

„The subject may seem trite and tiresome, but the present divergent practices in naming plants are not only a source of great annoyance but offer a serious impediment to the successful advance of classification. The gravity of the whole issue is, therefore, so great as to justify every renewed effort toward a better general understanding of the subject, since this alone can lead to a final and satisfactory settlement.”

(B. L. ROBINSON. *Some reasons why the Rochester Nomenclature cannot be regarded as a consistent or stable system*, 1898).

No. 57. The American Code, the Vienna Code and the resolutions of the Imperial Botanical Conference in London.

Will agreement be possible in 1930?

BY

Dr. J. VALCKENIER SURINGAR,
ret. Prof. of the Agriculture Academy of the Netherlands.

„The two codes have been a great help in stabilizing nomenclature. Experience has shown, however, that they lack definiteness in directing the application of names . . .” (HITCHCOCK in *Am. Journ. of Bot.* May 1921 p. 251).

„A harmonizing of the two codes appears to be impossible, if it is maintained that the International Rules cannot be modified in any essential, but only added to or interpreted. This is the belief in some quarters ¹⁾, but I find no confirmation of this in the Rules themselves and it is contrary to the spirit of codes and laws in general. They should be modified to accord with the consensus of botanical opinions ²⁾. *Otherwise they will be gradually abandoned.*” (H. in *Br. Journ. of Bot.* Nov. 1922 p. 318; the same opinion is uttered by WILLMOTT on p. 196, and by SPRAGUE in *J. of B.* 1924 p. 197).

¹⁾ WILLMOTT in *J. of B.* 1922 p. 201: „SCHINZ and THELLUNG seem to take the position that the Vienna Code is as a law of the Medes and Persians. By Art. 3 this is a *reductio ad absurdum*. Those who are anxious to have an *accepted* International Code should consider Art. 3 and be prepared to reject anything which does not seem essential to the progress of science. But progress necessitates change, and the sooner a necessary change is made, the less disturbance is created. To regard the Code as final must invoice its death”.

²⁾ „A code, like any other human instrument, should be subject to alteration on the basis of experience” (H. in *Sc.* 29 Apr. 1927 p. 413 (2)).

Modification to accord with the consensus of a majority of botanical opinions is the more required because the Rules of 1905 were accepted before all the consequences were known¹⁾. In future a rule should not be put in force before it is sufficiently applied by a special commission and again revised.

The American Rochester rules date from 1892; the Philadelphia Code originated in 1904 and thereby is older than the Vienna Code of 1905; the latter is International, but nevertheless not universally accepted; there are botanists in Europe and America, who keep principally to the International Rules but in some respects deviate from them. In the United States approximately half the taxonomists are following the American Code (H. in Science 29 Apr. 1927).

In 1918 the American Code was modified to the „Type-basis Code of Bot. Nomenclature”.

The Type-basis Code adopts 1753 as the starting point for nomenclature of all groups of plants.

The Type concept is a fundamental principle of the Type-basis Code.

Priority of publication is accepted as a fundamental principle.

The Type-basis Code includes no list of Nomina Conservanda, but recognizing that the strict application of the law of priority may in few cases cause inconvenience by displacing well-known names, provides for exceptions through Article 6.²⁾

The Type-basis Code provides that a generic name is effectively published when there is a specific description and a binomial specific name, because the type species of that proposed genus can be determined.

The Type-basis Code considers a generic description without the mention of included species to be ineffective, because the type species of the proposed genus cannot be determined.

The Type-basis Code provides that of names published in the same work and at the same time, those having precedence of position are to be regarded as having priority.

The Type-basis Code provides that both generic and specific names are to be rejected if there are earlier homonyms The earlier homonym invalidates the later under all circumstances.

The Type-basis Code rejects no specific name when it repeats the generic name.

1) „The weak point of all codes is, that they are, in a way, premature; they attempt to establish rules to govern procedure in unforeseen circumstances”. (H. in Sc. 29 Apr. 1927 p. 413 (2)).

2) Cf. Appendix.

In the Type-basis Code there is no reference to the language of publication.

(nearly literary from HITCHCOCK in J. of B. 1922 p. 316/7).

It will not be so difficult to obtain unity in the first named ranks; but more so to conciliate the American and the Vienna Codists. And, still, unity must be attained in 1930 at the International Congress in London. Else we will witness a new period of nomenclature-strive, and the list of differing names will be enormously enlarged instead of diminished.

The opposition between the two codes depends principally on four chief points ¹⁾:

I. The principle „once a synonym always a synonym” or, in other words, „the illegality ²⁾ of a later homonym”.

This principle is not acknowledged in the Vienna Code. With the Vienna Code, a generic or species name A¹, which has become a synonym of a name B, may be used for an other genus or species A²; A¹ is synonym of B, A¹ is homonym of A². With the American Code A² is unconditionally illegal, with the Vienna Code A² is legal as long as A¹ is rightly replaced by B.

The genus name *Torreya* ARN. 1838 is such an A² (A¹ being *Torreya* RAF. 1818 and being understood to be rightly replaced by B = *Synandra* NUTT. 1818) ³⁾. In the Checklist of the Forest trees of

¹⁾ Minor questions will be treated in Jaarb. Ned. Dendr. Ver. (Yearbook Dendr. Soc. of the Netherlands) 1929.

²⁾ The terms valid and legal, invalid and illegal are often confused. I suggest to call a name valid if it in itself is in accord with the Rules, invalid if not so; f.i. *Lignum* would be an invalid name; *Abies Borisii regis* MATTF. is an invalid name because the specific name not conforms to the rules; the species names of monotypic genera in LINNAEUS' „Species plantarum” are invalid because there is no description nor a reference to a description under an other name from 1753 or later (Art. 19, 37). In some cases the references are moreover insufficient f.i. *Bucus sempervirens*).

³⁾ And I suggest to call a name legal if it, with respect to other plant species, is in accord with the Rules, illegal if not so; f.i. the oldest name of a genus or of a species, if valid in itself, is, generally spoken, the legal one; the later synonyms, though valid, are illegal; *Linum multiflorum* LAM. is a valid but an illegal name (nomen abortivum).

Invalid names may be made valid omni consensu, f.i. the LINNEAN species names mentioned above; or by technical improvement (*Borisii-regis*); illegal names may be legalized as are f.i. many of the generic names on the list of „nomina conservanda”.

³⁾ *Torreya* RAF. 1819 moreover is a synonym of *Cyperus* (*Pycreus* BEAUV. 1807) and *Torreya* SPRENG. 1821 so of *Clerodendrum* (L.) BROWN.

the United States, 1927, you find *Tumion* RAF. instead of *Torreya* ARN. Now, *Torreya* ARN. is a harmless „later homonym”, because *Torreya* RAF., the earlier homonym, is no longer anywhere in use; so the application of the principle causes here a useless change of a usual name. With the Vienna Code the legal name is *Torreya* ARN. *Pinus taxifolia* LAMB. 1802 is another A², A¹ being *Pinus taxifolia* SAL. 1769 and B = *Abies balsamea* MILL. 1768. Therefore the American codists have the name *Pseudotsuga mucronata* SÜDW. (*Abies mucronata* RAF. 1832). Here too the later homonym *taxifolia* is harmless; moreover RAFINESQUE'S description of his *Abies mucronata* is not adequate to recognize the species concerned; cf. *P. I.* ¹⁾ I p. 56. (It does not matter here that in my opinion *P. taxifolia* LAMB. is unsatisfactorily described and *P. Douglasii* CARR. = *Abies Douglasii* LINDL. therefore the legal name). ²⁾

One could say that a „later homonym” is always confusing because the earlier homonym in existing books may be taken erroneously for the later one; but this difficulty with already existing homonyms is not exterminated even by rejecting all the „later homonyms”; so this is of no use.

But in the cases where the homonyms A¹ and A² are still known or used in the different senses, the principle is useful to eliminate one of them or both.

With the American Code there is f.i. no question of *Pinus inops* BONG. (non SOL. 1789) contra *Pinus contorta* LOUD. (cf. *P. I.* I p. 18—20); the name *P. inops* BONG. 1831 is a later homonym of *P. inops* SOL. 1789 and therefore illegal. With the Vienna Code *Pinus inops* BONG. is the oldest, valid and legal name for *P. contorta* notwithstanding it is based on a misinterpretation and that it may cause confusion with *P. virginiana* MILL. 1768, which was called formerly *P. inops* SOL. and may be somewhere still called with that name.

And still more useful the principle is, by preventing all homonyms in future or, if there will still be made illegally, by making unnecessary „the investigation of the standing of the earlier synonym, often in groups, with which the investigator is unfamiliar” (HIRCHCOCK J. of B. 1922 p. 317). And it excludes the difficulty in cases where

¹⁾ „Personal Idea's about the application of the international rules of Nomenclature, or, as with the rules themselves, international deliberation?” *Meded. R. H.*; I no. 55, II no. 56.

²⁾ SÜDWORTH has dropped the name *Ps. ts. mucronata* in his Checklist of the Forest trees of the Un. St., 2nd Ed. 1927 and replaced it by *Ps. ts. taxifolia*, because *Pinus taxifolia* LAMB. as a whole is a later homonym but not so *Ps. ts. taxifolia* SARG. This looks like a kind of revived Kew-rule.

the earlier homonym is valid or invalid, legal or illegal according to different kinds of views or personal ideas (SPRAGUE in J. of B. 1922 p. 129, 1924 p. 43; Report Imp. bot. Conf. p. 304); an example is: *Kickxia*.

„Two genera have been called *Kickxia*, namely *Kickxia* DUM. 1827 (Scroph.) and *Kickxia* BLUME 1828 (Apoc.). Under International Rules, Art. 50, the name of the apocynaceous genus depends on the taxonomic treatment of the scrophulariaceous genus. For many years practically all botanists included the scrophulariaceous *Kickxia* in *Linaria*. Some botanists now regard it as an independent genus, and the result is that the well-known apocynaceous *Kickxia* has now to be called *Kibatalia* G. DON.” (SPRAGUE *ibid.*).

Mr. HITCHCOCK (Bur. of Pl. Ind., Dep. of Agric. Washington), who is a prominent follower of the American Code, is aware of the necessity of conciliating the two codes and of the aversion of most European botanists to have the principle of later homonyms applied retroactively and rigorously¹⁾; and he is ready to grant a list of nomina homonyma conservanda in so far these names concern important economic plants or genera with great numbers of species (Am. J. of Bot. 1927 p. 526, Science 1927 p. 413 (2)).

Mr. BARNHART (New York Bot. Gard.) in America, Mrs. SPRAGUE and WILLMOTT on the other side of the Ocean (Royal Gardens of Kew), have attested against generic homonyms, but they do not make clear if they mean only later homonyms or also legal earlier homonyms. Mr. WILLMOTT rightly remarks (J. of B. 1922 p. 196) that rejection of *all* homonyms would tend to fixity and be simple to work, but would at the same time lead to many changes of names and must first be inquired into. Mr. SPRAGUE pleads for a list of exceptions for generic homonyms which are in current use, in J. of B. 1923 p. 109 and 1922 p. 133.

Mr. BARNHART in J. of B. 1922 p. 262 remarks that names like *Carex* and *Carica* are essentially homonym and should be treated as such²⁾; and he is thoroughly opposed to any list

¹⁾ In 1905 the principle was rejected with 123 votes to 22; Mr. ROBINSON of Harvard College voted with the majority.

²⁾ This is in accordance with Art. 5a § of the type code; Mr. SPRAGUE gives as examples (J. of B. 1922 p. 129) *Chamissoa* H. B. K. and *Chamissonia* LK, *Lomatia* R. Br. and *Lomatium* RAF. (there is still a *Lomatium* TARG.), *Festuca Kingii* and *Kingiana*. There are plenty of such names!

SPRAGUE (J. of B. 1921 p. 153) suggests to reject in all cases one of two names differing only in termination (f.i. *Lysimachia Hemsleyi* and *Hemsleyana*); REHDER and PENNELL agree (*ibid.* p. 289, 1922 p. 112); BARNHART does not think all such names confusing, but he agrees with respect to names like *Lomatia*, *Lomatium*.

whatever of „nomina conservanda et rejicienda” (letter of March 22th 1929).

The Imperial Botanical Conference in 1924, of which Mr. SPRAGUE was a prominent member, pronounced the resolution (nr. 3): „all generic names which are homonyms (i.e. later homonyms) should be rejected except such as may be specially conserved.” Principles for exceptions are not mentioned. And in this way later homonyms are rejected as well when the earlier homonym is an unconditionally illegal or even an invalid synonym; me thinks that in such cases the later homonym must be taken as a legal one. The resolution was carried; it will be good to take notice of the remark of Mr. GROVES, that his principal reason for supporting the alteration of the International Rules was the desirability of coming to an agreement with the adherents of the American Code.

Next to the generic homonyms we have the specific ones.

„The Type-basis Code provides that both generic and specific names are to be rejected if there are earlier homonyms.... When a species is moved from one genus to another.... its specific epithet must be changed, if it is already borne by a.... species of that genus....; the earlier homonym invalidates the latter under all circumstances¹⁾” (HITCHCOCK in J. of B. Nov. 1922 p. 317).

Pinus rubra MILLER 1768 is a synonym of *P. sylvestris* L. 1753; thereby *Pinus rubra* LAMB. 1803 is a „later homonym” and *Picea rubra* LK 1841 an illegal name with the American Code. (*P. rubra* LK 1843 is moreover a „later homonym” of *Picea rubra* DIETR. 1824; *P. rubra* DIETR. = *Picea excelsa* LK 1841). SARGENT in his „Silva” has changed therefore the name into *Picea rubens* With the Vienna Code *P. rubra* LK is the legal name, because the earlier homonyms *Pinus rubra* MILL. and *Picea rubra* DIETR. are „universally regarded as non-valid” (Art. 50).²⁾

The later homonym *Cornus alba* WGH. 1781 (*C. stolonifera* MICH.) is rejected as well by the Vienna as by the American Code, because the earlier homonym *C. alba* L. 1767 was unjustly replaced by *C. tatarica* MILL. 1768.

The name *tatarica* on the other hand may be used again with the Vienna Code, becoming then a later homonym of which the earlier homonym is an illegal name; but with the American Code it is forbidden and *C. tatarica* remains a synonym for ever.

¹⁾ That means: also if the earlier homonym is an (conditionally or inconditionally) illegal or even an invalid synonym.

²⁾ I should say: illegal.

Mrs. BRITTON, PENNELL and BARNHART in America, SPRAGUE in England, express the desire to reject all specific homonyms (J. of B. 1921 p. 156, 296, 1922 p. 117, 258). But, as with the generic homonyms, it is not clear if they mean all specific homonyms or only the later homonym names.

In J. of B. 1922 p. 135 SPRAGUE accepts Mr. REHDER's suggestion (J. of B. 1921 p. 289/290) that a specific name should be allowed to stand if its earlier homonyms are nomenclatorally non-valid (Example: *Q. lanuginosa* LAM. 1783 which is a nomenclatorally illegal „earlier” homonym contra *Quercus lanuginosa* THUILL. 1799).

With this restriction *Pinus inops* BONG. 1831 (not SOL.) is the oldest and legal name for our *P. contorta* LOUD. 1838, because the earlier homonym *P. inops* SOL. 1789 is a nomenclatorally illegal synonym of *P. virginiana* MILL. 1768 (SOLANDER gives MILLER's name as a synonym).

Mr. BARNHART (J. of B. 1922 p. 258) fails to see that Mr. SPRAGUE's original suggestion gains anything by this modification. He thinks that there are „very few binary names which, actually and unequivocally published, are not liable under any circumstances ever to be revived”. Mr. SPRAGUE shows on p. 313 that there are plenty of such names:

„*Linum multiflorum* LAM. 1778.... was a superfluous name for *L. Radiola* L. 1753. In KRAUSE's edition of STURM's „Deutschlands Flora”.... which contains about 750 superfluous new names (many of them homonyms), all monotypic genera are given the trivial *generalis*. Can Dr. BARNHART seriously contend that such names as *Glaux generalis* and *Hippuris generalis* are liable to be revised?” Etc.

But, at all events, Mr. BARNHART does not seem to reject Mr. SPRAGUE's restriction in principle. However, in J. of B. 1924 p. 47, Mr. SPRAGUE himself returns to his first suggestion. „All combinations which are homonyms should be rejected”, and the Imperial Bot. Conf. in 1924 carried the resolution „All combinations which are homonyms (i.e. later homonyms) should be rejected.” Mr. SPRAGUE bases his return upon the controversies about „nomina abortiva”:

„SCHINZ and THELLUNG's view that *Cucubalus latifolius* MILL. is a „nomen abortivum” seems to be due to a misconception of the respective spheres of taxonomy and nomenclature. MILLER separated *C. latifolius* from *C. Behen* L. as a distinct species. It is now agreed that the two are conspecific. MILLER's mistake was a mistake in taxonomy, not in nomenclature. He was fully entitled to give a new name to his supposed new species: in fact he would have been

breaking the rules had he applied the same name to two groups which he treated as distinct." (SPRAGUE in Journ. of Bot. 1924 p. 44).

In the same way BRIQUET and CAVILLIER treat *Inula squarrosa* BERNH. as a „nomen abortivum”; SPRAGUE takes it for a legal name, and in this case SCHINZ and THELLUNG join him. (id. ibid. p. 45).

Inula squarrosa L. 1763 is a conditional synonym of *I. spiraeifolia* L. 1763 and thereby a conditional earlier homonym with respect to *I. squarrosa* BERNH. 1800, notwithstanding nowadays *I. squarrosa* L. is taken as a synonym of *I. spiraeifolia* L. Therefore *Inula squarrosa* 1800 must be taken as a legal name and later homonym, because it is possible that BERNHART too took *I. squarrosa* L. for a synonym of *I. spiraeifolia* L. (SPRAGUE in Rapport Imp. bot. Conf. p. 302/3).

But me thinks that these controversies may not be reason to reject those later homonyms, of which the earlier homonym is an unconditionally illegal synonym or even an invalid name, if only the unconditionality is unambiguous.

When is a synonym (un)conditional? The earlier homonym *Quercus lanuginosa* LAM. is a universally acknowledged unconditional synonym so far as it is only another name for *Q. Cerris* L. (cf. REHDER J. of B. 1921 p. 289/90); *Pinus inops* SOL. is an other one; and we have seen above that there are many such names; they are the real „still born” names („nomina abortiva”) and may be called *nomenclaturally* illegal names. ¹⁾

The earlier synonym *Inula squarrosa* L., if taken as a synonym of *I. spiraeifolia* L., is a taxonomically illegal name, because the illegality depends on its taxonomical stand with respect to *I. spiraeifolia* L. Is it a conditional or an unconditional synonym? One can take it of course for a conditional synonym, because it can not be said impossible that *I. squarrosa* L. at any time will be again separated (as LINNAEUS did) from *I. spiraeifolia*. And so it is with *Cucubalus latifolius* MILL. and with all taxonomically illegal names;

¹⁾ The term „nomen abortivum” is not recommendable because the name must then of course be judged as such with respect to the time in which it was born; and that judgement is not always possible; f.i. we do not know if BERNHART took *Inula squarrosa* L. for a synonym of *I. spiraeifolia* L. or not; if so, his name *I. squarrosa* (the later homonym) was no nomen abortivum; if not so, it was one.

The legality or illegality of earlier and later homonyms, on the other hand, may be judged with respect to the present time.

With the Vienna Code nomenclaturally illegal names are implied in „invalid” names.

in that way all such names become conditional synonyms and thereby illegal names as later homonyms (f.i. *Inula squarrosa* BERNH.).

But one could say also that it is so improbable that *I. squarrosa* L. will at any time be again separated from *I. spiraeifolia* L. that it may be taken as an unconditional synonym. And in the same way might be judged about many other taxonomically illegal names; then all such names become legal names as later homonyms (f.i. *Inula squarrosa* BERNH.).

The principle of the illegality of later homonyms in some cases embraces two genera. An example is *Picea canadensis* B. S. P. 1888 (our American White Spruce), a later homonym, of which *Picea canadensis* LK 1841 (our Canadian Hemlock Spruce) is the earlier homonym. Mr. REHDER (Arnold Arboretum) takes *Picea canadensis* LK as a conditional synonym, and therefore rejects the name *P. canadensis* B. S. P.: „This name cannot stand on account of the *P. canadensis* (L.) LINK which is the correct name of the Hemlock Spruce under the genus *Picea*. Even if *Tsuga* is now recognized as a distinct genus by almost all botanists and therefore *Picea canadensis* LINK referred to *Tsuga canadensis* CARR as a synonym, this should not make any difference, since *P. canadensis* LK is a name formed in accordance with the rules and therefore valid and at any time some botanist may unite *Picea* and *Tsuga* again and thereby cause *P. canadensis* LK to be revived”. (J. of B. 1921 p. 290; J. Arn. Arb. I p. 45; Proposed Amendments, J. Arn. Arb. X 1929 p. 63).

REHDER thinks this to be in accordance with the Vienna Code; but it seems improbable that the Vienna Code intends to reject later homonyms of which the earlier homonym is a taxonomically illegal name, though this might be concluded from the addition to Art. 56 in 1910: „by valid name is implied a name and especially a combination of names formed in accordance with the rules of nomenclature”. With this definition REHDER is right in saying that *Picea canadensis* LK is a valid name; and applying it to Art. 50 he rejects the name *P. canadensis* B. S. P.; but probably this was not foreseen nor intended in 1910.

In 1905 an addition to Art. 59 (Code 1867), made by the botanists of Harvard and proposed by Dr. HARMS, intended „à éliminer tous les noms nouveaux créés en vertu du principe connu sous le nom de once a synonym, always a synonym, à savoir qu'un nom utilisé une première fois, puis tombé dans la synonymie, ne peut plus jamais être utilisé dans un sens différent.” The „rapporteur général” declared that the majority of the Commission of nomenclature

agreed with Dr. HARMS opinion. And the addition was carried by 123 votes to 52. (Actes p. 119/120, Texte synopt. p. 103).

Mr. SPRAGUE agrees with me; otherwise he could not write: „Two genera have been called *Kickxia*.... Under International Rules, Art. 50, the name of the Apocynaceous genus depends on the *taxonomic* treatment of the Scrophulariaceous genus....” (see above).

The wording of that addition to Art. 59 of the Paris Code in the Vienna Code (Art. 50) is: „No one is authorised to reject.... a name or combination of names, because.... of an earlier homonym which is universally regarded as non-valid....”.

The recommendations V^b and XIV^f strenghten the opinion that with non-valid names are meant all (nomenclaturally *and taxonomically*) synonym names; they recommend „not to use again a name which has already been used and has lapsed into synonymy”.

In 1910 Art. 50 and the recommendation V^b and XIV^f are not changed, and a definition of valid and non-valid names is not added, neither is referred to Art. 56.

Moreover, other botanists may think it very improbable that *Tsuga* will be ever again merged into *Picea* and that therefore the earlier synonym *P. canadensis* LK is to be taken as an unconditional synonym and the later homonym *Picea canadensis* B. S. P. to be kept as the legal name.

In all such cases of disagreement about the conditionality or unconditionality of an earlier synonym, an International commission may give advise and an International Congress may decide; f.i. with regard to *Cucubalus latifolius* MILL., *Inula squarrosa* L. and *Picea canadensis* LK.

Without REHDER'S and SPRAGUE'S modification, that means by rejecting *all* later homonyms, the name *Quercus lanuginosa* THUILL. (with the earlier unconditional homonym *Q. lanuginosa* LAM.) f.i. must be changed; the species names *patula* and *effusa* are put out of use in the genus *Cedrus*, *Cedrus effusa* VOSS and *C. patula* KOCH being, in case of use, earlier homonyms, though *Pinus effusa* SAL. 1796 and *Larix patula* SAL. 1807 are unconditional synonyms on account of *Pinus Cedrus* L. And in the same way names like those in KRAUSE'S edition of STURM'S Deutschland's Flora, where are given (fide Mr. SPRAGUE in J. of B. 1922 p. 313) 750 superfluous, that is nomenclaturally illegal, new names, become out of use in the genera concerned; so, if a botanist gives a name to a new species in a genus and he has no knowledge of all such existing uncon-

ditionally-illegal synonym names in that genus, he may perchance give a name, which in years will appear to be a later homonym and thereby an illegal name, when REHDER's and SPRAGUE's modification is not accepted.

Mr. BARNHART remarked (J. of B. 1922 p. 62) that „more confusion is caused by the use of the same name for various things than by the use of different names for the same thing”, i.e. that homonyms are more confusing than synonyms. One might add: specific homonyms are more confusing than generic homonyms, because the specific ones are more closely related. *Cornus alba* L. f.i. is an earlier and legal homonym; but the name gives confusion because in many books, which are still in use, and in nurseries and catalogues, with *C. alba* (WGH.) *Cornus tatarica* MILL. is meant. In the same manner the earlier and legal homonym *Acer saccharinum* L. gives confusion with *A. saccharinum* WGH.

In my opinion it would not be wise to reject in principle all specific homonyms (later and earlier ones), because in future each legal name would risk to be illegalized by a new later homonym. But it would be good to accept a list of nomina specifica conservanda et rejicienda in general, as we have already a list of nomina generica cons. and rej. in general; then we will be able to put confusing legal earlier homonyms (as well as confusing legal synonyms) upon the list of nomina rejicienda.

Summa summarum agreement as to this first chief point of difference between the Vienna and the American Code in 1930 might be possible on the following basis:

1°. „later” generic and specific homonyms of which the „earlier” homonym is a valid conditional synonym, the conditionality being based on the taxonomic views of the present time, will be declared to be in principle illegal;

2°. a list of nomina homonyma conservanda will be accepted for generic and specific names, which are in current use or which concern important economic plants, and for generic names with great numbers of species; and a list of nomina homonyma rejicienda for legal „earlier homonyms” which cause confusion.

N.B. an especial principle of nomina abortiva is not desirable.

3°. a list of all questionable generic and specific names which are accepted, another one of all such names which are rejected, and a third one of all invalid or valid but unconditionally illegal synonym names (which thereby may be used again as later homonyms) are desirable.

II. *The type concept, the application of names by means of types.*

„The type species of a genus or the type specimen of a species is the species or the specimen respectively, that directs or controls the application of the generic or specific name. A generic name shall always be so applied as to include its type species; a specific name shall always be so applied as to include its type specimen. The old concept was that a genus was a group of species having a given combination of characters; a species, similarly, a group of specimens. The new or type concept is that, from the nomenclatural standpoint, a genus is a group of species allied to the type species, a species a group of individuals similar to the type specimen.” (HITCHCOCK in Am. Journ. of Bot. 1921 p. 252).

Therefore „if a genus or species is divided, that part, which includes the type species or specimen, retains the generic or specific name, be this part relatively large or small” (ibid. p. 252).

The type concept is not contrary to the International Rules of 1905; in Art. 45 types appear incidentally, but without rules for selecting them; and in 1910 a Recommendation was added to Art. 30 to the effect that in the future authors should indicate the nomenclatural types of groups they publish.

„It is to be regretted that this Recommendation was not made retro-active. I feel confident that the retro-active fixation of nomenclatural types is a fundamental necessity in stabilizing nomenclature.”

This may be true; but with the type-code the description of a new genus is not obligatory (Art. 3c); Mr. SPRAGUE gives as an example (J. of B. 1922 p. 130) *Peramium* SALISB. (*Goodyera* R. BR. with the Vienna Code). And the priority of position, which was an important principle in the original American Code, is still maintained in the type code; Mr. SPRAGUE gives (l. c.) as examples *Stellaria* L. replaced by *Alsine* L. and *Rinorea* AUBL. by *Riana* AUBL.. Probably LOESENER has, following this principle, put *Evonymus striata* instead of *alata* (ENGL. Jahrb. XXX 1902); and NASH, in the catalogue of the New York Bot. Gard. (1917—20), replaces for the same reason *Salix alba* var. *vitellina* by *S. vitellina* var. *alba*. These two principles and the rigorous application, retroactively, of that of „once a synonym always a synonym”, have from the beginning provoked severe opposition against the American rules (ROBINSON in 1898 and 1905!); and they have caused the rejection of the American principles as a whole; the child was thrown away with the bathwater (Dutch expression). The type code of 1918 has at last softened these principles; and Mr. HITCHCOCK is

going still further. It is to be regretted that this mitigation was not made before 1905! And I take it for granted that Mr. HITCHCOCK c.s., who wish reconciliation between the Vienna and the American Code, do not keep to the above mentioned Art. 3c, about which no exchange of thoughts occurs in the J. of B.; at all events the resolution 11 of the Imperial Conference keeps the description obligatory.

Mr. HITCHCOCK continues:

„One must carefully distinguish between the concept itself and the rules for its application . . . (ibid. p. 252) . . . „In general, one should ascertain if possible what species or group of species an author had chiefly in mind in establishing a new genus. The application of the type concept to species is similar. If more than one specimen is cited, we should find which one the author had chiefly in mind. This may be shown by comparison with the description, by one having been selected for an illustration, by notes on the original sheet, by the specific name.

Only when other methods fail should the first specimen cited be arbitrarily selected.” (priority of position). (ibid. p. 255; cf. also J. of B. 1922 p. 111).

Types are to be selected for both valid names and synonyms (ibid. p. 252). „If the Vienna Code could be modified to include a set of acceptable rules governing the selection of types, the most important difference between the two codes would disappear” (ibid.).

Dr. BRITTON (New York Bot. Gard.), Mr. REHDER (Arnold Arb.), Mr. BARNHART (New York Bot. Gard.) and Mr. WILLMOTT (Kew Gard.) plead in the „Journal of Botany” for the type method: „this fixing of types really underlies the whole theory of a stable nomenclature”, etc. (Br. 1921 p. 296); . . . „the type method, which is more and more recognized as the most practical method in cases of divisions of groups, also by those who follow the International Code, as is shown by the additional recommendation XVIII bis incorporated in the Rules in 1910 . . .” (R. 1921 p. 291).

„The desirability of some provision for fixation of types seems to me unquestionable” (BARNHART 1922, p. 261).

But REHDER warns in Journ. Arn. Arb. I 1919 p. 44, that „there will be of course cases when the type method will result in displacing generally accepted names or cause considerable inconvenience; but this is unavoidable if one follows consistently any set of rules. In the case of a generic name it may be saved by including it under the nomina conservanda; and in a case like *Ulmus campestris*

the name may be rejected by taking recourse to art. 51¹ of the rules....”.

An example of what it means to fix type species gives REHDER with the genus *Azalea*: LINNAEUS gives in Sp. pl. 1753 1. *Azalea indica*, 3. *A. lutea*, 5. *A. lapponica*, 6. *A. procumbens*. No. 3, 5 and 6 were already described by him before 1753, so they have an older right on the generic names than the other ones; of these three species no. 6, *A. procumbens*, was known already before LINNAEUS' time; so this species has the oldest right on the generic name *Azalea*, and in dividing the genus and applying the type method, the species *procumbens* must retain the generic name *Azalea*; the other species must obtain an other generic name; the name *Tsutsusi* AD. comes into consideration; then we have *Azalea procumbens*, *Tsutsusi indica*, *T. japonica (mollis)*, etc. (cf. Journ. Arn. Arb. II 1921 p. 156).¹)

HITCHCOCK gives examples in Am. Journ. of Bot., May 1921 p. 253; one of them is the following: The historical type of the genus *Panicum* is *P. italicum*, but this species and its allies are now generally distinguished as *Setaria* or *Chaetochloa*.

Moreover, as we have seen, the priority of place is applied by the American Codists in cases where other means to fix the type species fail.

„The original presentation of the type method in the American Code was Principle 4, „The application of a name is determined by reference to its nomenclatorial type”. Later in the code there were rules for selecting the type, some of which were mechanical. The type-basis code introduced more flexibility into the rules of establishing the type....” (HITCHCOCK in „Science” 1927 p. 3).

But, Mr. HITCHCOCK continues: „recognizing that the strict application of the law of priority may in a few cases cause inconvenience by displacing well-known names, the type-basis code provides for exceptions through Art. 6.” (HITCHCOCK l. c. 317). And since 1921 HITCHCOCK goes still further; he writes with respect to this priority of position: „Personally I look upon this difference” (i.e. between the American and the International Code) „as a minor matter, in which the Type-basis Code might readily forgo its present provision. It seems unreasonable to displace a well-established name solely through this provision.” (id. *ibid.*).

¹) LINNAEUS' rule was (Crit. bot. 246): Si genus receptum, secundum jus naturae et artis, in plura dirimi debet, tum nomen antea commune manebit vulgatissimae et officinali plantae. So he probably would not have selected *A. procumbens*.

„It is clear that in a few cases there will be difference in opinion as to the type species of a genus, and a few cases where botanists would prefer to retain a generic name now in common use, even though it did not include its type species. The Congress should act in such cases as it does in nomina conservanda; I would therefore further suggest that each International Congress appoints an International Committee to recommend to the succeeding Congress lists of nomina conservanda, of validated generic types, and of controlling species or substitute types for the exceptions to rules for generic types, and to recommend action on such other matters as might properly be referred to such a committee”. (id. in J. of Bot. 1922 p. 111 and in Am. J. of B. VIII 1921 p. 251).

This idea of exceptions has led to another conception of the type method:

„The British”, HITCHCOCK writes in „Science” 1927 April 29, p. 3 „have introduced a new factor . . . , the standardspecies. If the type species selected in accordance with the rules of the type-basis Code results in changing the application of the name which is desired to retain, another of the original species, called the standard species, is chosen, which will retain the name. By the use of the standard species the type method can be incorporated in the International Rules without disturbing other parts”.

This is of great importance; the type method is in this way very acceptable; f.i. if the changing of *Loiseleuria procumbens* in *Azalea procumbens* and of *Azalea japonica, indica* etc. in *Tsutsusi japonica, indica*, etc., is judged to be undesirable, then instead of the type species *A. procumbens* L. a standard species *A. lapponica* L. may be chosen, and the generic names *Loiseleuria* and *Azalea* remain in the common sense. — If botanists wish to retain the name *Setaria* or *Chaetochloa* for *P. italicum* and its allies, beside the name *Panicum* for *P. mileaceum* and its allies, *Panicum mileaceum* must be selected as the (substitute) type of *Panicum*; and the great controversy between America and Europe can be bridged by it.

The auctor spiritualis of the standard method is Mr. SPRAGGE (Kew Gardens). He showed in J. of Bot. 1922 p. 129 and 314 that the type method leads in many cases to radical changes of names, to difficulties and even to insipidities¹⁾; but notwithstanding that

¹⁾ „Canon 19 reads: A name is rejected when the natural group to which it applies is undetermined (hyponym). So far so good. But in order to facilitate the application of the canon to genera, a fiction was introduced under 19(b): „A generic or subgeneric name is a hyponym, when it is not associable, at least by specific

he advocated it, but with the reservation, inspired by Mr. HITCHCOCK, that types resp. „substitute types” (to avoid radical changes of names) of all genera should be fixed by an International Nomenclature Committee (l. c. p. 136).

In the „Imperial Botanical Conference”, held at London, July 1924, a report on nomenclature was treated, made by a Committee of which Mr. SPRAGUE was the chairman. With regard to the type method Mr. SPRAGUE pointed out that „Standard-method” was a better name. He then continued:

„A so-called type-specimen of a species may not be at all *typical* of that species, but it does serve as a *standard* with which other specimens may be compared in case of doubt. In seeking to apply a name correctly one naturally turns to the original description, but this may have been insufficient or inaccurate, so that from the description *alone* it may be impossible to apply the name with certainty. Hence it is desirable to have a *standard* to which the name is permanently attached. A standard-specimen is accepted for each specific name, and a standard-species is accepted for each generic name. If a species was described from a single specimen, that is the standard specimen. If a genus was described from a single species, that is the standard-species. In such simple cases most botanists follow the standard-method as a matter of course. If a species originally included more than one specimen, a standard-specimen is *selected*. Similarly if a genus originally included more than one species, a standard-species is selected.”

„The type-method . . . has the following advantages:

1. It fixes the application of the generic name once and for all by attaching it permanently to a particular species.

citation, with a binomial species previously or simultaneously published; or when its type-species is not identified.”

This amounts in such cases as *Anidrum* NECK. to a pretence that a genus is untypified although the type-species is actually known. NECKER segregated *Anidrum* from *Coriandrum*. . . . *Anidrum* was based on „Quaed. Coriandr. LINN.” LINNAEUS recognized only two species of *Coriandrum*, namely *C. sativum* (fructibus globosis) and *C. testiculatum* (fruct. didymis). NECKER divided *Coriandrum* LINN. in two genera, *Coriandrum* (Achena subrotund.) and *Anidrum* (Achena didyma). The type-species of *Anidrum* is therefore *C. testiculatum* L. beyond a shadow of doubt. Yet the fiction was adopted that *Anidrum* was untypified and the later name *Bifora* HOFFM. was used instead (BRITTON & BROWN Ill. Fl. ed. 2 II p. 647, 1913). A provision for rejecting such names as *Anidrum* is also contained in the Type-basis Code Art. 2(c) (Science n. s. 53, 312, 1921). Under International Rules *Anidrum* would have superseded *Bifora* had not the latter been made a „nomen conservatum.” (SPRAGUE in J. of B. 1922 p. 315).

2. It usually requires an investigation only into the circumstances attending the publication of the genus.

3. It automatically prevents the transference of the generic name to another genus."

On the other hand, the „residue method”, which is commonly used and, according to the name, is applied to what is left in a genus after the removal of one or more species to other genera, old or new, is unsatisfactory for the following reasons:

„1. It does not finally fix the application of the generic name.

2. It requires an investigation not merely into the circumstances attending the publication of the genus, but into its whole subsequent history.

3. It frequently results in the most characteristic and best-known elements being excluded from the genus.

4. It frequently results in the generic name being transferred to a different genus, i.e. to one which did not form part of the genus as originally published. Thus the generic name *Gesneria* was applied (in the form *Gesneria*) to the genus *Reichsteineria*, which was not included in *Gesneria* L. (1753); and the name *Banisteria* was applied to the genus *Banisteriopsis*, which did not form part of *Banisteria* L. (1753) (see *Gard. Chron.* 1924, I. p. 104)."

„A provisional set of Regulations for fixing generic types was published by the Botanical Society of America in *Science*, April 4, 1919, n.s. XLIX, pp. 333–335; and a type-basis Code of Nomenclature appeared in *Science*, April 1, 1921, n.s. LIII, pp. 312–314. In accordance with these Regulations the type-species of 100 Linnean genera have been ascertained by HITCHCOCK (*Amer. Journ. Bot.* Nov. 1923, X pp. 510–514)."

„Rigid adherence to the type-method in every case would, however, cause serious disturbance of nomenclature by changing the application of certain well-known generic names. This may be avoided by specially conserving such names, and attaching them to a standard-species which will preserve the generic name in its usual acceptation. The type-species of *Erica* is certainly *E. vulgaris* (*Calluna vulgaris*). The generic name *Erica* may, however, be retained in its present sense by conserving it with *E. Tetralix* as a standard-species" (see *Journ. Bot.* 1921, p. 291).

In Bull. of Misc. Inf. No. 2 of the R Bot. Gard. Kew, 1926, SPRAGUE treats the same subject: „It should be clear that neither the residue-method nor the type-method is wholly satisfactory. The standard-method combines the advantages of both, without their defects. It permanently fixes the application of generic names

by the acceptance of „standard-species”, but leaves the selection of the standard-species to be decided on its own merits in each genus, so as to avoid serious changes in nomenclature.”

The following Rules are suggested as a guide to the selection of standard-species:

Rule 1. — The standard-species should be one which was included in the genus when the latter was first effectively published. — Examples 1—6.

Rule 2. — If there is clear evidence that the original author regarded a particular species as a nucleus or type of his genus, it is accepted as the standard-species. — Examples 1—3.

Rule 3. — If there is clear evidence that the original author regarded a particular subdivision of his genus as a nucleus or as typical, the standard-species is selected from that subdivision. — Example 4.

Rule 4. — If there is no such typical species or subdivision the standard-species is selected from among the original species in such a way as to conserve the generic name, if possible, in its generally current application. — Example 5.

Rule 5. — Nevertheless, if grave disturbance in nomenclature would be caused by adherence to the foregoing Rules, exceptions may be made. Each case should be considered on its own merits. — Examples 7 (exception to Rule 1), 6 (exception to Rule 2).

Example 1 (to the rules 1, 2). The genus *Gesneria* L. originally included only two species, *G. humilis* L. and *G. tomentosa* L. (Sp. Pl. 612). These were removed by MARTIUS in 1829 to his new genera *Conrardia* and *Rhytidophyllum* respectively. Nothing of the original genus *Gesneria* being left, MARTIUS (Nov. Gen. III, 27), misapplied the name (in the form *Gesnera*), to a third genus, which had been erroneously included in *Gesneria* L. This misapplication has now been rectified by general consent. As the generic name *Gesnera* was originally proposed by PLUMIER for the species subsequently named *G. humilis* by LINNÉ, this is now accepted as the standard-species of *Gesneria* (vide FRITSCH in Engl. and Prantl. Nat. Pflanzenf. IV, 3b, 183; URB. Symb. Antill. II, 377); and *Gesnera* MART., non L., becomes *Reichsteineria* REGEL (vide FRITSCH in Engl. Jahrb. I. 434).

Example 4 (to the rules 1, 3). The genus *Nymphaea* L. (Sp. Pl. 510; Gen. Pl. ed. 5, 227) included the white water-lilies, the yellow water-lilies and the nelumbo, which are now regarded as belonging to three distinct genera. ADANSON separated *Nelumbo* generically in

1763, and SALISBURY in 1805 segregated the white water-lilies as *Castalia*, retaining the name *Nymphaea* for the yellow water-lilies. But as CONARD (Rhodora, 1916, XVIII, 161—164) has pointed out, LINNÉ'S generic description of *Nymphaea* was evidently drawn up primarily from the white water-lilies, as witnesses the phrase „petala germinis lateri insidentia". The standard-species of *Nymphaea* should accordingly be selected from the white water-lilies, of which there were two in Sp. Pl. ed. I., namely *N. alba* and *N. Lotus*. The former is obviously indicated, as it was much better known to LINNÉ.

Example 5 (to the rules 1, 4). The genus *Trifolium* L. (1753) included forty species. LINNÉ divided it into five sections . . . , but there seems to be no reason to suppose that LINNÉ regarded any one of the species as more typical than the rest. *T. pratense* is, however, a suitable standard-species, as it is very well known, belongs to LINNÉ'S largest section, and is still retained in the genus.

Example 6 (to the rules 1, 5). The type-species of *Erysimum* (TOURN. ex) LINN. is undoubtedly *E. officinale*, which is the only species common to *Erysimum* TOURN. and *Erysimum* LINN. As the acceptance of *E. officinale* as the standard-species would involve the transference of the name *Erysimum* to the genus commonly known as *Sisymbrium*, it is suggested that *E. cheiranthoides* (one of the original species in Sp. Pl. ed. I), should be substituted for *E. officinale* as the standard-species of *Erysimum* (vide M. L. GREEN in Kew Bull. 1925, 55).

Example 7 (to the rules 2, 5). The genus *Ixia* L. (Sp. Pl. 36) originally included only two species, *I. africana*, which is the type-species of *Aristea* AIT. (1789), and *I. chinensis*, which is assigned to *Belamcanda* ADANS. (1763), emend., a „nomen conservandum" under the International Rules of Nomenclature. As the name *Ixia* was originally based by LINNÉ (Cor. Gen. I; vide RICHTER, Codex, 51), on *I. africana*, the name *Ixia* would in the normal course of events be retained for that species, thus replacing *Aristea*, and the horticulturally important genus commonly known as *Ixia* would have to be re-named (vide HITCHCOCK in Amer. Journ. Bot. 1923, X, 512). In order to retain the generic names *Aristea* and *Ixia* in their present application, it is suggested that *I. polystachya* L. Sp. Pl. ed. 2, 51 should be adopted as the standard-species of *Ixia*.

Of course, as in all things, here too are difficult cases; f. i. it happens sometimes that a new combination, built upon the transfer

of a species from one to another genus, is associated by the author of that new combination erroneously with specimens belonging to a different species, so that his description of the new combination reminds us of those specimens while the combination itself is fixed by the added synonym. F.i. the new combination *Maerua nervosa* was applied by OLIVER (Fl. Trop. Afr. I, 84, 1868) to a Zambesiland species which he erroneously identified with *Niebulria nervosa* HOCHST., a native of Natal. GILG and BENEDICT have shown that the Zambesi and Natal plants are not conspecific.

Now, what must be done in such a case? SPRAGUE thinks (J. of B. 1921 p. 156) that the new combination must be treated as a „nomen delendum” and may be made de novo; one of his suggestions in J. of B. 1921 p. 156 is: „If a new combination is associated by its authors in the original place of publication with specimens belonging to a different species it should be treated as a nomen delendum”. And in his explanation he writes: „Even if the name *Maerua nervosa* OL. is retained, it is uncertain to which species it should be applied, whether to the Zambesiland species, on which OLIVER'S description was mainly based, or to *Niebulria nervosa* HOCHST., which he cited as a synonym and of which he retained the trivial.” „If the original combination were treated as valid, it would become a permanent source of confusion.” GILG and BENEDICT have, in agreement with SPRAGUE'S opinion, renamed OLIVER'S species *Maerua cylindricarpa* GILG and BENEDICT, and have proposed the combination *Maerua nervosa* (HOCHST.) GILG and BENEDICT for *Niebulria nervosa* HOCHST. (Engl. Jahrb. LIII 241, 244; 1915).

But Mr. PENNELL (Ac. of Nat. Sc. Philadelphia; in J. of B. 1922 p. 117) tells us that with the type method „the speciesname is permanently associated with the species to which it was first applied, holding that species to be the one actually removed to another genus, even though the transfer really intended some other plant, which he had erroneously confused with it. While open to the accusation of treating names abstractly and independently of descriptions, this rule makes for simplicity in preventing much laborious and unprofitable surmising as to what species the transferer may have actually seen. Moreover, it prevents duplication of the same binomial according to the application of this or that worker. A species name with all transfers, based upon it, follows one simple species; and if the original identity of the name be clear, all subsequent combinations based thereon are equally so.” So, we must keep *Maerua nervosa* (HOCHST.) OL. (*Niebulria nervosa* HOCHST.)

notwithstanding OLIVER had in view an other species and his description indicates that. And we do not want „nomina delenda”.

Mr. BARNHART (J. of B. 1922 p. 258) has the same opinion: in a answer to SPRAGUE's idea that, if the original combination (*Maerua nervosa* OL.) were treated as valid, it would become a permanent source of confusion, he writes: „Unless the original combination were treated as valid, it would inevitably become a permanent source of confusion. The adoption of Mr. SPRAGUE's proposal would open the flood-gates to the re-making, upon the most trivial pretexts, of combinations previous adequately and unequivocally published, and the same combination would be subsequently cited to various places of the publication according to the view taken by the author of the citation concerning the validity of these pretexts.”

BARNHART ends in this way: „when a writer publishes a new combination based clearly and unequivocally upon an earlier name, at the same time describing something else, he is merely guilty of confusing two (or more) things under a single name—which often occurs in the description of a new species, where there is no synonymy. The only way to clear up an error of this kind is to keep the name for the part to which it properly belongs, and this is the *synonym*, if the new combination is based upon it, rather than the erroneous description associated with it. No person, accustomed to the application of any *type*-method, can well overlook this obvious fact. And when this fact is clearly understood, such a complex citation as that suggested by Dr. SCHINZ „*Maerua nervosa* (HOCHST.) OLIVER (p. p., exc. syn.) em. GILG et BENED,” is utterly absurd.

With this interpretation of the type method a species *Pinus inops* BONG. 1831 (non SOL. in AIT.) does not stand; the name *P. inops* is originally applied and remains associated to the species *P. inops* SOL. 1789, and thereby to *P. virginiana* MILL. 1768, notwithstanding BONGARD had a different plant before him and his description indicates *P. contorta* and though the earlier homonym *P. inops* SOL. (AITON) is a nomenclaturally illegal synonym. If BONGARD had *not* mentioned SOLANDER but had given his *P. inops* as a new species without a synonym, his name would have been legal because of *P. inops* SOL. being a nomenclaturally unconditional synonym (cf. p. 7).

In the same way *Abies canadensis* MILL., *Pinus canadensis* DUR. non L. and *Picea canadensis* H. B. K. remain associated to the type of *Pinus canadensis* L.; and *Picea canadensis* H. B. K. becomes an illegal name for our white American Spruce (*Picea alba*). *Aralia pentaphylla* S. & Z. non TH. remains associated to the type of

Aralia pentaphylla THUNB., and *Acanthopanax pentaphylla* MARCH. becomes an illegal name (the next following is *A. Sieboldianus* MAK.). *Azalea calendulacea* HOOK. & ARN. non MICH. remains associated to the type of *A. calendulacea* MICH. and becomes an illegal name for *A. occidentalis* TORR.

Cf. for these names *P. I.* I p. 47, II p. 48, 54.

This intermezzo brings us to the other face of the question of types or standards, that is the fixing of *type-specimens* resp. *standard-specimens* for all existing *species*. Here, as with the type (standard)-species of *old* genera, the greatest difficulty lies in the typifying or standardizing of *old* species, f.i. those of LINNAEUS.

Dr. CARL EPLING (Univ. of California) has treated this subject in *J. of B.* 1929 p. 1—12, in connection with Monographic studies upon the American Labiatae. He expounds his method and gives examples.

„The plants of the Linnean herbarium do not necessarily represent the historic types of the „Species Plantarum”; the types of many species are unknown or are to be found elsewhere; many were based solely upon the published description and drawing of another author. As a result the identity of historic types is frequently a matter of speculation; their determination frequently impossible.”

And though Dr. EPLING writes, type-specimens are in all cases of assistance in correlating the Linnean plant with individuals of the present flora; moreover, in the cases where the plants of the subsidiary references in the „Species Plantarum” and (or) in the Linnean herbarium are found to be not conspecific with each other (cf. Example 7), or where these plants may differ even generically, or the same species may appear under two genera, or two species may be confounded, in all such cases the selection of a type is imperative in order to secure stability of nomenclature.

Therefore Dr. EPLING has sought to fix upon certain herbarium specimens which may serve as *standards*, if not always types in the purely historic sense. He has endeavoured to be not wholly arbitrary but consistent in application of a certain method of procedure which may be of general application. „Following this method the plant actually described by LINNÉ has been determined whenever possible. This true type failing or being obscure, the references cited for the species concerned have been studied and in a majority of cases the plants, therein referred to, have been consulted. The standard has then been chosen from amongst their number or from the

Linnean herbarium according to the circumstances peculiar to each case."

The sources, in connection with the species of American Labiatae other than the Linnean herbarium, are chiefly six: the plants of PLUKENET'S „Almagestum" (in Mus. Brit.), the MORISON herbarium (in Oxford), the Dillenian herbarium (in Mus. Brit.), the CLAYTON plants from the Gronovian herbarium (in Mus. Brit.) and the plants of the Hortus Cliffortianus (in Mus. Brit.).

„Of these LINNÉ is known to have studied only the two collections last mentioned, but it is known that he visited the Sloane, Plukenet and Dillen herbaria during his stay in England. Whenever standards have been chosen in these herbaria in preference to the Linnean herbarium, the object sought has been solely to gain a more certain and stable basis for the nomenclature of the species concerned. This would otherwise remain in doubt, where the historic type is wanting or obscure. As a matter of fact, that plant, which often in the modern sense of the word is the historic type, is often in all probability to be found either in the Hortus Cliffortianus or in the Gronovian herbarium. The absence of specific references to herbarium specimens on the part of LINNÉ and the absence of his handwriting on all but a few sheets of these herbaria, will always leave this question obscure. However BRITTON (in J. of B. 1898 p. 264) and RENDLE (in Proc. Linn. Soc. London 1923/4) have already authoritatively discussed the relationship of the „Hortus Cliffortianus" and the Gronovian plants to the „Species Plantarum".

„The diagnoses and descriptions of the „Hortus Cliffortianus" are generally recognized as constituting the initial publication of the corresponding species of the „Species Plantarum"; the H. Cl. „is something more than the enumeration of plants growing in a garden, including as it does many species known to LINNÉ only from dried material. It is really an incomplete Species Plantarum co-ordinate with the first edition of the „Genera Plantarum"."

In view of those facts, when a reference was made by LINNÉ to the Hortus Cliffortianus and a plant corresponding to this reference was found, that plant has been in most cases accepted by Dr. EPLING as the standard. Secondly, in the absence of a reference to the H. Cl., when a reference was made by LINNÉ to the Gronovian herbarium and a plant corresponding to that reference was found, that plant has been in most cases accepted by Dr. EPLING as the standard. Thirdly, ceteris paribus, a plant known to be of spontaneous origin has been preferred by him to a garden specimen.

Some of the Examples:

No. 1. *Lycopus virginicus* Sp. Pl. 21, 1753.

Reference: *Lycopus foliis lanceolatis tenuissima serratis* GRON. virg. 8, 1739.

Linnean Herbarium: No specimen named by LINNAEUS.

Standard: Clayton ex Herb. Gron. (Hb. Mus. Brit.).

Observations: CLAYTON'S plant agrees well with the tips of the branches of FERNALD and WEATHERLY 265 (Hb. Brit. Mus.).

No. 2. *Monarda fistulosa* Sp. Pl. 22, 1753.

References (fully given by Dr. EPLING) from Hort. Ups., Vir. Cliff, Roy. lugdb., Hort. Cliff., Corn. canad.

The Linnean Herbarium contains „a specimen unannotated by LINNÉ, hence doubtfully from Hort. ups. but present at first enumeration ¹⁾; it is conspecific with and similar to the plant in Hort. Cliff. A second specimen, upon which LINNÉ has written *Mollissima*.

Standard: *Monarda fistulosa*, larger specimen in Hort. Cliff.

Observations....

No. 3. *Monarda mollis* Amoen. Acad. III 399, 1756.

No References, but a rather full description.

Linn. Herb.: A specimen filed under *M. fistulosa* upon which LINNÉ has written *Mollissima*. Present in 2nd Enumeration.

Standard: The same, doubtless the historical type.

Obs.: The plant is as interpreted by ROBINSON (FERNALD, M. L. *Rhodora* III 14, 1901).

No. 4. *Monarda didyma* Sp. Pl. 22, 1753.

References from Hort. Cliff. etc.

L. H.: A garden specimen so labelled by LINNÉ, present in 1st En.

Std.: The same.

Obs.: There is apparently no specimen preserved in the Hort. Cliff. The species is as usually interpreted.

No. 8. *Salvia mexicana* Sp. Pl. 25, 1753.

Ref.: from Hort. Cliff, Roy. lugdb., Dill. elth.

L. H.: A branch bearing leaves only; present at 1st En.

Std.: *Sclarea mexicana* in Herb. Dill. (Oxford).

Obs.: since no specimen is preserved in Hort. Cliff., DILLEN'S plant, which is excellently illustrated and well preserved, seems preferable as the standard.

¹⁾ There are 3 enumerations extant in LINNÉ'S handwriting, of the plants in his Herbarium, dated 1753, 1755 and 1767.

No. 57. Dr. J. Valckenier Suringar, The American Code, the Vienna Code. 25

No. 22. *Mentha canadensis* Sp. Pl. 577, 1753.

Ref.: Canada, KALM.

L. H.: What is presumably KALM's plant is conspecific with and similar to MAC DOUGAL 18, MACABEE'S ranch. (Hb. Kew).

Std.: The same; probably also the historical type.

No. 27. *Dracocephalum virginianum* Sp. Pl. 594, 1753 (*Physostegia* — BENTH.).

Ref.: from Hort. Cliff. etc.

L. H.: Two specimens, one evidently of garden origin, a second from KALM, rather small flowered, suggesting *Dracocephalum breviflorum* (NUTT.).

Std.: The garden specimen in Linn. Herb.

Obs.: No specimen was found in the Hort. Cliff. Since the garden specimen in Herb. Linn. more closely corresponds to the published drawings cited by LINNÉ, and to the usual interpretation of this rather well-known horticultural plant, it was selected as the standard, rather than the KALM plant.

In this way Dr. EPLING treats 35 species.

The writers opinion with respect to these standard-specimens is that they are well-chosen but that it would be practical to identify these historical standards with plants living now-a-days and to make modern (well-dried and complete) standard-specimens by means of these living plants, to be distributed over all existing and future Institutions, where plant-systematic is treated and standards are desired.

It is with the standard-specimen of a species as with the standard-meter in physics; everyone wants a meter but does not want to go to Paris for the standard-meter kept there, every time that something must be measured accurately; therefore standard-meters of second ordre are constructed and to be get.

In the same way those modern standard-specimens might be standards of second ordre, the only standard-specimen of first ordre being kept in London, Oxford, Kew, Leyden, Geneva, Paris, Berlin, New York or whereelse.

But, just as the standard-meters of 2nd ordre are legally verified, those modern standards ought to be determined by an International Committee and Congress.

Such legal standards of second ordre would be also of great use if occasionally standard-specimens of first ordre are lost.

With regard to the application of the type- or standard-method, SPRAGUE continues in Bull. of Misc. Inf. no. 2 of the R. Gard. at Kew, p. 97:

„The preparation of a list of „standard-species” for *all* generic names would be an immense task, and its accomplishment would necessarily be a gradual process. As it is mainly in regard to the application of Linnean generic names, however, that differences of opinion arise, it would be sufficient, in the first place, to supply a list of standard-species of the Linnean genera. Such a list should be accompanied by reasons for the selection in each case, otherwise it would fail to command attention. An interval of at least one year after publication should elapse before the list is submitted to an International Congress for consideration. This would afford adequate opportunities for discussion of disputed cases, if any. A list of suggested standard-species for the Linnean genera of Tetradynamia (*Cruciferae*, with the genus *Cleome*) has been published by Miss M. L. GREEN in *Kew Bull.* 1925, 49—58, as a sample of what is proposed. Standard-species should also be supplied for all the „nomina generica conservanda” and for any proposed new ones.” The same can be said with respect to the type-specimens of all existing species.

With regard to that same application, BARNHART writes in *Journ. of Bot.* 1923 p. 261: „An International Commission is desirable if so constituted that its members comprehend the significance of a type method and will render unprejudiced decisions. Otherwise such a commission might do very serious harm.”

And HITCHCOCK on p. 111 and 318: „I believe we shall have taken another long step toward stable nomenclature if botanists will adopt the type concept as outlined above and will adopt the machinery for reaching an agreement on the types of genera ¹⁾ and on conserved names. A congress has not the necessary time to deal with details, but should have presented to it for action carefully prepared data such as would come from an International committee.”

(p. 318): „The typifying of genera ¹⁾ should be done by those familiar with the groups concerned. The study of names apart from the study of the organisms to which the names are applied should be discouraged.

The typification will be a gradual process like all other botanical investigation.

.... I am in favour of having an International Committee appointed

¹⁾ The writer adds: and species.

by each Congress to recommend to the succeeding Congress...., the types of genera ¹⁾ in questionable cases,.... „Such a committee should be made of experts on nomenclature....”

Σπενδε βραδεως!

III. *The list of nomina conservanda and rejicienda; and the tautological names.*

1. The American type-code does not recognize a list of exceptions.

You find f.i. in the enumeration of „Hardy woody plants in the New York Botanical Garden” (1917—20, by G. NASH) the names *Tumion*, *Hicoria*, *Toxylon*, *Odostemon*, *Kraunkia*, *Opulaster*, *Schizonotus*, *Lepargyrea*, without the synonyms resp. *Torreya*, *Carya*, *Maclura*, *Mahonia*, *Wistaria*, *Physocarpus*, *Holcdiscus*, *Shepherdia*.

Dr. BRITTON (Dir. New York Bot. Gard.) writes in Journal of Botany 1921, p. 296, that the application of the type-code under suitable restrictions „would do away with the highly unscientific and arbitrary lists of generic names to be retained or rejected independent of any nomenclatural principles and full of inconsistencies, which now disgrace the International Rules. — A very large number of generic names, which are rejected in the present lists would also be rejected under the type theory, because their types cannot be determined (hyponyms). On the other hand there are no convincing reasons why such as are definitely typified should not be used.”

Mr. PENNELL (Ac. of Nat. Sc. Philadelphia) in J. of Bot. 1922 p. 112 wishes to have restored the rejected generic synonyms of small and economically unimportant genera, and to have the list only retained for genera with many species or with one or more species of much economic importance. Then the list will in that way be not extensive. Mr. BARNHART (New York Bot. Gard.) joins with him (J. of B. 1922 p. 256); moreover, the list of nomina conservanda contains many names which are the legal ones and therefore superfluous (p. 259); on the other hand Mr. SPRAGUE (Kew Gard) points out in Bull. Misc. Inf. K. G. nr 3 1926 p. 128, that several names on the list of nomina rejicienda are intrinsically invalid or illegal, so do not want to be put on the list.

SPRAGUE observes in J. of B. 1922 p. 256 that the nomina conservanda are to be retained „in all cases” (Art. 20 of the Int. Rules); therefore a list of nomina rejicienda is not required; the list makes the impression that eventually unearthed other old synonyms, than those the list indicates, are not rejected. As to the list of nomina

¹⁾ The writer adds: and species.

conservanda „in all cases”, if *Mahonia* again is united with *Berberis*, must the name *Berberis* then be superseded because *Mahonia* appears on that list of nomina conservanda? (See Rep. Imp Bot. Conf. 1924 p. 307). Moreover the nomina rejicienda are only to be rejected with respect to the nomina conservanda concerned; they may be homonyms and legal names in an other respect; SPRAGUE gives *Pavonia* CAV. non RUIZ. & PAV. as an example. But SPRAGUE wishes the existing list to be retained; rejecting it means 15000 changes of names on 136000, that is 1 on 9, much more than the changes caused by the list of exceptions, so he writes in J. of B. 1921 p. 153¹⁾. PENNELL combats him in J. of B. 1922 p. 116, but SPRAGUE sustains his calculation on p. 129. Now, this is of minor importance; it is a matter of course that the number would be a large one.

Mr. HITCHCOCK (Bur. of Pl. Ind., Dep. of Agric., Wash.) writes in J. of B. 1922 p. 317: „Many of us, who follow the Type-basis Code, have no inherent objection to a list of nomina conservanda.” But he remarks that such a list ought to be better prepared, worked out upon the merits of each case, and not more or less arbitrarily (cf. SPRAGUE in Bull. Misc. Inf. Kew Gardens nr 3, 1926 p. 128); and all the accepted and rejected names should be typified. But „in order to reach conclusions which might secure general acceptance, the fixing of generic types may well be referred to an International Commission by the next Botanical Congress” (BRITTON in J. of B. 1921 p. 296).

The Imperial Botanical Conference in 1924 carried a resolution that the list of nomina generica conservanda should be revised; and another one, that it should be made clear how far each of the nomina generica conservanda is conserved. Beside the list of exceptions for generic names, SPRAGUE wishes also a list of nomina Familiarum conservanda et rejicienda; the priority must not depend on the termination *aceae* (J. of B. 1922 p. 69, 129).

Finally, I think that it would be best of all if not a list of exceptional names (generic and specific) was made up, but a list of *all* existing names, recognized or declared as the legal ones; BARNHART pleads for same in J. of B. 1922 p. 256, and SPRAGUE joins with him (p. 314).

2. Tautological names are not rejected by the American type-code.

In the enumeration of „Hardy woody plants in the New York Botanical Garden” l.c. are found the names *Tsuga Tsuga*, *Alnus*

¹⁾ f.i. the rejected genus *Capnoides* contained 117 species; since, 156 new species of the retained name *Corydalis* are added to them.

Alnus, Sassafras Sassafras, Paliurus Paliurus, Laburnum Laburnum, Padus Padus, Caragana Caragana, Catalpa Catalpa, Diervilla Diervilla, without synonyms.

In Journal of Botany 1921 p. 153 SPRAGUE treats „ridicule” names; so are (A.) tautological names and (B.) almost-tautological names like *Bambusa bambos*, (C.) *Bauhinia bauhinioides*, *Bridelia bridelifolia*. „The consideration underlying Art. 55 2° was the desire to avoid names which are ridiculous in the eyes of the general public. This applies with even greater force to those under C.; a *Bauhinia* like *Bauhinia* and a *Bridelia* with the leaves of *Bridelia* verge periously on nonsense.”

Mr. WILLMOTT (Kew Gard., in J. of B. 1922 p. 196) pleads for the tautological names, Mr. PENNELL (p. 112) against them; Mr. BARNHART (p. 256) has no fixed opinion and Mr. HITCHCOCK thinks it „a minor difference (between the American and the Vienna Code), which need not concern us greatly.” (p. 317).

But at the Imperial Botanical Conference in 1924 SPRAGUE defends the tautological names amply, and a resolution is carried that „Art. 55 2° (rejecting duplicating binomials, e.g. *Linaria Linaria*) should be revoked”.

SPRAGUE gives four reasons for it (Report p. 302):

(1) „Their rejection prevents the first specific name from being retained”. My answer to this is: of course, that just makes the question; but one may say, in another way, that most or all of the insipid tautological names are later than the first intelligent name and that for him, who does not acknowledge tautological names, these tautological names prevent the first specific binomial from being retained. F.i. *Catalpa bignonioides* WALT.

(2) „Their rejection often necessitates a long investigation in order to discover the next available name.” My answer to this is: of course, but that work has been done already for the greatest part and does not want to be undone to get back insipid names. And even when the tautological names were given and retained without that work, it should be done afterwards; for we must know what plants all names in literature represent.

(3) „. . . . Owing to the rejection of duplicating binomials 18 species have born 43 names during the period 1900—1923”. My answer to this is: of course, many botanists do not apply the Rules rightly; that does not depend especially on tautological names; and these wrong names do not disappear by recalling the tautological names. SPRAGUE gives examples (Journ. of Bot. 1924 p. 41); f.i. two dendrological names, *Cydonia Cydonia* and *Amelanchier Amelanchier*. But

notwithstanding the little difference of opinion about the right name, it is clear that *C. Cydonia* must be called *C. oblonga* MILL. 1768 and *A. Amelanchier: A. ovalis* MED. 1793. The names *Cydonia Cydonia* PERS. 1807 and *Amelanchier Amelanchier* SARG. 1892 are not needed as *Dei ex machina*.

(4) „Even when the name is finally fixed it is often unsatisfactory, e.g. *Calamagrostis canescens* is an albino form”. My answer to this is: of course, that was to be expected in some cases; but that may not be a reason to resuscitate the whole set of unsatisfactory, because insipid, tautological names.

Conclusion: Art. 55 2° should *not* be revoked.

IV. *The appreciation and interpretation of names and descriptions in old publications.*

This is another important question, not between the two codes but as well with the Vienna as with the American Code.

Names of plants and their descriptions in old publications are often appreciated as to their validity or interpreted by different botanists in different ways; and when those old names have the right of priority, the results are different names for the same plant and homonyms for different plants in different books. Examples are to be found in REHDER'S „Manual of cultivated trees and shrubs” 1927; not all the following names are published there for the first time; but this Manual has propagated them intensely:

Names in REHDER'S Manual:

1. *Tsuga heterophylla*.
2. „ *Mertensiana*.
3. *Picea glauca*.
4. *Pseudotsuga taxifolia*.
5. *Pinus Mugo*.
6. *Pseudolarix amabilis*.
7. *Larix Kaempferi*.
8. *Thyja plicata*.
9. *Populus tacamahaca*.
10. „ *balsamea*.
11. *Quercus borealis*.
12. „ *rubra*.
13. *Magnolia liliflora*.
14. „ *denudata*.
15. „ *obovata*.

Established names:

- T. *Mertensiana*.
- T. *Pattoniana*.
- P. *canadensis*.
- P. *Douglasii*.
- P. *montana*.
- P. *Kaempferi*.
- L. *leptolepis*.
- Th. *gigantea*.
- P. *balsamea*.
- P. *deltoides*.
- Q. *rubra*.
- Q. *digitata*.
- M. *denudata (obovata)*.
- M. *precia (Yulan)*.
- M. *hypoleuca*.

16. <i>Tilia glabra</i> .	<i>T. americana</i> .
17. <i>Ailantus altissima</i> .	<i>A. glandulosa</i> .
18. <i>Hydrangea macrophylla</i> .	<i>H. opuloides</i> .
19. <i>Rhodotypus kerrioides</i> .	<i>Rh. scandens</i> .
20. <i>Chaenomeles lagenaria</i> .	<i>Ch. japonica</i> .
21. " <i>japonica</i> .	<i>Ch. Maulei</i> .
22. <i>Rhododendrum luteum</i> .	<i>Rh. flavum</i> .
23. <i>Halesia carolina</i> .	<i>H. tetraptera</i> .
24. <i>Symphoricarpus albus</i> .	<i>S. racemosus</i> .

All these changes of names rely on the appreciation or interpretation of names with their descriptions in old publications; after having studied them thoroughly, I cannot agree to most of them (see Personal Idea's etc. in Meded. R. H. no. 55 and 56, Yearbook of the Dendr. Soc. of the Netherlands 1928 p. 97 e. s.). For instance: *Pseudotsuga taxifolia* relies on *Pinus taxifolia* LAMB. „Descr. of the Genus Pinus" 1803; but in studying LAMBERT's description and informations, it becomes clear that LAMBERT did not describe our Douglas fir; he may have got twigs of the Douglas fir from MENZIES, but these have probably disappeared or are mislaid and changed or mixed up with material of one or more other species, as KOCH already suggests ¹⁾ (Dendrologie II² p. 255, 1872) and as becomes credible from LAMBERT's information that he can give no account of the cones, „those, which were brought by Mr. MENZIES, having been unfortunately mislaid". „In general habit" LAMBERT writes, „this tree resembles *Pinus* (i.e. *Tsuga canadensis*". „The leaves are also very like those of the species just mentioned", but they are „angustiora et paululum longiora, integerrima" (my italics).

The figures, which LAMBERT gives, are in accordance with the above said: the needles measure (the figures are in natural size) 1—2 c.M., too short for the Douglas fir but too long for *Tsuga canadensis*; the needles on the twigs are not distinctly petioled, but the two separately figured needles are abruptly narrowed into short petioles, these being obliquely directed towards the needles, all like the needles of *Tsuga canadensis*. The buds resemble also somewhat those

¹⁾ „*Pinus taxifolia* LAMB. wird wohl eine zweifelhafte Pflanze bleiben... Die Abbildung ähnelt sosehr der gewöhnlichen Edeltanne dasz mann geneigt sein könnte, sie dafür zu halten. Prof. DUCHARTRE in Paris ist.... derselben Meinung. Sollte von dem Darsteller der besagten Abbildung ein Versehen insofern stattgefunden haben, als dieser anstatt der ihm zur Verfügung gestellten Zweige der *P. Douglasii*, dergleichen von unserer Edeltanne gezeichnet hat?..."

of *Tsuga canadensis* but not at all the rigid, acute, sharp pointed buds of the Douglas fir.

A reproduction of LAMBERT's figure is to be found in „Personal Idea's etc.” I (Meded. R. H. no 55); the reduction ad 5/11 is erroneously not mentioned there.

Afterwards LAMBERT got true material of the Douglas fir from DOUGLAS, and he described the species in the third tome of 1837 (folia *pollicaria*; strobuli bracteis acuminatis); but in 1833 the species was named *Douglasii* by LINDLEY; and LAMBERT himself rejects not only his former description but also his former name *taxifolia* and he „gladly” adopts the name of *P. Douglasii*. From *F. canadensis* (our *Tsuga canadensis*) „it is now seen to be widely different”, he writes. ¹⁾

As to the name *Abies mucronata* RAF. 1832 I agree with ENDLICHER, who does not deem this name adequate to recognize the species concerned. Cf. the description in *P. I.* I p. 59.

So the name *Pseudotsuga Douglasii* CARR. becomes the legal one.

We may assume without doubt that other botanists too have more or less different idea's about the mentioned names. He, who compares BAILEY'S Cyclopedia, the American „Standardized Plant-names”, PILGER'S Coniferae in the 2nd Ed. of E. u. Pr.'s „die nat. Pfl. Fam.”, ZANDER'S „Handwörterbuch der botanischen Pflanzennamen”, HÖFKER'S „Verzeichniz der Pflanzennamen aus den Jahrbüchern der D. Dendr. Ges. 1892 – 1925” (with indication of the right names) and FITSCHEN'S new edition of BEISSNER'S „Handbuch der Nadelholzkunde” (in elaboration) will perceive that all those books for general use from the last years differ with respect to the list of names given above. And so it will continue.

Moreover, no. 1 and 2, 9 and 10, 11 and 12, 13 and 14, 13 and 15, 19 and 20 in the list are examples of cross-exchanges of names, which *must* give confusion.

Therefore I think it necessary that an agreement will be made in this way that no new nomenclatural changes of names will be at once published in works for general use, but first will be published in scientific papers, then subjected to an International

¹⁾ „The material whence my former account of this species was derived, were so imperfect, and the name I had applied by no means a happy one;.... and the more especially as the Silver Fir has been called *Abies taxifolia*, I gladly adopt the name of *P. Douglasii*....”. „I had formerly placed this species next to *P. canadensis*, from which it is now seen to be widely different”; then follow particularities from LINDLEY'S description.

The name *Pinus Douglasii* originates from Mr. SABINE in Mss.; LAMBERT uses it already in some copies of the minor edition of his „Pinus” in 1832.

Commission of Nomenclature and, for decision, will be put before an International Congress.

Wageningen, June 1929.

P.S. At the end of „Personal Ideas about the application of the international Rules of Nomenclature or, as with the Rules themselves, international deliberation?” (Mededeeling Rijks Herbarium no. 55 and 56) „A set of Propositions on nomenclature in regard to the international Rules 1905/6” was given. ¹⁾ These Propositions were only preliminary suggestions.

Definitive „Propositions on the International Rules of Botanical Nomenclature in regard to the International Botanical Congress in London 1930” are delivered to the Rapporteur-général of the International committee on Botanical Nomenclature, Dr. JOHN BRIQUET in Genf, in March 1929. Later a paper with supplementary remarks and literature were added.

He, who wishes to get a copy, has only to communicate with the author.

The propositions, regarding the questions treated in this paper, are the following; the motives and examples are generally omitted:

New article after Art. 24: Two genera cannot bear the same generic name. Generic names, lapsed into synonymy but being conditional synonyms, are to be taken into account as not-to-be-used.

A list of „nomina homonyma conservanda” is to be compiled.

Addition to Recommendation Vb: and which is a conditional synonym.

Addition to Recommendation XIVf: being conditional synonyms.

Addition to Art. 27: Species names, which have lapsed into synonymy but are conditional synonyms, are to be taken into account as not-to-be-used. A list of „nomina homonyma conservanda” will be compiled.

Addition 2 to Art. 37: A *species* or a subdivision of a species, announced in a work with a complete name and description or reference to a sufficient former description under another name, but *without the indication of a standard-specimen* or standard-specimens, is not legally described, thereby the name invalid (c.f. for this term the Prop. to Art. 56, al. 2 and 3).

¹⁾ In German in „Mitteilungen der Deutschen Dendrologischen Gesellschaft” 1927, 1929, in Dutch in „Mededeelingen der L. H. S.” Dl. 30 Verh. 2, Dl. 32 Verh. 5, 1927/28.

As to species or subdivisions of species, published before the coming into force of this article, standard specimens are to be determined as soon as possible.

Addition to Art. 38: A *genus* or any other group of higher rank than a species, named and characterised conforming to Art. 37, but *without indication of a standard species* for a genus etc., is not legally described, thereby the name invalid (c.f. for this term the Prop. to Art. 56 al. 2 and 3). As to genera etc. published before the coming-into-force of this article, standard species for genera etc. are to be determined as soon as possible.

Art. 44, to read: . . . certain, *but not the standard-*, elements . . .

Art. 50, to intercalate after „reject”: on his own account. To omit „which is universally regarded as non-valid”.

New Recommendation to Art. 50: Every one is requested to inform an International Commission, established to that end, of wishes with respect to *changing or modifying of names* as mentioned above.

A report of all the names will be put before an International Congress, which decides about them.

For the question of „earlier homonyms” see also the new article after Art. 24.

Motive: in this way an International Commission is able to gather all names, which are in the eyes of some botanists undesirable, to see if and how far changing of the names is practicable and to make a proposal at the next International Congress.

Doing away with badly chosen, insipid names etc., is making nomenclature more intelligible, thereby more practical and surer, and botanists more unanimous.

In the second place, that International Commission obtains in this manner a summary of the existing „earlier homonyms” and may divide them into those which are unconditional and those which are conditional synonyms. As to the first mentioned division of homonyms, their „later homonyms” may not be changed; as to the second division those names of „later homonyms” will be selected, which come into consideration to be put on a list of „nomina homonyma conservanda”; for the remaining „later homonyms” new names are to be invented in collaboration with the botanists, who informed the commission about the „earlier homonyms” concerned.

As specific homonyms are more confusing than generic homonyms because of the closer relationship, there may also be made a list of nomina specifica homonyma rejicienda, which are *legal* „earlier homonyms” but which cause confusion.

Art. 56, to read instead of the second alinea: The author of a new combination may, if he wishes, borrow the specific epithet from an older valid but non legal binominal, which is an unconditional synonym, or make use of a new one.

By *valid name* is implied the name of a group (genus, species, etc.), technically formed in accordance with the rules of name building.

By *legal name* is implied the valid name of a group which is in accordance with the rules of nomenclature in respect to the other existing species.

Examples: *Lignum* would be an invalid name; *Abies equi trojani* ASCH. & SINT., *A. Borisii regis* MATTF. are invalid names; a nomen nudum is an invalid name; *Linum multiflorum* LAM. is a valid but an illegal name.

Art. 58, to read: The rules of botanical nomenclature can only be modified by an International Congress with the aid of competent persons or commissions, convened for the express purpose.

Recomm. XXXVIII becomes unnecessary when authentic material is obligatory (see the proposed addition to Art. 37 and 38).

The author.

APPENDIX.

THE AMERICAN TYPE-CODE.

*Report of the Committee of Nomenclature of the Botanical
Society of America.*

[Reprinted from SCIENCE, N. S., Vol. LIII., No. 1370, Pages 312-314, April 1, 1921].

A type-basis code of botanical nomenclature principles.

1. The primary object of formal nomenclature in systematic biology is to secure stability, uniformity, and convenience in the designation of plants and animals.

2. Botanical nomenclature is treated as beginning with the general application of binomial names to plants (Linnaeus' „Species Plantarum," 1753).

3. Priority of publication is a fundamental principle of botanical nomenclature. Two groups of the same category can not bear the same name.

Note a. — This principle applies primarily to genera and species.

Note b. — Previous use of a name in zoology does not preclude its use in botany; but the proposal of such a name should be avoided.

4. The application of names is determined by means of nomenclatural types.

Note. — A generic name is always so applied as to include its type species; a specific name is always so applied as to include its type specimen.

Rules and Recommendations.

Section 1. Publication of Names.

Article 1. A specific name is published when it has been printed and distributed with a description, or with a reference to a previously published description.

Note. — A recognizable figure may be the equivalent of a description in the literature of paleobotany and diatoms.

(a) In the transfer of a species from one genus to another, the

original specific name is retained, unless the resulting binomial has been previously published.

Recommendations: Botanists will do well, in publishing:

1. In describing parasitic fungi to indicate the host and to designate the name of the host by its scientific Latin name.
2. To give the etymology of all new generic names.

Article 2. A generic name is published when it has been printed and distributed.

(a) With a generic or specific description (or a recognizable figure, see Art. 1, note) and a binomial specific name.

(b) With a generic and specific name and the citation of a previously published description.

(c) With a definite reference to at least one previously published binomial.

Note a. — A name is not published by its citation in synonymy, nor by incidental mention. Such a name may be taken up but not to replace one already properly published.

Note b. — Of names published in the same work and at the same time, those having precedence of position are to be regarded as having priority.

Recommendation: Botanists will do well, in publishing, to give the etymology of specific names when their meaning is not obvious.

Section 2. Application of Names.

Article 3. The nomenclatural type of a species is the specimen or the most important of the specimens upon which its original published description was based.

(a) If only one specimen is cited, that is the type.

(b) If one specimen is designated as the type, that specimen shall be so accepted, unless an error can be demonstrated.

(c) A species transferred without change of name from one genus to another retains the original type even though the description under the new genus was drawn from a different species.

(d) The publication of a new specific name as an avowed substitute for an earlier one does not change the type of the species.

(e) When more than one specimen was originally cited and no type was designated, the type should be selected in accordance with the following:

1. The type specimen interprets the description and fixes the application of the name, hence, primarily the description controls the selection of the type.

2. The type may be indicated by the specific name, this being sometimes derived from the collector, locality, or host.

3. If one specimen is figured in connection with the original description, this may usually be regarded as the type.

4. Specimens that are mentioned by the author as being exceptional or unusual, or those which definitely disagree with the description (provided others agree) may usually be excluded from consideration in selecting the type.

5. An examination of the actual sheets of specimens studied by the author may aid in determining or selecting the type. He may have written the name or left notes or drawings upon one of the sheets.

Note. — Specimens known to have been received by the author subsequent to the study resulting in the original publication should be excluded from consideration.

6. If an author, in publishing a new species, gives a description of his own, this takes precedence over synonymy or cited descriptions, in determining the type specimen.

Article 4. The nomenclatural type species of a genus is the species or one of the species included when the genus was originally published.

(a) If a genus includes but one species when originally published this species is the type.

(b) When more than one species is included in the original publication of the genus, the type is determined by the following rules: (These rules are Articles 3 to 6 of the Report of the Committee on Generic Types published in SCIENCE, N. S. 49: 334—336, 1919).

Recommendations: In the future it is recommended that authors of generic names definitely designate type species; and that in the selection of types of genera previously published, but of which the type would not be indicated by the preceding rules, the following points be taken into consideration. (This includes Article 7, *a* to *g*, of the Report on Generic Types published in SCIENCE, *loc. cit.*).

Section 3. Rejection of Names.

Article 5. A name is rejected

(a) When preoccupied (homonym).

1. A specific name is a homonym when it has been published for another species under the same generic name.

2. A generic name is a homonym when previously published for another genus.

3. Similar names are to be treated as homonyms only when they

are mere variations in the spelling of the same word; or in the case of specific names, when they differ only in adjective or genitive termination.

(b) When there is an older valid name based on another member of the same group (metonymy).

(c) When there is an older valid name based on the same type (typonym).

(d) When it has not been effectively published according to the provisions of Section 1 of these rules (hyponym).

Article 6. There may be exceptions to the application of the principles and rules of this code in cases where a rigid application would lead to great confusion. Such exceptions become valid when approved by the Nomenclature Commission.

*Report of the committee on generic types of the
Botanical Society of America.*

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I. Rules.

Article 3. When, in the original publication of a genus, one of the species is definitely designated as type, this species shall be accepted as the type, regardless of other considerations.

(a) If *typicus* or *typus* is used as a new specific name for one of the species, this species shall be accepted as the type as if it were definitely designated.

Article 4. The publication of a new generic name as an avowed substitute for an earlier one does not change the type of the genus.

Article 5. If a genus, without an originally designated type, contains among its original species one with the generic name used as a specific name, either as a valid name or synonym, that species is to be accepted as the type.

Example. — The type species of *Pentstemon* (Ait. Hort. Kew. 2:360. 1789) is *Chelone Pentstemon* (L. Sp. Pl. 612. 1753; ed. 2. 850. 1763) because the later is cited as a synonym under one of the species of *Pentstemon*.

Article 6. If a genus, when originally published, includes more than one species, and no species is definitely designated as type,

nor indicated according to Article 5, the choice of the type should accord with the following principles:

(a) Species inquirendae or species doubtfully referred to the genus, or mentioned as in any way exceptional are to be excluded from consideration in selecting the type.

(b) Genera of the first edition of Linnaeus's „Species Plantarum” (1753) are usually typified through the citations given in the fifth edition of his „Genera Plantarum” (1754) except when inconsistent with the preceding articles.

Example. — *Arundo* (L. Sp. Pl. 81. 1753) is typified by *A. Donax* since this is the species figured by Scheuchzer in the plate cited by Linnaeus (Gen. Pl. 35. 1754).

(c) Species which definitely disagree with the generic description (provided others agree), or which possess characters stated in the generic description as rare or unusual, are to be excluded from consideration in selecting the type.

II. Recommendations.

Article 7. In the future it is recommended that authors of generic names definitely designate the type species; and that in the selection of types of genera previously published, but of which the type would not be indicated by the preceding articles, the following points be taken into consideration:

(a) The type species should usually be the species or one of the species which the author had chiefly in mind. This is often indicated by

1. A closer agreement with the generic description.
2. Certain species being figured (in the same work).
3. The specific name, such as *vulgaris*, *communis*, *medicinalis* or *officinalis*.

(b) The type species should usually be the one best known to the author. It may be assumed that an indigenous species (from the standpoint of the author), or an economic species, or one grown in a botanical garden and examined by the author, would usually represent an author's idea of a genus.

(c) In Linnaean genera the type should usually be chosen from those species included in the first technical use of the genus in pre-Linnaean literature.

Example. — The type species of *Andropogon* L. should be chosen from the two species included by Linnaeus in the first use of the name (L. Fl. Leyd. 1740).

(d) The types of genera adopted through citations of non-binomial

literature (with or without change of name) should usually be selected from those of the original species which received names in the first binomial publication.

Example. — *Cypripedium* (L. Sp. Pl. 951) is typified by *C. Calceolus*. Under *Cypripedium* (Gen. Pl. 408. 1754) Linnaeus cites *Calceolus* Tourn. 249. Tournefort mentions 5 species, one of which is cited under *Cypripedium Calceolus* by Linnaeus.

(e) The preceding conditions having been met, preference should be shown for a species which will retain the generic name in its most widely used sense, or for one which belongs to a division of the genus containing a larger number of species, or, especially in Linnaean genera, for the historically oldest species.

Example. — *Phalaris* L. is typified by *P. canariensis* because it is the only one of the 5 Linnaean species known to the older writers (such as Bauhin) by the name of *Phalaris*, so far as shown by the synonyms given by Linnaeus.

(f) Among species equally eligible, the preference should be given to the first known to have been designated as the type.

(g) If it is impossible to select a type under the conditions mentioned above the first of equally eligible species should be chosen.

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