of the genus **or subdivision of a genus** and species otherwise fulfill the requirements for valid publication. Reference to an earlier description or diagnosis is not acceptable in place of a descriptio generico-specifica **or descriptio infragenerico-specifica**."

(330) If the above proposal is accepted, amend Art. 38.6 as follows (new text in bold):

"*38.6.* For the purpose of Art. 38.5, a monotypic genus **or subdivision of a genus** is one for which a single binomial is validly published even though the author may indicate that other species are attributable to the genus **or subdivision of a genus**."

Some new examples are provided below.

"*Ex. 7bis*. *Hedyotis merguensis* Hook. f. is a new species assigned to the monotypic *Hedyotis* sect. *Involucrella* Benth. & Hook. f. (1873). Both names are validly published with a combined sectional and specific description."

Hedyotis sect. *Involucrella* Benth. & Hook. f. (in Gen. Pl. 2: 57. 1873) was described as a new section with a Latin diagnosis that was immediately followed by a single species name, *Hedyotis merguensis* Hook. f. This description can be considered to have been provided by Bentham & Hooker for both the sectional and specific name. At that time, no other names had previously been validly published at any rank based on the same type. Obviously, *Hedyotis merguensis* should be the type of *H.* sect. *Involucrella.* But Neupane & al. (in Taxon 64: 316. 2015) considered that the species name *H. merguensis* was not validly published in 1873 and designated *Hedyotis coronaria* (Kurz) Craib (≡ *Scleromitrion coronarium* Kurz (1877), *Involucrella coronaria* (Kurz) Neupane & N. Wikstr.) as the type of the sectional name when they raised it to generic rank as *Involucrella* (Benth. & Hook. f.) Neupane & N. Wikstr.

"*Ex. 7ter.* The names *Elatostema* ser. *Tetracephala* W.T. Wang & al. (2012) and *E. tetracephalum* W.T. Wang & al., the latter designating the single new species of the new series, are both validly published although an English diagnosis was provided only under the series name."

Elatostema ser. *Tetracephala* W.T. Wang & al. (Paper Collection of W.T. Wang: 1100. 2012) is a subdivision of a genus proposed by Wang when he published a new system of the genus *Elatostema*. When Wang & al. published the new series name, they provided an English diagnosis under the series name. *Elatostema tetracephalum* W.T. Wang & al. is the single species assigned to that series and was designated as the type. The holotype of the name *E. tetracephalum* was also designated and this fulfilled the other requirement for valid publication.

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(331–333) Proposals on the type of the name of a genus or a subdivision of a genus

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An inconsistency in the *Code* permits the introduction of names of new genera or subdivisions of a genus lacking a *Code*-compliant type. This occurs when the authors of a new genus or a new subdivision of a genus select an existing species as the 'type species' but are not required to ensure this name is typified.

A change to Art. 10.1 was introduced in the *Sydney Code* (1983) as a result of a proposal from a special committee on typification of generic names, established by direction of the Nomenclatural Section associated with the previous IBC in Leningrad. The change was to require that the type of a generic or a subdivision of a generic name be the type of the name of a species, not the species itself.

Prior to the *Sydney Code*, the application of a name at the rank of species and below was determined by a type comprising (usually) a specimen, whereas above the rank of species it was determined by a name. The specimen could be examined by any number of empirical-based methodologies, which is not the case for a name, for this is just a string of characters. The reworded Art. 10.1 reads:

"*10.1.* The type of a name of a genus or of any subdivision of a genus is the type of a name of a species […]. For purposes of designation or citation of a type, the species name alone suffices, i.e. it is considered as the full equivalent of its type."

The problem with this wording is that it assumed that a species name designated or cited as a type was already, or was concurrently, typified. This may be true for new genera or subdivisions of genera where the name is based on a new species published at the same time, but many such names were published by designating a pre-existing species name which may not have been satisfactorily typified, thereby lacking a *Code*-compliant type. A more dogmatic interpretation would argue that this typification requirement is implied, and thus any generic names published during the last thirty-odd years were not validly published if the species name was not typified – a requirement that has only existed for about 50 years, whereas species names have been available as potential types of genera for over 250 years.

(331) Add a new paragraph to Art. 40 as follows:

"*40.6bis.* For the name of a new genus or subdivision of a genus published on or after 1 January 2019, indication of the type must include the species name (Art. 10.1) as well as citation of the type of that name (see Art. 7–9); if necessary, by designating a type for that species under the relevant provisions of Art. 7 and 9."

Add at the end of Art. 10.1: "(but see Art. 40.6bis)"

(332) Add a new Recommendation at an appropriate place in the *Code*:

"*n. n.* Authors proposing names of new families or subdivisions of families are urged to ensure that the generic name on which the family is based is effectively typified, in line with that required for names of new genera and subdivisions of genera (see Art. 40.6bis); if necessary, by designating a type for the species that is the type of the relevant generic name."

This recommendation is, of course, dependant on the acceptance of Prop. 331 – if for some inconceivable reason Prop. 331 fails to be accepted the proposal immediately above should be replaced with the following.

(333) Add a new Recommendation at an appropriate place in the *Code*:

"*n. n.* Authors proposing names of new families or subdivisions of families or names of genera or subdivisions of genera are urged to ensure that the generic name on which the name of a family or subdivision of a family is based or the species name on which the name of a genus or a subdivision of genus is based is effectively typified, in line with that required for names of new species; if necessary, by designating a type for the relevant generic or species name."

(334–336) Proposals relating to the valid publication of new combinations, names at new rank, and replacement names (Article 41)

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(334) Delete the date limit in Art. 41.4, and add a phrase (new text in bold, deleted text in strikethrough):

"*41.4.* If, for a name of a genus or taxon of lower rank ~~published before 1 January 1953~~, no reference to a basionym is given, **or only an insufficient reference (see Art. 41.5),** but the conditions for its valid publication as the name of a new taxon or replacement name are fulfilled, that name is nevertheless treated as a new combination or name at new rank when this was the author's presumed intent and a potential basionym (Art. 6.10) applying to the same taxon exists."

The date limit in this provision first appears in the *Vienna Code* of 2006, in the then Art. 33.3. The mail vote on the relevant proposal had been negative, and the Section's debates were confusing. Little attention was paid to the changes that its adoption would have for names published since 1953 and for names yet to be published. The Section was left with the impression that what is now Art. 41.8 would minimize such changes, so the proposal passed. But whereas it is true that through Art. 41.8(c–d) some intended new combinations are rescued as such, that rescue does not work in all cases. The cases of failure may be few, but the result is very undesirable: they leave us with two different names with the same epithet, with priority from different dates, with the same type or with different types, and the later one may even be illegitimate and block the desired transfer, resulting in further change.

A recent example may serve to illustrate the point. The intended new combination *Alsophila ramispinoides* was published by Lehnert (in Syst. Bot. 38: 883. 2014) with an incomplete basionym reference (page number lacking). It fails to meet the requirements of Art. 41.5 and can be salvaged neither by Art. 41.6, which tolerates no omissions, nor by Art. 41.8(d), which presupposes presence of a full and direct reference to a different work; it is not therefore validly published as a new combination, but, as there is an English description and citation of the type, it is validly published as the name of a new species, dating from 2014. Subsequently Lehnert (in Syst. Bot. 40: 386. 2015) published the originally intended combination, based on *Cyathea ramispinoides* M. Kato of 1990; but in vain, as the later name is an isonym without nomenclatural status, and cannot bring back to the name the 24 years of lost priority. Upon future transfer (with ferns, you never know), an author is free to use either Kato's or Lehnert's name as basionym.

Proposal 334 would ensure that *Alsophila ramispinoides* (M. Kato) Lehnert is validly published from the 2014 date, obviating the described awkwardness. The same applies in infrequent but by no means exceptional parallel cases, each with its own, perhaps even worse complexities.

(335) Delete the last sentence of Art. 41.5, so that it reads (deleted text in strikethrough):

"*41.5.* On or after 1 January 1953, a new combination, name at new rank, or replacement name is not validly published unless its basionym or replaced synonym is clearly indicated and a full and direct reference given to its author and place of valid publication, with page or plate reference and date (but see Art. 41.6 and 41.8). ~~On or after 1 January 2007, a new combination, name at new rank, or replacement name is not validly published unless its basionym or replaced synonym is cited.~~"

The sentence proposed for deletion is another unfortunate addition by the Vienna Congress. Unfortunate because it is partly in unresolved conflict with Art. 41.6, which still allows errors in the citation of the basionym or replaced synonym that are apparently not allowed by the incriminated sentence. Unfortunate also because it imposes bureaucratic hurdles that are unnecessary for all events and purposes. What is wrong with the traditional if today unusual form of citation (example hypothetical): *Quercus perennis* (L., Sp. Pl.: 886. 1753, as *Bellis*), comb. nov.? Why should it be outlawed? Isn't this useless harassment?

(336) Reword Art. 41.8(a) (new text in bold, deleted text in strikethrough):

"*(a)* when the ~~name cited as the~~ actual basionym or replaced synonym was validly published earlier than **the name or isonym cited as such,** ~~in the cited publication,~~ but in **the** ~~that~~ cited publication, in which all conditions for valid publication **of the name as cited** are ~~again~~ fulfilled, there is no reference to the ~~actual~~ place of valid publication **of the actual basionym or replaced synonym**;"

The current wording of Art. 41.8(a) does not cover all of the situations the Article purports to cover by its leading statement: "in any of the following cases, a full and direct reference to a work other than that in which **the basionym or replaced synonym** was validly published is treated as an error to be corrected". This is because Art. 41.8(a), in stating this differently: "when **the name cited as the basionym or replaced synonym** was validly published earlier than in the cited publication", cannot apply to cases where a name differing from the one cited was the actual basionym or replaced synonym, i.e., when the name cited and the actual basionym represent different combinations for the same taxon, being placed in different genera or species, or at different ranks.

An example of this is the new combination published by Duncan & Pullen (in Brittonia 14: 297. 1962) as "*Rhododendron minus* var. *chapmanii* (A. Gray) Duncan and Pullen, comb. nov.", citing "*Rhododendron chapmanii* A. Gray, Proc. Acad. Phila. II. 4: 61. 1877" [where "Proc. Acad. Phila." is an error correctable to "Proc.

Amer. Acad. Arts", under Art. 41.6] as the apparent basionym. Gray referred to "*R. punctatum* var. Chapm. Fl. 266", an unnamed variety in Chapman (Fl. South. U.S.: 266. 1860), but not to the name validly published for it by Wood (1870), *R. punctatum* var. *chapmanii* Alph. Wood, which under Art. 41.4 is the basionym of *R. chapmanii* (Alph. Wood) A. Gray. With the proposed change to Art. 41.8(a), Duncan and Pullen's combination will be based on Wood's varietal name, and not Gray's binomial that they cited.

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(337–339) Proposals to clarify that an apparent new combination or name at new rank when based on an illegitimate name is in fact a replacement name

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The valid publication of new combinations, names at new rank, and replacement names is governed by several Articles of the *ICN* (McNeill & al. in Regnum Veg. 154. 2012), which are requirements common to names of new taxa, such as Art. 32.1, 35.1, 35.2, 36.1, 36.2, and 37.1, and by some specific points as ruled in Art. 41–45. Article 41.1 requires a reference to the basionym or replaced synonym as one of the conditions for valid publication of a new combination, name at new rank, or replacement name. According to Art. 6.10 and 6.11, a basionym is a legitimate, previously published name on which the new combination or name at new rank is based, while a replaced synonym is a legitimate or illegitimate, previously published name on which a replacement name is based.

However, in taxonomic literature, it is common to find attempts at new combinations based on illegitimate names. These occur mainly due to the non-observation of Art. 6.10 and 6.11, but possibly also because of misinterpretation of cases in which illegitimate names require replacement names.

As stated in Art. 41.1 ["In order to be validly published, a new combination, name at new rank, or replacement name (see Art. 6.10 and 6.11), must be accompanied by a reference to the basionym or replaced synonym"], the reader could interpret that the reference to Art. 6.10 and 6.11 refers exclusively to the definition of new combination or name at new rank (Art. 6.10) and replacement name (Art. 6.11), when it can also refer to the definition of basionym and replaced synonym, respectively. A reference to an illegitimate name on which an apparent new combination is based is not considered a "reference to the basionym", since the basionym must be a legitimate name. Thus, a proposal of a new combination in this situation could be regarded as not validly published.

On the other hand, Art. 58.1 establishes that in cases in which the "basionym" is illegitimate, the "new combination" should be treated as a replacement name. Thus, the reference to the illegitimate "basionym" is treated as a reference to a replaced synonym. However, no reference to Art. 58.1 is made in Art. 41.1 or anywhere else in Art. 41 except incidentally in Note 3.

Following the *ICN* can be simple to some taxonomists, but even they understand that it is not generally easy. It is common to find in the *ICN* references to a relevant Article in another Article, as can be seen in Art. 41.1, which mentions Art. 6.10 and 6.11. Moreover, Notes and Examples are used in the *ICN* to clarify some rules and illustrate cases in order to achieve its main goal, which is providing a "precise and simple system of nomenclature" for biology (Preamble 1). Thus, a reference to Art. 58.1 in Art. 41.1 and/or the transfer of Art. 58.1 to Chapter V Section 3 of the *ICN* seem to be fundamental to a better comprehension of the rules.

In order to clarify the issues on the validity of new combinations and replacement names, we make the following proposals.

(337) Amend Art. 41.1 (new text in bold, deleted text in strikethrough):

"*41.1.* In order to be validly published, a new combination, name at new rank, or replacement name ~~(see Art. 6.10 and 6.11),~~ must be accompanied by a reference to the basionym or replaced synonym **(see Art. 6.10 and 6.11; see also Art. 58.1)**".

(338) Add an explanatory Note to Art. 41.1:

"*Note 0.* When, in an apparent new combination or name at new rank, the name treated as the basionym is illegitimate, the resultant new name is a legitimate or illegitimate replacement name based on a replaced synonym (see Art. 58.1 and Art. 58 Note 1)."

(339) Add an Example to Art. 58.1:

"*Ex. n. Cymbella subalpina* Hust. (1942) is illegitimate according to Art. 53.1 because it is a later homonym of *C. subalpina* F. Meister (1912). When Mann (in Round & al., Diatoms: 667. 1990) transferred *C. subalpina* Hust. to *Encyonema* Kütz., he called it *E. subalpinum*. This name is a replacement name according to Art. 58.1 and is cited as *E. subalpinum* D. G. Mann, not *E. subalpinum* "(Hust.) D. G. Mann". However, *C. mendosa* VanLand. (1969) had already been published as a replacement name for *C. subalpina* Hust. Therefore, *E. subalpinum* is illegitimate according to Art. 52.1 because when published it included the type of *C. mendosa*, the epithet of which should have been adopted."

(340) Proposal to add a Note of interpretation and guidance to Articles 42.1 and 42.2

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This proposal is based on the registration system as implemented in Art. 42 the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012) for organisms treated as fungi, including fossil fungi and lichen-forming fungi. The purpose of this proposal is to prevent names being changed between registration and effective publication, i.e., to "lock" the name registered to the identifier issued, and to clarify, with respect to the citation of the identifier, that a name is not validly published if in the intended protologue the identifier is mis-cited or if the name is changed to one that is different from that which was registered. Concurrent proposals by others (Barkworth & al. in Taxon 65: 658. 2016) envisage three mechanisms for registration: proactive (pre-publication), synchronous (concurrent to publication), and retrospective (post-publication); should there be a change from the current system for fungi this Note would be superfluous.

(340) Add a new Note to Art. 42:

"*Note n*. The words "name" and "names" are used in Art. 42.1 and 42.2 for names that may not yet be validly published, in which case the definition in Art. 6.3 does not apply. When the identifier for the name is issued by the approved repository neither identifier nor name can be changed. Authors should therefore refrain from obtaining an identifier from an approved repository until the manuscript that includes the name has completed the peer-review process and the form of the name has been finalized."

(341–343) Proposals to clarify the meaning of "citation of the name itself", in Article 52.2(e), by means of apposite Notes

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(341) Add a phrase to Art. 52 Note 1 (new text in bold):

"*Note 1.* The inclusion, with an expression of doubt, of an element in a new taxon, e.g. the citation of a name with a question mark, **or in a sense that excludes one or more of its potential type elements,** does not make the name of the new taxon nomenclaturally superfluous."

It has been generally assumed that citation, in the synonymy of a new taxon, of a name qualified to apply "pro parte" only, or with some original element(s) excluded, does not by itself make illegitimate the name of the new taxon. One can argue with some justification that "pro parte" inclusion is tantamount to "inclusion with doubt"; but recently that interpretation has been challenged, and it is therefore advisable to cover such situations explicitly.

(342) After Art. 52 Note 2, add a Note:

"*Note 2bis.* For the purpose of Art. 52.2(e), citation of a name can be effected by unambiguous reference to it, e.g. by mention of its original sequential number or diagnostic phrase name (Linnaean "nomen specificum legitimum") rather than its epithet."

The idea that underlies Art. 52.2(e) is that a name, for purposes of illegitimacy, stands for its type, even if that type has not been designated yet. Until recently, little attention has been paid to the exact meaning of the phrase "citation of the name itself". Some now claim that, if taken literally, it signifies that the name itself that causes illegitimacy must appear in print. Such a narrow interpretation goes against the way in which Art. 52 has been applied traditionally, and would restore legitimacy to many names now considered illegitimate, potentially causing changes. The above proposal avoids such an excessively formalistic interpretation. It intends to ensure that the traditional way of interpreting the provision remains correct.

In early times of Linnaean nomenclature names were frequently cited, not by their binomial but by the diagnostic phrase (nomen specificum legitimum) by which the taxon was characterized in the protologue, or by the generic name plus the sequential number of the species in, e.g., Linnaeus's *Species plantarum.* This is not the "name itself" but its unequivocal placeholder, and traditionally has been accepted as such.

(343) Add another Note:

"*Note 2ter.* For the purpose of Art. 52.2(e), citation of a later isonym is equivalent to citation of the name itself if the citing author does not normally cite the primary source, or if the name is usually not cited from its primary source in contemporary literature. However, if it is possible to imply that the isonym is cited "in the sense of" the later author or "as used in" the later source, its inclusion does not by itself cause illegitimacy."

The third proposal of this series addresses a gray area that has often caused difficulties in the past. In questions of illegitimacy, which is the effect of citing in synonymy a later usage of the name rather than the name itself? Under the *ICN* the answer is not obvious. On one hand, accepting that a name stands for its type and considering that all isonyms, by definition (Art. 6 Note 2), are based on the same type, one can argue that it makes no difference whether the name itself or its later isonym is cited, reference to the latter being considered a correctable error. On the other hand, the *ICN* also postulates that later isonyms lack nomenclatural status and can be ignored, so that mentioning them in synonymy would have no effect.

Again, what matters is to know and spell out how such cases have been handled in the past. Unfortunately, there is no easy answer. In early times in particular, it was customary to cite names, not from their original source but from a later work; e.g., in the case of Linnaean names, from the most recent edition of *Species plantarum* or the *Systema,* or even through Richter's *Codex Linnaeanus;* and in other cases, in which such was not an author's general policy, names first appearing in recondite sources, such as the theses of Linnaeus's pupils, were generally cited from subsequent better known publications, e.g., the *Amoenitates.* Such references were meant to be, and traditionally have been accepted as, equivalent to references to a name's original source. On the opposite extreme, what are in fact later isonyms were, and often still are, treated as if they were homonyms, because they were (or were thought to be) applied in the later work to a taxon that differs from the one originally named and described. In such cases, the original type, inclusion of which would cause illegitimacy, was not meant to be included, even though there may be no way to prove that it was excluded by implication. These are situations in which Art. 52 has, with good reasons, never been applied.

Unfortunately, concrete examples are not always as clear cut as in the two extreme situations described above. The wording of the proposed *Note* takes this uncertainty into account and leaves some room for an author's judgement to be applied in gray areas, in which the sound advice of Preamble 13 of the *INC* is best followed. The *Note* makes it obvious that there is no uniform general answer to the problem but that considered judgement is needed in each individual case.

(344–345) Two proposals to clarify Article 60.5 and provide for standardized spellings in cases involving the letters u/v and i/j

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(344) Add a word in Art. 60.5, and a sentence at the end (new text in bold):

"*60.5.* When a name has been published in a work where the letters *u, v* or *i, j* are used interchangeably or in any other way incompatible with modern **typographical** practices (e.g. one letter of a pair not being used in capitals, or not at all), those letters are to be transcribed in conformity with modern nomenclatural usage. **When names or epithets are derived from Greek words that include the diphthong *ey* (ευ), its transcription as *ev* is treated as an error correctable to *eu*.**"

(345) Add another sentence at the end of Art. 60.5:

"[…] **When names or epithets of Latin but not Greek origin include the letter *i* used as a semi-vowel (followed by another vowel to form a diphthong), it is treated as an error correctable to *j*.**"

Article 60.5 has sometimes been misunderstood to cover standardizations outside of its remit. This is demonstrated by the current Ex. 11 placed under it but not supported by it. Also, a recent recommendation, by the Committee for Vascular Plants (in Taxon 62: 1321. 2013), not to conserve the spelling of the name *Mezoneuron* Desf., is based on the erroneous assumption that the original spelling *Mezonevron* is correctable under Art. 60.5 and that the conservation proposal is by consequence unnecessary.

Such misunderstanding apparently came about because Art. 60.5 includes two similar phrases, which, although placed in different semantic contexts, were taken to mean the same: "modern practices" and "modern nomenclatural usage". If one reads the provision carefully, one finds that it does not permit the correction of *i* to *j* or *v* to *u* whenever such correction is supported by modern nomenclatural usage (however defined). Correctability is confined to names "published in a work where the letters *u, v* or *i, j* are used […] in a way incompatible with modern practices", meaning typographical standards that deviate from those now accepted, e.g. due to unavailability of appropriate type. Names that appear in a publication that follows modern typesetting practices are not correctable under Art. 60.5. The proposed addition of the word "typographical" ahead of "practices", while basically editorial, will help to clarify this point.

Concerning the *v* vs. *u* situation, committees apparently were conscious of that limitation in the past and recommended the conservation of the names *Euonymus* L. ("*Evonymus*") and *Neuropteris* (Brongn.) Sternb. (*Filicites* sect. *Nevropteris*), with those spellings. The Committee for Vascular Plants now dismissed these precedents, with the result that, should its recommendation be approved, *Mezoneuron* Desf., universally so spelled, will have to revert to the original spelling *Mezonevron*. Proposal 344 has the aim to obviate that change and, also, make unnecessary future conservation proposals in parallel cases.

At the generic level, acceptance of Prop. 344 would have a beneficial, stabilizing effect in at least the following cases, in addition to *Mezoneuron*: *Euonymopsis* ("*Evonymopsis*") H. Perrier, *Neurocallis* ("*Nevrocallis*") Fée, and *Neurodium* ("*Nevrodium*") Fée. All three

names are listed in *Index Nominum Genericorum (Plantarum)* (ING; http://botany.si.edu/ing/) under their original spelling, but two of them appear in other major databases with the "corrected" spelling. Other cases may exist, as the original spelling of the many generic names of Greek origin that include the *eu* diphthong has not been checked. Two names of unispecific genera would change from the widely adopted spelling with *ev* to the rarely used *eu* one: *Evodianthus* Oerst. and *Evodiopanax* (Harms) Nakai. If Prop. 345 is approved, the Editorial Committee may wish to include one or more of the above examples of names to be corrected, and add the following as names not to be corrected: *Evansia* (commemorating Evans), *Evax* (non-Greek origin, etymology unknown), and *Evolvulus* (Latin origin).

Concerning the alternative use of *i* and *j*, correctability as spelled out above has traditionally been taken for granted, even though there has never been a rule to that effect. One aspect to be considered when formulating such a provision is that there is apparently no consistent relevant tradition with regard to names derived from Greek, and it does not seem advisable to try and enforce one now. In such names, the use of *i* followed by a vowel is usually regarded as the correct solution, as in names formed from Greek *ion* (= violet), but there are important exceptions such as *Jatropha* L., nom. cons., and *Clypeola jonthlaspi* L. In *Maianthemum* Wigg., nom. cons., also of Greek origin, the letters *ia* do not form a diphthong but belong to different word elements (*maios* and *anthemum*).

Proposal 345 aims at enshrining what has so far been taken for granted. If the proposed addition is approved, the current Art. 60 Ex. 11 can be maintained to illustrate it.

(346–361) Miscellaneous proposals aimed at enhancing or clarifying aspects of the *International Code of Nomenclature for algae, fungi, and plants*

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This series of proposals addresses several unrelated issues that aim to enhance the effectiveness of the *Code* (McNeill & al. in Regnum Veg. 154. 2012) through some additional provisions, and also to provide some clarifications. Most issues dealt with here relate to all groups of organisms embraced by the *Code*. A separate series of proposals primarily relating to the naming of fungi, supported by the 10th International Mycological Congress (IMC10) 2014 and the International Commission on the Taxonomy of Fungi (ICTF), has already been published (Hawksworth in Taxon 64: 858–862. 2015; and in IMA Fungus 6: 199–205. 2015).

Harmonization of terms between different *Codes*

(346–354) Instruct the Editorial Committee to make the following changes in terminology throughout the *Code*, in accordance with the recommendations of the International Committee on Bionomenclature:

(346) Replace "effectively published" by "published".

(347) Replace "validly published" by "established"

(348) Replace "legitimate" by "compliant"

(349) Replace "illegitimate" by "non-compliant"

(350) Replace "deposited" by "registered"

(351) Replace "correct" by "accepted"

(352) Replace "listed" by "protected"

(353) Replace "nomenclatural type" by "name-bearing type"

(354) Replace "name and type" by "nominal taxon"

The issue of the five organismal *Codes* not all employing the same term for a particular nomenclatural act or attribute of a scientific name is a long-standing issue, and was brought to the fore by the International Union of Biological Sciences (IUBS), at its General Assembly in Amsterdam in 1991, which encouraged "where possible, the use of identical terms" (Younés, Promoting Life Sciences for a Better Human Life: 66. 1992). Some progress in this direction has been made in the different *Codes* since that time, stimulated by the work of the IUBS/International Union of Microbiological Societies (IUMS) International Committee on Bionomenclature (ICB), which was established in 1994 to foster collaboration and harmonization between the *Codes*. The first proposals on terms arising from the ICB were debated at the St Louis Congress in 1999, a few of which, including the use of "heterotypic" and "homotypic", were adopted (Greuter & al. in Englera 20: 18–32. 2000). The ICB has now proposed an updated list of 18 recommended nomenclatural terms for use across all *Codes* (David & al. in ZooKeys 192: 67–72. 2012). Nine of those terms are ones currently used in the *ICN*, while the others are not. Proposals to adopt those nine are enumerated above, and, as not all are related, they should be voted on separately.

The issue of differing terminologies is not just the issue of a constraint in discussions between the *Codes*, but introduces an unnecessary layer of complexity in teaching biological nomenclature across different groups, and in all-organism nomenclatural databases.

Adoption of these changes at this time would be especially valuable as a new edition of the *International Code of Zoological Nomenclature* is currently in preparation. Nine terms currently used in that *Code*, the same number as in the *ICN*, differ from the recommendations of the ICB. If all, or even some, of the above proposals are adopted at the Shenzhen Congress in 2017, there is a strong possibility that zoologists will also decide to follow the ICB recommendations on terminology in their new edition.

Status of special forms

(355) Insert a new Note after Art. 37.3 and a cross-reference at the end of Art. 4 Note 4 (new text in bold):

"[Art. 37] *Note 0.* Indications of special forms (see Art. 4 Note 4) that meet the requirements for valid publication may serve as basionyms or replaced synonyms of names in ranks recognized by this *Code*. Names of special forms do not compete with names at the rank of form (Art. 4.1)."

"[Art. 4] *Note 4.* In classifying parasites, especially fungi, authors who do not give specific, subspecific, or varietal value to taxa characterized from a physiological standpoint but scarcely or not at all from a morphological standpoint may distinguish within the species special forms (formae speciales) characterized by their adaptation to different hosts, but the nomenclature of special forms is not governed by the provisions of this *Code* **(but see Art. 37 Note 0)**."

In the course of editing and refereeing mycological papers, instances have arisen where authors have considered the rank of "special form" to be equivalent to that of "form" and wished to use special form names, when they met the requirements for valid publication, as basionyms of new combinations. This issue is coming to the fore now as molecular work increasingly reveals that long-recognized special forms can represent separate species. The proposed additional two sentences aim to emphasize that "special form" designations are not equivalent to the rank of "form", but that they can be used in combinations where the criteria for valid publication have been met. While special form designations published on or after 1 January 1953 do not meet the criteria for valid publication, as they do not have a clear indication of rank (Art. 37.1), there are instances where these have been introduced with diagnoses and types prior to that date.

Limitations to the use of illustrations as lecto-, neo-, and epitypes

(356) Insert a new paragraph after Art. 9.3 as follows:

"*9.3bis*. On or after 1 January 2019, an illustration may not be designated as the lectotype of the name of a fungus unless it shows, in the opinion of the typifying author(s), features diagnostic of the taxon."

(357) Insert a further new paragraph after Art. 9.3 as follows

"*9.3ter*. On or after 1 January 2019, illustrations may not be designated as either neotypes or epitypes of the names of fungi."

In the absence of original material consisting of specimens, the current *Code* obliges those selecting lectotypes to choose any illustration that is part of the original material as a lectotype (Art. 9.12). This provision does not work well for mycologists (including lichenologists) where the cited illustrations rarely show diagnostic features and may even represent a different taxon from that to which the name has been applied by subsequent workers. The consequence of this is that epitypes have sometimes been designated based on historical specimens from which DNA cannot be extracted or in which microscopic details cannot be confirmed. As an epitype, once selected, cannot be rejected independently by a later author, in order to resolve such situations and clearly fix the application of a name, conservation with a new type is the only option.

This is a particular problem in the case of 18th century works, and the situation can be illustrated by two recent examples. First, in the original description of *Lichen muralis* Schreb. (Spic. Fl. Lips.: 130. 1771) no original specimens could be located, but Schreber cited two polynomials, one of which was accompanied by an illustration (Micheli, Nova Pl. Gen: 94, pl. 51 fig. 4. 1729). The species to which the Micheli figure refers is obscure, but does not agree with the species now known as *Lecanora* (or *Protoparmeliopsis*) *muralis* to which Schreber's name has been consistently applied. As this illustration was potentially available for designation as a lectotype, in order to retain the current usage of Schreber's epithet it was necessary to conserve the name with a conserved type (Hawksworth & al. in Taxon 64: 1316. 2015).

Second, in the case of *Lichen pubescens* L. (Linnaeus, Sp. Pl. 2: 1155. 1753), no extant material of Linnaeus was available, so Jørgensen & al. (in Bot. J. Linn. Soc. 115: 343. 1994) designated an illustration cited in the protologue as lectotype (Dillenius, Hist. Musc.: pl. 13, fig. 9. 1742), and an undated unlocalized specimen in LINN annotated by Linnaeus's son (and which had previously been incorrectly indicated as a lectotype) as epitype (LINN 1273.286). It has since emerged that this and an allied species can only be reliably separated by molecular methods (Boluda & al. in Lichenologist 48: in press. 2016), so that a proposal for conservation with a conserved type is now necessary to conclusively resolve the situation.

In addition, to ensure that specimens, from which there is the possibility of microscopic and microchemical examination, and further of DNA being extracted in the future (even if not technically possible today), it would be prudent to rule that illustrations are not acceptable as neotypes or epitypes for fungal names in the future.

While these proposals as worded are restricted to names of fungi, the Section may wish to consider whether they might be applied to all organisms treated under the *Code*.

Introduction of a List of Protected Works

(358) Insert a new paragraph to follow Art. 15.6:

"*15.7.* Names in specified ranks included in publications listed as protected works (opera utique protecta, App. VII) are to be treated as if conserved against earlier homonyms and competing synonyms. Proposals for the addition of publications to App. VII must be submitted to the General Committee (see Div. III), which will refer them for examination to the committees for the various taxonomic groups (see Rec. 34A; see also Art 14.12 and 5.2)."

It appears anachronistic that the *ICN* has a list of suppressed works (opera utique oppressa; App. VI) but not a list of protected works. The International Commission on Zoological Nomenclature (ICZN) already has an "Official List" of works, the level of protection in the listed works being determined by the Commission (Melville & Smith, Official Lists and Indexes of Names and Works in Zoology: 317–320. 1987). This proposal would open this same possibility to those working with algae, fungi, and plants. In the case of the fungi, it could be of value as a short-cut in the production of Lists of Protected Names (Art. 14.13) where names accepted in a monograph, after scrutiny and approval by the Nomenclature Committee for Fungi and

the General Committee, could be accepted for protection without the need for a separate list to be extracted from the monograph.

The system of sanctioning works has been a great force for the stability of names and their application in fungi. This is much more than just affording protection against homonyms and competing synonyms, as suggested above, as it also enables typifications to be made from either the sanctioning or the original protologue (Art. 9.10). The proposal to extend sanctioning to other works received limited support (51.8% in favour) at the 10th International Mycological Congress in 2014 (Redhead & al. in IMA Fungus 5: 449–462. 2014). However, there was stronger support for the term "sanctioned" being replaced by "protected" (63.8%) and, if so, discontinuance of the use of the colon (":") to indicate sanctioned status (71.8%). If the above proposal is accepted, the current sanctioning works could be placed on the List of Protected Works, with the special provisions related to typification mentioned in parenthesis, in a parallel manner to the citations in the current App. VI. The Editorial Committee, in consultation with the Nomenclature Committee for Fungi, could then consider how to reword Art. 15.1–15.6 to reflect the change in terminology.

Nomenclatural acts in suppressed works

(359) Insert a new phrase in the first sentence of Art. 34.1 as follows (new text in bold):

"*34.1.* Names in specified ranks included in publications listed as suppressed works (opera utique oppressa; App. VI) are not validly published **and any other nomenclatural acts associated with those names are ineffective.**"

When the Appendix of Suppressed Works was first introduced into the *Code* at the Tokyo Congress in 1993, no reference was made to the status of nomenclatural acts other than the valid publication of names. This was understandable, as the original list included almost exclusively 18th century works in which there was no concept of later typifications. Now some 19th and 20th century works have been added to the Appendix, there is a need to clarify the situation with regard to later typifications and any other nomenclatural acts at the specified ranks. The situation is a particular issue in Motyka's suppressed *Porosty (Lichenes): Rodzina Lecanoraceae* (4 vols. 1995–1996) in which numerous lectotypifications of previously validly published names were made. Some of these later typifications may be acceptable and in accordance with current usage of the name, whereas others are not. In order to avoid the need to make any proposals to effect changes in the types selected in such suppressed works, it would be prudent to rule all such acts as ineffective. This proposal would not preclude later workers from designating as lecto-, neo-, or epitypes the *same* elements that had been designated in a suppressed work.

Homonyms between different *Codes*

(360) Add a new paragraph to Art. 54.1 as follows:

"*(c)* A name published on or after 1 January 2025 for any organism covered under this *Code* is illegitimate if it is a later homonym of a name available under either the prokaryote or the zoological *Code*."

(361) Amend Rec. 54A.1 as follows (new text in bold):

"*54A.1.* Authors naming new taxa under this *Code* **prior to 1 January 2025** should, as far as is practicable, avoid using such names as already exist for zoological and **prokaryote** taxa."

The issue of identically spelled generic names being applied to organisms treated under different *Codes* is a long-standing issue, and can be a cause of confusion and misunderstandings, especially for users of search engines in databases. The problem has become more acute as the worldwide web is increasingly used by non-specialists. McNeill (in Biol. Int. Special Issue 34: 17–40. 1997) found that there were 8784 generic names in zoology that were homonyms of ones subject to the then botanical *Code*, of which 3554 were in current use. Recognizing that there was no easy way to deal with the issues of the past, Rec. 54A.1 was introduced into the *Code* at the St Louis Congress in 1999, with overwhelming support from the mail ballot (159 Y vs. 65 N; Barrie & Greuter in Taxon 48: 771–784. 1999), recommending that names already existing under other *Codes* should be avoided when naming new taxa. The annual checklist releases of the *Catalogue of Life* (Species 2000, 2015 Annual Checklist. 2015) now make searching for homonyms easier than ever before; 143,327 generic names are accepted across all groups of organisms in the 2015 release, which is based on information drawn from 151 databases; the catalogue is available for searching online free of charge (http://www.catalogueoflife.org/col/).

The date of 2025 is proposed here to allow time for the International Commission on Zoological Nomenclature to consider incorporating a complementary proposal into the next edition of the zoological *Code*. In the event that Proposals 082 and 083 (Hawksworth in Taxon 64: 861. 2015; and in IMA Fungus 6: 203–204. 2015), which relate to avoiding homonyms of names of fungi with those of animal protists and prokaryotes, are approved in Shenzhen, it will be necessary for the Editorial Committee to revise the proposed changes in wording of Art. 54 to incorporate all the approved new provisions.

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(362–363) Proposals to amend the *Code* to modify its governance with respect to names of organisms treated as fungi

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At the XVIII International Botanical Congress (IBC) in Melbourne in 2011 a Special Subcommittee on Governance of the *Code* with Respect to Fungi was established with the mandate "to consider what specialized procedures and by-laws may be desirable for dealing with changes to fungal nomenclature". In parallel, a Special Committee on By-laws for the Nomenclature Section, also established at the XVIII IBC, has proposed (Knapp & al. in Taxon 65: 661–664. 2016) an extensive revision of the "Provisions for the governance of the *Code*" that comprise Division III of the current *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012). The Special Subcommittee has based proposed changes to governance of the *Code* with respect of fungi on this proposed new Division III. Two proposals to amend the *Code* are presented below. These are supported by an 80% majority of the Subcommittee (i.e., the first eight of the present authors, not K.A.S.), as explained by the accompanying Report of the Subcommittee (May, this issue, pp. 921–925). In addition, the proposals have the support of the International Mycological Association, represented among the authors by K.A.S. and P.W.C. These proposals and the Report should be read together. The numbering of Articles and Recommendations below is provisional. Should the proposals be accepted, the Editorial Committee may well find ways of condensing the changes while retaining the intent. One such modification could be defining "names of fungi" as shorthand for "names of organisms treated as fungi". In the proposed amendments detailed below, new text is given in **bold** type, and deleted text in strikethrough (~~strikethrough~~). Existing provisions of the proposed new Division III appear within quotation marks ("…"), whereas all other text is new.

(362) Amend Division III of the *Code* so that proposals on matters relating solely to names of organisms treated as fungi are dealt with by the Fungal Nomenclature Session of an International Mycological Congress.

To the proposed new Division III (Prop. 286, hereafter "Div. III") add a new section 8 on proposals relating solely to names of organisms treated as fungi:

8. Proposals relating solely to names of organisms treated as fungi

8.1. For proposals relating solely to names of organisms treated as fungi, exactly the same procedures outlined in sections 1 to 7 of Div. III are to be followed except that, for certain provisions in sections 1, 2, 4, and 5, mentions of International Botanical Congress, Nomenclature Section [of that Congress], Bureau of Nomenclature, and Nominating Committee are to be replaced by International Mycological Congress, Fungal Nomenclature Session [of that Congress], Fungal Nomenclature Bureau, and Nominating Committee of the Fungal Nomenclature Session, respectively; and officers such as President, Rapporteur-général, and Vice-rapporteur (these specifically renamed Chair, Secretary, and Deputy Secretary, respectively) are to be understood as members of the Fungal Nomenclature Bureau rather than the Bureau of Nomenclature (specifically, in subsections 1.1, 1.2, footnote to 1.4, 2.1, 2.3, 2.4, 2.6, 4.2, 4.4, 4.5, 4.7, 4.8, 4.10, 4.11, 5.2, 5.5, 5.6, 5.7, and 5.8; but not in subsections 5.3 and 5.4; and in 5.2, point (8) does not apply).

Who decides what proposals deal solely with fungi

8.2. The General Committee in consultation with the Nomenclature Committee for Fungi is responsible for deciding which proposals deal solely with names of organisms treated as fungi.

IMA rather than IAPT co-organizes the preliminary guiding vote

Replicate subsection 2.5 in section 8 with the following edits:

"8.3. A guiding vote on proposals to amend the *Code* **relating solely to names of organisms treated as fungi** is organized by

the **Fungal Nomenclature** Bureau ~~of Nomenclature~~ in conjunction with the ~~International Association for Plant Taxonomy (IAPT)~~ **International Mycological Association (IMA)** to coincide with the publication of the synopsis of proposals. No accumulation or transfer of votes is permissible in this vote. The following persons are entitled to vote:

(1) Individual members of the ~~IAPT~~ **IMA**;

(2) **Individual members of organizations affiliated with the IMA;**

(3) **Individual members of other organizations approved by Fungal Nomenclature Bureau;**

(~~4~~2) Authors of proposals to amend the *Code* **relating solely to names of organisms treated as fungi**;

(~~5~~3) Members of the ~~Permanent~~ Nomenclature Committees~~ for Fungi~~.”

Timing of the Fungal Nomenclature Session

Replicate subsection 4.1 in section 8 with the following edits:

“8.4. The **Fungal** Nomenclature **Session** ~~Section~~ is part of an International **Mycological** ~~Botanical~~ Congress and meets prior to a plenary session of the Congress **at a time and with a duration to be determined by consultation between the International Mycological Association and the Fungal Nomenclature Bureau**.”

Function of the Fungal Nomenclature Session

Replicate subsection 4.3 in section 8 with the following edits:

“8.5. The **Fungal** Nomenclature **Session** ~~Section~~ has the following functions:

(1) approves the previous *Code* **if amended at the last International Mycological Congress (in the circumstance where there has not been an International Botanical Congress since the last International Mycological Congress)** ~~as published~~ as a basis for discussion by the **Session** ~~Section~~, **and otherwise utilizes the most recent published *Code***;

(2) decides on proposals to amend the ***Code*** **relating solely to organisms treated as fungi**;

(3) appoints ad hoc committees to consider specific questions and report back to the **Session** ~~Section~~;

(4) authorizes Special-purpose Committees, with a specific mandate, **to deal with matters relating solely to names of organisms treated as fungi,** to be appointed by the **Nomenclature Committee for Fungi in consultation with the** General Committee and report back to the **Fungal** Nomenclature **Session** ~~Section~~ of the next **International Mycological** Congress;

(5) elects the ordinary members of the ~~Permanent~~ Nomenclature Committees~~ for Fungi~~;

(6) elects the **Secretary of the Fungal Nomenclature Bureau** ~~Rapporteur-général~~ for the next **International Mycological** Congress;

(7) receives ~~the~~ reports of ~~the Permanent Nomenclature Committees and~~ Special-purpose Committees **dealing with matters relating solely to names of organisms treated as fungi;**

~~(8) decides on the recommendations of the General Committee~~.”

Election and role of Chair of the Fungal Nomenclature Session

Replicate subsection 4.6 in section 8 with the following edits:

“8.6. The **Chair** ~~President~~ of the **Fungal** Nomenclature **Session** ~~Section~~ is elected by **the Nomenclature Committee for Fungi in consultation with** the General Committee prior to the **International Mycological** Congress. The **Chair** ~~President~~ chairs the debates and is responsible for their harmony and timely conclusion; recognizes and silences speakers; may end a debate; decides on procedural matters not covered in Div. III; and is authorized to move a resolution on behalf of the **Fungal** Nomenclature **Session** ~~Section~~ at a plenary session of the same International **Mycological** ~~Botanical~~ Congress that the decisions and appointments of the **Fungal** Nomenclature **Session** ~~Section~~ **in relation to matters solely related to names of organisms treated as fungi** be approved.”

Election and role of Deputy Secretary

Replicate subsection 4.9 in section 8 with the following edits:

“8.7. **In the Fungal Nomenclature Bureau, the Deputy Secretary** ~~The Vice-rapporteur~~ is appointed by the **Secretary** ~~Rapporteur-général~~ and approved by the **Nomenclature Committee for Fungi in consultation with the** General Committee no later than three years prior to the **International Mycological** Congress. The **Deputy Secretary** ~~Vice-rapporteur~~ assists and, if necessary, serves in place of the **Secretary** ~~Rapporteur-général~~.”

Rapporteur-général invited to attend Fungal Nomenclature Session

8.8. The Rapporteur-général appointed for the International Botanical Congress that follows the International Mycological Congress, or an alternate appointed by that Rapporteur-général, is invited to attend the Fungal Nomenclature Session as a non-voting Advisor to the Session.

No institutional votes

8.9. When proposals relating solely to names of organisms treated as fungi are dealt with in a Fungal Nomenclature Session, there are no institutional votes, and therefore sections 3, 7.5, and 7.10 do not apply. Each member of the Session has one personal vote. No accumulation or transfer of personal votes is permissible.

Decisions of the Fungal Nomenclature Session are binding

8.10. The decisions taken at the Fungal Nomenclature Session of an International Mycological Congress relating solely to names of organisms treated as fungi, once accepted by a subsequent plenary session of the same Congress, are binding on the Nomenclature Section convened at the subsequent International Botanical Congress. Such decisions will, however, be open for any editorial adjustments deemed necessary by the Editorial Committee.

Communicating changes to the *Code* after an International Mycological Congress

Replicate subsection 6.1 with following edits:

“8.11. Certain publications, which may be electronic or printed or both, appear as soon as feasible after an International **Mycological** ~~Botanical~~ Congress, not necessarily in this sequence:

(1) The Congress-approved decisions and elections of the **Fungal** Nomenclature **Session** ~~Section~~ including the results of the preliminary guiding vote;

(2) The announcement of Special-purpose Committees and their membership;

~~(3) The new edition of the Code, including Appendix I and the Glossary;~~

~~(4) The remaining Appendices of the Code (App. II–VIII);~~

(~~5~~3) A transcript of the **Fungal** Nomenclature **Session** ~~Section~~.”

8.12. Where modifications to the *Code* have been authorized by a plenary session of an International Mycological Congress on a resolution moved by the Fungal Nomenclature Session of that Congress, such modifications should be inserted into any online version of the *Code* in such a manner that it is clear that the modifications originated from that International Mycological Congress.

[Note to Editorial Committee: should these changes be approved, the printed version of the *Code* should carry a note to mycologists to check the online version of the *Code* for any subsequent changes resulting from the Fungal Nomenclature Session of an International Mycological Congress.]

Changes to other subsections of Div. III

Addition of *IMA Fungus* as place to publish proposals to amend the *Code* solely relating to fungi

"1.4. The *Code* is provided with logistical and financial support by the International Association for Plant Taxonomy (IAPT), which liaises with the Permanent Nomenclature Committees and the Bureaux of Nomenclature. The nomenclatural publications[1] required by Div. III are published as specified by the General Committee (currently in the journal *Taxon* **and for proposals to amend the *Code* relating solely to names of organisms treated as fungi, the journal *IMA Fungus***).

[1] [*footnote to 1.4*] The nomenclatural publications required by Div. III include proposals to conserve and reject names or suppress works, requests for binding decisions, reports of Permanent Nomenclature Committees and Special-purpose Committees, proposals to amend the *Code* and a synopsis of these proposals, notices of institutional votes, and the results of the preliminary guiding vote and Congress-approved decisions and elections of the Nomenclature Section **or Fungal Nomenclature Session**."

Editorial Committee to include a nominee of the Nomenclature Committee for Fungi

"7.4. The Editorial Committee comprises individuals who were present at the Nomenclature Section of the previous International Botanical Congress and includes at least one specialist in each of vascular plants, bryophytes, fungi, algae, and fossils **and at least one individual nominated by the Nomenclature Committee for Fungi who attended the Fungal Nomenclature Session of the previous International Mycological Congress;** the Rapporteur-général and Vice-rapporteur of ~~that~~ **the previous International Botanical** Congress serve as Chair and Secretary, respectively, of the Editorial Committee."

One other minor change

In 7.8 change "Bureau" to "Bureaux".

(363) Amend Division III of the *Code* so that the Nomenclature Committee for Fungi is elected by an International Mycological Congress.

In the proposed new Division III (Prop. 286) amend subsection 4.12 as follows:

"4.12. The Nominating Committee is charged with preparing lists of candidates to serve on the Permanent Nomenclature Committees **(with the exception of the Nomenclature Committee for Fungi)**, in consultation with the current secretaries of those committees, and to propose the Rapporteur-général for the next International Botanical Congress. The nominations of the Nominating Committee are subject to approval by the Nomenclature Section."

Insert a new paragraph in section 4:

"4.new. The Nominating Committee of the Fungal Nomenclature Session is charged with preparing lists of candidates to serve on the Nomenclature Committee for Fungi, in consultation with the current secretary of that committee, and to propose the Secretary for the next International Mycological Congress. The nominations of the Nominating Committee are subject to approval by the Fungal Nomenclature Session."

Insert a new paragraph in section 7, under Membership:

"7.new. The Nomenclature Committee for Fungi is elected by an International Mycological Congress and includes the **Secretary** ~~Rapporteur-général~~ and the **Deputy Secretary** ~~Vice-rapporteur~~ of the Fungal Nomenclature Bureau as non-voting ex-officio members."

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(364) Proposal to provide a more direct definition of the term "gathering"

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The concept of typification is one of the basic principles (Principle II) of the *Melbourne Code* (McNeill & al. in Regnum Veg. 154. 2012), as elaborated in its Section 2, and determines the application of all names at family rank and below. A type must be a specimen or an illustration (Art. 8) and, since 2007, in nearly all cases a specimen (Art. 40.4). Fundamental to the definition of a specimen (Art. 8.2, 8.3) is the definition of a gathering, and in certain provisions of the *Code* (Art. 9.5, 9.17, 40.2, 40.3) the concept of a gathering is of critical importance, yet nowhere in the *Code* is this term directly defined. Currently, the information on what constitutes a gathering must be indirectly gleaned from the definitions of the other terms "specimen" and "duplicate" in Art. 8, leaving room for ambiguity in its interpretation. There exists the following entry in the Glossary:

"*gathering*. [Not defined] – used for a collection of one or more specimens made by the same collector(s) at the one place and time (Art. 8.2 and 8.3 footnote)."

This indicates that at least three invariant elements must be characteristic of a gathering, which is a collection of algae, fungi, or plant specimens made: (1) by the same collector(s), (2) at a single locality, and (3) at one time.

Note that there is no reference to this collection as representing a single taxon in the Glossary because, as Art. 8.2 and the footnote to Art. 8.3 point out, a gathering could be unintentionally or unavoidably mixed yet still constitute a single gathering. It is the sorting out and apportioning of that representing a single species or infraspecific taxon from all or part of a gathering that determines the extent of an individual specimen and its duplicates. This determination of what makes up a specimen can occur upon its initial preparation (Art. 8.3), from a later curatorial action (Art. 8 Ex. 5), or during a subsequent act of typification (Art. 9.14).

Note also that beyond satisfying these three characteristics, there is no current provision in the *Code* for all parts of a gathering to have uniform labelling, numerically or in some other way. The useful clarification of this in the *Code* has been proposed in alternative ways by both Zhu (Prop. 30 in Taxon 63: 1145–1146. 2014) and Sennikov (Prop. 100 in Taxon 64: 1337–2015), but opposed by Husain & al. (Prop. 305–307 in Taxon 65: 898–899. 2016). These proposals can be considered as independent from the present one.

In the context of typification, some vagueness in the interpretation of what constitutes uniformity among specimens assignable to the same gathering may be desirable, especially with older collections, since one or more of the three defining characteristics may be absent from some or all of them. As long as there is no definite conflict in collector(s), date/time, or geographical locality among specimens, they could be assigned to the same gathering if thought to belong to the same taxon. Taking account of taxonomic interpretations, Sennikov has proposed (Prop. 249, 250 in Taxon 65: 647–650. 2016) to allow the extent of a gathering to be delineated not just by the original collector(s), but by the author of a name or a later typifying author. This, too, can be considered independently from the present proposal.

It is here proposed to provide a more direct definition of "gathering" in a new footnote to Art. 8.2, where the term first appears in the *Code*. Adding this definition will allow for the removal of now-redundant text from Art. 8.2 and the current Art. 8.3 footnote 2. Moving the last sentence of Art. 8.3 footnote 2 to the new footnote, provisionally numbered 1bis, also seems appropriate.

(364) Add a new footnote to Art. 8.2 and modify the current Art. 8.3 footnote 2 as follows (new text in bold, deleted text in strikethrough):

"*8.2.* For the purpose of typification a specimen is a gathering[1bis], or part of a gathering, of a single species or infraspecific taxon ~~made at one time~~, disregarding admixtures (see Art. 9.14). […]"

"[1bis] **Here and elsewhere in this *Code*, the term "gathering" is used for a collection presumed to be of a single taxon made by the same collector(s) at the same time from a single locality. The possibility of a mixed gathering must always be considered by an author designating a type, and corresponding caution used.**"

[footnote to Art. 8.3] "[2] Here and elsewhere in this *Code*, the word duplicate is given its usual meaning in curatorial practice. A duplicate is part of a single gathering of a single species or infraspecific taxon ~~made by the same collector(s) at one time~~. ~~The possibility of a mixed gathering must always be considered by an author choosing a lectotype, and corresponding caution used.~~"

Acknowledgements

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(365) Multiple-sheet specimens versus duplicates: A small amendment to Article 8.3

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The last sentence of Art. 8.2 states "A specimen is usually mounted on a single herbarium sheet or in an equivalent preparation, such as a box, packet, jar, or microscope slide." This is made more explicit by Art. 8.3, which adds "A specimen may be mounted as more than one preparation, as long as the parts are clearly labelled as being part of that same specimen. Multiple preparations from a single gathering that are not clearly labelled as being part of a single specimen are duplicates […]."

The herbaria at Geneva (G), i.e., the general collection and G-BOIS (but not G-DC), employ "specimen folders", which are single preparations consisting of one to several sheets of a single specimen, generally with only one original label. Only one barcode is attached to the first sheet in the folder and the sheets are not individually labelled as being part of the same specimen, but they are physically grouped in the "specimen folder".

A problem has arisen repeatedly when users of the herbaria, unaware of this unusual situation and applying Art. 8.3 in an excessively literal manner, cite a single sheet of a multi-sheet specimen for typification purposes and thus exclude the remaining parts of the specimen.

A small addition to Art. 8.3 is therefore suggested to enable it to apply to multiple-sheet specimens grouped together under a common label, e.g., in a specimen folder as at G. It will also be helpful when, as often occurs in old herbaria, the material is not yet mounted but is stored loose in a folder with a single associated label. When proposing conservation of the (otherwise illegitimate) name *Bambusa vulgaris* Schrad. ex J. C. Wendl. with a conserved type, Greuter & Rankin (in Taxon 64: 171–173. 2015) selected an original specimen in the historical Wendland herbarium at Göttingen (GOET), noting: "The Wendland material was kept unmounted in its original folder, distributed over three small-size sheets […]. It has since been remounted on four sheets, to be considered as a single specimen." Not always is a helpful curator at hand to take care of the correct mounting and labelling, as was the case here, and the single-label criterion may then be of value.

(365) Amend Art. 8.3 as follows (new text in bold):

"*8.3.* A specimen may be mounted as more than one preparation, as long as the parts are clearly labelled as being part of that same specimen**, or bear a single original label in common**. Multiple preparations from a single gathering that are not clearly labelled as being part of a single specimen are duplicates[2], irrespective of whether the source was one organism or more than one (but see Art. 8.5)."

Acknowledgements

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(366–369) Two proposals on original material and two on superseding type selection

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It has long been assumed that an illustration published as part of the protologue represents original material and, judging from correspondence, most people continue to hold that view. Indeed this view was explicitly accepted at the Tokyo Congress (Greuter & al. in Englera 14: 52–53. 1994) on the basis of one of two alternative proposals by Silva (in Taxon 42: 167–168. 1993), the successful one being discussed as Art. 7 Prop. S, the Rapporteur-général commenting that "it made no sense to exclude the published illustration from

the original material". However, as pointed out by Ross (in Taxon 51: 523–524. 2002), the wording that appears in Art. 9.3, if taken literally, would exclude the vast majority of such illustrations. This is because it restricts illustrations as original material to those "upon which it can be shown that the description or diagnosis validating the name was based". As Ross pointed out with respect to his monograph of the genus *Rutilaria*, the drawings and photomicrographs accompanying each protologue were all of specimens available to him as he wrote the descriptions of the new taxa, but, in doing so, he examined these specimens and not the illustrations of them, many of which were not drawn or photographed until after the descriptions had been written. This is certainly a common situation.

The comment has been made that the need to have restrictive wording in the definition of which illustrations represented original material was to prevent, for example, habitat photographs being treated as original material. That issue was, however, resolved at the Melbourne Congress with acceptance of what is now the footnote to Art. 8.1 defining the term illustration for the purposes of the *Code* as "a work of art or a photograph depicting a feature or features of an organism, e.g. a picture of a herbarium specimen or a scanning electron micrograph." This was the result of a proposal by Perry (Prop. 216 in Taxon 59: 1909–1910. 2010), who also proposed to make explicit that all such illustrations included in the protologue were indeed original material. That proposal (Prop. 215) was surprisingly defeated on a card vote, perhaps because it was seen as an extension of the provision of illustrations as types rather than a clarification of current practice (Flann & al. in PhytoKeys 41: 49–50. 2014).

Accordingly a slightly modified proposal is made here to achieve the same goal.

(366) Amend the first part of Art. 9.3 to read (new text in bold, deleted text in strikethrough):

"*9.3.* For the purposes of this *Code*, original material comprises the following elements: *(a)* those specimens and illustrations (both unpublished and published ~~either~~ prior to ~~or together with~~ **publication of** the protologue) upon which it can be shown that the description or diagnosis validating the name was based; ***(b)* any illustrations published as part of the protologue;** [and otherwise unaltered except for re-lettering the existing clauses as *(c)* and *(d)*]."

If Prop. 367 is also accepted, simpler rewording may be achieved editorially, but as the issues involved are very different, the proposals are presented independently.

We have recently been made aware that another part of the wording of the current definition of original material is open to a very different interpretation from that which has generally been assumed to be the case. This relates to specimens and again involves the phrase "upon which it can be shown that the description or diagnosis validating the name was based". It is customary practice to regard as original material any specimen associated by the author with the named taxon and that can be shown to have been available to the author prior to publication of the name. For example, as Jarvis (Order out of Chaos: 44–46. 2007) noted, the presence of the 1753 *Species plantarum* number on a sheet in the Linnaean Herbarium in London (LINN) has been taken as evidence that the specimen was in Linnaeus's possession in 1753 and thus is original material.

However, it has been suggested (Sennikov in Taxon 65: 1178–1179. 2016) that only if such a specimen also exhibits some character included in the description or diagnosis can it be "shown" to be part of the basis for that description or diagnosis. In the case of a protologue that includes a description, it is virtually certain that any specimen that the author considered to belong to the new taxon will exhibit some described features, but this is not necessarily the case for new taxa for which only a diagnostic phrase-name is provided – that is for the vast majority of species given a binomial for the first time by Linnaeus in *Species plantarum* (1753).

For example, in the genus *Myriophyllum*, Linnaeus (Sp. Pl.: 992. 1753) recognized only two species, distinguished as "*Myriophyllum floribus masculis interrupte spicatis*" and "*Myriophyllum floribus omnibus verticillatis*". Sennikov has argued that only specimens in flower can be considered original material, because only they could be the basis for the diagnosis. While this would appear to be a misrepresentation of the role of the nomen specificum legitimum, designed to diagnose a species that might have been recognized on many features with the minimum number of characters (indeed just one when only two species needed to be distinguished), it is nevertheless true that this is a possible interpretation of the current wording of the definition that places the emphasis on the link with the description or diagnosis, rather than on evidence of the author's possession of the specimen and the identification of it with the named taxon.

The first designated lectotype of *Myriophyllum spicatum*, the first of Linnaeus's two species, is the specimen Herb. Linn. No. 1123.1 at LINN (Jarvis, l.c.: 687 and http://linnean-online.org/11673/). There are four separate plant parts on the sheet, only one of which is in flower, and so Sennikov has argued that only that part represents original material, although it would seem clear from the sheet itself that Linnaeus made no such distinction. Indeed, noting that only the two right-hand plant parts that are not in flower represent *M. spicatum* as currently understood, Jarvis (l.c.: 687) suggested that this portion be selected in a second-step lectotypification (as has since been done by Ericsson in Nordic J. Bot. 27: 139. 2009), but, under Sennikov's reading of Art. 9.3, these parts are not part of the original material. [Like all workers for the following 160 or so years, Linnaeus recognized only one species for what is now considered to be two: one, *M. spicatum*, a widespread aggressive aquatic weed of the Northern Hemisphere and the other, *M. sibiricum* (= *M. exalbescens*), a circumpolar species characteristic of cooler regions (Aiken & McNeill in Bot. J. Linn. Soc. 80: 216–218. 1980; Scribailo & Alix, *Haloragaceae*, Fl. N. Amer. Provis. Publ. 2014. http://floranorthamerica.org/files/Haloragaceae.provisional.Gal_.pdf)].

It might be argued that relaxing the link with the wording of the description or diagnosis might lead to uncited material that was quite contrary to the author's concept being treated as original material. But this does not follow logically. If an uncited specimen is in serious conflict with the description or diagnosis (and does not merely lack features included in the description or diagnosis) then it can be argued that it is not original material; moreover, if a lectotype selection were to be made on such a specimen, it could be superseded under Art. 9.19(b), so long as other material was available (see below). However, unlike the situation with *Coronilla coronata* L. and *Ononis arvensis* L. (cf. Turland & Jarvis in Taxon 46: 467, 477. 1997), it may be that the only surviving original material, although in serious conflict with the protologue, seems in fact to be original material that was misinterpreted by the author or perhaps just examined superficially. In such a situation, having to select or maintain it as the lectotype would be nomenclaturally disruptive, so that selecting a neotype would be the most satisfactory procedure. To this end it would be well to revisit Art. 9.19(b) – see Prop. 368 below.

(367) Amend Art. 9.3(a) to read (new text in bold, deleted text in strikethrough):

"*9.3.* For the purposes of this *Code*, original material comprises the following elements: *(a)* those specimens and illustrations (both unpublished and published either prior to or together with the protologue) ~~upon which it can be shown~~ **that the author associated with the taxon, and** that **were available to the author prior to, or at the time of, preparation of** the description or diagnosis validating the name ~~was based~~; […]."

The provision that allows a lectotypification or neotypification to be superseded on the grounds of serious conflict with the protologue was introduced at the Sydney Congress in 1981 (previously the criterion had been if it could "be shown that the choice was based on a misinterpretation of the protologue"). The new wording, now "*9.19.* The author who first designates (Art. 7.9 and 7.10) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice […] may also be superseded if *(b)* it is in serious conflict with the protologue and another element is available that is not in conflict with the protologue […]", stemmed from a proposal from the floor by Brummitt, Meikle, and McNeill, and although there was considerable discussion of the proposal, much of it relating to whether "protologue" or "description" was the more appropriate term, no reason for the inclusion of the phrase "and another element is available that is not in conflict with the protologue" was given (Greuter & Voss in Englera 2: 27–29. 1983). Moreover, the first author has no recollection of why such a phrase was thought desirable at the time; although not explicitly stated, it seems to imply an element of the same sort (e.g., original material), and would therefore only have relevance to lectotypification, whereas Art. 9.19 applies to both lectotypes and neotypes.

If a lectotype is in serious conflict with the protologue (necessarily, therefore, an uncited specimen or uncited illustration) and is the only surviving element of original material, supersession is currently precluded – unless one can argue that the element cannot in fact be original material (as was done for *Coronilla coronata* and *Ononis arvensis* – see above), in which case a neotype can be designated. But there are cases in which evidence exists that a conflicting element is indeed original material and the author was just careless. It seems only reasonable that any lectotype in serious conflict with the protologue should be supersedable, regardless of what other material is available. Consequently we are proposing a rewording of Art. 9.19.

In preparing the rewording, it became clear that a switch in the sequence of clauses (b) and (c) would be more accurate and this transposition is incorporated in the proposal together with necessary cross-referencing from Art. 9.1 and 9.13:

(368) Restructure and amend Art. 9.19 to read (new text in bold, text moved to new position in italic, deleted text and moved text in original position in strikethrough):

"*9.19.* The author who first designates (Art. 7.9 and 7.10) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice is superseded if *(a)* the holotype or, in the case of a neotype, any of the original material is rediscovered; the choice may also be superseded if ~~one~~ **it** can **be** show**n** that *(b) it is contrary to Art. 9.14 or (c)* it is in serious conflict with the protologue ~~and another~~**, in which case an** element ~~is available~~ that is not in conflict with the protologue **is to be chosen; a lectotype may only be superseded by a non-conflicting element of the original material, if such exists; otherwise it may be superseded by a neotype**~~, or that *(c)* it is contrary to Art. 9.14~~."

and add to the parentheses at the end Art. 9.7: "and 9.19(c)"
and add at the end of Art. 9.13: "and 9.19(c)".

The current wording of Art. 9.14(b), referring to serious conflict with the protologue and not with the description or diagnosis as had been originally suggested, was a very deliberate decision of the Nomenclature Section in Sydney (Greuter & Voss, l.c.). This has the important effect, not apparently always realized, that if a specimen or illustration is cited in the protologue it is part of that protologue and cannot logically be in any sort of conflict with the protologue, although it might possibly be in conflict with at least some aspects of the description or diagnosis. A Note to clarify this seems desirable and is now proposed.

(369) Add a Note following Art. 9.19 to read:

"*Note 6bis*. Only a choice of uncited material as lectotype may be superseded under Art. 9.19(b); cited specimens and illustrations are part of the protologue and cannot therefore be in serious conflict with it."

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(370–382) Various proposals to amend the *Code*

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(370) Add a Note following Art. 9.4:

"*Note 4bis*. The term isotype is also used for the type of the conserved name of a species, as, under Art. 14.8, such a type, like a holotype, may only be changed by the procedure of conservation."

In Appendices III and IV the type of a conserved name is listed simply as "Typus", whereas the nature of the type of a rejected name is always indicated. The latter is done for a generic name without an original type and for a species name without a holotype by detailing the person and place of type selection. In addition, the nature of the type of a rejected name of a species or infraspecific taxon is specified (e.g., Holotypus, Lectotypus, etc.).

It is mainly because of Art. 14.8 that the type of a conserved name is listed just as "Typus" – even if the type of a conserved species name was originally a lectotype (or even a neotype); once the

species name is conserved the type is, itself, *de facto* conserved and can no longer be changed except by the procedure of conservation. In this respect it is like a holotype and the use of "Isotypi" for duplicates of the "Typus" of a conserved species name is logical and has been used in the Appendices to the *Code* since the second Appendix of conserved species names appeared in the *Tokyo Code* (Greuter & al. in Regnum Veg. 131. 1994).

Recognizing this usage in the text of the *Code* seems desirable.

(371) Delete Art. 10.5(a).

This portion of the Article currently states that a type selection may be superseded if "*(a)* it can be shown that it is in serious conflict with the protologue (or with the sanctioning treatment in the case of names typified from the sanctioning work, Art. 10.2(b))". However, as any type selected under the first sentence of Art. 10.2 – the usual situation – is an element of the protologue or else of the sanctioning treatment, it cannot be in conflict with either, and so the provision for superseding a type under Art. 10.5(a) can only apply to an element "otherwise chosen" under the second sentence of Art. 10.2, a rather uncommon situation. However the last part of Art. 10.2 dealing with such a selection already provides that "the choice is to be superseded if it can be demonstrated that the selected type is not conspecific with any of the material associated with either the protologue or the sanctioning treatment", clearly making Art. 10.5(a) redundant. Moreover, given that the great preponderance of types of names of genera and subdivisions of genera are components of the protologue or of the sanctioning treatment, retaining this clause might mislead some into thinking that such selections are supersedable under this provision.

(372) Insert the words "as approved" in the third line of Art. 14.16 so that it reads (new text in bold):

"*14.16.* When a proposal for the conservation of a name has been approved by the General Committee after study by the Committee for the taxonomic group concerned, retention of that name **as approved** is authorized subject to the decision of a later International Botanical Congress (see also Art. 34.2 and 56.4)."

The current wording of Art. 14.16 is a bit outdated, failing to reflect the provision introduced at the Berlin Congress in 1987 by which a name may be conserved with a different type from that designated by the author or determined by application of the *Code* (Art. 14.9). The proposed addition will make clear that it is not just the name that should be retained but the application of the name that is the intent of the conservation proposal.

(373) Split Art. 36.1 into two and reword it to read (new text in bold, deleted text in strikethrough):

"*36.1.* A name is not validly published ~~*(a)*~~ when it is not accepted by the author in the original publication**, for example**~~; *(b)*~~ ***(a)*** when it is merely proposed in anticipation of the future acceptance of the taxon concerned, or of a particular circumscription, position, or rank of the taxon (so-called provisional name)~~; *(c)*~~ **or *(b)*** when it is merely cited as a synonym~~; or *(d)* by the mere mention of the subordinate taxa included in the taxon concerned~~. ~~Art. 36.1(a) does~~ **These provisions do** not apply to names published with a question mark or other indication of taxonomic doubt, yet accepted by their author."

"***36.1bis*. A name is not validly published by the mere mention of the subordinate taxa included in the taxon concerned.**"

Determining the application of Art. 36.1, particularly the current 36.1(b), can often be problematic. I believe that a contributory factor to this is the current structure of the Article, in which its fundamental basis and the fundamental reason for a name not being validly published under it – whether or not the name is accepted by the author – is merged with criteria for assessing this. The suggested rewording will make clearer that regardless of how hedged with subjunctives the publication of a new name might be – often obligatory for politeness particularly in the 19th century and particularly on the part of amateurs and very junior scientists – the fundamental criterion is whether or not the name is being accepted by its author. This is particularly important today, as it is easy to forget, or not even be aware of, the obligatory hesitation that can look like anticipation of future recognition of the taxon. The test can then more clearly be that of whether or not the author actually accepted the name in that publication, by typography, by discussing it as an accepted new name, etc.

In this context what is currently Art. 36.1(d) does not really fit. Its application is clearly limited. Indeed it is hard to envisage a situation in which its provisions would not be covered by Art. 38.1 (cf. Art. 36 Ex. 9 and 10) – or, in the case of a possible new combination, those of Art. 41. Although the Editorial Committee may conclude that the provision is better treated as a Note, I prefer to leave it as it stands but separate it from Art. 32.1.

(374) Add a Note following Art. 38.2 to clarify the status of a description relative to a diagnosis:

"*Note 2.* Whereas a diagnosis must comprise one or more descriptive statements (Art. 38.2 and 38.3), a validating description (Art. 38.1) need not be diagnostic."

Although a good taxonomic description will include details of all those features that characterize a taxon and distinguish it from related taxa, the *Code* does not, in Art. 38.1 or anywhere else, specify that, for purposes of valid publication of the name of a new taxon, a description must be diagnostic, even at the time that it was published. The requirement of the *Code* is always just for "a description or diagnosis." It seems useful to make this clear in a Note.

(375) Add a new paragraph to Art. 40 to read:

"*40.8.* For the name of a new species or infraspecific taxon published on or after 1 January 2019 of which the type is a culture, the protologue must, in addition, include a statement that it is preserved in a metabolically inactive state."

and add at the end of Art. 8.4: "(see also Art. 40.8)"

and add to the parenthesis at the end of Art. 40 Note 3:

"and Art. 40.8".

After some back-door sanctioning through an example included in the *Tokyo Code*, the Saint Louis Congress accepted as an addition to Art. 8.4 the sentence "However, cultures of fungi and algae, if preserved in a metabolically inactive state (e.g. by lyophilization or deep-freezing), are acceptable as types."

There is, however, currently no means of knowing with certainty whether or not a culture included in the type citation of a new fungal or algal species has in fact been preserved in a metabolically inactive state. Under the present rules, in the absence of indication in the protologue to the contrary, a culture cited as type must be assumed to have been preserved as required by Art. 8.4, which seems to remove any sanction from the supposed requirement.

That, in itself, seems good reason to accept the proposed amendment, but there is also a kind of converse benefit in that some workers cite a preserved specimen as holotype but also include reference to the "type culture" that is not being preserved in a metabolically inactive state and is not intended as the nomenclatural type but could be so interpreted, leading to doubts as to whether a single element had been

cited as type. This amendment would make clear that such a "type culture" could not be the type unless its permanently inactive state was specified in the protologue.

(376) Clarify Art. 41.8(a) by adding new text (in bold):

"*(a)* when the name cited as the basionym or replaced synonym was validly published earlier than in the cited publication, but in that cited publication, in which all conditions for valid publication are again fulfilled, there is no reference**, in association with the name,** to the actual place of valid publication."

In Art. 41.8(a), the intent of the final clause "there is no reference to the actual place of valid publication" is clearly that there is no reference associated with "the name cited as the basionym or replaced synonym". However, if taken literally, "no reference" could mean that provision of *any* reference to the place of valid publication of the basionym or replaced synonym, even if not associated with the name cited as such, would preclude valid publication of the new combination or replacement name. For example *Viola* subsect. *Boreali-Americanae* (W. Becker) Gil-ad, stat. nov., published in Boissiera 53: 42. 1997, was based on "*Viola* section *Nomimium* Ging. "N." *Boreali-Americanae* W. Becker *in* Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 369. 1925." Becker gave no indication in his *Pflanzenfamilien* treatment of any previous publication of this unranked subdivision of *Viola*, but he had previously validly published *Viola* [unranked] *Boreali-americanae* in Repert. Spec. Nov. Regni Veg. 19: 364. 1924. This would seem clearly a situation in which Art. 41.8(a) should apply, except that "in that cited publication" (Becker in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 21: 363–376. 1925), under "Wichtigste Literatur" (p. 364), the work containing "the actual place of publication" ("Becker W. 1924. Violae Mexicanae et Centrali-Americanae. I et II, in Fedde Repert. XIX. (1924) 392–400, l.c. XX. (1924) 1–12.") was cited.

Although one might argue that citing the entire work is not citing the precise "place" of publication, this is not explicit in the wording. Hence, the suggested addition would ensure that the intended meaning will be maintained even in these circumstances.

(377) Add a Note following Art. 46.1 to read:

"*Note 0.* A name of a taxon is attributed to the author of the publication in which it appears (see Art. 46.5) when none of the following provisions rules otherwise."

The second sentence of Art. 46.2 ("A new combination, name at new rank, or replacement name is attributed to the author(s) to whom it was ascribed when, in the publication in which it appears, it is explicitly stated that the same author(s) contributed in some way to that publication.") clearly implies that, regardless of the ascription of the description or diagnosis, if a name is ascribed to the actual author of the publication, it must be attributed to that author. However, this is not spelled out anywhere in Art. 46, and some have questioned this. The proposed Note will make this explicit.

The following Example might follow Art. 46.2 and be cross-referenced to the new Note:

"*Ex. n*. Wallich (Pl. Asiat. Rar. 3: 66. 15 Aug 1832) ascribed *Aikinia brunonis* to "Wall." and although he ascribed both the diagnosis and description to "Brown", the correct attribution is *Aikinia brunonis* Wall., as Wallich is the author of the publication, and the name is not ascribed to anyone else (cf. Art. 46 Note 0)."

In his account in *Plantae Asiaticae Rariores*, Wallich wrote regarding *Aikinia brunonis*: "For the preceding account of this plant, as well as for the beautiful drawing of the late Mr. Ferdinand Bauer, from which the accompanying Plate has been engraved, I am indebted to Dr. Brown, to whom I offer my warmest thanks." Wallich opted to recognize Brown's contribution by this choice of epithet ("*brunonis*") rather than by ascribing a different epithet to Brown. Consequently, under Art. 46, the name is attributed to Wallich alone.

(378) Amend Art. 46.3 to read (new text in bold, deleted text in strikethrough):

"*46.3.* For the purposes of Art. 46, ascription is the direct association of the name of a person or persons with a new name or description or diagnosis of a taxon. An author citation ~~appearing in a list of synonyms~~ **associated with a synonym** does not constitute ascription of the accepted name, nor does reference to a basionym or a replaced synonym (regardless of bibliographic accuracy) or reference to a homonym, or a formal error."

It is not uncommon, particularly in 19th century publications, for the accepted name to appear in the same list as the synonyms, often following the species heading. The species heading may lack any author ascription, in which case this is to be found in the citation of the name along with the synonyms. The current wording of Art. 46.3 has been interpreted as meaning that such author association with an accepted name does not qualify as ascription under Art. 46.3. This was clearly not the intent of the provision; the suggested change will make this explicit.

(379) Add a Note following Art. 56.1:

"*Note 1.* A name rejected under Art. 56.1 does not become illegitimate on account of its rejection and can continue to indicate the type of a name at higher rank. Similarly, a combination under a rejected name, although unavailable for use because of the inclusion of the rejected name, may be legitimate, and may serve as basionym for another combination."

Although it is logically the case from the wording of Art. 56.1, the *Code* does not spell out the fact that a name rejected under Art. 56 does not change its status other than simply becoming not available for use. Rejected names will normally be legitimate – otherwise why reject them – and rejection does not change this. Likewise if a rejected name has a type, that remains the type and, although it will be an uncommon occurrence, that type can continue to serve as the type of a name at higher rank. Authors have been known to be reluctant to propose a species name for rejection under Art. 56 because the name had been previously designated as the type of a generic name in continuing use.

Species names published under a rejected generic name, and infraspecific names published under a rejected species name are also unaffected, except that they cannot themselves be correct names. Their use and priority in other combinations is unaffected.

The Editorial Committee may wish to consider including an Example under the new Note:

"*Aloe perfoliata* L. was designated as the type of *Aloe* L. by Britton & Millspaugh (Bahama Fl.: 69. 1920) and confirmed as such by Hitchcock & Green (in Sprague, Nom. Prop. Brit. Bot.: 146–147. 1929). Its status as type will be unaffected if the recommendation to reject *A. perfoliata* under Art. 56.1 (Klopper & al. in Taxon 65: 1173–1174. 2016) is accepted."

(380) Add a new paragraph in Art. 60 to read:

"*60.5bis*. When the original publication of a name adopted a use of the letters *u*, *v* or *i*, *j* in any way incompatible with modern practices, those letters are to be transcribed in conformity with modern nomenclatural usage."

The current wording of Art. 60.5 reads "When a name has been published in a work where the letters *u*, *v* or *i*, *j* are used interchangeably **or in any other way incompatible with modern practices** (e.g. one letter of a pair not being used in capitals, or not at all), those letters are to be transcribed in conformity with modern nomenclatural usage" – my emphasis. The provision originated as Art. 73.5 in the Leningrad *Code* (Stafleu & al. in Regnum Veg. 97. 1978) and, except for some very early names, dealt entirely with typography. The provision was revised at the Sydney Congress and, although still intended by its proposers to address only outdated typography, the addition of the words set out in bold above broadened its scope enormously. For this reason the Nomenclature Committee for Vascular Plants (NCVP) concluded that a proposal to conserve *Mezoneuron* with that spelling (because it was published originally as *Mezonevron*) was unnecessary as the spelling "*-nevron*" was incompatible with modern practice (Applequist in Taxon 62: 1315–1326. 2013). In considering this case, the General Committee found itself divided: those who emphasized the original intent of the Article took the view that applying it to "*Mezonevron*" was an unjustifiable extension of the meaning, whereas others agreed with the NCVP in that, whatever the original intent, the current wording ("in any other way") clearly covered this situation.

In light of this, Greuter & Gandhi (Prop. 344–345 in Taxon 65: 914–915. 2016) have proposed to make clear that the current provision applies only to "modern **typographical** practices" but also to establish that for names or epithets derived from Greek words that include the diphthong *ey* (ευ), its transcription as *ev* is treated as an error correctable to *eu*. They have also proposed that if the letter *i* is used as a semi-vowel (followed by another vowel to form a diphthong) in a name or epithet of Latin but not Greek origin, this use of *i* is to be treated as an error correctable to *j*.

These proposals are to be welcomed in general, but they do not cover the use of *i* as a "semi-vowel" in names of Greek origin. For example Linnaeus published *Arundo epigejos* (Sp. Pl.: 81. 1753) and this spelling of the epithet was maintained by Roth (Tent. Fl. Germ. 1: 34. 1788) in publishing the new combination *Calamogrostis epigejos*. However, classically, Greek iota (ι), even when placed before a vowel, was transcribed as *i* and this has prompted some to suggest "correcting" Linnaeus's spelling to "*epigeios*". Whereas the Greuter & Gandhi proposal on replacing the Latin "semi-vowel" *i* by *j* reflects well most current usage, transcription of the Greek ι is less consistent: the neo-Latin usage of transcribing it as *j* is widespread in addition to the classical usage already referred to that transcribes it as *i*. The present Art. 60.5, when interpreted to cover all *i* or *j* spellings incompatible with modern practice, covers this situation, but the Greuter & Gandhi proposed amendment would not. This is one reason for the current proposal, but, regardless of the success or otherwise of the Greuter & Gandhi proposals, it seems desirable that provision for general conformity with modern nomenclatural usage be retained (or included) in the *Code*.

If all three proposals are accepted, the Editorial Committee will be able to integrate them appropriately.

(381) Add to the first sentence of Art. 60.10 (new text in bold):

"*60.10.* The use of an apostrophe **or quotation mark** in an epithet is treated as an error to be corrected by deletion of the apostrophe **or quotation mark unless it follows 'M' to represent the patronymic prefix 'Mc' (or 'Mᶜ') in which case it is replaced by the letter 'c'**. The use of a full stop (period) in an epithet that is derived from a personal or geographical name that contains this full stop is treated as an error to be corrected by deletion of the full stop."

and include, as an Example, appropriate text from the second paragraph below:

During the centuries of letterpress printing, printers were commonly restricted by the metal fonts that were available to them. When, for example, a superscript letter "c" was needed, an apostrophe or quotation mark was commonly used as a substitute. This was particularly the case in the common abbreviation to "Mc" of the Scottish and Irish patronymic prefix "Mac" in which, interestingly, it was the "6-quote" (‘) that was regularly used rather than the apostrophe as in an elision such as L'Héritier. Moreover, it was common practice for persons spelling their patronymic prefix as "Mc", rather than as "Mac", to write the "c" in the superscript position and the "6-quote" was probably seen as a better approximation than a regular apostrophe. To reflect this usage a small addition is also proposed to the current wording of Art. 60.10.

For example Harvey (Fl. Cap. 3: 494. 1865) published a new species of *Stobaea* in the form "*S. M‘Kenii*". The name commemorates one of the collectors of the type specimen, Mark Johnston McKen (1823–1872), given as "M‘K" in the protologue. This name appears as *Stobaea mkenii* in IPNI (http://www.ipni.org) – correctly so under the current wording of Art. 60.10, but quite absurd when it commemorates someone called "McKen". The same collector is commemorated in a more appropriate form in the genus *Mackenia* Harv. (Gen. S. Afr. Pl., ed. 2: 233. 1868), which Harvey named "in honour of Mr. J. M‘Ken, Esq., Curator of the Botanic Gardens, Natal, a very zealous and successful collector of the plants of the Natal colony", and similarly in *Cephalandra mackennii* Naudin (in Ann. Sci. Nat., Bot., sér. 5, 5: 17. 1866), although in this case the collector's surname was given as "Mac Ken".

As there is a Recommendation (Rec. 60C.5(a)) that in the formation of new names, "Mac", "Mc", and "M‘" should all be spelled "mac" and united with the rest of the name, it may be asked why a similar practice should not be adopted in the spelling of existing names. There are two reasons why this would be undesirable. The first is that whereas the number of names originally published with patronymic prefix as "m‘" is relatively small – indeed most were published by Harvey commemorating M.J. McKen – there is a very large number of specific epithets published with the prefix as "mc", and it would be unnecessarily disruptive to require that all these be changed. However, perhaps more importantly, in the past 100 or so years the alternative patronymic prefixes "Mac" and "Mc" have become fixed within families, and indeed in some parts of the world (e.g., North America) are treated as quite separate names, "Mc" no longer being alphabetized as "Mac" as is still the case in, for example, U.K. telephone directories. I imagine that many persons who use the "Mc" prefix would prefer to be commemorated with that spelling rather than with "mac". For example, the late Bill Anderson chose to ignore Rec. 60C.5(a) in describing the genus *Mcvaughia* (in Taxon 28: 157. 27 Apr 1979), almost certainly because he knew that Rogers McVaugh, his long-time mentor, colleague, and collaborator, would much prefer that spelling.

Indeed, although only a Recommendation, it is probably now appropriate to modify slightly Rec. 60C.5(a), and this I propose separately below.

(382) Amend Rec. 60C.5(a) to read (new text in bold; deleted text in strikethrough):

"*(a)* The Scottish **and Irish** patronymic prefix "Mac", "Mc", **"Mᶜ",** or "M‘", meaning "son of", should **either all** be spelled **as** "mac" **or the latter three as "mc"** and united with the rest of the name

(e.g. *macfadyenii* after Macfadyen, *macgillivrayi* after MacGillivray, *macnabii* **or *mcnabii*** after McNab, ~~*mackenii*~~ ***macclellandii*** **or *mcclellandii*** after ~~M'Ken~~ **M'Clelland**)."

The reasons for suggesting that the *Code* no longer recommends that Mc and its superscript variants be always transcribed as "mac" are given above. Whereas 18th and 19th century spelling of surnames was quite variable, with modern printing capabilities, the Scottish (and Irish) patronymic prefix has settled on either "Mac" or "Mc" and the previous wording of the Recommendation, although only applying to new names, was probably more appropriate when the various forms of the patronymic prefix were often interchangeable. The suggested change from M'Ken to M'Clelland is just to introduce an alternative to the Example proposed in Prop. 381 to follow Art. 60.10.

Acknowledgements

I am grateful to Nick Turland for suggestions that have critically improved these proposals and their explanation and to Werner Greuter and Kanchi Gandhi for an advanced copy of their proposal on Art. 60.5 and for useful discussion of the topic.

(383–384) Proposals to clarify the status of "accidental binomials" in works in which the Linnaean system of binary nomenclature is not employed

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Prior to the Tokyo Congress of 1993, the *Code* included a provision that names of species were not validly published in a work in which the Linnaean system of binary nomenclature for species was not consistently employed (Art. 23.6(c) of the Berlin *Code* – Greuter & al. in Regnum Veg. 118. 1988). However, there are several important works (e.g., Aublet, Hist. Pl. Guyane. 1775 and Forsskål, Fl. Aegypt.-Arab. 1775) with numerous species names generally accepted as validly published but in which there is at least some inconsistency in the use of binary nomenclature. A Special Committee was therefore set up at the Berlin Congress in 1987 to address this issue (McNeill in Taxon 36: 858–868. 1987). This Committee in its report to the Tokyo Congress (Friis in Taxon 41: 343–350. 1992) set out that "the purpose of a change in Art. 23 must be to maintain validity of the species names traditionally accepted from works like those of Aublet and Forsskål, while names from works traditionally rejected have to be excluded from the possibility of being taken up." The Committee proposed to achieve this goal by abandoning the criterion of consistent employment of binary nomenclature and adopting a number of provisions of which the two most relevant were (1) to preclude a generic name followed by a phrase name (nomen specificum legitimum) from being a validly published species name (Proposal 66) and (2) to establish an (expandable) list of works that, due to their inconsistent or ambiguous, but prevailing, use of non-binary nomenclature, were traditionally dismissed as sources of species names (Proposal 71).

However, in its Proposal 66 seeking to preclude phrase-names from being treated as validly published, the Special Committee considered only one type of phrase name ("one or more descriptive substantives and associated adjectives in the ablative"), while stating, in an associated Example: the "works of Miller (Gard. Dict. Abr. ed. 4. 1754), Gérard (Fl. Gallo-Prov. 1761) and Kramer (Elench. Veg. 1756) are examples of works in which names are such descriptive designations and therefore to be rejected". In fact, these works, which lack any typographical or other distinction between potential "nomina trivialia" (the then brand new Linnaean concept of what are specific epithets today) and the traditional "nomina specifica legitima" (the diagnostic element defining species within their genera), include many generic attributes that are not phrase names as defined above, not being descriptive and/or not in the ablative case. Moreover, at least in Miller's book, many of these attributes comprise a single word, often an adjective in the nominative case, thus forming an apparent binomial with the generic name. The Special Committee apparently failed to note that fact, else they would not have dissociated Miller's book from, e.g., Hill's *The useful family herbal* (1754) and *The British herbal* (1756), in which the situation is exactly similar and which were formally proposed for rejection (their Proposal 71).

Proposal 66 became Art. 23 Prop. C in the Synopsis of Proposals to the Nomenclature Section of the Tokyo Congress (Greuter & McNeill in Taxon 42: 191–271. 1993). In their Comments, the Rapporteurs noted that some of the Examples, including that in Art. 23 Prop. C quoted above, should be Voted Examples. The proceedings of the Nomenclature Section meeting (Greuter & al. in Englera 14: 134. 1994) report that Art. 23 Prop. C (along with Prop. A, B, and D) were accepted without debate. Subsequently, the Section decided not to list in Voted Examples, in the body of the *Code*, the works to be rejected, but to incorporate them in the new Appendix V of suppressed works.

The Editorial Committee for the *Tokyo Code* (Greuter & al. in Regnum Veg. 131. 1994) initially marked the works listed in the Proposal 66 Example for transfer to App. V, along with the other Voted Examples, thus eliminating them from the body of the *Code*; then, noting that, as the Example was worded, there was no need to suppress those three works, they dropped them from the App. V draft, but unfortunately forgot to reinstate them in their former place. The decision of the Tokyo Editorial Committee was presumably correct in the case of the Kramer work (at least, we could not spot any new "accidental binomials" in it on a cursory check), almost so in the case of the Gérard work (we only found two cases in it, *Scolymus annuus* and *S. perennis*), but definitely unfortunate in the case of the Miller

work, as almost 10 % of the designations used in it resemble Linnaean binomials (see below).

Recently, Wiersema & Gandhi (in Taxon 65: 638–639. 2016) have proposed to remedy what they consider a "failure of the Editorial Committee" and add all three named works to what is now App. VI of the *Code*. We do not consider this to be the best possible solution. In the case of Gérard and Kramer, adding the publications to the Appendix of Suppressed Works is probably an overkill (both Gérard "binomials" mentioned above are junior to names published by Linnaeus in 1753) if not unjustified (as in the case of Kramer). Conversely, there is the broader issue of post-1753 publications in which the Linnaean binominal system of nomenclature was clearly not accepted, but in which the occasional "two-word polynomial" or "accidental binomial" is published. It is more than likely that many such cases exist unnoticed in early botanical works that no one has yet dreamt of as potential nomenclatural sources. We therefore prefer a general solution, taking care of known threats (such as Miller's) and any that may surface in the future. This is the intent of the proposals below.

Despite the limiting wording of the current Art. 23.6(a), some take the view that no species names are validly published in a work such as that of Miller in 1754, in which the Linnaean system of binary nomenclature is evidently not adopted. This view is based on Art. 23.6(b), which precludes as validly published names "Other designations of species consisting of a generic name followed by one or more words not intended as a specific epithet"; the conclusion being that all Miller's species designations consist of a generic name followed by a nomen specificum legitimum and so none, not even those comprising the generic name and one word not in the ablative, was intended by Miller as a Linnaean specific epithet. However, none of the Examples to Art. 23.6(b) addresses this situation, dealing rather with designations not intended as any sort of name or epithet, and, consequently, others have regarded such "accidental binomials", i.e., those with phrase names reduced to a single word, as validly published, as an unintended consequence of the changes accepted at the Tokyo Congress.

In fact, Miller restricted his "polynomial" species designations to an apparent binomial quite frequently – for over 400 out of a total of several thousand species included in the abridgment of *The gardeners dictionary*. Many of his apparent epithets were one-word phrase names taken from pre-Linnaean authors, and although many have since been unquestionably used in validly published binomials, either by Miller himself when he did adopt the Linnaean binomial system (Miller, Gard. Dict., ed. 8. 1768) or by other authors, the acceptance of these "accidental binomials" from works that did not use Linnaean binominal nomenclature would at the very least involve unnecessary and undesirable changes in authorship. For example *Leucanthemum vulgare* Lam. would become "*Leucanthemum vulgare* Mill.", *Oenanthe aquatica* (L.) Poir. "*Oenanthe aquatica* (L.) Mill.", and *Sanguisorba minor* Scop. "*Sanguisorba minor* Mill."

The question may be asked whether, twenty-four years after the Tokyo Congress, some disadvantageous nomenclatural change might arise by partly reversing, in the mind of some, a decision taken there. As a consequence of the proposal to conserve *Physalis* with a conserved type (Whitson in Taxon 60: 608–609. 2011), Miller's "*Alkekengi officinarum*" is now listed in IPNI (http://www.ipni.org) as a validly published name – but very few of Miller's other "accidental binomials" are similarly listed, e.g., not those mentioned above. Bräutigam & Greuter (in Willdenowia 37: 123–137. 2007) attributed *Pilosella officinarum* (≡ *Hieracium pilosella* L.) to Vaillant (in Königl. Akad. Wiss. Paris Anat. Abh. 5: 703. 1754) rather than to F.W. Schultz & Sch. Bip. (in Flora 45: 421, 422. 1862), but it has since been recommended that all Steinwehr's translations in Königl. Akad. Wiss. Paris Phys. Abh. 5–9. 1754–1760 be added to the list of Suppressed Works (Applequist in Taxon 63: 1358–1371. 2014). In general, it seems that most people have either not taken note of the change that occurred at the Tokyo Congress, or have interpreted Art. 23.6(b) as still excluding these "accidental binomials" from being validly published.

The following proposals are designed to clarify the rules in this regard and to make explicit the rejection of all "accidental binomials" intended as phrase names. It does so, not by reverting to the pre-Tokyo rule that required consistent application of the Linnaean system of binomial nomenclature, but to a variant of it: that if phrase-names of two or more words predominate, any that comprise just a single word are also considered to be phrase-names.

(383) Amend Art. 23.6(a) to read as follows (new text in bold, deleted text in strikethrough) and add an Example:

"*23.6.* The following designations are not to be regarded as species names:

(a) ~~Descriptive designations~~ **Designations** consisting of a generic name followed by a phrase name (Linnaean "nomen specificum legitimum") **commonly** of one or more ~~descriptive~~ nouns and associated adjectives in the ablative**, but also including any single-word phrase-names in works in which phrase-names of two or more words predominate**."

"*Ex. 14bis*. In Miller, *The gardeners dictionary … abridged*, ed. 4. (1754), phrase-names of two or more words largely predominate over those that consist of a single word and are thereby similar to Linnaean nomina trivialia but are not distinguished typographically or in any other way from other phrase-names. Therefore, designations in that work such as "*Alkekengi officinarum*", "*Leucanthemum vulgare*", "*Oenanthe aquatica*", and "*Sanguisorba minor*" are not validly published names."

(384) If Prop. (383) is accepted, amend Art. 23.1 as follows (new text in bold, deleted text in strikethrough):

"*23.1.* The name of a species is a binary combination consisting of the name of the genus followed by a single specific epithet in the form of an adjective, a noun in the genitive, or a word in apposition~~, or several words, but not a phrase name of one or more descriptive nouns and associated adjectives in the ablative (see Art. 23.6(a)), nor any of certain other irregularly formed designations~~ (see **also** Art. 23.6~~(b–d)~~). If an epithet consists of two or more words, these are to be united or hyphenated. An epithet not so joined when originally published is not to be rejected but, when used, is to be united or hyphenated, as specified in Art. 60.9."

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(385–388) Proposals to amend Articles 32.2, 23.5, and 24.2 to clarify the treatment of transcribed Greek terminations of epithets

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In several places in the *ICN* (McNeill & al. in Regnum Veg. 154. 2012) the acceptable usage of transcribed Greek words in names or epithets is endorsed. For example, Art. 62.2 supports the usage of transcribed Greek words, with their associated Greek terminations indicating different genders, in generic names. Transcribed Greek terminations of generic names are also acknowledged in Art. 18.1, which pertains to the formation of family names. In the formation of compound adjectival epithets derived from two or more Latin or transcribed Greek words, Art. 60.8 enforces Rec. 60G.1(a) on the use of the connecting vowel *-o-* for Greek elements, compared with use of *-i-* for Latin elements. But the *ICN* provides no guidance on usage of transcribed Greek terminations in adjectival epithets. The same is not true for Latin terminations, which when improperly cited, are corrected under Art. 32.2:

"*32.2.* Names or epithets published with an improper Latin termination but otherwise in accordance with this *Code* are regarded as validly published; they are to be changed to accord with Art. 16–19, 21, 23, and 24, without change of the author citation or date (see also Art. 60.12)."

Both Art. 23.5 and 24.2, concerning specific and infraspecific adjectival epithets, respectively, mandate correction of the improper terminations under Art. 32.2 when they do not agree with the gender of the generic name.

Yet there are numerous adjectival epithets in common usage formed by transcribing Greek words into Latin. In some cases the terminations were converted to the Latin terminations *-a* (f.), *-us* (m.), or *-um* (n.), but in other cases the classical Greek terminations *-os* (f. & m.) and *-on* (n.) were retained. Linnaeus did this himself at least 38 times in names such as *Astragalus glycyphyllos* L., *Gleditschia triacanthos* L., *Arum macrorrhizon* L., and *Cneorum tricoccon* L. Because these are transcribed Greek and not Latin terminations, how are they to be dealt with under Art. 23.5, 24.2, and 32.2? Are such terminations to be considered improper use of Latin, to which they should be converted? Voted Example 11 under Art. 53 indicates a few pairs of epithets with Greek or Latin terminations (e.g., *macrocarpon*, *macrocarpum*; *polyanthemos*, *polyanthemus*) that if placed in the same genus would be viewed as homonyms, so this appears to establish that either form is acceptable. But what if such an epithet is transferred to a genus of different gender, what termination is then appropriate? The lack of guidance in the *ICN* on this issue has doubtless contributed to confusion and considerable instability of usage.

The provisions of Art. 23.5 and 24.2 trace back to Art. 27 and 28 of the Cambridge *Rules* (Briquet, Int. Rules Bot. Nomencl. 1935), whereas Art. 32.2 owes its origin to a proposal by Brummitt (in Regnum Veg. 60: 55–56. 1969), which became Art. 32 Note 2 of the *Seattle Code* (Stafleu & al. in Regnum. Veg. 82. 1972). Since the introduction of these rules, there have been no further proposals to amend them in subsequent *Codes*.

Nicolson (in Taxon 35: 323–328. 1986), in his seminal article "Species epithets and gender information", advocated for preserving the original Greek two-ending format for epithets of Greek origin, when an epithet was determined to be adjectival. This same treatment was promoted by Stearn (Bot. Latin, ed. 4: 256. 1992) as well. Determination of whether or not an epithet was adjectival or substantival, according to Nicolson (l.c.), depended on whether the initial usage of that epithet agreed or disagreed with the gender of its generic name. If the termination was in agreement with the gender, an adjectival epithet was inferred.

Despite the lack of efforts to enshrine the treatment advocated by Nicolson (l.c.) and Stearn (l.c.) in the *Code*, their arguments have certainly influenced nomenclatural usage. In an effort to determine usage patterns, the results of searching Google Scholar (http://scholar.google.com) on 1 July 2016 for 38 Linnaean basionyms having Greek terminations and 23 of their later combinations were tabulated. The number of citations returned for each alternative (with Greek or Latin termination) of the same name was recorded. When orthographically different endings were used (such as *-ion*, *-yon*; or *-ius*, *-yus*), the numbers were combined within each termination alternative.

Some conclusions can be drawn from these usage data. Overall, for the 55,773 citations detected for all 61 names in question, 71% of these retained a Greek termination. In 76% of the retrieved citations of just the 38 Linnaean names, the original Greek termination is preserved. By the same token, this means that in 24% of cases the original spelling used by Linnaeus has been altered to a Latin termination. In 63% of the citations of names created when one of these Linnaean basionyms was transferred to a new genus, the original Greek termination is retained. Because this last datum is heavily influenced by certain heavily cited taxa, such as *Brachypodium distachyon* (8760 citations), it is worth noting that 12 of 23 such combinations are cited more often with retained Greek terminations than with "corrected" Latin ones. However, in only 7 cases was a Greek termination retained when the combination was first published. Of the 22 combinations of these names for which a proper Greek or Latin termination was initially used, agreeing with the gender of the generic name, the most subsequently used termination (Greek or Latin) in 17 cases was that adopted by the combining author. However, overall the combining authors' usages of a Greek or Latin termination were preserved in only 34% of the later citations of these combinations, leaving 66% where the original usages had been corrected, suggesting that to mandate following combining authors' choices would be more destabilizing to existing nomenclature than retaining the original authors' termination usage.

Clearly the dual usage of both Greek and Latin terminations that persists for 48 of the 61 names tested is undesirable, creating

nomenclatural instability. How widespread is the usage of Greek terminations in adjectival epithets cannot be precisely determined, but a search of IPNI (http://www.ipni.org) for species names with epithets ending in *-os* or *-on* from only the IK (Index Kewensis) portion of the database (to avoid duplication) revealed 5345 names. Of course, a significant portion of these have substantival epithets, but other records eluding this query may have been corrected from an original Greek termination. An inspection of the retrieved records leads to an estimate that there must be at least 1000 species names published with adjectival epithets having Greek terminations. Because data on infraspecific epithets are far less complete in IPNI, no comparable estimate is possible there.

In the absence of any prescribed treatment of specific and infraspecific adjectival epithets with transcribed Greek terminations in the *Code*, the resulting nomenclatural instability will continue to persist. An amendment to Art. 32.2 is proposed here to address this matter, and solutions are proposed for Art. 23 and 24 to provide the necessary guidance for proper treatment of epithet terminations. Regardless of the remedy chosen to improve standardization of such epithets, some usages will require correction. Because the gathered data indicate that greatest stability would be achieved by retaining the Greek terminations of original authors, even when the names involved are transferred to other genera, we are advocating this solution in Prop. 386.

(385) Amend Art. 32.2 as follows (new text in bold, deleted text in strikethrough):

"*32.2.* Names or epithets **above the rank of species** published with an improper Latin termination but otherwise in accordance with this *Code* are regarded as validly published; they are to be changed to accord with Art. 16–19~~,~~ **and** 21, ~~23, and 24,~~ without change of the author citation or date. **Specific or infraspecific epithets published with an improper Latin or transcribed Greek termination but otherwise in accordance with this *Code* are regarded as validly published; they are to be changed to accord with Art. 23 and 24, without change of the author citation or date** (see also Art. 60.12)."

The amended Article allows valid publication of specific and infraspecific names with epithets demonstrating improper usage of either Latin *or* transcribed Greek terminations, as such names would otherwise violate Art. 32.1(c). The current wording of Art. 32.2, mentioning only Latin, may account for the unnecessary and undesirable corrections of Linnaeus's original Greek terminations to Latin seen in 24% of the cases investigated.

Individual examples accounting for proper usage in specific and infraspecific adjectival epithets are provided for Art. 23 and 24 below. In Prop. 386, retention of transcribed Greek terminations in epithets of new combinations from basionyms with similar terminations is supported, preserving consistency in terminations between basionyms and later new combinations and, if applicable, between replaced synonyms and later replacement names re-using the same epithet.

(386) Amend Art. 23.5 and its Ex. 5 as follows (new text in bold, deleted text in strikethrough):

"*23.5.* The specific epithet, when adjectival in form and not used as a noun, agrees ~~grammatically~~ with **the gender of** the generic name; when ~~it~~ **the epithet** is a noun in apposition or a genitive noun, it retains its own gender and termination irrespective of the gender of the generic name. Epithets not conforming to this rule are to be corrected (see Art. 32.2) **to the proper form of the termination (Latin or transcribed Greek) of the original author(s)**. In particular, the usage of the word element *-cola* as an adjective is a correctable error."

"*Ex. 5.* Names with adjectival epithets: **(Latin)** *Helleborus niger* L., *Brassica nigra* (L.) W. D. J. Koch, *Verbascum nigrum* L.; *Rumex cantabricus* Rech. f., *Daboecia cantabrica* (Huds.) K. Koch (*Vaccinium cantabricum* Huds.); *Vinca major* L., *Tropaeolum majus* L.; *Bromus mollis* L., *Geranium molle* L.; *Peridermium balsameum* Peck, derived from the epithet of *Abies balsamea* (L.) Mill. treated as an adjective**; (transcribed Greek) *Brachypodium distachyon* (L.) P. Beauv. (*Bromus distachyos* L.); *Oxycoccus macrocarpos* (Aiton) Pers. (*Vaccinium macrocarpon* Aiton)**."

(387) Add a new Example after Art. 23 Ex. 5 to illustrate acceptable corrections to both Latin and transcribed Greek terminations of adjectival epithets:

"*Ex. 5bis*. Correctable errors in adjectival epithets: (Latin) *Zanthoxylum trifoliatum* L. (1753) upon transfer to *Acanthopanax* (Decne. & Planch.) Miq. (m., see Art. 62.2(a)) is correctly *A. trifoliatus* (L.) Voss. (1894) '*trifoliatum*'; *Mimosa divaricata* Jacq. (1798) upon transfer to *Lysiloma* Benth. (n.) is correctly *L. divaricatum* (L.) J. F. Macbr. (1919) '*divaricata*'; *Corydalis chaerophylla* DC. (1824) upon transfer to *Capnoides* Mill. (f., see Art. 62.4) is correctly *C. chaerophylla* (DC.) Kuntze (1891) '*chaerophyllum*'; (transcribed Greek) *Andropogon distachyos* L. (1753), nom. cons. '*distachyon*'; *Bromus distachyos* L. (1756) upon transfer to *Brachypodium* P. Beauv. (n.) is correctly *B. distachyon* (L.) Ledeb. (1842) '*distachyum*' or to *Trachynia* Link (f.) is correctly *T. distachyos* (L.) Link (1827) '*distachya*'; *Vaccinium macrocarpon* Aiton (1789) upon transfer to *Oxycoccus* Hill (m.) is correctly *O. macrocarpos* (Aiton) Pers. (1805) '*macrocarpus*' or to *Schollera* Roth (f.) is correctly *S. macrocarpos* (Aiton) Britton (1894) '*macrocarpa*'."

(388) Add to the cross-reference in Art. 24.2 to provide similar guidance for infraspecific epithets (new text in bold):

"*24.2.* Infraspecific epithets are formed like specific epithets and, when adjectival in form and not used as nouns, they agree grammatically with the generic name (see Art. **23.5 and** 32.2)."

Acknowledgements

The authors are grateful for feedback from Larry Dorr, Joseph Kirkbride, and Nick Turland on the underlying issue that prompted these proposals.

(389) A proposal on valid publication with erroneous citation of a basionym or replaced synonym (Article 41.8)

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(389) Amend Art. 41.8(c) and (d) as follows (deleted text in strikethrough, new text in bold), and replace Art. 41 Ex. 24 with a new Example:

"*41.8.* On or after 1 January 1953, in any of the following cases, a full and direct reference to a work other than that in which the basionym or replaced synonym was validly published is treated as an error to be corrected, not affecting the valid publication of a new combination, name at new rank, or replacement name:

[…]

(c) when ~~an intended~~ **the resulting** new combination or name at new rank would otherwise be validly published as a (legitimate or illegitimate) replacement name; or

(d) when ~~an intended~~ **the resulting** new combination, name at new rank, or replacement name would otherwise be the validly published name of a new taxon."

"*Ex. 24.* (d) Koyama (in Jap. J. Bot. 15: 175. 1956) accepted the name *Carex henryi*, not validly published previously, erroneously citing "C. B. Clarke ex Franchet in Nouv. Archiv. du Muséum 3e ser., 8: 243 (1896)" as its author and place of valid publication. In synonymy Koyama also cited its actual basionym, *C. longicruris* var. *henryi*, but with a reference to "(C. B. Clarke ex Franch.) Kükenth. in Engl., Pflanzenr. 4-20: 603. (1909)" instead of C. B. Clarke (in J. Linn. Soc., Bot. 36: 295. 1903). Since Kükenthal (1909) provided a direct reference to Clarke but also included a Latin description of the taxon, the new combination *C. henryi* (C. B. Clarke) T. Koyama was validly published by Koyama (1956) because it would otherwise have been the validly published name of a new species."

The current wording of Art. 41.8 suggests that, for the provisions (c) and (d) to apply, a new combination or another name with a basionym should be intentionally proposed by its author. This is contrary to the current practice to treat nomenclatural novelties as validly published when the relevant conditions for valid publication are met, even though such a novelty may not necessarily be recognized and indicated as such by the publishing author. It is also contrary to the idea of the original proposal (Greuter in Taxon 47: 915–918. 1998), from which the present Art. 41.8 resulted: by using the words "intended new combination", that proposal implied that the publishing author accepted a nomenclatural novelty with a basionym (vs. a nomenclatural novelty without a basionym), rather than implied a difference between intentionally vs. unintentionally publishing a new combination (Greuter, pers. comm., Jun 2016). Moreover, the analogous provisions (a) and (b) do not have this conditional limitation.

The new wording proposed here is neutral to the actual intent of the publishing author, who may appear to have published a new name either intentionally or unknowingly.

To illustrate this provision, I propose an example of unintentional valid publication of the name *Carex henryi* (C. B. Clarke) T. Koyama, which generated a number of corrections and critical studies with controversial results (Dai & al. in Wu & al., Fl. China 23: 285–461. 2010; Yano & al. in Acta Phytotax. Geobot. 63: 143–148. 2013; Deng in Phytotaxa 146: 32–34. 2013) because it fits the idea but not the current wording of Art. 41.8.

The current Art. 41 Ex. 24 is incorrect and should be deleted. When publishing the purported nomen novum, *Agropyron kengii* Tzvelev (in Grubov, Rast. Tsentral. Azii 4: 188. 1968), Tzvelev (pers. comm.) was aware that its presumed replaced synonym, *Roegneria hirsuta* Keng (in Keng, Fl. Ill. Pl. Prim. Sin., Gram.: 407. 1959), was not validly published in the cited place; to be polite to the original author, and also to accommodate the possibility that the name was or was not published by Keng elsewhere, he quoted that work as the replaced synonym while intentionally fulfilling the conditions for valid publication of the replacement name as the name of a new taxon. While doing so, Tzvelev unfortunately stated "typus!" at the citation of a single gathering borrowed from Keng and also at the citation of a drawing of the taxon published by Keng. In 1968, both elements, the specimen and the illustration, were eligible for designation as the holotype of the name of a new taxon; citing both as such means that two types were designated. Consequently, the designation "*Agropyron kengii*" was not validly published by Tzvelev as being contrary to Art. 40.1 and 40.2.

Acknowledgements

I am grateful to the late Nikolai N. Tzvelev (St. Petersburg) for explaining the situation and providing a copy of Keng (1959), to Xiang-Yun Zhu (Beijing) for raising the point, and to Nicholas Turland (Berlin) and Werner Greuter (Berlin & Palermo) for fruitful discussions and suggestions.

(390) Proposal to preclude homonymy of generic names with names of intergeneric graft-hybrids (chimaeras)

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(390) Add a new paragraph to Art. 54.1 (with a footnote) to read:

"*(c)* A name of a genus is treated as an illegitimate later homonym if it is spelled identically with a previously published intergeneric graft hybrid "name" established[1] under the provisions of the *International Code of Nomenclature for Cultivated Plants*."

"[1] The term "established" is used by the *ICNCP* for the concept of validly published in the *ICN*."

and add to the parenthesis at the end of Art. H.6.1: "and 54.1(c)".

The Editorial Committee should also consider replacing the words "not treated as algae, fungi, or plants" in Art. 54.1 by "not treated under this *Code*".

The nomenclature of graft hybrids or chimaeras was first regulated in Art. 32 of the Cambridge *Rules* (Briquet, Int. Rules Bot. Nomencl., ed. 3: 9. 1935), in which the relevant text was as follows:

"Art. 32. Bigeneric hybrids (i. e. hybrids between species of two genera) are also designated by a formula and, whenever it seems useful or necessary, by a name.

The formula consists of the names of the two parents connected by a sign, as in Art. 31.

The name consists of a new "generic" name usually formed by a combination of the names of the parent genera, and a "specific" epithet. All hybrids (whether sexual or asexual) between the same two genera bear the same "generic" name.

(1) *Sexual hybrids*. In the formula the connecting sign × is used. The name is preceded by the sign ×.

(2) *Asexual hybrids*. In the formula the connecting sign + is used. The name is preceded by the sign +. The "specific" epithet is different from that of the corresponding sexual hybrid (if any) between the same species.

Examples of sexual hybrids: ×*Odontioda Boltonii (Cochlioda Noezliana* × *Odontoglossum Vuylstekeae)*; ×*Pyronia Veitchii (Cydonia oblonga* × *Pyrus communis)*.

Examples of asexual hybrids: +*Laburnocytisus Adami (Laburnum anagyroides* + *Cytisus purpureus)*; +*Pyronia Daniellii (Cydonia oblonga* + *Pyrus communis)*."

This entry was relegated to Appendix III ("Proposed International Code of Nomenclature for Cultivated Plants") in the Stockholm *Code* (Lanjouw & al. in Regnum Veg. 3. 1952), and dropped altogether in the Paris *Code* (Lanjouw & al. in Regnum Veg. 8: 52. 1956), where it was noted (Art. H.1 Note 3) that "Graft chimaeras […], being horticultural objects, are dealt with by the International Code of Nomenclature for Cultivated Plants". This survived until the Leningrad *Code* (Stafleu & al. in Regnum Veg. 97. 1978), where a more general statement (Art. 28 Note 1) about the function of the *ICNCP*, similar to the current Art. 28 Note 2, replaced it.

Unlike the provision in the Cambridge *Rules*, the Proposed ICNCP in the Stockholm *Code* required that "this 'generic' name should not be the same as the 'generic' name of hybrids between the same genera" and this continues to be the rule (Art. 24.3) in the current, ninth edition of the *ICNCP* (Brickell & al. in Scripta Hort. 18. 2016). There is, therefore, an unbalanced situation. Whereas, under the *ICNCP*, the name of an intergeneric graft hybrid may not be the same as a pre-existing generic name or nothogeneric name, under the *ICN* (McNeill & al. in Regnum Veg. 154. 2012) there is currently no barrier to the valid publication of a new generic name or nothogeneric name that is spelled the same as the name of an intergeneric graft hybrid established (equivalent to validly published) under Art. 27 of the *ICNCP*.

As names of intergeneric graft hybrids are in every way comparable with generic names and nothogeneric names governed by the *ICN*, precluding duplication between them is clearly desirable. The above proposal will achieve this and can be likened to the provisions in Art. 16.3, 17.1, 19.3, and 20.1 that ensure that there can be no confusion between names governed by the *ICN* and names of viruses.

Currently, although two cases are known of homonymy between names of intergeneric graft hybrids correctly formed under the provisions of the *ICNCP* and names validly published under the *ICN* (both nothogeneric names), because the latter have priority, neither of the names of the inter-generic graft hybrids is established under the provisions of the *ICNCP* (Art. 24.3 final sentence with Art. 27.1(c)). These are ×*Amygdalopersica* Duhamel ("*Amygdalo-persica*") (1768) and +*Amygdalopersica* L.L. Daniel (1915), and ×*Laburnocytisus* C.K. Schneid. (1907) and +*Laburnocytisus* Trel. (1933). [The material studied by Schneider in naming ×*Laburnocytisus* was in fact a graft-hybrid, but Schneider believed it to be a sexual hybrid and accordingly published a nothogeneric name.] There is also a case of homonymy between ×*Pyronia* Trabut. (1916) and +*Pyronia* Ramsbottom & al. (1929), but as the latter is not formed from the full name of the second component generic name as required by *ICNCP* Art. 27.4, first sentence, it is not an established name for that reason also.

In order to facilitate application of the rule if the amendment is accepted we append a list, compiled by one of us (JMHS) of all the names of intergeneric graft hybrids known to have been established under the *ICNCP*. There are a number of other names that have been applied to intergeneric graft hybrids that are not established under the *ICNCP* either because they do not terminate in the full name of one of the component genera or because they appeared in an electronic-only medium; for details see Shaw (in Plantsman 15: 162–166. 2016).

List of established names for intergeneric chimaeras

+***Arioechinopsis*** Mottram, Generitaxa Cactaceae: 24. 29 Jun 2016 = *Ariocarpus* + *Echinopsis*.

+***Coryopuntia*** Mottram, Generitaxa Cactaceae: 76. 29 Jun 2016 = *Coryphantha* + *Opuntia*.

+***Crataegomespilus*** Simon-Louis in Rev. Hort. (Paris) 71: 403. Sep 1899 ('*Crataego-mespilus*') = *Crataegus* + *Mespilus*.

+***Echinogymnocalycium*** Mottram, Generitaxa Cactaceae: 103. 29 Jun 2016 = *Echinopsis* + *Gymnocalycium*.

+***Epigymnocalycium*** Mottram, Generitaxa Cactaceae: 110. 29 Jun 2016 = *Epiphyllum* + *Gymnocalycium*.

+***Hylogymnocalycium*** G.D. Rowley in Brit. Cactus Succ. J. 23(1): 12. 2005 = *Gymnocalycium* + *Hylocereus*.

+***Myrtigymnocalycium*** Mottram, Generitaxa Cactaceae: 218–219. 29 Jun 2016 = *Gymnocalycium* + *Myrtillocactus*.

+***Pyrocrataegus*** L.L. Daniel in Rev. Gén. Bot. 27: 37. 1915 ('*Pirocrataegus*') = *Crataegus* + *Pyrus*.

+***Pyrocydonia*** H.K.A. Winkl. ex L.L. Daniel in Compt. Rend. Hebd. Séances Acad. Sci. 157: 995. 1913 ('*Pirocydonia*') = *Cydonia* + *Pyrus*.

+***Uebelechinopsis*** G.D. Rowley in Teratopia 101–102: 280. 2006 = *Echinopsis* + *Uebelmannia*.

Note: the five names for intergeneric graft hybrids published by Mottram first appeared in volume 4 of the electronic-only publication, *The Cactician*, available online on 26 Mar 2014. The names were only established under the *ICNCP* when two printed copies were deposited, one in the Library of the Royal Horticultural Society at Wisley and the other in that of the Royal Botanic Gardens, Kew (*ICNCP* Art. 25 and 26) on 29 Jun 2016.

PROPOSALS TO AMEND THE CODE

Edited by Nicholas J. Turland & John H. Wiersema

(391–396) Proposals to amend the provisions of the *Code* on selection of types of generic names using a largely mechanical method

Special Committee on Publications Using a Largely Mechanical Method of Selection of Types (Art. 10.5(b)) (especially under the *American Code*)
Members of the Special Committee: John McNeill (Convener),[1] Fred R. Barrie (Secretary),[2] Kanchi N. Gandhi,[3] Victoria C. Hollowell,[4] Scott A. Redhead,[5] Lars Söderström[6] & James L. Zarucchi[7]

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These proposals are supported by the Report of the Special Committee that is also published in this issue (McNeill & al. in Taxon 65: 1443–1448. 2016).

(391) Add text to Art. 10.5 following clause (b):

"A type selection made under a largely mechanical method is superseded by any later choice of a different type not made under that method, unless, in the interval, the supersedable choice has been affirmed in a publication that did not use a mechanical method of selection."

(392) Add a Note following Art. 10.5:

"*Note 2bis*. The effective date of a typification (cf. Art. 22.2, 48.2 and 52.2(b)) subject to supersession under Art. 10.5(b) remains that of the original selection, unless the type has been superseded."

(393) Add a new Article defining "a largely mechanical method of [type] selection" following Art. 10.5:

"*10.5bis*. For the purposes of Art. 10.5(b), "a largely mechanical method of selection" is defined as one in which the type is selected following a set of objective criteria such as those set out in "Canon 15" of the so-called "Philadelphia Code" (Arthur & al. in Bull. Torrey Bot. Club 31: 255–257. 1904) or in "Canon 15" of the *American Code of Botanical Nomenclature* (Arthur & al. in Bull. Torrey Bot. Club 34: 172–174. 1907)."

(394) Add a new Article establishing the criteria for a publication adopting "a largely mechanical method of [type] selection" following Art. 10.5bis:

"*10.5ter*. The following criteria determine whether a particular publication, appearing prior to 1 January 1935, has adopted a largely mechanical method of type selection:

(a) any statement to that effect, including that the *American Code* or the "Philadelphia Code" was being followed or that types were determined in a particular mechanical way (e.g. the first species in order); or

(b) adoption of any provision of the "Philadelphia Code" or the *American Code* that was contrary to the provisions of the *International Rules of Botanical Nomenclature* in force at that time, e.g. the inclusion of one or more tautonyms as species names.

Additionally for publications appearing prior to 1 January 1921:

(c) if an author of the publication was a signatory of the "Philadelphia Code"[1] (and was therefore also a signatory of the *American Code*);

(d) if an author of the publication stated publicly (e.g. in another publication) that in the typification of generic names the "Philadelphia Code" or the *American Code* was followed;

(e) if an author of the publication was an employee or a recognized associate of the New York Botanical Garden; or

(f) if an author of the publication was an employee of the United States federal government.

[Footnote:]

1 A list of the 23 signatories of the "Philadelphia Code" was published in Taxon 65: 1448. 2016, as well as in Bull. Torrey Bot. Club 31: 250. 1904."

(395) Add a new Recommendation 10A.2:

"*10A.2*. In citing a type selection made under a largely mechanical method that has since been affirmed by an author not following such a method, both the place of original selection and that of effective affirmation should be cited, e.g. "*Quercus* L. … Type: *Q. robur* L. designated by Britton & Brown (Ill. Fl. N. U.S., ed. 2, 1: 616. 1913); affirmed by Green (in Sprague, Nom. Prop. Brit. Bot.: 189. 1929)."

(396) Add Examples following Art 10.5ter:

"*Ex. 7bis*. *(a)* Underwood (in Mem. Torrey Bot. Club 6: 247–283. 1899) wrote (p. 251): "For each genus established the first named species will be regarded as type." Therefore his designation (p. 276) of *Caenopteris furcata* Bergius as type of *Caenopteris* Bergius (in Acta Acad. Sci. Imp. Petrop. 1782(2): 249. 1786) is supersedable; this has been effected by Copeland (Gen. Filicum: 166. 1947), who designated *C. rutifolia* Bergius as type.

Ex. 7ter. (a) Murrill (in J. Mycol. 9: 87. 1903), referring to generic types, wrote: "The principles by which I have been chiefly guided are

also quite well known having been stated and explained by Underwood [see Ex. 7bis]. Consequently Murrill (l.c.: 95, 98) listed the first-named species treated by Quélet (Enchir. Fung.: 175. 1886), *Coriolus lutescens* (Pers.) Quélet, as type of *Coriolus* Quélet (l.c.), and later (in Bull. Torrey Bot. Club 32: 640. 1906) listed *Polyporus zonatus* Nees as type because it was "the first species accompanied by a correct citation of a figure". Both lectotypifications are considered to be mechanical and were superseded by the choice of *Polyporus versicolor* (L.) Fr. by Donk (Revis. Niederl. Homobasidiomyc.: 180. 1933).

Ex. 7quater. (b) Britton & Wilson (Bot. Porto Rico 6: 262. 1925) designated *Cucurbita lagenaria* L. as type of *Cucurbita* L. (Sp. Pl.: 1010. 1753). As Britton & Wilson included many tautonyms in their publication (e.g. "*Abrus Abrus* (L.) W. Wight", "*Acisanthera Acisanthera* (L.) Britton", and "*Ananas Ananas* (L.) Voss"), they were evidently following the *American Code*, and their type selections followed a mechanical method. Their selection of *C. lagenaria* (currently treated as *Lagenaria siceraria* (Molina) Standl.) has been superseded by the selection of *C. pepo* L. by Green (in Sprague, Nom. Prop. Brit. Bot.: 190. 1929).

Ex. 7quinqies. (d) In considering the typification of *Achyranthes* L. in a preliminary to his account of *Amaranthaceae* in the *North American Flora*, Paul C. Standley (in J. Wash. Acad. Sci. 5: 72. 1915) selected *A. repens* L. as type stating that "there seems, moreover, no doubt as to the type of the genus *Achyranthes* under the *American Code* of nomenclature", noting that, as a result, "the name *Achyranthes* must be used in a sense other than that in which it has generally been employed in recent years". As a result of this publication of acceptance of the *American Code*, not only is Standley's selection of *A. repens* superseded by that of *A. aspera* L. by Hitchcock (in Sprague, Nom. Prop. Brit. Bot.: 135. 1929), but types cited in his other publications (e.g. in Britton, N. Amer. Fl. 21: 1–254. 1916–1918) are supersedable under Art. 10.5. Thus his statement (p. 134. 1917) that *A. repens* was the type of *Achyranthes* does not constitute priorable affirmation of his earlier selection; similarly his publication of type designations previously made by Britton & Brown, such as *Chenopodium rubrum* L. (p. 9. 1916) and *Amaranthus caudatus* L. (p. 102, 1917), does not constitute priorable affirmation of their selection; the typification of *Chenopodium* L. has been superseded by the selection of *C. album* L. by Hitchcock (l.c.: 137) and that of *Amaranthus* L. was first affirmed by Green (in Sprague, Nom. Prop. Brit. Bot.: 188. 1929)."

In addition, the Editorial Committee should indicate that the current Art. 10 Ex. 6 is an Example of Art. 10ter(a).

(397) Proposal to introduce an Article that will limit the principle of priority by preventing the acceptance of overlooked or unrecorded names

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This proposal is accompanied and explained by a supporting paper (Smith & al. in Taxon 65: 1385–1390. 2016), and the two documents should be read alongside each other.

Deliberately or incidentally locating and eventually adopting previously undetected or overlooked, effectively and validly published names from heretofore inaccessible or obscure literature have a destabilizing impact on plant nomenclature. Such names are easily absorbed into datasets and adopted in the stead of validly published names that have gained wide acceptance.

This proposal aims to prevent such names from destabilizing the nomenclature of vascular plant families, genera, and species. Acceptance of this proposal will largely prevent such situations from arising.

It is proposed that if the name of a family, genus, or species of vascular plants published prior to 1 January 1970 does not appear as an entry in the International Plant Names Index (IPNI; http://www.ipni.org), or its successor, on 1 January 2020, such names will be regarded as not having been validly published. This "IPNI 2020 list" will serve as an immutable reference catalogue, with no additions or deletions possible, although corrections can be made to specific entries. This list is automatically established, i.e., without having to be created especially, as all records in IPNI have a "record history" that shows when they were added to the database, or when they were amended. Therefore, if an overlooked name was added to IPNI after 1 January 2020, the date (post-1 January 2020) in the record history would show that it was not validly published. This proposal will therefore not impact on the work processes of IPNI, and any user could access the database online to check the validity of a name.

(397) Insert a new Article and a new Note in Chapter V Section 4 to limit the principle of priority by preventing the acceptance of overlooked or unrecorded names:

"*n.n*. Names of families, genera, and species of vascular plants, excepting fossils, effectively published prior to 1 January 1970 but on 1 January 2020 not recorded in the International Plant Names Index (IPNI), or its successor, are not validly published. The IPNI 2020 list consists of names of families, genera, and species of vascular plants, excepting fossils, that were effectively published prior to 1 January 1970 and appeared as entries in IPNI on 1 January 2020. Names may not be added to or deleted from the list, but corrections may be made to existing entries."

"*Note 1*. The name of a family, genus, or species of vascular plants included in the IPNI 2020 list is not validly published unless all the requirements for valid publication are met."