Selected Rules
OF
BOTANICAL NOMENCLATURE

(Especially those of interest to foresters.)

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THE NOMENCLATURE OF FOREST TREES.

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Since forest trees are plants and since they are subject to the same changes of names as other plants, it follows that their nomenclature must be in every way identical with the general nomenclature of plants. From the earliest times it has been necessary to have rules of some sort in regard to the naming of plants. The earliest definite formulation of such rules was made by the great Swedish botanist, Linne, about the middle of the eighteenth century. His rules were written in Latin, which was then the prevailing language of learning, Botany included. These rules have been revised and amended since Linne's time, and are now well known to all working botanists, and should be equally well known to all foresters.

In 1867 a notable revision of these rules occurred in the International Botanical Congress which was held in Paris in that year. An English edition of these rules was published under the title "Laws of Botanical Nomenclature Adopted by the International Botanical Congress Held at Paris in August, 1867". This body of rules is known as the "Paris Code," and it has been the basis of all recent regulations as to nomenclature. About fifteen years ago many American botanists feeling that the laws of nomenclature were not sufficiently definite in regard to certain points, made some modifications of the "Paris Code," and these were printed and issued under the name of the "Rochester Code", by the Botanical Club of the American Association for the Advancement of Science. Certain American botanists, however, from the first, objected to these Rochester rules and refused to abide by them. Further modification of these rules were made subsequently at a meeting in Philadelphia, and these later rules have been known as the "Philadelphia Code". All these changes however, were based upon the "Paris Code" which had been adopted by an International body of botanists.

In 1905, after several years of agitation, another International Botanical Congress was held in Vienna, and the result was a considerable revision of the "Paris Code." The rules

issued by this Congress are known as "The International Rules for Botanical Nomenclature, Adopted by the International Botanical Congress of Vienna, 1905". This latest statement is now accepted very generally throughout the world. Some of the American botanists who had taken part in the formulation of the Rochester and the Philadelphia codes have not yet accepted the "Vienna Code", but since the latter includes much of what was originally in controversy between many American and the foreign botanists, it is desirable that the Vienna rules should be accepted, even though they do not fully express the ideas of some of the more progressive American botanists.

I have gone over this "Vienna Code" and selected from it those rules which are of most importance to foresters, and have given them with some little modification of the language, and with some comments which I have added. These rules as here given then are *based upon* the "Vienna Code", but are not identical in language with that code.

STATEMENT of such RULES for BOTANICAL NOMENCLATURE as are of INTEREST to FORESTERS.

(Based upon the "Vienna Code" of 1905.)

1. Natural history can make no progress without a regular system of nomenclature which is recognized and used by the great majority of naturalists in all countries.

2. The rules of nomenclature must not be arbitrary nor imposed upon scientific men by mere authority, but they must be founded upon considerations which are clear and forcible enough to be comprehended and accepted by scientific men in general.

3. The essential things to be reached by the Botanical Code of rules as to nomenclature are: (a) Fixity of names, (b) The avoidance of confusion by the creation of useless names, (c) Means for rejecting names which may lead to error or ambiguity.

4. No custom or practice which is contrary to rule can be upheld if it leads to confusion or error.

5. It is very desirable that the principles and rules of

nomenclature should be as similar as possible in Botany and Zoology.

6. Scientific names of all kinds that are used in classification must be in Latin. When taken from or based upon a word or words in another language they must be Latinized and so modified that they are essentially Latin names. (It is only by following this rule strictly that we can secure uniformity in names; otherwise we should have names in English, in French, in German, in Russian, Chinese, Japanese, etc. As an illustration of the advantage of Latin names for plants I may refer to the "Botanical Magazine" published in Tokyo, Japan. One portion of this magazine is printed in the Japanese language, and yet all botanical names in this part are printed in Latin and have exactly the same form that they have in European languages.)

7. It is a rule in Botany which has been maintained for many years that every plant belongs to a "species", every species to a "genus", every genus to a "family", and every family to an "order", and every order to a "class", etc. (It is essential that the sequence given here should be followed, and not varied from in any particular. This preserves uniformity in the general arrangement of all kinds of plants in lists of systematic works.

8. Below species we may distinguish "varieties" which are more marked, and "forms" which are less well marked variations from the specific type. (Here again it is essential that these words be used in this sense alone; to use the word "variety" when we mean "species" is a common, but inexcusable error.)

9. Although the definitions of species, genera, families, etc. will vary with different botanists, yet there always has been a pretty general agreement, and the differences of opinion in regard to the limits of these groups are of minor importance. (This paragraph is of importance inasmuch as there is a widespread impression outside of botanical circles that botanists are entirely at loggerheads in regard to these matters. The fact is that there is vastly more of agreement than of disagreement in regard to the limits of these groups.

10. When one species is fertilized by another the result is a "hybrid", when one variety is fertilized by another the result is a "halfbreed", sometimes called a "cross" or "mixture".

11. Every natural group of plants (species, genus, family, etc.) can have only one valid name, and this must be the oldest name applied unless such name has been previously used for some other group.

12. No one should change a name without the best of reasons based on a more profound knowledge of the facts than previously existed.

13. Botanical nomenclature dates back to Linne's book, the "Species Plantarum", which was published in 1753.

14. In order that certain old names which had been in general use for a long time should not be changed, the Vienna Congress prepared a list of names to be preserved in spite of the law which requires that the oldest name should in all cases be used. (This rule which provides for the preservation of names which otherwise would be changed (see Appendix) has been objected to very strenuously by many American botanists. They hold that the law of priority should be followed regardless of the fact that under its strict application certain names will disappear; but a majority of the Congress having voted for this list of retained names, this is at present a valid rule under this Code.)

15. In the making of names of the larger groups, ordinal names are to have the ending "-ales" and family names to have the ending "-aceae".

16. It is recommended that botanists in making generic names should use judgment and taste by (a) not making names very long, or difficult to pronounce, (b) not using a name that has already been used and that has become a synonym, (c) not naming genera for persons who are not botanists or who are generally quite unknown, (4) not taking names from barbarous tongues, (e) not making a name by the combination of words from two different languages.

17. The botanical name of a plant is always the genus name immediately followed by the species name. The *two*

words constitute parts of *one name*. The names of genera must begin with a small letter excepting those that are taken from the names of persons or from generic names. (This rule, which is one of the minor ones called "Recommendations" is not followed by all of the botanists. There is a growing feeling in favor of the decapitalization of all specific names, and in my opinion this is the better way).

18. In forming specific names for plants botanists are recommended to (a) avoid very long names and those which are difficult to pronounce, (b) avoid names taken from little known localities, (c) avoid names which express a character which is common to other species of the same genus, (d) avoid names which are similar to others used in the same genus, (e) avoid names which have been previously used in a genus and which have become synonyms, (f) avoid naming a species after a person who has neither discovered, nor described nor in any way studied it, (g) avoid making specific names of two words (unless they are fused into one word), (h), avoid names which have the same meaning as the genus name.

19. Two species of the same genus cannot bear the same specific name. (This rule is exactly in accord with the rule among people. We do not give different children in the same family the same name).

20. Hybrids between species are to be indicated by the sign x; thus when a hybrid has been made between two species of willow the designation is, as follows: *Salix aurita* x *caprea*. If the hybrid is between species of different genera both names must be written out in full with the x sign between, thus; *Ammophila arenaria* x *Calamagrostis epigeios*.

21. When a name is given to a plant, in order to be effective it must be described sufficiently to be identified, and this name and description must be printed and distributed to the public, especially the botanical public.

22. On and after January 1, 1908 the publication of names of new groups will be valid only when accompanied by a Latin diagnosis. (This rule, which at first seems to be arbitrary, is very desirable. Latin is the only universal language, and if all original descriptions are put in Latin they can be

read by people of all nationalities. Think of what the condition would be if Russians, Japanese, Chinese, and other botanists wrote their descriptions in their own languages ! A botanist would have to be a veritable polyglot in order to consult the original descriptions.)

23. A name alone, unaccompanied by the description, although published properly, is not accepted by botanists. (The reason for this is obvious. A name alone gives no clue to the plant itself, but must be accompanied by a description.)

24. The date of the name is that of the proper publication, as indicated above. This is important where the same plant has been described by different people. In such cases the earliest description properly published is the one which is retained.

25. In order that dates and descriptions may be verified the name of the author who first published the name must follow it. (Some people object to appending the author's name to the botanical name, but in the careful work necessary in scientific botany it is desirable that a reference to the original publication should be easily made.)

26. When a genus is divided into two or more genera the original name must be kept, and given to one of the new genera, and the rule provides that the old name should go with the more important new genus.

27. When two genera are united into one, the older of the two names is to be retained.

28. Names cannot be rejected or changed or modified merely because they are badly chosen or disagreeable or because a particular botanist prefers another. A name should be changed however ;

(a) When the plant has an earlier name which is valid.

(b) When the name is based upon a monstrosity.

(c) When the specific name merely repeats the generic name.

(The third of these (c) is not in accordance with the practice of many botanists, who write *Catalpa catalpa*, *Lintaria lintaria*, etc.)

29. When the species is moved from one genus to another

its name must not be changed unless it is found that the same name has previously been used in that genus.

30. The original spelling of the name must be retained except in case of a typographical or orthographical error, and it is recommended that this liberty of making corrections should be very judiciously used.

Under the minor rules the following recommendations are made.

31. Botanists should use the scientific names of plants, preferably to names of any other kind, unless the so-called "common names" are clear and actually in use.

32. Every friend of science should oppose the introduction into modern language of the names of plants which are not already there, unless such names are derived from the Latin botanical names. (This rule, if followed, would provide for Anglicized names rather than the so-called common names.)

33. The metric system is recommended for use in Botany for reckoning weights, measures, etc., and it is especially recommended that such measures as foot, inch, line, etc., should be rigorously excluded from scientific language.

34. Very minute dimensions are to be reckoned in micromillimeters (microns, or thousandths of a millimeter.)

35. Temperatures are to be expressed in degrees of the Centigrade thermometer.

APPENDIX

List of names of interest to the Forester to be retained in spite of the Law of Priority, as recommended by the "Vienna Code."

Family	Retain these names	Instead of these
Cycadaceae	Zamia L., 1763.	Palmaflrix Adans. 1763
Taxaceae	Podocarpus L'Her, 1807	Nageia Gaertn. 1788
Taxaceae	Phyllocladus L. C. Rich., 1826	Podocarpus Labill 1806
Pinaceae	Agathis Salisb. 1807	Dammara Rumph, 1786-8
Pinaceae	Cunninghamia R. Br. 1826,	Bellis Salisb. 1807
Pinaceae	Sequoia Endl. 1847	Steinhauera Presl 1838
Palmaceae	Arenga Labill 1803,	Saguerus Rumph. 1763
Palmaceae	Chamaedorea Willd, 1806	Nunnezharia Ruizet Pav. 1794
Palmaceae	Desmoncus Mart. 1823-50	Atitara Marcgr. 1741
Juglandaceae	Carya Nutt. 1818,	Scoria Raf. 1808
		Hicorius Raf. 1817
Ulmaceae	Zelkova Spach. 1841	Hicoria Raf. 1838
		Abelicea Reichb. 1828

Moraceae	Maclura Nutt. 1818	Toxylon Raf. 1817
Loranthaceae	Arceuthobium Marsch-Bieb. 1819	Razoumowskia Hoffm. 1808
Menispermaceae	Cocculus DC. 1818	Cebatha Forsk. 1775
Calycanthaceae	Calycanthus L. 1759	{ Beurreria Ehret 1755
		{ Butneria Duhamel 1755
Myristicaceae	Myristica L. 1742	{ Comacum Adans. 1763
		{ Aruana Burm. 1769
Rosaceae	Physocarpus Maxim. 1879	Opulaster Medik. 1799
Rosaceae	Holodiscus Maxim. 1879	Schizonotus Raf. 1836
Leguminosae	Wistaria Nutt. 1818	Kraunhia Raf. 1808
Simarubaceae	Ailanthus Desf. 1786	Pongelion Adans. 1763
Aquifoliaceae	Nemopanthus Raf. 1819	Illicioides Dumont. 1802
Theaceae	Gordonia Ellis. 1770	Lasianthus Adans. 1763
Canellaceae	Canella, P. Br. 1756	Winterana L. 1759
Elaeagnaceae	Shepherdia Nutt. 1818	Lepargyrea Raf. 1818
Ericaceae	Gaylussacia H. B. K. 1818	Adnaria Raf. 1817
Verbenaceae	Tectona L. 1781	Theka Adans. 1763

Although under the action of the Vienna Congress the names indicated above are to be retained, I cannot think the action a wise one. If we are to follow the suggestions made in paragraph 28 above, we ought not to reject the earlier names in the foregoing list. It is illogical to make a rule ("the law of priority") and then to provide for a disregard of it in certain favored cases. We may hope for the ultimate abolition of this list of names to be retained contrary to the law of priority.

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