

NOMENCLATURE OF GARDEN PLANTS. CHAOS OR UNITY ?

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NOMENCLATURE is a necessity in all kinds of matters, and not least in relation to plants : without names you cannot speak or write about them. At the same time it is a confusing thing, for the names of plants are many and troublesome. Whence comes this confusion ? Practical men have always followed, and with reason, scientific Botany in naming plants. Plant names are binominal, the two words being generally derived from Latin or Greek, and an author's name follows and frequently also varietal names. This would be bearable if it were not that there are numerous synonyms and homonyms, originating in mistakes, misunderstandings, differences in the interpretation of plants and descriptions, or in the recognition of affinities. This confusion is probably greater among trees and shrubs than among herbaceous plants.

It is, of course, important that botanists and practical men alike should understand by a name the same species or variety of plant, and that they all call a species or variety by the same name. But what do we actually find ? In catalogues of nurserymen one finds, for instance, *Abies* (a) including *Tsuga* and *Pseudotsuga*, or (b) including *Picea*, or (c) including *Tsuga*, *Pseudotsuga*, and *Picea*. If, therefore, you look at a name like *Abies alba*, it may refer to *Abies pectinata* (silver fir) or *Picea alba* (white spruce) ; *Abies canadensis* may be *Picea alba* (white spruce) or *Tsuga canadensis* (hemlock). In some catalogues *Picea* and *Abies* are kept distinct, but *Picea* is made to mean fir, and *Abies* spruce. The union of *Picea* and *Tsuga* makes it difficult to distinguish *Picea Albertiana* (*Picea excelsa* var.—) and *Tsuga Albertiana* (*Mertensiana*). *Larix pendula* might be *Larix americana* and *Larix europaea* var. *pendula*, etc.

Acer californicum of the catalogues means *Acer Negundo* var. *violaceum*, not *Acer californicum* Dietz. *Tilia europaea* is a Linnean name which mixes our *Tilia platyphyllos* and *T. cordata* : *Tilia alba* may stand for *T. tomentosa* or *T. petiolaris*. *Salix americana pendula* of the catalogues is *Salix purpurea*. Species are often confused with varieties.

It is the same over the whole continent of Europe and in America. No one country can blame another. Matters become worse because in different lands different names are used. In England we often find *Wellingtonia*, which on the Continent is called *Sequoia* ; *Sequoia sempervirens* is sometimes called in England *Taxodium sempervirens* ; and *Taxodium heterophyllum*, *Glyptostrobus heterophyllus* ; and so on.

Many genera are taken in different ways in different countries, and even by different botanists and nurserymen in the same country ; for instance, *Prunus* is taken sometimes in a wide sense and comprises

Cerasus, *Laurocerasus*, *Persica*, *Padus*, *Amygdalus*, etc., at other times it is used in a more or less restricted sense so as to include only *Cerasus*, leaving *Laurocerasus* and *Padus* as distinct genera. *Berberis* and *Mahonia* may be distinct or united; *Aesculus* and *Pavia* the same; and so on. It does not need to be said that varieties are named by all practical men with much liberty; one fears that advertisement more than precision is the moving spring.

It is not my intention to reproach the practical men with these imperfections; we all have them in different ways. You cannot expect a nurseryman to be a scientist too; nor a scientific botanist to be a practical nurseryman. Still it is important for both parties that there should be method and unity in the naming; and it is my intention to point out how we might get them.

In America a Joint Committee has published a list of "Standardized Plant Names" of species and varieties. It is followed there by a number of nurserymen. In most cases the "Joint Committee" follows the "Cyclopedia" of BAILEY, which itself is almost entirely based on the International Rules of Nomenclature (Vienna 1905, Brussels 1910). But the "Joint Committee" deviates in several cases from those Rules. It has *Larix laricina* (*L. americana*), *Cornus stolonifera* (*C. alba*), *Azalea japonica* (*A. mollis*), etc., but, in conflict with the International Rules, *Pseudotsuga Douglasii* (instead of *P. taxifolia*), *Larix europaea* (instead of *L. decidua*), *Acer dasycarpum* (instead of *A. saccharinum*), *Spiraea callosa* (instead of *S. japonica*), etc. *Carya* is called, in opposition to the Rules, *Hicoria*, though *Carya alba* is not the same species as *Hicoria alba*, etc.

Still the "Standardized Plant Names" remains a magnificent piece of work. But it is not able to bring about an international unity of nomenclature, for if personal sympathy or antipathy against names be introduced, every country and every person has its or his own preference in names. Unity can only be obtained by excluding all personal ideas and by following methodically and strictly International Rules.

In Holland there are about 1,500 nurseries of trees and shrubs. Nomenclature was, as in other lands, chaotic, and that caused trouble between nurserymen and buyers. First-rate nurserymen wished to put an end to that state of things and founded the Dendrological Society of the Netherlands, with a Committee for Nomenclature, of which I was elected the President. As I had since 1899 been connected with the Arboretum and the Science of Dendrology of the Agricultural Academy in Holland, I was conversant with the question. I advised the nurserymen to take for the basis of their nomenclature the International Rules and to have their catalogues corrected by the Committee for Nomenclature. A number of first-rate nurserymen did so, and the revolution of names was rather great. Anyone interested in such a modernized catalogue, which contains about 1,300 names of trees and shrubs, may communicate with H. DEN OUDEN AND SON, The Old Farm Nurseries at Boskoop (Holland); Mr. DEN OUDEN is also a member of the Committee for Nomenclature.

The foregoing is only intended to introduce the principal reason of this article, i.e. my hope for unity of nomenclature over the whole world of nurserymen. It seems looking a little too far ahead; but I think that psychologically the moment is favourable for such an enterprise. In September of this year there will be an International Congress of Horticulture in Vienna. Why could it not there be internationally agreed to follow in principle the International Rules, which with tremendous labour were achieved in that same Vienna in the year 1905? If that agreement is reached, then there is only wanted in every country a Committee of Nomenclature, who will assist the nurserymen in naming their plants in catalogues and nurseries according to the International Rules.

Yet there are complications.

First of all, there is the question of those genera, like *Berberis* and *Mahonia*, *Thuja* and *Biota*, which by one botanist or practical man are distinguished, but united by another. It is a question of affinity, so it cannot be subjected to rules by botanists; but the practical man will do good by making an international agreement, so that over all the world a *Mahonia* is a *Mahonia* or a *Berberis*, etc. In this case the "Joint Committee" in America has separated *Berberis* and *Mahonia* as two genera, and so did the Nomenclature Committee in Holland. But whilst that Committee in Holland separates also *Thuja* and *Biota* the "Joint Committee" in America has united them under the name *Thuja*, and so on. It would be well, therefore, that the Nomenclature Committee in every country should treat this question in the way the American and the Dutch Committees did and make up a list of all the cases concerned. Of course the result will be different in every country. To get international unity an International Committee is wanted, selected out of the Nomenclature Committees of the different countries; and that International Committee must gather the results above mentioned and make an international compromise. The list of genera so aimed at, distinguished or united, may be laid before the International Congress of Horticulture in 1930 in London; there a definitive list of genera can be accepted by a majority of votes.

Secondly, there are names of species which, according to the International Rules of 1905-10, are not legal, but which are unwillingly put on one side by nurserymen, for instance *Pseudotsuga Douglasii*. Each Nomenclature Committee may gather such desired names, and the International Committee may make up a list of results. That list may be presented to the International Horticultural Congress in 1930 (London); and there the list may be fixed by a majority of votes.

But the reader will say: That goes too far; you yourself have pleaded to hold to the International Botanical Rules. So I did, and I continue to do so. I do not mean that a Horticultural Congress will simply bring into use that list of desired (but illegal) names; my idea is that the Horticultural Congress will present that list to the International Botanical Congress that also is to be held in England in 1930. There may be deliberations between the botanists of the Botanical

Congress and the practical men (or their representatives) of the Horticultural Congress; but the International Botanical Congress has the right of decision about the names; if it refuses to put legal names on the list of the "Nomina rejicienda," such names must be retained by botanists and practical men; e.g. if the name *Pseudotsuga Douglasii* is desired by the practical men and their International Congress, but the International Botanical Congress refuses to put the legal name *Pseudotsuga taxifolia* on the list of "Nomina rejicienda," then our Douglas fir must be named *Pseudotsuga taxifolia* by all botanists and nurserymen.

Since 1905 many names have been rejected as being illegal, and legal names have come into use instead. The process is not yet ended. America, that has brought us so many surprises, brings us with each new botanical work new names instead of old ones. In modern books on trees and shrubs you find:

I. Under Conifers: *Pseudotsuga taxifolia* instead of *Pseudotsuga Douglasii*; *Tsuga heterophylla* instead of *Tsuga Mertensiana*; *Tsuga Mertensiana* instead of *Tsuga Pattoniana*; *Pinus Pinaster* instead of *Pinus maritima*; *Pinus nigra* instead of *Pinus Laricio*; *Pinus Mugho* instead of *Pinus montana*; *Larix laricina* instead of *Larix americana*; *Larix decidua* instead of *Larix europaea*; *Abies alba* instead of *A. pectinata*; *A. lasiocarpa* instead of *A. subalpina*; *A. Lowiana* instead of *A. lasiocarpa*; *Picea Smithiana* instead of *P. Morinda*; *P. canadensis* instead of *P. alba*; *P. Mariana* instead of *P. nigra*; *Larix Kaempferi* instead of *L. leptolepis*; *Pseudolarix amabilis* instead of *P. Kaempferi*; *Araucaria araucana* instead of *A. imbricata*; *Thuja plicata* instead of *T. gigantea*.

II. But you do not find all those new names in every work, i.e. in some works you find *Picea glauca* instead of *Abies canadensis* (*alba*) or *Abies Picea* instead of *Abies alba* (*pectinata*), or *Picea Abies* instead of *P. excelsa*.

III. Under Angiospermae you may find in modern works, e.g., *Populus tacamahaca* instead of *P. balsamifera* and *P. balsamifera* instead of *P. deltoides* (*monilifera*); *Betula pendula* instead of *B. alba*; *Quercus borealis* instead of *Q. rubra*, and *Q. rubra* instead of *Q. digitata*. *Ulmus foliacea* or *U. nitens* instead of *U. campestris* (*glabra*) p. p. (the other part as *U. campestris* or as *U. procera*); *U. glabra* instead of *U. scabra* (*montana*); *Aristolochia durior* instead of *A. macrophylla* (*Sipho*); *Parihenocissus vitacea* instead of *Ampelopsis quinquefolia*; *Acer cappadocicum* instead of *A. laetum* (*colchicum*); *A. saccharinum* instead of *A. dasycarpum*; *Laburnum anagyroides* instead of *L. vulgare*; *Lespedeza Sieboldii* or *formosa* instead of *Desmodium penduliflorum*; *Wistaria floribunda* instead of *Wistaria* (*Glycine*) *sinensis*; *Cornus stolonifera* instead of *C. alba*, and *C. alba* instead of *C. tatarica*; *Azalea japonica* instead of *A. mollis*; *Azalea mollis* instead of *A. sinensis*; *Symphoricarpus albus* instead of *S. racemosus*, and so on.

You see from the above (III.) that in one book you may find *Ulmus foliacea*, in another *U. nitens*, for the same species (part of *U. campestris*);

so with *Ulmus glabra* and *U. scabra*, and so on ; botanists do not agree in all respects as to what is the legal name. A good example of it is given by *Magnolia*. In Europe you find *M. denudata* instead of *M. obovata* (*purpurea*, *discolor*) and *M. precia* instead of *M. Yulan* (*conspicua*) ; besides there is a *M. hypoleuca*. But in new American books you find *M. liliflora* instead of *M. purpurea* (*discolor*), *M. denudata* instead of *M. Yulan*, *precia*, *conspicua*, and *M. obovata* instead of *M. hypoleuca*.

Changes of names are always inconvenient, but most inconvenient and misleading are cross-changes ; among the foregoing you find examples in *Tsuga Mertensiana*, *Abies lasiocarpa*, *Populus balsamifera*, *Quercus rubra*, *Ulmus glabra*, *Magnolia denudata*, *M. obovata* and *Cornus alba*. In a cross-change a name is rejected as a synonym, but returns, in another meaning, in the place of another rejected name. The named examples are all one-sided cross-changes.

Is there only inconvenience in changing names ? No, the change depends in some cases upon better knowledge of names, and in others even on better knowledge of species described long ago. So, if it is right that LINNÆUS with his *Quercus rubra* meant the plant now called *Q. digitata*, then we must be glad to be able to restore a mistake of long ago, and take the inconvenience in the bargain.

But are all the names mentioned really the legal names ? You will ask me in return : How dare you ask such a question ? Botanists can know. Yes, they can ; but *do* they know in all cases ? Look at the lists above ; botanists do not always agree about the legal name ; one must be wrong ; and if a botanist can be wrong, they can be wrong in other cases altogether !

What is a legal (or valid) name ? It is a name that satisfies the Rules of 1905-10. You have only to see if a name is the oldest for the species, if there are no legal reasons to reject it, and if it is satisfactorily described. All that seems rather simple ; but it is often very intricate. To study the legality of a name you must have the original description of the species so named and also the original description belonging to competing names ; and you must judge those descriptions. Now, a description of, e.g., 1760 is not like a description of about 1900 and does not need to be likewise ; you must judge the description according to the time when it was made ; that is not always easy. And, after all, those original descriptions are very often very difficult to obtain. Therefore most botanists look only for the date of a name, and often take that date from other botanists ; and for the description they trust that other botanists have consulted it.

There is reason for investigating some newly edited names, and to make a study of all those names wherein botanists do not agree. In these cases the question is not always such that one botanist must be right, the other wrong ; but it is possible that both are right ! The Rules of 1905-10 are a brilliant work of Dr. BRIQUET, but are still not sufficiently elaborated in all questions. That was to be foreseen ; and it would have been better if in 1905 all the plant names had been

at once subjected to the Rules by a committee, and that the result had been accepted by a majority of votes at an International Congress. That has not been done; so it still must be done, at least for all debatable names. By that investigation it may be possible that a name now rejected as illegal will be demonstrated to be a legal name, and *vice versa*; you never can tell. And therefore that investigation must have taken place before the list of desired names of the International Committee of nurserymen is presented to the International Congress of Botanists; if names judged desirable to be held by the Committee are in the meantime proved to be legal names, then the International Botanical Congress will sooner adopt those names than without that investigation.

I made that investigation for a number of Conifer names; it is published in Dutch in "Mededeelingen" (Transactions) of the Landbouw-Hoogeschool (Agricultural Academy) in Wageningen, deel (Part) 30, Verhandeling (Transaction) nr. 2 (75 pages), with an Abstract in English. And it will be published in English in "Mededeelingen van het Rijks-Herbarium" (State Herbarium), 1927. Anyone who takes an interest in this study has only to communicate with the writer and he may have a copy.

In that study (where the original descriptions are always given) I come to a conclusion in several cases of competing names; my conclusion is, for example, that *Pinus maritima* is the legal name and not *P. Pinaster*; *P. montana* the legal name and not *P. Mugho*; that *Larix leptolepis* and *Pseudolarix Kaempferi* can be maintained (see above); and so with *Cedrus libani*, *Picea Morinda*, *Tsuga Pattoniana*, *T. Mertensiana*, and *Pseudotsuga Douglasii*. Another conclusion is that the legal name of our so-called *Pinus contorta* is *Pinus inops* (*Pinus inops* becomes *P. virginiana*), and the legal name of *Juniperus nana* is *J. sibirica*. Of course no one is obliged to accept these conclusions. It is my intention that the cases shall be judged by botanists (my study gives all necessary information) and that a conclusion shall be reached at the International Botanical Congress in London; the Congress may declare the name *Pinus inops* the legal name for what we understand as *P. contorta*, but put it on the list of "nomina rejicienda"; that way is safer than to declare a name not legal only because one wishes to get rid of it, for by so doing one creates a dangerous precedent.

I am making a study of some names of Angiosperm too; my conclusion for the present is that, for example, *Quercus rubra* and *Populus balsamifera*, *Magnolia denudata* and *M. precia*, in the customary sense, may be maintained, but that *M. obovata* is the legal name for our so-called *M. hypoleuca*.

In the third place there are the names of generic hybrids and of varieties. The International Botanical Rules reject names like *Laburnocytisus* and *Mahoberberis*. The International Horticultural Congress of Brussels has made its own Rule and legalized those names. I think this to be a practical Rule; but I think it a wrong method

that a Horticultural Congress makes its own Rules contrary to the International Botanical Rules; my opinion is that the Horticultural Congress will do well to present its wishes in this matter to the International Botanical Congress in 1930, and that the latter must take a decision; there may be deliberation between botanists and practical men between 1927 and 1930.

As to the names of varieties, the International Rules require one word, as with the names of species. Now, practical men (and many botanists too) wish to have names which indicate the principal characters of the varieties, e.g. *Fagus silvatica* var. *purpurea pendula*; besides there is a variety *purpurea* and a variety *pendula*; *F. silvatica* var. *pendula* could present a green pendulous, a purple pendulous, and a golden pendulous variety. Sometimes there are three words wanted, e.g. *flore albo pleno*, or *fol. arg. varieg.*

There is an outlet by putting a hyphen between the two or three words, but that is not according to the spirit of the Rule. The International Horticultural Congress of Brussels has approved double-word names, but it will be good to put that question again before an International Botanical Congress; the practical men may introduce a proposal. Mr. REHDER in his last work makes a solution in this way, that he puts the double-word name between quotation marks, e.g. var. "*purpurea pendula*." Sometimes one word has been made of two words; so *foliis variegatis* can be written *variegatus*; *flore albo*; *albiflorus*. *Acer palmatum* var. *linearilobum purpureum* is named by SCHWERIN var. *atrolineare*. Of var. *purpurea pendula* one could make *purpendula*; but in many cases it will be difficult and one will get a discordant name. This ought therefore to be another subject for deliberation; hitherto everyone has done what he liked. *International agreement is necessary to end the chaos of existing names of varieties and to make it possible to internationalize the denomination of new varieties.*

Besides this there is a great difference between so-called varieties. There are (1) "small species"; (2) varieties that are characterized by only one or very few peculiarities; (3) variations which are not constant; (4) so-called fixed juvenile forms; (5) varieties of a species are sometimes classed in sub-species, varieties, sub-varieties, etc. In a botanical work that wishes to express affinities and origins it will be necessary to distinguish all those kinds of varieties, but in horticulture I grant the habit of calling all varieties, variations, etc., varieties.

But still there may be a difference made between varieties and variations. The International Botanical Rules of nomenclature require for variations, forms, etc., fancy names, and forbid scientific (Latin) names. The International Horticultural Congress at Brussels confirmed this, and added that such fancy names must not be printed in italics, as is usually (but not always) done with scientific names. But the Congress allowed in some cases scientific (Latin) names. For instance, according to the Rules of that Horticultural Congress one is

allowed to write varietal names like *nanus*, *aureus*, *variegatus*, but ~~not~~ in italics.

There are a great number of varieties which are named after persons; we speak of *Populus deltoides* var. *aurea* v. Geert or *P. d.* var. *van Geertii*; the Horticultural Congress of Brussels does not allow the latter name.

As to *Picea pungens* var. *glauca* we may distinguish between seed-plants and cuttings or grafts of one specimen, e.g. of forma *Kosteriana*. Seedlings may be called, according to the above-mentioned Horticultural Rules, var. *glauca* (in italics), but one is not allowed to speak of var. *glauca Kosteriana* or var. *Kosteriana* or var. *Kosteri*; that must be var. *glauca* (in italics, because it means all blue seedlings together), f. *Koster*, or var. *glauca* (not in italics, because it means one special blue form), or var. *glauca Koster*. That again is a question to be deliberated between botanists and practical men.

A special case is where there are horticultural varieties of a botanical variety, as for instance *Cornus alba* var. *tatarica* fol. arg. varieg., *Juniperus chinensis* var. *procumbens* arg. varieg. How must we act here? If we put *Cornus alba* var. *tatarica* forma fol. arg. varieg., then this is inconsistent with horticultural varieties of other species; neither can the name var. *tatarica* fol.-arg.-varieg. or var. *tatarica-variegata* be recommended, because *tatarica* and *variegata* are so different in quality. There is an outlet possible by taking all "small species" as species, in our example *Cornus tatarica* var. *variegata*.*

All these questions and difficulties existing, it would not be wise to apply the rules of priority to varietal names before they are internationally and methodically settled.

There are other questions of second order, but of some importance. The International Rules of 1905 recommend to end generic and specific names, that are taken from names of persons, by a or ia, i or ii. Recommendations are not rules, so one writes *Nordmanni*, *Engleri*, another *Nordmannii*, *Englerii*, etc. It is also recommended but not ruled to write specific names with a capital letter when taken from names of persons or from generic names. So one writes *Aesculus Hippocastanum*, *Pseudotsuga Douglasii*, another *A. hippocastanum*, *Ps. douglasii*. Some persons write *Pyrus chinensis*, *Xanthoxylum*; others *Pirus sinensis*, *Xanthoxylum*; and that makes for the second and third names great difference in ranging species according to the alphabet.

REHDER, in his latest work on trees and shrubs, writes every name as it was written by the original author; but firstly no one can keep in his memory how the original name was written (*i* or *ii*, *a* or *ia*, *y* or *i*, *ch* or *s*, *x* or *z*); and secondly it gives an impression of carelessness if in one genus a name is written in a book or catalogue *chinensis*, in another genus *sinensis*. Better were it that the above-

* For other more intricate questions of this type see REHDER, "The varietal categories in Botanical Nomenclature and their historical development," *Jour. Arnold Arboretum*, viii. (1927), pp. 56-58.

mentioned International Committee made up its mind upon these questions, and formulated a proposal to the Congress in London in 1930.

In the fourth place we have the *author-names*. In most cases practical men do not use them; but in some cases they are desirable; for example, if a nurseryman has in his nursery a real *Picea Alcockiana* he will do well to write in his catalogue *Picea Alcockiana* CARR. (not HORT.) besides *P. ajanensis* FISCH. (*P. Alcockiana* HORT.).

As varieties will soon be treated methodically and there will be an international office, which will judge and fix new varieties, it will perhaps be useful that author-names are mentioned; in *Populus deltoides* var. *aurea* v. *Geert*, v. *Geert* is already a kind of author-name. But if author-names are introduced for varieties (as botanists do in many cases) then there emerges a new question. With species it runs in this way: a species in a genus has an author; but if a botanist takes that species out of that genus and puts it in another genus, then that botanist becomes the new author of the new combination. So, if a variety is taken from one species to another, it becomes another author-name, because the change of species means another complex of characters in the variety. For instance, if a botanist A distinguishes *Populus deltoides* and *P. canadensis*, and he does not agree with the combination *P. deltoides* var. *aurea* v. *GEERT*,* but takes it for *P. canadensis* var. *v. GEERT*, then that botanist A becomes the new author, so that it must be *P. canadensis* var. *aurea* A; it may happen that Mr. *v. GEERT* does not like that change of name! Of course one can make *Populus deltoides* or *canadensis* var. *van Geertii* instead of var. *aurea*; and so in all other cases. But varietal names like *aurea* are very useful, because one can see the character of the variety. For such changes of names there must always be international agreement; the change must be legal.

REHDER of the Arnold Arboretum goes still farther; if the name of a species changes only because there is discovered an older name, so that the complex of characters of that species remains the same, then he (REHDER) changes all the author-names of the varieties of that species in the name of the botanist who gives that older species name; for example, *Pseudotsuga Douglasii* CARR. var. *Fretsii* BEISSNER becomes *P. taxifolia* BRITT. var. *Fretsii* REHDER, because REHDER was the first who published that variety with the combination *Pseudotsuga taxifolia*. That principle causes a great many changes of author-names now and later, and in my opinion it does not follow from the International Rules of nomenclature. Deliberation is desirable, and an international agreement between all practical men and all botanists.

The International Horticultural Congress of Vienna can do useful work as preparation for definitive work in the Horticultural and Botanical Congress in London in 1930. What will English nurserymen do?

* I am not sure if this variety was first published under this combination of names; but it is possible, and it serves only as an example.