THE CHANGES IN THE INTERNATIONAL RULES OF BOTANICAL NOMENCLATURE MADE BY THE 7th INT. BOT. CONGRESS AT STOCKHOLM

An unofficial review

by

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1. General information.

The following is an abstract of my notes made during the sessions of the Section for Nomenclature at the 7th International Botanical Congress at Stockholm. The Congress lasted, officially, from 12 till 20 July, 1950. The Section for Nomenclature, however, began to meet on July 7.

I wish to state that this review has no authority or official capacity. I made notes for private use and because it seemed useful, on further consideration, to inform the Staff and collaborators of the *Flora Malesiana* of the changes in the Rules adopted by the last Congress, it was thought best to publish a review here, pending the official publication of the new Rules as a whole. I am told that an official note or communication dealing with the results obtained by the Section for Nomenclature is being prepared and will appear in the first *Nuntius Phytotaxonomicus*, the new periodical to be issued by the International Bureau of Plant Taxonomy, Secretary Prof. Dr J. Lanjouw at Utrecht.

Although the Editorial Committee, appointed to edit the new Rules, approved of my plan to compose a survey of the changes in the Rules, it must be stressed that the contents of this paper are unofficial, not binding and only meant to serve as a temporary source of information.

The present review can only be used to full advantage in conjunction with the latest official edition of the Rules (or the edition by Camp, Rickett, and Weatherby in *Brittonia* 6(1947) 1-120) and Lanjouw's *Synopsis of Proposals* (Publ. Int. Comm. Taxon. I. U. B. S., 1950).

In general it may be said that the Ed. Comm. will draft the final text and that the proposals, accepted by the Section, are first of all accepted as principles, as regards their contents; the Ed. Comm. will decide on the wording, the language used.

It will be noticed that all, or nearly all, of C. X. Furtado's and N. Hylander's proposals were rejected (*cf.* Lanjouw, Synopsis, *passim*), but it was repeatedly acknowledged during the sessions that these proposals contained many most valuable suggestions and remarks. As a whole however, the proposals were judged to be unfit to appear in the Rules which should be simple (Art. 3). The extensive analysis made by Furtado and Hylander would furnish rich sources of thoughts and facts whenever a commentary on the Rules were to be written.

The proposals, listed and reported on by Dr Lanjouw in his *Synopsis*, were one for one considered, discussed, and voted on. A mimeographed list of all totals resulting from a preliminary vote was distributed among all present. This preliminary vote had been taken by means of a voting paper forwarded to several hundreds of taxonomists who were thought to be interested in nomenclatural problems. It was decided -- in view of the enormous amount of proposals submitted to the section -- to consider as automatically rejected all proposals which had a ¾ majority against them in this preliminary voting, unless cause could be shown that a discussion might nevertheless be profitable. The mimeographed list contained the results until June 20; during the meetings the latest figures were given but changed very little.

The Swedish Organizing Committee was to distribute votes to persons and to institutions in proportion to their size. The first list of voters made by the Swedish Committee, was sent to Dr Lanjouw (in his function as Rapporteur Général) and to a number of institutions for advice. A few minor changes were suggested and the votes accordingly assigned. All proposers received one vote, irrespective of the number of their proposals. Officers of the Bureaux and Members of Committees also received one vote on account of their official capacity.

A number of Committees were appointed, either to draft reports on what had been proposed or accepted, to pave the way for future discussion, or to prepare parts of the proceedings of the next Congress. All Committees received the right to co-opt new members.

Committee for Typification.

Lanjouw (ex officio, Rapp. Gén.)
Dandy
Fosberg
Humbert
Hylander
Schopf
Sprague

The former Executive Committee was solved and replaced by two new Committees.

a. Advisory Board of Nomenclature. (Comité Consultative).

Lanjouw (ex officio, Rapp. Gén.).
Hochreutiner
Mattfeld
Merrill
Sprague
Pulle
Ramsbottom

b. General Committee of Nomenclature. (Comité Général).

All secretaries of Special Committees
Also: Robyns
Rickett
Camp
Dandy
Donk
van Steenis
Rothmaler

Special Committee for Cultivated Plants

Rollins
Boom
Gilmour
Stearn
Col. Stern
Dandy
Depp
Lawrence
Hylander
Rickett
Allen (N. Zeal.)
Cowan
Camp

Editorial Committee.

Lanjouw (ex officio, Rapp. Gén.)
Merrill
Sprague
Rickett
Baehni
Robyns
Mattfeld

International Bureau for Plant Taxonomy.

Baehni - President
H. Rollins - Vice President
H. Lanjouw - Secretary
Fosberg
Fries
van Steenis
Mattfeld
Robyns
Turrill
Humbert
Eardley
Nannfeldt

Committee for Urgent Nomenclatural Needs.

Lanjouw (ex officio, Rapp. Gén.)
Merrill
Camp
Skottsberg
Sprague
Wakefield
Dandy
Gilmour
Pulle
Cozanne

A Special Committee for Bacteriology to be appointed will be recognized by the next Congress. Special Committees for Algae, Bryology and Palaeobotany were to be appointed.

Special Committees for Lichens, Diatoms and Fungi were appointed.

Committee for Pteridophytes.

Tardieu Blot
Alston
Moreton
Holttum
Pichi-Sermolli (Secret^{y})
Copeland

Committee for Phanerogams.

Lam	Weimark
Mattfeld	Dandy
Widder(?)	Pinto da Silva
Hochreutiner	van Steenis
Rickett	Pichi-Sermolli (Secretary)
A. C. Smith	Léandri
Fosberg	

A Resolution was passed by the Section to place the decisions arrived at before the Plenary Session. The Plenary Session in the Konserthuset, July 20, accepted this Resolution and authorized the decisions of the Section for Nomenclature.

It was decided to accept the invitation of France to have the next Congress at Paris, in 1954, on occasion of the Centenary celebrations of the Société Botanique de France.

2. List of the main new terms and circumscriptions in matters of nomenclature.

apomict - a specimen or group of specimens reproducing by seeds but asexually.

basonym - the name-bringing synonym.

clone - a group of specimens propagated vegetatively starting from one (bud) individual .

correct - a correct name is the earliest legitimate name.

grex - (not admissible to the Rules).

holotype - the specimen or other element used by the author or designated by him as the nomenclatural type.

illegitimate - (Drs Donk and Boivin will submit a definition. Dr Hylander suggested: illegitimate are those names which are not in accordance with the Rules).

isotype - a duplicate specimen of the holotype.

lectotype - a specimen or other element selected from the original material (isotypes, paratypes, or syntypes) to serve as the nomenclatural type.

legitimate - strictly in accordance with the Rules.

neotype - a specimen or other element appointed as a nomenclatural type when all original material (holotype, isotypes, paratypes, syntypes) is missing.

nomen novum - an avowed substitute for an older name.

nothomorph - a genetic segregate in a population occurring in hybrid swarms, and not a geographical race.

paratype - a specimen or element cited with the original description other than the holotype.

syntype - a specimen or element cited or used by the publishing author when no holotype was designated, or one of two or more specimens simultaneously designated as the type.

taxon - a taxonomic group of any rank generally.

type (nomenclatural) - the constituent element of a taxon to which the name of the taxon is permanently attached whether as an accepted name or not.

3. Changes in the Rules.

Art. 2. Sentence 4 to read: They are always retroactive *except when expressly limited.* etc.

Art. 8. To read: Nomenclature deals with (1) the terms which denote the rank of taxonomic groups, units, categories (Art. 10 - 14); taxonomic groups of any rank will, in the Rules, generally be referred to as taxa (singular: taxon), (2) the names which are applied to the individual taxa (Art. 15 - 72).

Art. 8 bis. A legitimate name or epithet is one that is in strict accordance with the Rules. Illegitimacy is defined in Art. 60. Effective publication is publication in strict accordance with Art. 36. Valid publication is publication in strict accordance with Art. 37 - 45. Note: A correct name is the legitimate name of a taxon with a particular circumscription, position, and rank.

Art. 9. To read: The rules and recommendations of botanical nomenclature apply throughout the plant kingdom etc.

Art. 10. To read: Every plant is treated as belonging to a number of taxa of consecutive rank and consecutively subordinate of which the species is the basic one. The consecutive upward taxa are: species (*species*), genus (*genus*), family (*familia*), order (*ordo*), class (*classis*), division (*divisio*) which means that every species belongs to (is to be as-

signed to) a genus, every genus to a family, etc., certain artificial groups of fossil plants excepted.

Art. 11. To read: If a greater number of intermediate taxa are required, the terms for these subordinate taxa are made by adding the prefix sub *(sub)* to the terms denoting the taxa. Thus subfamily *(subfamilia)* denotes a taxon between a family and a tribe, subtribe *(subtribus)* a taxon between a tribe and a genus, etc. The classification of subordinated categories may thus be carried, for wild plants, to twenty-three degrees in the following order: Regnum vegetabile. Divisio. Subdivisio. Classis. Subclassis. Ordo. Subordo. Familia. Subfamilia. Tribus. Subtribus. Genus. Subgenus. Sectio. Subsectio. Species. Subspecies. Varietas. Subvarietas. Forma biologica. Forma specialis. Individuum.

If this list of taxa is insufficient it may be augmented by the intercalation of supplementary taxa.

Examples: *Series* and *subseries* are taxa which may be intercalated between subsection and species. For categories especially applicable to the genetic conception of taxa see Art. 34, §§ 3, 4, 5.

Recommendation II: to be deleted.

Art. 12. In many species varieties *(varietas)*, forms *(forma)*, subforms *(subforma)*, and races or biological forms *(forma biologica)* are distinguished; in parasitic species special forms *(forma specialis)*, and in certain cultivated species still more numerous modifications.

Art. 14. (Is to be removed from its present position and its contents incorporated in a special section of the Rules dealing with names of hybrids, clones, etc.)

Art. 16. To read: Each group with a given circumscription, taxonomic position, and rank etc.

(In this connection the following sentences were accepted, while the Ed. Comm. was to decide on the right place for insertion: A legitimate name or epithet is a name or epithet in strict accordance with the Rules; names and epithets which are not in strict accordance with the Rules are called illegitimate. Certainly, Art. 8 bis is to be linked with this? deW.)

The section adopted the following motion and decided that the Ed. Comm. should consider the advisability of admitting it into the Rules:

'An epithet is not considered illegitimate only because it was originally pubished under an illegitimate generic name but must be taken into consideration for purposes of priority if the epithet and the resp. combination are in other respects in accordance with the Rules. In the same way, an epithet of a subspecies or a taxon of a lower rank may be legitimate even if originally published under an illegitimate name of the subsequent higher taxon.'

Section 2, the Type method (Art. 18) is replaced by the following:

Art. 18. The application of names of taxa is determined by means of nomenclatural types. A nomenclatural type (typus) is that constituent of a taxon to which the name of the taxon is permanently attached, whether as an accepted name or a synonym. (The name of a taxon must be changed if the type of the name is excluded (see Art. 66).)

Note 1: The nomenclatural type is not necessarily the most typical or representative element of a taxon; it is merely that element with which the name is permanently associated.

Note 2. A *holotype* (type, *typus*) is the one specimen or other element used by the author or designated by him as the nomenclatural type (that is, the element to which the name of the taxon is permanently attached).

Note 3: If no holotype has been indicated by the author who described a taxon, or when the holotype is lost or destroyed, a substitute for it mustbe chosen. The author who makes this choice must be follo - wed unless it can be proved that the choice was not made in accordance with Art. 18 bis.

The substitute may either be a lectotype or a neotype. When choosing the isotype has preference above all other possible lectotypes. A lectotype always takes precedence over a neotype.

A *lectotype* is a specimen or other element selected from the original material to serve as nomenclatural type when the holotype was not designated at the time of publication or so long as it is missing.

A *neotype* is a specimen selected to serve as nomenclatural type so long as all of the material on which the name of the taxon was based is missing.

When two or more specimens have been designated as types by the author of a name (*i.e.* male and female, flowering and fruiting, etc.) one of them must be chosen as the lectotype.

Recommendation.

For other specimens of special interest the following terms are recommended:

A *paratype* is a specimen cited with the original description other than the holotype. An *isotype* is a duplicate specimen of the holotype. A *syntype* is one or more specimens or elements used by the author when no holotype was designated, or one of two or more specimens simultaneously designated as type.

Recommendation.

It cannot be too strongly recommended that the original material,

especially the holotype, of a taxon be deposited in a permanent, responsible institution and that it be scrupulously cared for and preserved. When living material has been designated as type, it should be immediately preserved, whether it be a libing plant in garden or greenhouse, or a culture *in vitro*.

Art. 18 bís. The choice of a lectotype or neotype is not binding if the original material is rediscovered, or if it can be shown that the choice was based on a misinterpretation of the original description.

Art. 18 ter. Names based on types derived from modern material, *Algae* excepted, always take precedence over names based on fossil or subfossil specimens.

Note: Names based on fossil types cannot be used again for modern plants in violation of the Rule excluding later homonyms (see Art. 61).

Art. 18 quater. The nomenclatural type (holotype, lectotype or neotype) of a species or taxon below the rank of species is a single specimen or other element except in the following case:

For small herbaceous plants and for most non-vascular plants the type may consist of more than one individual, which ought to be preserved permanently and assembled on one herbarium sheet or preparation. If it is proved later that such a type herbarium sheet or preparation contains parts belonging to more than one taxon, the name must remain attached to that part (lectotype) which corresponds most nearly with the original description.

Notes. 1. For plants for which it is impossible to preserve a type specimen, the type may be a figure and/or a description.

2. In a species without a type specimen, the type may be a description or figure.

3. If a taxon is divided into a number of taxa of the same rank, the nomenclatural type of the original taxon must be the type of one of them.

4. If a taxon includes subordinate taxa its type must be or include the type of one of the taxa in each subordinate rank.

Art. 18 quinquies. The nomenclatural type of an order and of taxa between order and family is a family, that of a family and of taxa between family and genus is a genus, and that of a genus and of taxa between genus and species is a species.

The nomenclatural type of a taxon above the rank of genus, to the rank of order, whose name is formed in accordance with the Rules, is always the lower taxon whose name was derived from the same root (generic name).

Note: It is not felt that the type method can, at present, be profitably applied to the nomenclature of taxa above the rank of order.

Guide for the determination of types.

Recommendation.

The following set of suggestions is intended both as a guide to the application of the Rules and as an indication of sound practice in the determination or selection of the nomenclatural types of previously published taxa. Where the application of a Rule is embodied in a suggestion, reference is made to the appropriate Article.

1) The choice of the original author, if definitely expressed at the time of the original publication of the name of the taxon, is final. If he included only one element, that one must always be accepted as the holotype (see Artt. 18, 18 quater). If a new name is based on a previously published description of the taxon, the same considerations apply to material cited by the earlier author.

2) When a new name was published as an avowed substitute (*nomen novum*) for an older one (a new name based on the description accompanying an illegitimate or incorrect name), the type of the new name is automatically that of the old name.

3) A lectotype may be chosen only when an author failed to designate a holotype, or when, in species or taxa of lower rank, the type has been lost or destroyed (Art. 18, note 3).

4) Designation of a lectotype should only be undertaken in the light of an understanding of the group concerned. Mechanical methods, such as the automatic selection of the first species or specimen cited or of a specimen collected by the person after whom a species is named, should be avoided as unscientific and productive of possible future confusion and further change. The original description of the taxon concerned should be the basic guide (Art. 18 bis).

a) In choosing a lectotype any indication of intent by the author of a name should be given preference unless it is contrary to his description and remarks. Such indications are manuscript notes, annotations on herbarium sheets, recognizable figures, epithets such as *typicus*, *genuinus*, *vulgaris*, *communis*, etc.

b) A lectotype must be chosen among the elements that were definitely studied by the author up to the time the taxon was published and included in it when it was published (Art. 18, note 3).

c) Other things being equal, specimens should be given preference over pre-Linnean or other cited descriptions or plates when designating lectotypes of species.

d) In cases where two or more elements were included in or cited with the original description the reviser must use his own judgement in selecting a lectotype, but if another author has already segregated out one or more elements as other taxa, the residue or part of it should be designated as the type if its essential characters correspond to the o-

riginal description. If it can be shown that the element best fitting the whole published original account has been removed, it shall be restored and treated as the lectotype (Art. 18 bis).

e) The first choice of a lectotype should be followed by subsequent workers unless it can be shown that the choice does not fit the original description as well as another of the original elements (specimens species, higher taxa, etc.; Art. 18 bis).

f) Whenever the type material of a species is heterogeneous the lectotype should be selected in a manner to preserve current usage.

5) In selecting the neotype even more care and critical knowledge are essential, as the reviser has usually no guide except his own judgment as to what fits best the original description. If his selection is at fault it will inevitably result in further change. The neotype may only be selected when all original material is believed lost or destroyed (Art. 18, note 3, Art. 18 ter.).

6) For names of fossil species the lectotype where one is needed should, if possible, be a specimen illustrated at the time of the first valid publication.

7) The nomenclatural typification of organ genera, form genera, of genera based on plant microfossils (pollen, spores, etc.), genera of imperfect fungi, or any other analogous genera, or lower taxa, does not differ from that recommended above.

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Art. 20. To read: Validly published botanical nomenclature begins for different groups of plants at the following dates: etc.

To add: Each of the groups mentioned in Art. 20 as having a starting point, shall have its relative work dated either 1 Jan. or 31 Dec. of the year of publication; *Species Plantarum* by Linnaeus is excepted from this Rule.

Art. 21. To read: However, to avoid disadvantageous changes in the nomenclature of genera and taxa of higher rank entailed by the strict application of the Rules of Nomenclature etc.

Note 2. To read: The application of both conserved and rejected names is determined by nomenclatural types, or by substitute types where necessary or desirable.

Note 4. To read: (first example to be deleted). *Listera* R. Br. (1813) is conserved against *Biphryllum* Raf. (1808), it is also conserved against *Bifolium* Pétiver, Opera, ed. Milan, t. 70, fig. 10, 11, 12 (1764), as adduced by Nieuwland, in Amer. Midland Nat. III. 128(1913)(if Pétiver's name be regarded as validly published) though *Bifolium* is not mentioned among names to be rejected.

Art. 22. The footnote to be deleted: There is also to be provided

Rec. VIII. To be replaced by (text liable to revision by Ed. Comm.; also examples to be reconsidered):

(a) Names of divisions are preferably taken from a combination of characters, covering the nature of the division as closely as possible, or from a single character of outstanding importance, and their ending should be *-phyta*. Accordingly, they should preferably be termed by words of Greek origin, in the plural number.

Names of subdivisions are formed in the same way; they are distinguished from divisional names by some appropriate pre- or infix or by the ending *-phytina* or both.

(b) The names of classes and subclasses are taken in the same way as those of divisions. Their endings will be:

1. in the *Algae* (or autotrophic *Thallophyta* generally): *-phyceae* (classes) and *-phycidae* (subclasses) respectively;

2. In the *Fungi* (or heterotrophic *Thallophyta* generally): *-mycetes* (classes) and *-mycetidae* (subclasses) respectively;

3. in the *Cormophyta*: *-opsida* (classes) and *-idae* (subclasses) respectively.

Accordingly they should preferably be named by terms of Greek origin, in the plural number.

The Rule of Priority shall not apply to taxa above the rank of family; the same applies for typification. (This point to be made an Article).

Examples:

(a) divisions: *Schizophyta, Rhodophyta, Mycophyta, Cormophyta.*
subdivisions: *Eocormophyta.*

(b) classes: *Schizophyceae, Chlorophyceae, Rhodophyceae, Charophyceae, Basidiomycetes, Lichenes* (nom. cons.), *Bryopsida, Lycopsida, Pteropsida, Coniferopsida, Angiospermae* (nom. cons.).
subclasses: *Cyclophaeophycidae, Holobasidiomycetidae, Musci* (nom. cons.), *Hepaticae* (nom. cons.), *Filicidae, Dicotyledones* (nom. cons.).

(The section accepted the above as a Recommendation but it was stipulated that the decision as it stands now shall be reconsidered by the Ed. Comm. after the various special Comm. will have reported. Algologists *e.g.* advocated *-phycophyta* (in stead of *-phyceae*) and *-mycophyta* (in stead of *-mycetes*), and there were other suggestions, *e.g.* by mycologists who wanted *-mycota* and *-mycotina*; all interested might do well to communicate their views to the resp. Committee).

Art. 24. To read: The name of a subfamily *(subfamilia)* is a plural substantive or an adjective used as a substantive taken from the name of one of the genera in the group, with the ending *-oideae*, similarly for tribes *(tribus)* with the ending *-eae*, and for subtribes *(subtribus)* with the ending *-inae*.

Examples of subfamilies: *Asphodeloideae* (from *Asphodelus*), *Rumicoideae* (from *Rumex*); tribes: *Asclepiadeae* (from *Asclepias*), *Phyllantheae* (from *Phyllanthus*); subtribes: *Metastelmatinae* (from *Metastelma*), *Madi-*

inae (from *Madia*).

Note.: When names of the above groups have been published with improper terminations, as *-eae* for a subfamily, *-oideae* for a tribe, the ending should be changed to accord with the rule, without change of authority; if, however, the *rank* of the group is changed by a later author, he is then cited as authority for the name, with the appropriate ending, in the usual way.

Examples: Subfamily *Climacieae* Grout, Moss Fl. N. Am. 3: 4 (1928) should be changed to *Climacieideae*, with rank and authority unchanged. If it is held necessary to change the rank of this group to a tribe, then the name *Climacieae* should be used, with the name of the author making the change added as authority.

Art. 25.: To read: The name of a genus is a substantive (or adjective used as a substantive) in the singular number (except as syntax requires the plural) and etc.:

Art. 26.: To read: Names of subgenera and sections are usually substantives resembling the names of genera; they shall not repeat the name of the resp. genus with the suffix *-oides* or *-opsis*. Names of subsections and other lower subdivisions of genera are preferably adjectives in the plural number agreeing in gender with the generic name and written with an initial capital, or their place may be taken by an ordinal number or a letter. The same subdivisional name may be used in different genera but in one and the same genus two subdivisions even of different rank cannot bear the same name unless they are based on the same type.

Example: Under *Verbascum* the sectional names *Aulacosperma* and *Bothrosperma* are allowed although there are also in the genus *Celsia* two sections named *Aulacospermae* and *Bothrospermae*.

Art. 26 bis.: The subgenus containing the type species of a generic name must bear that name unaltered.

Rec.: XI. (To be modified so as to be in accordance with Artt. 26 and 26 bis or to be deleted).

Art. 27. Names of species are binary combinations consisting of the name of the genus followed by a single specific epithet. Binary combinations of a specific epithet with the word *Anonymos* (and similar token words) are illegitimate, since the word *Anonymos* is not a generic name (Art. 67 (1)). Such combinations are not taken into consideration for purposes of priority of the epithet concerned.

If an epithet consists of two words, these must either be united or joined by hyphens. Epithets not so joined when originally published are not to be rejected but when used must be hyphenated.

Examples: *Cornus sanguinea*, *Dianthus monspessulanus*, *Papaver rhoeas*,

Uromyces fabae, Fumaria gussonei, Geranium robertianum, Embelia sarasinorum, Atropa bella-donna (not *Atropa Bella donna*, as originally written), *Adiantum capillus-veneris* (not Adiantum capillus♀, as originally written), *Veronica anagallis-aquatica* (not Veronica anagallis▽), *Impatiens noli-tangere* (not *Impatiens noli tangere*), *Papaver corona-sancti-stephani, Melampsora allii-salicis-albae. - Helleborus niger, Brassica nigra, Verbascum nigrum.*

Art. 28. First sentence to be read: For nomenclatural purposes, a species and any taxon below the rank of a species is regarded as the sum of its lower taxa, if any. The description of a subordinated taxon which does not include the type of the higher taxon, automatically creates a second subordinated taxon which includes the type of the higher taxon. (Art. 28, as it was before, forms the rest of this new Art. 28.).

Rec. XV. Unchanged except for (d) which is to be read:
To avoid, in the same genus, epithets which are very much alike, especially those which differ only in their last letters or names differing in the arrangement of two letters.

Example: *Carex albata* and *Carex ablata.*

Art. 28 bis. If a taxon of whatever rank lower than a species, which includes the type of the species, is to be referred to by name, it must be designated by the correct specific epithet of the species, but contrary to Art. 46 without citation of an author's name. This epithet, when used for a taxon within a species can only be transferred, when the species name to which it is subordinated is itself transferred.

Examples: The binary combination *Lobelia spicata* Lam. var. *originalis* McVaugh, which includes the type of *Lobelia spicata* Lam., must be altered into *Lobelia spicata* Lam. var. *spicata.* Since under *Lobelia siphilitica* L. there is also described var. *ludoviciana* A. DC. one must write *Lobelia siphilitica* L. var. *siphilitica* if only that part of *L. siphilitica* L. which includes the type is meant.

Rec. XVIII. Deleted.

Rec. XIX. To read: Botanists proposing new epithets for subdivisions of species should avoid such as have been used previously for species in the same genus.

§ 6. 'Names of hybrids and half-breeds.'

(The Congress devoted considerable attention to the nomenclature of horticultural plants, and in connection with this, of taxa defined by a special genetic interpretation, such as artificial hybrids, clones, apomicts and the like. It was generally felt, that the nomenclatural facilities, so far provided by the Rules, did not meet all needs of experimental taxonomists, cytotaxonomists, and workers in various branches

of applied botany. Under the leadership of Dr W.H. Camp, it was endeavoured to improve the Rules in this regard. In general, few definite texts were accepted but a good deal of rulings were adopted as principles, which might form a base for a future, more satisfactory nomenclature in those fields. A Committee for Urgent Nomenclatural Needs in cooperation with a Committee for Horticultural Nomenclature shall consider the various points and submit proposals to the next Congress. The following is a report of what was accepted).

Apomicts, clones, and groups (taxa) similarly based on genetic concepts are to be admitted as categories into the Rules.

The introduction of the 'grex' into the Rules was refused on account of the ambiguous meaning of the term.

§ 6 (either as a section or as a §) is to be indicated by 'Names of hybrids and some other special categories.'

Art. 31. To be read: Hybrids or putative hybrids between species of the same genus are designated by a formula and, wherever it seems useful or necessary, by a name.

The formula consists of the specific epithets of the two parents in alphabetical order, connected by the sign X. When the hybrid is of known experimental origin, the formula may be made more precise by the addition of the sign ♀ in the case of the parent producing the 'female' gamete and ♂ in the case of the parent producing the 'male' gamete.

The name, which is subject to the same rules as names of species, is distinguished from the latter by the sign X before the specific epithet.

Examples: *Salix X capreola* (= *Salix aurita X caprea*); *Digitalis lutea* ♀ *X purpurea* ♂.

The 'specific' epithet mentioned in Art. 31 should be of the same type as the true specific epithets, but such formed by some sort of combination of the epithets of the parental species are also allowed. Words standing in the place of epithets and consisting of the parental epithets combined in unaltered form or only with the change of the ending of one of them, or consisting of such an epithet combined with the generic name of one of the parents with or without change of its ending are considered as formulae and not as true epithets.

When Latin 'specific' names for hybrids are used, all offspring of crossing between individuals of the same parent species receive the same 'specific' name.

Example: *Lilium (L. dauricum X L. maculatum) X L. davidii* var. *wilmottiae* = *Lilium* 'Preston Hybrids'. L. Preston Hybrids may be subdivided into a Stenographer Group, a Fighter Group, and individual clonal selections.

New Art. 31 bis. Hybrids or putative hybrids between infraspecific

taxa of the same species may be designated by a formula and, wherever it seems useful or necessary, by a name of the same taxonomic rank as the parent, or when these are of different rank that of the higher ranking parent. In the formula the order of the names and the use of the signs ♂, ♀ will follow the principles set down in Art. 31.

Note. In general, greater precision will be achieved with less danger of confusion if formulae rather than names are used for such hybrids.

Art. 32. Bigeneric hybrids (*i.e.* hybrids between species of two genera) are also designated by a formula and, wherever it seems useful or necessary, by a name. The formula consists of the names of the two parents connected by the sign ×, as in Art. 31. The name consists of a new 'generic' name usually formed by a euphonous combination of parts of the names of the two parent genera, and a 'specific' epithet. All hybrids between the same two genera bear the same 'generic' name, this to be preceded by the sign ×.

Examples: × *Chionoscilla* (= *Chionodoxa* × *Scilla*); × *Heucherella* (= *Heuchera* × *Tiarella*); × *Odontioda boltonii* (= *Cochlioda noezliana* × *Odontoglossum vuylstekeae*).

Note. Hybrids between species of two or more genera (bigeneric, trigeneric or polygeneric hybrids) are designated by a formula consisting of the names of the parental species connected by the sign ×. The parental names are arranged in the alphabetical order of the generic names. Hybrid subgenera and hybrid sections may be named in the same way.

Note. A hybrid F_1 is not to be named after one of the parents.

Art. 34. When combinations between different forms of a collective species are united in a collective taxon, the subdivisions are classed under the binary name of the hybrid population or group similar to the subdivisions of a species under that of a species.

Example: *Mentha* × *niliaca* forma *lamarckii* (= a form of the pleomorphic hybrid *M.* × *niliaca* = *M. longifolia* × *rotundifolia*).

These forms are recognized as nothomorphs; when desirable they may be designated by an epithet preceded by the binary name of the taxon and the term *nothomorph(nm.)* in the same way as subdivisions of species are classed under the binary name of that species.

Example: *Mentha* × *niliaca nm. lamarckii.*

Taxa which are apomicts may be designated, if so desired, in the following manner:

1. If they are considered to be of specific rank, by the interpolation of the abbreviation *"ap."* between the generic name and the epithet.

2. If they are considered to be of infraspecific rank by the interpolation of the abbreviation *"ap."* between the category rank and the specific epithet.

Examples: *Hieracium ap. glabrum.*

Hieracium aurantiacum ssp. *ap. glabrum*
Hieracium aurantiacum f. *ap. glabrum.*

Taxa which are clones may be indicated, if so desired, by the symbol *cl.* or

Art. 35. To be replaced by: Plants brought into cultivation from the wild and which differ in no fundamental way from the parent stocks bear the same names as are applied to the same species and subdivisions of species in nature. Plants arising in cultivation or other processes which tend to establish recognizable differences from the parent stocks receive epithets preferably in common language (fancy epithets) markedly different from the Latin epithets of species or varieties.

For purposes of valid publication names in Latin form given to hybrids are subject to the same Rules as those of non-hybrid taxa of corresponding rank.

Note: The parentage, so far as known, should be indicated. A name of a nothomorph is not validly published unless it is accompanied (1) by a description of it, or (2) by reference to a previously and effectively published description of it.

Note. This description may be given in another nomenclatural status.

Section 5. (To be read) Conditions and dates of effective publication

Art. 36. (The Ed. Comm. is charged to find a satisfactory wording for the following principle) Publication is effected, under these Rules, by distribution, by sale, by exchange, ot otherwise of printed matter. (to be deleted the 'indelible autographs and the distribution to specified representative botanical institutes). No other kind of publication is regarded as effective: communication of new names at a public meeting, or the placing of names in collections or gardens open to the public, does not constitute effective publication. Through Dec. 31, 1951, (till Jan. 1st, 1952), publication by indelible autographs is accepted. Offer for sale of material which does not exist does not constitute publication.

When separates from periodicals or other works placed on sale are issued in advance, the date on the separate is accepted as the data of effective publication unless there is evidence to the contrary.

From Jan. 1, 1952, the publication of a new name, even if accompanied by a Latin diagnosis, in trademen's catalogues or in newspapers is not considered as effective publication.

From Jan. 1, 1952, the publication of a new taxon of specific of lower rank merely on a ticket issued with a dried plant is not considered effective even if the ticket contained a printed diagnosis.

Note. The printing and distribution of the schedae of a set of dried plants in form of a special publication (as *e.g.* Schedae operis. . . Pl. Finl. Exsicc. or Fungi Exsicc. Suec. . . ed. Lundell & Nannfeldt) will even after that date constitute effective publication.

Note. For purposes of this article handwritten material, even though reproduced by some process such as lithography, offset, or metallic et -

ching is still considered autographic.

Note.: Microfilm (made from type scripts or manuscripts) is not considered to be printed matter.

New Rec. XX bis. Botanists and others are urged to avoid scrupulously the publication of new species, names, or combinations in ephemeral publications such as newspapers or popular periodicals; in any publication unlikely to reach the general botanical public; or in duplications by mimeograph, hectograph, or other devices that use either a poor quality of paper or an ink that is likely to fade.

New Rec. XX ter. Botanists and others are urged to avoid scrupulously the publication of new names or combinations in publications unlikely to reach botanical taxonomists generally (see Art. 36), or in those produced by such methods that their permanence is unlikely.

(I think that New Rec. XX bis and ter should be merged).

New Rec. XX quater. From 1950 onward, botanists are recommended to discontinue the practice of validating new binomials solely by reference to descriptions or plates in pre-Linnean literature.

New Art. 36 bis. The date of effective publication is the moment of its being available as defined in Art. 36. In the absence of proof establishing some other date, the date given in the work must be accepted as that moment.

Art. 37. To read: A name of a taxonomic group of recent plants is not validly published unless it is both (1) effectively published (see Art. 36) and (2) accompanied by a description of the group or by a reference (direct or indirect) to a previously and effectively published description of it.

A name of a taxonomic group is not validly published unless it is definitely accepted by the author who published it. A name proposed provisionally (nomen provisorium) in anticipation of the eventual acceptance of a group or of a particular circumscription, position or rank of a given group, or merely mentioned incidentally, is not validly published.

Examples: *Conophyton* Haw. Rev. Pl. Succ. 82 (1831) ('If this section proves to be a genus, the name of *Conophyton* would be apt'), was not validly published, since Haworth did not then adopt that name. *Andropogon bequaertii* De Wild. 'nom. prov.' Bull. Jard. Bot. Bruxelles 6: 8 (1919), given as a sort of alternative or synonym under *Cymbopogon bequaertii*, is invalid and must be validated by a later author to be used.

This provision concerning definite acceptance does not apply to names or epithets published with a question mark or some other indication of taxonomic doubt, yet published and accepted by the author.

Example: *Melicope? elliptica* A. Gray, U. S. Expl. Exp. 15: 353 (offic.

ed.; Phan. 353, unoffic. ed.)1. 1854. The question mark was used to indicate uncertainty as to the correct generic assignment of the species, due to lack of complete flowers. Yet Gray was certain that the plant was a new species and he published it in *Melicope*. The question mark did not mean that he did not accept his own species, but was a sign indicating some uncertainty as to the genus, as was further elaborated in his discussion.

Beginning with Jan. 1, 1953, new transfers of new combinations, however, will be considered validly published only when the basonym (name-bringing synonym) is clearly indicated with its author, date, and place of publication.

A binomial or other combination is not validly published unless the author definitely indicates that the epithets are to be used in a certain combination.

Examples: In Linnaeus's *Species Plantarum* the placing of the epithet in the margins opposite the names of the genus clearly indicates the combination intended. The same result is attained in Miller's *Gardeners Dictionary* ed. 8, by the inclusion of the epithet in parentheses immediately after the name of the genus, in Steudel's *Nomenclator botanicus* by the arrangement of the epithets in a list headed by the name of the genus, and in general by any typographical device which indicates that an epithet is associated with a particular generic or other name.

On the other hand, Rafinesque's statement that "*Monarda ciliata* must form a new genus, which we will call *Blephilia*" does not constitute publication of the combination *Blephilia ciliata*. We cannot infer Rafinesque's intent since he often changed the epithet when he transferred a species to another genus. Similarly the combination *Eulophus peucedanoides* may not be ascribed to Bentham and Hooker on the basis of listing *Cnidium peucedanoides* H.B.K. under *Eulophus* in the Genera plantarum.

Mention of a name on a ticket issued with a dried plant without a printed or autographed description does not constitute valid publication of that name.

Note. In certain circumstances a plate or figure with analyses is accepted as equivalent to a description (see Artt. 43, 44).

Examples of names not validly published. *Egeria Néraud* (Bot. Voy. Freycinet, 28: 1826) published without description or reference to a former description. *Sciadophyllum heterotrichum* Decaisne et Planch. in Rev. Hortic. sér. 4, II, 107 (1854), published without description or reference to a previous description under another name. The name *Loranthus macrosolen* Steud. originally appeared without a description on the printed tickets issued about the year 1843, with Sect. II. nn. 529, 1288 of Schimper's herbarium specimens of Abyssinian plants; it was not validly published, however, until A. Richard (Tent. Fl. Abyss. I, 340 : 1847) supplied a description. *Nepeta sieheana* Hausskn. was not validly published by its appearance without a description in a set of dried

plants (W. Siehe, Bot. Reise nach Cicilien, No 521: 1896).

Art. 37 bis. To read: A name which is not accepted by the author who published it, or is merely proposed in anticipation of the future acceptance of the group concerned, or a particular circumscription, position or rank of the group (*nomen provisorium*), or a name merely mentioned incidentally, is not validly published.

The provision concerning acceptance by the author does not apply to names or epithets published with a question mark or other indication of taxonomic doubt, yet published and accepted by the author.

By incidental mention of a new name or combination is meant mention by an author who does not intend to introduce the new name or combination concerned.

After Jan. 1, 1952, alternative names are not validly published.

Art. 41. To read : A name of a taxon is not validly published merely by mention of the subordinated taxa (composing taxa) included in it.

Art. 42. To read: A name of a genus of recent plants is not validly published unless it is accompanied (1) by a description of the genus or (2) by the citation of a previously and effectively published description of the genus; or (3) by a reference to a previously and effecti - vely published description of the genus as a subgenus, section or other subdivision of the g nus.

An exception is made for the generic names published by Linnaeus in *Species Plantarum* ed. 1 (1753) and ed. 2 (1762-63), which are treated as having been validly published on those dates (see Art. 20).

Note. In certain circumstances, a plate with analyses is accepted as equivalent to a generic description (see Art. 43).

Examples of validly published generic names: *Carphalea* Juss. (Gen. Plant. 198: 1789) accompanied by a generic description; *Thuspeinantha* Th. Dur. (Ind. Gen. Phanerog. p. x: 1888), accompanied by a reference to the previously described genus *Tapeinanthus* Boiss. (non Herb.); *Aspalathoides* (DC.) K. Koch (Hort. Dendrol. 242: 1853), based on a previously described section, *Anthyllis* sect. *Aspalathoides* DC. The publication of the generic name *Epipogium* R. Br., Prodr. 330, 331 (1810) is validated by Robert Brown's implicit reference to the excellent description of *Epipogum* in Gmelin, Fl. Sibir. I, 11 (1747). He attributed the name *Epipogium* to Gmelin.

Art. 43. To read: The publication of the name of a monotypic new ge - nus based on a new species is validated: either (1) by the provision of a combined generic and specific description (descriptio generico-specifica); or (2) by the provision of a plate with analyses showing essential characters, but the latter alternative applies only to plates and generic names published before January 1, 1908.

Note. A description of a species of a monotypic new genus or of the genus only is regarded as a combined generic and specific description, if the genus and species are published together and the genus or the

species is not described.

Examples: (As before with the addition) *Strophioblachia fimbricalyx* Val. is a monotypic new genus, published with combined description of the genus and species.

New Rec. XX sexies. It is desirable that a combined generic and specific description mentions the points in which the new genus differs from its allies.

New article 43 ter. Names of species and their subdivisions (and of interspecific hybrids and their subdivisions) are not considered validly published unless the generic name which makes part of them was before or at the same time validly published.

Example: The specific names *Eragrostis minor* and *E. major* were published 1809 by Host (Gram. Austr. IV, resp. 15 and 14) as substitutes for *Poa Eragrostis* L. and *Briza Eragrostis* L. respectively; these two names were cited as synonyms. As, however, the generic name *Eragrostis* was not validly published until 1812 (Palisot de Beauvois, Essai), the names by Host cannot be considered validly published.

Art. 44. To read: The name of a species, or of a subdivision of a species of recent plants is not validly published unless it is accompanied: either (1) by a description of the group or citation of a previously and effectively published description of the group; or (2) by a plate or figure *&c.*

Art. 45. (In the examples the sentence regarding Willdenow's *Species Plantarum* to read) Individual parts of Willdenow's *Species Plantarum* were published as follows: vol. I, part 1, 1797; vol. I, part 2, 1798; vol. II, part 1, 1799; vol. II, part 2, 1800; vol. III, part 1 (to p. 850), 1800; vol. III, part 2 (to p. 1470), 1802; vol. III, part 3 (to p. 2409), 1803 (and later than Michaux's *Flora Boreali-Americana*); vol. IV, part 2, 1806; and not in the years 1797, 1799, 1800, and 1805, resp., which appear on the title-pages of the volumes, it is the former series of dates which takes effect (*vide* Rhodora 44: 147-150. 1942).

Art. 45 bis. To replace Rec. XXI, first paragraph. To read: A new name published after Jan. 1st, 1953, without a clear indication of the group, whether family, tribe, genus, section, species, variety, *&c* is invalidly published.

Rec. XXI. To read: Not to publish the name of a new group without indicating its type and where it is preserved.

New Rec. XXII bis. To avoid adoption of names or epithets which have been previously published in an illegitimate combination.

Rec. XXIV. To read: When describing new taxa, it is recommended to

add figures to the description as often as possible. The figures should include preferably morphological details aiding in the identification. It is advised to indicate the specimens used in drawing the figure (by means of the collecting number and/or the collector) and to follow Rec. XLIX.

Art. 47.: To read: An alteration of the diagnostic characters or of the circumscription of a group does not warrant the citation of an author other than the one who first published the name.

Rec. No .. . However, when this alteration has been considerable, it is advisable to indicate the nature of the change and author responsible by adding suitably abbreviated words such as *mutatis charact., pro parte, excl. gen., excl. spec., excl. var. &c.*

Art. 47 bis.: Retention of a name in a sense which excludes the type can be effected only by conservation (and this only for names above the rank of species; see Artt.: 12 and 21).

When a name is conserved so as to exclude the type of the original author, it should not be ascribed to him with such expressions as *emend., mutatis charact., &c;* but the name of the author whose concept is conserved should be cited as authority.

Note: In monographs and other critical works it is advisable to append the expression 'nom. conserv.' to the citation; when even greater precision is desirable, the earlier application of the name against which conservation was effected should also be cited.

Example: Suitable forms of citation would be: *Protea* R. Br.; *Protea* R. Br. nom. cons. (non *Protea* L. 1753). This should not be cited as *Protea* L. emend. R. Br. since Brown's concept and circumscription excluded the Linnean type.

Art. 48. (The first part to be unchanged. The second part beginning 'Where a name and description *&c*' to be replaced by the following principle, to be worded by the Ed.; Comm.) When a taxon is named by one author but published in the work of a second author, the names of both authors must be cited.

Art. 49. To read: When a genus or a group of lower rank is altered in rank but retains its name or epithet, the author who first used the name *legitimately* must be cited in parenthesis followed by the name of the author who effected the alteration.: The same holds when a subdivision of a genus, a species or a group of lower rank is transferred to another genus or species with or without alteration of rank.

Additional examples: *Syzygium lineatum* (DC.)Merrill & Perry, the transfer being based on the legitimate name *Jambosa lineata* DC. not on the earlier illegitimate *Myrtus lineata* Bl. non Sw. – *Lithocarpus polystachya* (Wall. ex A. DC.) Rehd. or *L. polystachya* (A. DC.) Rehd.

New Art. 49 bis: When the status of a group bearing a binary name is

altered from species to hybrid or vice versa, the original author must be cited, followed by an indication of the original status in parenthesis.

Examples: *Stachys ambigua* Sm. Engl. Bot. XXX, t. 2089 (1810), was published as a species. If regarded as a hybrid, it must be cited as X *Stachys ambigua* Sm. (pro spl.). The binary name X *Salix glaucops* Anderss. in DC. Prodr. XVI, pt II, 281 (1868) was published as the name of a hybrid. Later, Rydberg in Bull. N. Y. Bot. Gard. I, 270 (1899) altered the status of the group to that of a species. If this view is accepted the name must be cited as *Salix glaucops* Anderss. (pro hybr.).

Res. XXX. (in Prof. Dr Lanjouw's Synopsis a misprint occurs); to read: Authors' names put after names of plants may be abbreviated, unless they are very short. For this purpose preliminary particles or letters that, strictly speaking, do not form partof the name, are suppressed, and the first letters are given without any omission (F. Muell. for Ferdinand Baron von Mueller, not F. v. M. or F. v. Muell.). If a name of one syllable is long enough to make it worth while &c.

Rec. XXXI bis. When citing a nomen nudum, this should be indicated by adding *nom.* or *nom. nud.*

Rec. XXXII ter. (The Ed. Comm. will add the following, and decide on the wording): When it becomes necessary to refer to a name applied in such a way as to exclude the type of the original author, and conservation does not intervene, both the original author of the name and the author who misapplied it are to be cited, in such a manner as to make clear what has occurred.

Examples: Nuttall mistakenly applied the name *Lycopodium tristachyum* Pursh to a form of *L. clavatum;* the citation "*L. tristachyum* sensu Nutt. Gen. 2: 247 (1818), non Pursh" indicates this. The citation "*Carex oligocarpa* Schkuhr." Muhl. Descr. Gram. 242 (1817) similarly indicates that Muhlenberg misapplied Schkuhr's name. On the other hand, the citation "*Mertensia* Willd. Sv. Vet. Akad. Nya Handl. 1804: 163 (1804), non Roth (1797)" indicates that Willdenow's name is a later homonym; and this form of citation is to be reserved for such cases.

Erroneous determinations are not to be included but added after the synonyms. All wrongly applied names are to be indicated by the words Auct. non ' followed by the name of the original author and the citations of errors in determination.

Example: *Ficus stortophylla* Warb. in Warb. et de Wild., Ann. Mus. Congo Belge, Bot. Sér. VI, I, p. 32 (1904).

Ficus irumuensis De Wild., Pl. Bequaert., I, p. 341 (1922).

Ficus exasperata Auct. non Vahl; de Wild., et Th. Dur., Ann. Mus. Congo Belge, Bot. Sér. II, I, p. 54 (1899); de Wild. Plant. Laur., p. 27 (1903); Th. et H. Durand, Sylv. Fl. Congol., p. 505 (1909).

Rec. XXXII quinquies. To be deleted.

Art. 50. Unchanged except the example relating to *Centaurea jacea* L. which is to read: Various authors have united with *Centaurea jacea* L. one or two species which Linnaeus had kept distinct; the group so constituted must be called *Centaurea jacea* L.; the creation of a new name such as *Centaurea vulgaris* Godr. is superfluous.

Art. ... In case of simultaneously published homonyms the first author definitely rejecting one in favour of the other fixes the usage.

(The above provisions operate only after the provisions of Art. 21, Note 3, have been satisfied.).

Art. 56. To read: When two or more groups of the same rank are united the oldest legitimate name or (in species and their subdivisions) the oldest legitimate epithet is retained. If the names or epithets are of the same date, the author who unites the groups has the right of choosing one of them. The author who first unites the taxa and chooses one of the names or epithets concerned must be followed.

Rec. XXXIV. To read (Ed. Comm. to decide on the wording): When several genera are united under one generic name, under which they are treated as subgenera, the subdivision including the type of the generic name used must bear that name unaltered.

Art. 58. (To be changed by the Ed. Comm. in order to express the following): When a taxon changes its rank, it must take the name which is *in its new rank* the correct name according to the regulations in Art. 16. In no case has a name or an epithet any claim to priority outside its own rank.

When, on transference to a different rank, the name of a group has been applied erroneously in its new position to a different group, the new combination or status must be retained for the plant on which the former combination or status was based, and must be attributed to the author who first published it.

Examples: As present. To be added: On their 1815-8 Expedition, Chamisso and Eschscholtz collected a plant on which *Arnica frigida* Meyer 1926 and *Arnica angustifolia* Vahl *β lessingii* T. & G. 1843 were independently based. In 1900 Greene made the transfer *Arnica lessingii* (T. & G.) Greene, but the accompanying description applied only to *Arnica porsildiorum* Boivin 1948. When retained at the specific rank the plant of Chamisso is called *Arnica lessingii* (T. & G.) Greene and the plant described by Greene is called *Arnica porsildiorum* Boivin.

Art. 58 bis. When a taxon of higher rank than a genus is raised in rank or when the inverse change occurs, the root of the name must not be altered but only the termination (*-inae, -eae, -oideae, -aceae, -imeae, -ales &c*) unless the resulting name is rejected under Section 12.

Art. 59. To read: A name or epithet must not be rejected, changed, or modified, merely because it is inappropriate or disagreeable, or because another is preferable or better known or because it has lost its original meaning.

Art. 60. (The Ed. Comm. will study the advisability of changing the first sentence into): A name *even if validly published* must be rejected if it is illegitimate (see Art. 2).

New Art. 61 ter. (It was decided to discuss and decide on this Art. on the next Congress; it is therefore not yet accepted) A name of a taxonomic group is treated as illegitimate if it was published with alternative ranks. A name of a subdivision of a species is treated as illegitimate if its rank is not clearly stated.

Examples: Alternative ranks: *Antennaria parvifolia* Nuttall var. or f. *rosea* Greene, *Athyrium filis-femina* f. or var. *rubellum* Gilbert. Undetermined rank: *Thalictrum thyrsoideum sylvanum* Lunnell.

Art. 62. To read: A name of a taxon must be rejected if it is used with different meanings and so becomes a permanent source or error (*nomina ambigua*). (No list of *nomina ambigua* to be composed).

Art. 63. Deleted.

Rec. XXXVII. Deleted.

Art. 64. To read: For nomenclatural purposes names of lichens shall be taken as applying to the fungal components but subject to the provisions in Art. 20 d.
(The list of *nomina confusa* will not be made; *cf.* former Art. 64).

Art. 65. (It was decided to let the Art. stand but the following Note is submitted for discussion on the next Congress) Note. If it is found useful or desirable to name monstrosities and to use names and epithets based on monstrosities, the use of such names must then be restricted to the monstrosities themselves and these names have no priority over names based on normal plants.

Art. 68. To read: Specific epithets and names of subdivisions of species are illegitimate in the following special cases and must be rejected. (The remainder unchanged).

New Art. 68 bis. Subdivisional epithets as *typicus, originarius, genuinus, &c* are illegitimate.

Art. 69. In cases foreseen in Art. 60-68 the name or epithet to be rejected is replaced by the oldest legitimate name, or (in a combination by the oldest legitimate epithet which will be, in the new position, in accordance with the Rules. If none exists, a new name or epi-

thet must be chosen. Where a new epithet is required, an author may, if he wishes, adopt an epithet previously given to the group in an illegitimate combination, if there is no obstacle to its employment in the new position or sense; *the resultant combination is treated as a new name.*

Examples: *Linum radiola* L. (1753) when transferred to the genus *Radiola.* must not be called *Radiola radiola* (L) Karst., as that combination is contrary to Art. 68 (3)? the next oldest specific epithet is *multiflorum* but the name *Linum multiflorum* Lam. (1778), is illegitimate since it was a superfluous name for *Linum radiola* L.: under *Radiola* the species must be called *R. limoides* Roth '1788), since *linoides* is the oldest legitimate epithet available. The binary name *Talinum polyandrum* Hook. (in *Bot. Mag.* t. 4833: 1855) is illegitimate, being a later homonym of *T. polyandrum* Ruiz et Pav. (*Syst. Fl. Pers. I,* 115: 1798): when Bentham transferred *T. polyandrum* Hook. to *Calandrinia,* he called it *Calandrinia polyandra (Fl. Austr.* I, 172: 1863). This is treated not as a new combination, but as a new name, *C. polyandra* Benth. (1863)

Section 13. To read: Orthography of names and epithets.

Art. 70. To read: The original spelling of a name or epithet must be retained in case the text of the first publication does not contain either a recognizable, or a by the author himself corrected, typographic or orthographic error.

When two or more generic names are so similar and the plants so closely related that they may be confused, one name should be rejected.

(The Ed. Comm. will add in the best manner the following points)

Orthographic modifications are names or epithets which are different in the following letters:

1) ae, oe and e; ei, i, j, and y; c and k; c and z; oe, ö, and o; æ, ä, and a; ue, ü and u.
2) the presence or absence of an h preceding a vowel or after a consonant (aspiration).
3) the presence or absence of a c preceding a t.
4) single or double consonants.
5) absence or presence or difference in connecting vowels or several letters in compound words. This does not apply to names derived from different roots.
6) a difference in transcription of a non-Latin or non-Greek word in particular in case of the same personal name. This does not apply to the presence or absence of a praefix or suffix or translation into another language.

Epithets are orthographic variants, moreover, when they have the same meaning and differ only slightly in spelling, in particular when a difference in spelling occurs only in the ending. The genitive and adjectival forms of a personal name are, however, treated as different; and so are compound words differing only in the second part.

The changes when transcribing personal names often made by earlier

authors when applying personal names for nomenclatural purposes are intentional Latinizations or abbreviations, not errors, and are to be retained.

Delete Notes 3 and 4 of the present Art. 70.

Delete *Saurauja* from the examples of typographical errors.

Add to the examples of orthographic variants: *Elodea, Helodea, oxyrhynchus, oxyracus, oxyrrhynchus; autumnalis, auctumnalis.*

Add to the examples of different specific names: *Lysimachia hensleyana* and *L. hemsleyi.*

In the examples of orthographic variants the paragraph dealing with *Bradleja* to read: The four generic names *Bradlea* Adans., *Bradlaeia* Neck, *Bradleja* Banks ex Gaertn., *Braddleya* Vell., all commemorating Richard Bradley (1675-1732), must be treated as orthographic variants because one only can be used without serious risk of confusion.

Note. The use of the terminations *i* or *ae* instead of *ii* and *iae*, prescribed in Rec. XL (b) and XLI, is treated as an unintentional orthographic error which may be corrected.

Examples. *Dioscorea lecardi* De Wild. may be corrected to *D. lecardii* and *Berberis wilsonae* Hemsl. et E. H. Wils. may be corrected to *B. wilsoniae*: the genitive forms derived from Lecard (m) and Wilson (f) prescribed by Rec. XL (b) and XLI are *lecardii* and *wilsoniae* respectively.

Rec. XXXIX. Unchanged except (b) and (c) which are to read:

(b) When the name of the person ends in a consonant, the letters *ia* are added (*e. g. Ramondia* after Ramond), except when the name ends in *er*, when *a* is added (*e. g. Kernera* after Kerner). In latinized names ending in *-us*, this termination is dropped before adding the suffix (*Dillenia*, not *Dillenia*).

(c) (After 'become generally *e*' add the following) 'or sometimes *ae* when necessary in order to retain the accent in its original position.'

Rec. XL. When a new specific or other epithet is taken from the name of a man it should be formed in the following manner (unless the personal name is already Latin or Greek, in which case the appropriate Latin Genitive should be used, *e. g. alexandri* from Alexander, *francisci* from Franciscus, *augusti* from Augustus, *magni* from Magnus).

In (b) delete the example of *Magnusii* from Magnus.

New Recommendation XLI bis. Epithets taken from geographic names are preferably adjectives and usually take the terminations *-ensis*, or *-(a)nus*, or *-icus*.

Examples. *Rubus quebecensis* Bailey (from Quebec), *Ostrya virginiana* (Miller) W. (from Virginia); *Polygonum pennsylvanicum* L. (from Pennsylvania).

Rec. XLII. New specific (or other) epithets should be written in

conformity with the original spelling of the words from which they are derived and in accordance with the rules of Latin and latinization.

In the case of the orthographic variants of frequently used epithets enumerated in Appendix ., the orthography as occurring in the first column is recommended for future use, while in names originally published in the form indicated in the second column it will be admissible to replace the original orthography by the recommended one simply by treating it as an unintentional orthographic error.

Example for Appendix .,

Correct Orthography	Incorrect Orthography
silvestris	sylvestris
sinensis	chinensis

Rec. XLIII. All specific and trivial names or epithets should be written with a small initial letter, although writers desiring to use capital initial letters for particular names or epithets may do so when these are directly derived from the names of persons (or deities) or are vernacular (or barbaric) names, or are previously published (including pre-Linnean and invalid) unmodified generic names.

Rec. XLIV. (Unchanged but with the addition of) Compound words shall be written as one word and not with a hyphen joining their component parts, even if originally spelt with a hyphen.

Examples: *atriformis* (and not *atri-formis*), *longepedunculata* (and not *longe-pedunculata*), *Euequisetum* and not *Eu-equisetum*), *Carex albonigra* (and not *Carex albo-nigra*), but the following which are not compound words but groups of words used as epithets, are correctly hyphenated: *Veronica anagallis-aquatica, Betula terrae-novae, Aster novi-belgii, Impatiens noli-tangere.* (Vide Art. 27).

Rec. XLIV bis(former Art. 72). (To be retained but revised by the Ed. Comm. in view of the following)

All epithets under one and the same generic name must take the same gender.

Example. The generic name *Cistus* is now treated as masculine according to common use, though Linnaeus 1753 under this name treated only some species (now removed from the genus) as masculine and gave the epithets of the rest (*i. e.* the species still retained in *Cistus*) a feminine form. Under *Lotus*, in Linnaeus's Species Plantarum, ed. 1, some specific epithets have a masculine, the rest a feminine form; they should all be treated as masculine. *Rhus* should be treated as feminine though some of its species by Linnaeus 1753 have a neuter epithet.

The gender of generic names is ruled by the following regulations.

Generic names ending in *-os* or *-us* are treated as masculine with the following exceptions.

Exceptions. The following generic names (mostly classical tree names and compounds) ending with them are treated as feminine: *Aesculus, Ailanthus, Alnus, Amygdalus, Anacampseros, Arbutus, Arctostaphylos, Aspalathus, Buxus, Carpinus, Cedrus, Cerasus, Chrysibalanus, Cissampelos, Cissus, Cocos, Cornus, Corylus, Crataegus, Cupressus, Diospyros, Ebenus Elaeagnus, Erythrobalanus, Eucalyptus, Fagus, Ficus, Fraxinus, Juniperus, Laurus, Malus, Maytenus, Mespilus, Metrosideros, Microcos, Morus, Myrtus, Nardus, Padus, Peumus, Pinus, Platanus, Populus, Prunus, Pyrus, (Pirus), Quercus, Rhamnus, Rhus, Sambucus, Sapindus, Schinus, Sorbus, Strychnos, Syagrus, Symplocos, Tamarindus, Tamus, Taxus, Ulmus, Zizyphus.*

Generic names ending in *-a* are treated as feminine except when they are Greek words ending in *-ma* or compounds ending in such, when they are treated as neuter.

Note. Names ending in *-coma* or *-toma* are treated as feminine; these endings are of Greek origin but have a latinized form.

Generic names ending in *-e* or *-is* are treated as feminine.

Exceptions. *Secale* is neuter, *Cucumis* is masculine.

Generic names ending in *-um* are treated as neuter.

Generic names ending in *-on* are treated as neuter with the following exceptions: compound names ending in *-codon, -geton, -odon, -pogon,* or *-stemon* are treated as masculine, compound names ending in *-mecon* are treated as feminine.

Names ending in another way take (1) if they are Greek or Latin words or compounds ending in such words, the classical gender of the word, resp. of the latter part of the name; (2) if they are arbitrarily formed or vernacular names, the gender assigned to them by their original author. If in the former case the classical gender varies, the author has the right of choice between the genders; in doubtful cases, general usage should be followed. If in the cases mentioned under (2) the original author did not indicate the gender, the next author has the right of choice and must be followed.

(In order to avoid confusion I note that these proposals relating to Rec. XLIV bis, were not definitely accepted but referred to the Ed. Comm., who are free to adopt from them what seems desirable).

Artt. 73 and 74. To be revised in accordance with the decisions.

Appendices IV, V, VII, and VIII, and the 'New Appendix' for *nomina dubia* to be deleted.

4. Report by the Special Committee for Fungi.

To the Section for Nomenclature of the 7th Int. Bot. Congress the Special Committee for Fungi wish to report the following:

Art. 10 & Prop. 1. They have voted to inform the section that they regard either Art. 10 or Art. 10 prop. 1 as a correct statement concerning mycological classification.

Art. 11, Prop. 1 & 2. They are agreed that formae speciales should not be treated as varieties; in this they oppose the adoption of the last sentence of Art. 11, prop. 2.

They have voted to recommend that 'forma biologica' and succeeding words be deleted from Art. 11, prop. 1, and the rest of prop. 1 be adopted. In the event that students of other groups wish to retain 'forma biologica' not only as a category but in a fixed place in the series of categories, they still wish to delete the words 'forma specialis in parasitic species'. They desire to retain the latter category, as provided in Rec. I, but without a hierarchical position.

Rec. I. They have voted to recommend the retention of Rec. I with the substitution of 'taxa' for 'forms' where 'forms' first occurs in the Rec., and with two corrections in the text: 'specific' to replace 'special' (the latter apparently being an error of printing or transcription), and the plural 'formae speciales' to replace 'forma specialis'.

Art. 13, Prop. 1. They have voted unanimously to recommend again the adoption of the following amendment to Art. 13, prop. 1, which they have already recommended to the section and which has not yet been acted upon: 'An exception is made for names of subdivisions of genera in Fries's *Systema mycologicum*, which are treated as validly published although he termed them 'tribes' (tribus). The committee do not believe that the phanerogamists will force upon the mycologists a new provision, however desirable to the former, which would seriously disturb the now legitimate nomenclature of the latter.

Rec. VII, Prop. 1. They have voted to recommend that Rec. VII, prop. 1 be adopted only if amended by striking out 'the valid' and all succeeding words and substituting the word 'it may be desirable to accept the type of the pre-starting point author'. The version printed on p. 30 of the *Synopsis*, being in the form of a Rule, is not approved.

Art. 20. They have voted unanimously to recommend the retention of Art. 20 (e), with the date fixed as Jan. 1, 1801, and of Art. 20 (h).

They have voted to urge the adoption in place of Art. 20 (f) of the following: (f) Fungi caeteri, 1821 (Fries, *Systema mycologicum*, vol. 1) Vol. I of the *Systema mycologicum* is treated as having appeared Dec. 31 1821, and the *Elenchus fungorum* (1828) is considered to be part of the *Systema*. Names of Fungi caeteri published in other works between the dates of the first and last parts of the *Systema*, which are synonyms or homonyms of names of any of the Fungi caeteri included in the *Systema mycologicum* do not affect the nomenclatorial status used by Fries in this work.'

They unanimously recommend the rejection of Art. 20, prop. 6.

Art. 39 bis. They have voted to recommend the rejection of the Note in new Art. 39 bis. They believe that the matter should be dealt with in Art. 57, where it is now treated in prop. 1.

Art. 57. They have voted to recommend the adoption of the following text in place of the present Art. 57: 'In Ascomycetes and Basidiomycetes with two or more states in the life-cycle (except those which are lichen fungi, but not in Phycomycetes), the first valid name or epithet applied to the perfect state takes precedence. The perfect state is that which bears asci in the Ascomycetes, which consists of the spores giving rise to basidia in the Uredinales and of the chlamydospores in the Ustilaginales, or which bears basidia in the remaining Basidiomycetes. The type specimen of a state must bear that state. However, the provisions of this article shall not be construed as preventing the use of names of imperfect states in works referring to such states.

'The author who first describes a perfect state may use the specific epithet of the corresponding imperfect state, but his binomial for the perfect state is to be attributed to him alone, and is not to be regarded as a transfer.

'When not already available, binomials for imperfect states may be proposed at the time of publication of the perfect state or later, using either the specific epithet of the perfect state or any other epithet available.'

Art. 64, Prop. 2, 3, 5, 7. They have voted to recommend that Art. 64, prop. 2, be adopted. It is to be noted that the vast majority of names which have been affected by this Rule are fungus names.

Art. 64, Prop. 4, 8. They unanimously recommend the adoption of the following sentence, formed from props. 4 & 8: ' For nomenclatorial purposes names given to lichens shall be considered as applying to their fungal components, but shall be subject to the provisions of Art. 20 d. It is to be noted that the word 'exclusively', a part of prop. 7, is not a part of this sentence nor of its provisions.

App. III. They unanimously recommend the conservation of the following generic names (subject to withdrawal if their nomenclatorial status is changed by modifications in the Rules adopted at this Congress): *Aleurodiscus, Calvatia, Daldinia, Marasmius, Melanogaster, Panus vs Pleuropus, Plerous, Septobasidium, Stagonospora, Tomentella vs Caldesiella , Tubercularia,* and *Uromyces.* The citations, types or lectotypes, and nomina rejicienda have already been discussed in print and will be supplied to the Editorial Committee.

The Committee's recommendations regarding Art. 64 have already been adopted by the section.

(This report was adopted and approved of by the Section).

5. Report of the Committee for Palaeobotany.

Art. PB 1. Since the names of the species, and consequently of many of the higher (taxa) taxonomic groups of fossil plants are usually founded on specimens of detached organs and since the connection between these organs can only rarely be proved, organ genera (*organogenera*) and form genera *(formagenera)* are distinguished as taxa within which species may be recognized.

An *organ genus* is a genus whose diagnostic characters are derived from single organs of the same morphological category or from restricted groups of organs connected together.

A *form genus* is one that is maintained for classifying fossil specimens that lack diagnostic characteristics indicative of natural affinity which for practical reasons need to be provided with binary names. Form genera are artificial in varying degree.

Notes. 1. Organ genera based on detached parts may be distinguished not only by morphological characters, but also by reason of different modes of preservation.

2. It is necessary to distinguish both organ genera and form genera since the former are held to indicate a certain degree of natural affinity, while the latter may - and in many instances are known to - include species belonging to different families or even groups of higher rank e.g. ferns and pteridosperms. But form genera have been recognized as pertaining to a special morphological category since 1828, (Adolphe Brongniart), and since that time they have been constantly used in taxonomic and morphological literature and they are quite indispensable.

Art. PB 2. The general principles applicable to all plants and to the nomenclature of taxonomic groups according to their categories are to apply also to the names of species of fossil plants and to organ genera and form genera (see our Rec. 1-3; also I.R. Chapt. III).

Conditions and dates of valid publication of names.

Art. PB 3. From Jan. 1, 1952, the name of a genus or of a group of higher rank is not considered as validly published unless it is accompanied by a description of the group or by reference to a previously and effectively published description of it.

Art. PB 4. The type of a genus of fossil plants is the first described species which shows such characters as are necessary for distinguishing the genus from other groups.

The type of a species of fossil plants is the first described and figured specimen showing such characters as are necessary for distinguishing the species from other species.

Art. PB 5. When diagnostic characters are altered or the circumscription changed in groups of fossil plants, the type is determined by reference

to the original specimen figured in validation of the name of the taxon. If more than one figure was applied in validation of this name, the emending author shall indicate from the specimens originally figured the one he regards as constituting the type.

Art. PB 6. The name of a monotypic genus of fossil plants published after Jan. 1, 1952, must be accompanied by a description of the genus indicating its difference from other genera.

Recommendations.

Rec. 1. In describing organ genera it should be clearly indicated for which kind of organ the genus is established. It is desirable that the names should indicate the morphological category of the organ. (For leaves a combination with *phyllum*, for fructifications combinations with *carpus* or *theca* &c).

Rec. 2. The names of form genera should, as a rule, be used only with their original meaning and subsequent alterations of the diagnostic characters of form genera is not desirable.

Rec. 3. Form genera should not be used as types on which natural taxa of higher rank are established.

Note. While organ genera may be grouped in families bearing names taken from one of the genera and ending in -aceae, form genera should not be placed in groups with names implying the status of natural taxa.

Rec. 4. In describing organs of uncertain nature or affinities , a name suggesting definite relationship with a recent plant should be avoided.

Rec. 5. In describing a new species it is desirable to mention which specimen is regarded as the type and to indicate in which museum or collection the type is to be found.

Rec. 6. Palaebotanists should exercise great caution in applying to well preserved specimens names which have been originally attached to poorly preserved specimens or to specimens which have been inadequately described or figured.

Nomina generica conservanda (palaeobotany).

Fam.	Nom. cons.	Nom. rej.
Ordo: Pteridospermales	Dolerotheca Halle	Discostachys Grand.'Eury
Megalopteridacaceae	Megalopteris (Dawson) Andrews	Cannophyllites A. Brongn.
Calamariaceae	Calamites A. Brongn.	Calamites Sternberg

Ordo: Cordaitales	Cardiocarpus A. Brongn.	Cardiocarpus Reinw.
Form genus	Glossopteris A. Brongn.	Glossopteris Rafinesque
Taxodiaceae	Metasequoia Miki ex Hu & Cheng genotype: M. glyptostroboides Hu & Cheng	M. disticha (Heer)Miki

Note for the Editorial Committee. The Special Committee for Palaeobotany considers Art. 42 of the Rules to be applicable both to modern and fossil plants. The words 'of recent plants' should be deleted from the first sentence.

(This report was adopted and approved of by the Section).

6. Concluding remarks.

The foregoing contains a survey of the procedure, committees appointed, decisions reached, and reports submitted, during the sessions of the Section for Nomenclature of the Stockholm Congress.

A few remarks may be added concerning some points which remained obscure so far.

It was agreed that the terms legitimate (illegitimate) and valid (invalid) needed further study and a clearer definition.

Algologists in particular wished to apply the term 'phylum' rather than 'divisio' for certain categories, a view not shared by many phanerogamists. It was advanced that 'divisio' and 'phylum' were terms for identical taxa and so might be considered synonymous, but others objected by stating that 'divisio' and 'phylum' had been used with different meanings, especially by French botanists. The word 'phylum' was removed from the Rules. The point will be brought up again, I think, at the next Congress.

It became clear that various groups of botanists were not satisfied with the Rules in so far as their special interests were concerned. Very forcibly this was announced by groups of horticulturists and applied botanists, such as cytotaxonomists, foresters, *&c.* On the other hand, mycologists, palaeobotanists, bryologists, lichenologists, and many horticulturists made it clear that notwithstanding their requests, they were convinced that the taxonomic nomenclature prevailing in their field of study should be in conformity with and in adherence to the International Rules of Botanical Nomenclature. The Section supported these views and were willing to adopt as many special provisions as they thought compatible with the interests of the Rules and taxonomic research. In some cases the gaps were bridged, in other a working basis established.

A list of titles of certain works to be excluded in matters of nomenclature (for reason of the presence of many unidentifiable *nomina semi-nuda* or because they were never intended by their authors to be considered in nomenclatural problems) was not thought to be attainable

or even desirable.

Many branches of botany, starting their nomenclature with the appearance of a basic work, have only *the year* of its publication for a starting date. In some cases other works containing names appeared in the same year which makes the validity of the latter often uncertain. The Special Committee will appoint, as the day of publication of the starting point, either Jan. 1 or Dec. 31 of the year of appearance of the basis work, which results in the former case in that all other publications of that year are post-starting date and in the latter case pre-starting date. *Species Plantarum* keeps May 1753 as day of publication.

The problem of *nomina specifica conservanda* was discussed with spirit. Applied botanists, such as foresters, plant-breeders, and also ecologists, are sometimes in favour of having a list of species names not liable to change (for reasons of nomenclature). Though understandable, this wish was judged to be contrary to the interests of taxonomic research and even contrary to the interests of the applied botanists themselves, a view shared by very large groups of horticulturists and other practical botanists in America, Europe, and Australia.

The discussions by which the various arguments in favour of conserved species names and against were measured, sooner tended to strengthen the opponents to a list of that nature than to weaken them. A ballot resulted in a rejection of the principle of having certain selected *nomina specifica conservanda* (40 - 320).

A somewhat lesser evil, as some thought, would have been the introduction of a list of *nomina specifica rejicienda*, which is a mitigated form of the list of *nomina specifica conservanda*. The Section appeared strongly opposed to let slip in by the back door what they were determined to prevent enter, and rejected by ballot this principle (116-242).

Special attention was paid to the wishes of workers with cultivated plants. Several innovations in the Rules were adopted and a Special Committee appointed to study the needs of plant-breeders.

Prescribed endings for names of taxa above the rank of family were studied and proposed, and some of them adopted. Priority was not considered suitable for names of taxa above the rank of order; the type method was judged to be suitable up to the rank of order.

Some Algologists advocated the abandoning of the Rule demanding a description in Latin when publishing a new taxon. Alternative proposals in order to make new descriptions sufficiently accessible without the use of Latin failed to gain the consent of the Section and a vast majority appeared to be in favour of maintaining the Rule that a Latin diagnosis at least is now necessary to validate a new name.

It was promised, however, that a new proposal concerning the publication of new taxa without Latin diagnosis would be submitted to the next Congress.

In case an organism appears to belong to a different taxon than to which it was referred when first described, and the new taxon has another starting point than the original taxon, it was decided that priority begins with the taxon in which the organism proves to belong for reasons of natural relationship.

The Recommendation to use a capital initial letter for specific epithets of a specified nature, was first abandoned and changed into a Recommendation to use a small initial letter consistently for all specific and infra-specific epithets. A ballot (212 - 129) was decidedly in favour of the change! A clever strategy by some adherents to capitalizing succeeded and the Section ended by adopting Rec. XLIII, as included in this article, which leaves a possibility of a continued use of capitals in the well-known cases. It is interesting to note that this revised Rec. XLIII, when proposed, had been rejected by the preliminary vote 17 - 176! There is, therefore, little doubt as to what will be decided by the next Congress on this matter.

Concerning Art. 23 it was proposed to admit no longer the use of the time-honoured names of the eight enumerated families *(Palmae, Gramineae Cruciferae, Leguminosae &c)* but to prescribe throughout the plant kingdom family names consisting of the name of the type genus and the ending *-aceae*. The ballot was 175-176, which was considered a tie and the Art. stands unchanged; the *Palmae &c.* will not have to change their name.