ROUND-TABLE DISCUSSION: BOTANICAL NOMENCLATURE[1]

Note of the Secretary for Taxonomy: This discussion was held under the auspices of Section L (Taxonomy). Formal papers were read by Dr. John Briquet, Dr. Marshall A. Howe, and Professor M. L. Fernald. A paper by Dr. N. L. Britton was read by Dr. Marshall A. Howe.

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The Nomenclature Section of the Third International Botanical Congress, held at Brussels in 1910, carried towards completion the work of the Vienna Congress (1905) on the international rules governing questions of nomenclature. The combined result of the decisions reached at Vienna and Brussels has been published in the second edition of the "International Rules of Botanical Nomenclature."[2]

There remained, however, certain points which had to be settled by the Nomenclature Section of the next botanical congress. This congress was to be held at London 1915, but the outbreak of the war in 1914 prevented it.

The program of work for the next congress was defined by the Congress of 1910 as follows.[3]

1. To fix the starting-point for the nomenclature[4] of

a) Schizomycetes (Bacteria)
b) Schizophyceae (excepting Nostocaceae)
c) Flagellatae
d) Bacillariaceae (Diatomaceae)

2. To compile lists of *nomina generica utique conservanda*[5] for

a) Schizomycetes
b) Algae (incl. Schizophyceae, Flagellatae etc.); new lists for groups not included in the list of 1910 and also a supplementary list;
c) Fungi
d) Lichens
e) Bryophyta

3. Compilation of a double list of *nomina generica utique conservanda* for the use of palaeobotanists.[6]

[1] Aranged by the Section for Taxonomy, of the International Congress of Plant Sciences, Ithaca, New York, Aug. 19 and 20, 1926.

[2] Règles internationales de la Nomenclature botanique adoptiés par le Congrès international de Botanique de Bruxelles Vienne 1905. Dieuxième edition mise au point d'apres les decisions du Congrès international de Botanique de Bruxelles, 1910, publiae au nom de la Commission de rédaction du Congrès par John Briquet, rapporteur genéral. Jena, 1912. G. Fischer, editeur.

[3] Actes du III Congrès international de Botanique 1: p. 85. Bruxelles, 1910.

[4] Règles internationales de la Nomenclature Botanique, éd. 2. p. 14, Art. 19.

[5] Règles internationales de la Nomenclature Botanique, éd. 2, p. 74.

[6] Règles, éd. 2. p. 15, art. 20.

4. Discussion of motions relating to new points which were not settled by the rules adopted at Vienna in 1905 and at Brussels in 1910.[7]

The carrying out of this work was entrusted for points 1, 2, and 3 to two committees under the direction of a rapporteur général, Dr. John Briquet (Geneva, Switzerland), assisted by a vice-rapporteur, Prof. Dr. H. Harms (Berlin). In the compilation of the lists of *nomina conservanda,* the rapporteur général expected the assistance of a certain number of editors in each committee. The committee for cryptogamic nomenclature consisted of 53 members; editors: Prof. V. Schiffner (Hepatics), J. Cardot (Mosses), Prof. Maire (Fungi), Prof. G. Senn (Flagellatae), Prof. N. Wille (Schizophyceae), Dr. A. D. Cotton (other Algae), Dr. A. Zahlbruckner (Lichens). The paleobotanical committee was finally composed of 14 members with Prof. Harms and Dr. Halle as editors.

The editorial committee (Commission de Rédaction) was composed of: Dr. John Briquet, rapporteur général; Prof. Dr. H. Harms, vice-rapporteur; Prof. L. Mangin, Dr. A. B. Rendle. The rapporteur général and the vice-rapporteur were also members of the cryptogamic and paleobotanical committees. The Brussels Congress decided that the editorial committee should function as a Permanent Bureau of Nomenclature till the next congress, where the nomenclature question was to be taken up again. This was certainly a very wise decision, assuring continuity in work which is an absolute necessity.

How and how far has the work been carried out?

The first task of the Editorial Committee was the "mise au point" of the "Rules of Nomenclature" according to the decisions of the Brussels Congress and the publication of the "Rules." This task was achieved with the publication of the second edition of the "Rules" in 1912. I wish to express here again my very warm thanks to my friends and collaborators Harms, Rendle, and Mangin. Harms translated the "Rules" into German and Rendle into English. Both, and also Mangin, made important corrections and additions and also useful suggestions regarding my manuscript. I have also to thank the publisher, G. Fischer at Jena, who accepted the task of printing and publishing the second edition entirely at his own risk.

As soon as the Executive Committee of the London Congress was constituted and had sent its first circular (October 1, 1913), the rapporteur général sent his two first circulars. The first one (November 20, 1913) was addressed to the members of the paleobotanical committee giving new names of paleobotanists in addition to those elected at Brussels, in conformity with a decision of the third congress that the committees could be completed by coöptation.[8] In this first circular, Professor Harms was proposed as editor for the list of validly published and generally admitted generic names of recent plants when they come in conflict with older paleobotanical generic names. Dr. Halle (Stockholm) was proposed as editor for the list of validly published and generally admitted generic

[7] Actes, p. 86.

[8] Actes, 1. p. 76.

names of fossil plants, when they come in conflict with older homonyms of recent plants which have become synonyms, in order to avoid their being further utilized. Harms and Halle accepted these functions and their election was confirmed unanimously by the paleobotanical committee. The work of the two editors has been interrupted only by the war, in 1914.

The second circular of the rapporteur général was issued on December 20, 1913, and sent to all members of the Committee for Cryptogamic Nomenclature. It gave the exact composition of the committee and indications about the mode of redaction of the lists of *nomina generica conservanda*. The work had been carried out very far when it was interrupted in August, 1914, by the war. The rapporteur général has in hand the lists elaborated by Prof. Vuillemin for Schizomycetes and Microsiphoneae, with proposals relating to the starting-point of nomenclature for Schizomycetes, Myxobacteriaceae, and Microsiphoneae. H. Peragallo sent a list of *nomina conservanda* for Bacillariaceae (Diatomaceae), with proposals for the starting-point of their nomenclature. From A. D. Cotton, I received a supplementary list of *nomina generica utique conservanda* for Algae. G. Senn sent a list of *nomina generica conservanda* for Flagellatae with a proposal of the starting-point of generic nomenclature in that group. R. Maire elaborated a similar list for Fungi.

It results from the preceding indications that the work was very well advanced in August, 1914, and that the greater part of the manuscripts was ready at that time. The documentation thus brought together will have to be submitted to the cryptogamic committee and handed over to the nomenclature section of the next botanical congress.

The second circular of the Executive Committee of the Fourth International Botanical Congress to be held at London 1915, issued January 15, 1914, was entirely relating to the completion of the "International Rules for Botanical Nomenclature," and to the program of work for the palaeobotanical and cryptogamic committees. This circular repeated mainly the contents of circulars 1 and 2 of the rapporteur général. It gave detailed information about the functions and program of the committees, the form in which motions must be drafted and presented, the mode of communication of the motions to members of the Committees; the editing, printing, and sending of a supplement to the "Rules" by the rapporteur général; the time within which all this was to be done, etc.

Important in this second circular is the following item 1, which is strictly comformable to the decisions made at Brussels in 1910.

"The Rules of Nomenclature adopted at Vienna in 1905 and at Brussels in 1910 remain in force. Additions may be made to the present code only: (1) in the form of rules bearing on new points not covered by the decisions of 1905 and 1910; (2) in the compilation of supplementary lists of *nomina generica utique conservanda,* and in fixing the starting-point for the nomenclature of special groups, as stated above."

The decision of the third congress, summarized in the above item, has been directly inspired by the fear of seeing each congress undo what the preceding had

done and to transform the question of botanical nomenclature into a kind of vestel of the Danaides, an endless work, constantly to be undertaken again. This results also from item 10 of the circular which renders exactly the ruling opinion at that time.

"The revision of the Rules of Nomenclature has already occupied three congresses, namely at Paris, Vienna, and Brussels, and by 1915 the rapporteur général will have followed their details for fifteen years. It is highly desirable from all points of view that this work should be completed in London in 1915, and should cease to occupy the international botanical congresses. We therefore urgently beg botanists in general, and cryptogamists and paleobotanists in particular, to examine carefully these points which still require consideration, and to formulate their propositions in such a manner that nothing may be left over for 1920."

Now in the same year, 1910, in which the Third International Botanical Congress was held, an International Congress of Horticulture was also held at Brussels. There, a sub-section for nomenclature adopted a set of rules relating to the nomenclature of horticultural forms, more especially those of a hybrid nature.[9] These rules were partly in discordance with the rules adopted previously by botanists. The suggested alterations in, and additions to, the International Rules of Botanical Nomenclature to fit them to include garden varieties and hybrids have been summarized and printed by the subcommittee appointed by the Council of the Royal Horticultural Society of London, and sent to the rapporteur général. The well known orchidologist, R. A. Rolfe, has also sent a series of proposals relating to the nomenclature of hybrids, partly in discordance with the international rules, but in general agreement with the decisions of the Horticultural Congress of Brussels. Some other detailed proposals of changes have been formulated which may remain unmentioned here, but I must make an exception for Dr. Rehder, who sent a number of useful suggestions, giving more precision to several articles of the "Rules."

On the other hand, the so-called "American Code" which had not been accepted at Vienna, has continued to find in the United States a good number of zealous and able defenders. Though certainly the great majority of taxonomists all over the world apply the International Rules, the hope that there might be unanimity in doing so has thus not been realized. At the Imperial Botanical Conference held by British botanists at London in 1924, a series of resolutions was adopted, which almost all come back upon questions which had been formerly discussed at length before and at the Vienna Congress, and which stand in contradiction with the International Rules. In his recent very interesting paper "A basis for agreement on nomenclature at the Ithaca Congress," Mr. A. S. Hitchcock seems to admit that a kind of compromise could be effected between the supporters of the American Code and the adherents to the British Proposals, and that the result of this compromise might be incorporated into the International Rules of Nomenclature at the next botanical congress. But it must not be forgotten that only British botanists were assembled at the Imperial Botanical Conference and

[9] Published in Bulletin de la Société royale de Botanique de Belgique **47**: 419-424. 1911.

that taxonomists of other countries have had no opportunity to take part in the discussion. Several of the most important articles in which supporters of the American Code agree with the British Proposals have been seriously criticized by M. L. Fernald and C. A. Weatherby on this side of the Atlantic, and by Schinz and Thellung in Europe, and it is probable that a compromise of that kind will encounter a very strong opposition both in America and in Europe.

Some botanists have expressed to me their astonishment that the rapporteur général has participated in no manner in these discussions. I have not taken part for reasons of principle. A *rapporteur* must remain, as long as he is in function, entirely neutral. He is morally bound to apply as strictly and conscienciously as possible the International Rules in his own taxonomic work, but it is better for him not to take an active part in the discussions preliminary to a congress which has *legislative* aims. When the matter is entirely prepared for discussion, when a competent committee has given its opinion upon the proposals, when he brings the whole business before the Congress, at that moment he may give his opinion, which will then be the more readily taken into consideration, especially in important or difficult cases.

The conclusion of the very rapid preceding review is this: The Brussels Congress has eliminated from the program of the next international congress all motions which do not relate to *new* questions. But the next congress was to be held at London in 1915. Eleven years have elapsed since that time, and sixteen years since the meeting at Brussels. One may say that *circumstances* are *new*. The desired unanimity of taxonomists in matter of Rules of Nomenclature has not been obtained. There are still strong dissidences. We have even seen rules contrary to the international rules adopted by a horticultural congress. Under these conditions, if there is a probable chance, or only a possible chance, of bringing union in 1930, I think that this chance must be taken and that we must try to clear up the situation. The wish expressed by the executive committee of the congress planned for 1915, and by myself, to see the nomenclature question disappear for a time from the program of botanical congresses may perhaps be realized if we try to come to a suitable agreement at London in 1930. Rules of nomenclature, as all other human dispositions, cannot be considered as eternal, but they ought not to be modified unless absolute necessity commands it. A general agreement in 1930 would probably have the consequences of beginning a period of tranquility, leaving more time to essentially scientific work.

I would accordingly make the following proposals:

1. The actual round-table discussion aims at putting in evidence the points of botanical nomenclature which, although they are not new, are still a matter of profound disagreement among taxonomists and upon which it is desirable to secure a general agreement at the Fifth Botanical Congress in 1930.

2. If such an agreement, partial or entire, could be effectively realized now among botanists present at Ithaca, it ought to be presented later on in printed form and in the conditions which the Executive Committee of the Fifth Interna-

tional Congress will adopt for all motions relating to botanical nomenclature in general.

3. Elections at Ithaca of a Committee to which the Rapporteur général could submit all motions presented on these topics, as was the case for Vienna in 1905 and for Brussels in 1910. This committee is distinct from the cryptogamic and from the palaeobotanical committees already functioning. The members of the Permanent Bureau of Nomenclature are members of this committee.

In respect to the third proposal, I must give a short justification. The creation of this committee is a necessity, for the cryptogamic and palaeobotanical committees have special tasks and are incompetent, in their actual composition, for questions of general interest. The committee will not constitute in itself something entirely new, but may be considered as an extension of the Permanent Bureau imposed by new circumstances. It is more in corformity with the tradition of former botanical congresses to create this organization here in Ithaca than to entrust the Permanent Bureau with its constitution.

I close my statement with these proposals, thanking the Organizing Committee of the Fourth International Botanical Congress for having given us the opportunity of this round-table discussion at Ithaca, thanking our friend Hitchcock for having taken charge of it, and expressing the wish that our meeting may have a happy influence upon the success of the Fifth International Botanical Congress.

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As has already been pointed out by Professor Hitchcock, Mr. Kenneth K. Mackenzie, and others, a very large part of our differences in nomenclature is due to varying conceptions as to the limits of genera—and this is largely a subjective mental matter concerning which no International Congress can ever hope to legislate successfully. To cite only one example of diversity of usage from this source alone, we may remark that thirty-two years ago, Dr. K. Schumann in "Engler and Prantl, Die natürlichen Pflanzenfamilien," recognized 21 genera in the cactus family. In the sumptuous 4-volume monograph of the Cactaceae written by Drs. N. L. Britton and J. N. Rose and recently published by the Carnegie Institution of Washington, 124 genera are recognized—nearly six times as many as were considered valid by Schumann a third of a century earlier. Whatever its merits or demerits, many—probably most—botanists will accept the handsome work of Britton and Rose and its 124 genera as the last word on the subject. And, whatever its merits or demerits, some of the more conservative botanists will doubtless continue to swear by the work of Schumann and its 21 genera, or, perhaps, by Vaupel's revision of the Cactaceae for the second edition of the Engler and Prantl work, with its 26 genera. And there is nothing that we or any rules of nomenclature can do about it!

In the matter of the proposed nomenclatural compromise or agreement, I may say that personally I do not feel so irreconcilable as I may have felt in my younger

days, when I had had less experience with the practical difficulties involved. The main concession now asked of the supporters of the American Type-basis Code is apparently the admission of long lists of generic *nomina conservanda.* The so-called International Rules, as has been noted by several of its critics, start out with the assertion that "The rules of nomenclature should neither be arbitrary nor imposed by authority" and then close by arbitrarily setting aside several hundred generic names as beyond the reach of law. Personally, I should have little objection to generic *nomina conservanda* if they were anchored to one of the original species as the type and if the list were limited to the very few cases in which serious confusion might result from a rigid application of the law—such, for example, as the substitution of the name *Marsilia* for *Salvinia,* which would result from a relentless enforcement of the American rules for typifying genera. But the Brussels Botanical Congress of 1910 added 53 names of phanerogamic genera to the 404 already set aside as above the law by the Vienna Congress of 1905. The Brussels Congress also listed 55 generic names of algae as beyond the realm of law and indicated that others were to be added at the next congress. The Brussels Congress also indicated that lists of generic *nomina conservanda* for the bacteria, fungi, lichens, and bryophyta would be presented at a future congress.

This whole matter of the nomenclature of the lower plants has apparently received no attention from the leaders in the proposed compromise, although more than two-fifths of all the described species of plants belong to groups lower than the Pteridophyta. The Brussels Congress, as is well known, adopted eight different starting-points for the nomenclature of the lower plants and, on the principle that "silence gives consent," the suggested compromise agreement implies the acceptance of this confusing welter of initial points. The Brussels Congress of 1910 acted on the advice of one or more specialists in each of the principal groups and the results show astonishing diversities, according to the experience, personal preferences, and prejudices of the specialist whose advice was accepted. For the Myxomycetes they adopted 1753 as the starting-point, with no *nomina conservanda,* —1753, because Miss Lister had adopted that date as a starting-point in the second edition of the Lister monograph of the Mycetoza, then in press,—1753, although Linnaeus knew little or nothing of the Mycetozoa and no one of the generic names used by Lister is attributed to Linnaeus.

For the algae, the Brussels Congress adopted 5 starting-points and a list of 55 generic *nomina conservanda* besides. The general starting-point for the algae, according to that Congress, is Linné's Species Plantarum, 1753, but for the Desmidiaceae, 1848, the date of Ralf's book on the British desmids, was taken; for the Nostocaceae Heterocysteae, a group of "blue-greens," 1886, the date of Bornet and Flahault's monograph of the representatives of the group contained in the principal herbaria of France; for the Nostocaceae Homocysteae, 1892-93, the date of Gomont's monograph of the group, likewise based on specimens found in French herbaria; and for the Oedogoniaceae, 1900, the date of Hirn's monograph of the family.

For the fungi, 2 starting-points were adopted. For the rusts, smuts, and puff-

balls, 1801, the date of Persoon's "Synopsis"; for the remainder of the fungi, a sliding date, 1821-32, the date or dates of Fries' "Systema Mycologicum."

For the Muscineae, with the exception of *Sphagnum,* 1801, the date of publication of Hedwig's "Species Muscorum," with a list of *nomina conservanda* to follow; for *Sphagnum,* 1753. For the Hepaticae and Lichenes, 1753, with lists of *nomina conservanda* to be arranged later.

For the Pteridophyta, the starting-point is 1753, with only one *nomen conservandum—Selaginella.* Now it had happened that, following the Vienna Congress of 1905, Dr. Carl Christensen of Copenhagen busied himself with compiling and publishing his "Index Filicum," with priority principles applied and that the Brussels Congress in 1910 found the idea of starting the nomenclature of the ferns with 1753 rather commonly accepted. Hence 1753 as the starting-point of the nomenclature of the Pteridophyta, with only one generic *nomen conservandum*—just as they voted 1753 as the starting-point for the nomenclature of the Myxomycetes with no *nomina conservanda.* If we had only had some one to do for algae and fungi, previously to 1910, what Lister did for the Myxomycetes and what Christensen did for the Pteridophyta, if we had had some one to show us that the results of applying priority principles to the algae and fungi, with 1753 as a starting-point, are not so horrendous as some people seem to suppose, the nomenclature of those two great groups might perhaps now be in as satisfactory and stable a condition as is that of the Myxomycetes and Pteridophyta. To ask us now to approve, even by implication and silence, the numerous and incongruous starting-points of the so-called International Rules, is, in my opinion, to ask us to take a confused and backward step. Why should any student of the Oedogoniaceae, for example, pledge himself not to go back of Hirn's excellent monograph, published in the year 1900? Hirn was a young and doubtless fallible human—28 years old on that date. The monograph was, I believe, his doctorate thesis. Why, by a vote of an International Botanical Congress, try to make this thesis inerrant scripture for the naming of a small group of plants—a group of no economic interest and virtually unknown except to the specialist? Is it quite honest and reasonable to do this? Is it good science? Various ecclesiastic councils in times past have by majority votes taken somewhat similar action in regard to documents more or less hallowed by age and by outstanding merit, but such action has met with only temporary and local success. If we must really have more than one starting point for the nomenclature of plants, why should we be content with only eight? There are other most excellent generic and family monographs besides Hirn's monograph of the Oedogoniaceae with its two genera!

If we must have lists of generic *nomina conservanda,* let the lists be very brief, comparable to *Selaginella* for the Pteridophytes. And let us not now approve, even by implication, a confusing and time-serving multiplicity of starting-points for botanical nomenclature!

The International Rules of Zoological Nomenclature recognize only one starting-point, 1758, for all groups of animals, and they recognize no *nomina conservanda* as such. However, the rules, under specified conditions, confer plenary power

upon an International Commission on Zoological Nomenclature to suspend the rules "as applied to any given case, where in its judgment the strict application of the Rules will clearly result in greater confusion than uniformity." Possibly the establishment of an International Commission or a Supreme Court of nomenclatural experts, to which doubtful questions could be referred, would be a distinct aid in the attempt to standardize botanical nomenclature.

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Professor Hitchcock's invitation to me to take part in this discussion read: "I am writing to ask if you would be willing to represent the advocates of the International Rules at this discussion?"[1] The implication seems to be that at this international congress the International Rules need a special advocate or defender; and since, with my colleague, Mr. Charles A. Weatherby, I have very recently expressed[2] my reactions to some of the changes proposed, I can do no better than to reëmphasize certain of these points. It may be of interest, in view of our general desire for agreement, to call attention at the start to one of the responses stimulated by Mr. Weatherby's and my issuance of our views. One American botanist, for instance, referring to our plea for the retention of Latin diagnosis, wrote: "I like the Latin names and think all well-trained scientists do. Count me on the side of conservatives in general. . . . . I strongly approve of Dr. Hitchcock's and your views." It should be clear, then, that, although called upon "to represent the advocates of the International Rules," I am sometimes considered by my colleagues as in full agreement with Professor Hitchcock.

I may now be pardoned if I read what are familiar to some of you, portions of the circular letter in which Mr. Weatherby and I have already expressed our views of certain of the proposed changes.

Professor A. S. Hitchcock has for several years been active in trying to induce followers of the International Rules of Nomenclature to "compromise"[3] with the American botanists who have refused to follow the majority rulings of the international congresses of 1905 and 1910. In this effort he has cooperated with the Brittish Imperial Botanical Conference and it is now proposed that American followers of the International Rules shall indorse the proposals made for the al-

[1] Hitchcock in letter of May 29, 1926.

[2] Fernald and Weatherby, Comments on the Proposals of the British Imperial Botanical Conference for modification of the International Rules of Nomenclature. Circular Letter, issued December, 8, 1924.

[3] In the discussion which followed the formal presentation of papers, Mr. Sprague stated that the word "compromise" had had no place in the propositions of the British Imperial Botanical Conference. In the statements of the British propositions issued in America by Professor Hitchcock, including his paper, *A Basis for Agreement on Nomenclature at the Ithaca Congress*, Am. Journ. Bot. xiii. 291-300, issued in May, 1926, and distributed shortly before the Ithaca meeting, the word is very definitely used: "Other resolutions adopted [by the Imperial Botanical Conference] were the following which bear especially upon a compromise between the two codes."

teration of the International Rules. Since many of these propositions are reversals of the decisions of the international congresses of 1905 and 1910 and are merely the old points of difference presented anew, it is important that they be fully understood. Professor Hitchcock has been active in making known his views; the subject has been closely studied and ably discussed in England, chiefly by Mr. Sprague; Mr. K. K. Mackenzie has issued a circular letter upon the subject; and, after solicitation by several botanists, we have decided to issue the following comments upon some of the British proposals which have been transmitted by Professor Hitchcock.

1. Abolishing the requirement of Latin diagnoses in the publication of new groups.

Latin is necessarily known to all taxonomists. No real progress is possible in taxonomy without ability to consult the fundamental works and the great monographs, chiefly in Latin. With this necessary modicum of knowledge and the older models to follow it is not difficult to construct a diagnosis which, though perhaps lacking in elegance and classical finish, is readily intelligible to systematists everywhere. This concession to international intelligibilty and convenience is far simpler than the alternative of being forced to decipher diagnosis in many tongues, which would inevitably soon include those of non-Latin origin. The value and general intelligibility of Latin are so apparent that even some followers of the American Code use it when they wish to reach a wide audience.

The Latin diagnosis is a practical international convenience. On this account and as a defense against diagnosis in tongues quite unfamiliar to the majority of botanists, it should be continued.

2. Rejecting all combinations which are homonyms.

The principle of the International Rule, that no combination in itself invalid should prevent the validity of a later use of the same combination, is sound. In practice, however, it is often difficult to determine whether a given name is universally regarded as a synonym, and in all cases of doubt we favor rejection of the later homonym.

Certain names are invalid beyond doubt and their existence should not invalidate the later valid use of the same combination for a different plant. Such are: (1) *Nomina nuda;* (2) direct and conscious renamings of species already validly named, such as were freely indulged in by Salisbury, Sprengel and Rafinesque; (3) names of species demonstrably based on the same types as species already validly named.

The provision of the International Rules, as amended at Brussels, that a name invalidated by an earlier homonym may be validated by transfer to a new position, if the author who first makes the transfer so chooses, works well in retaining familiar names and thus avoiding the needless coining of new ones. E. g. *Aspidium nevadense* D. C. Eaton (1878) is antedated by *A. nevadense* Boiss. (1838). Baker, in first transferring the species from *Aspidium* to *Nephrodium* (1891) rightly, as it seems to us, validated Eaton's name, as did Underwood (1893) in placing it under *Dryopteris* as *D. nevadensis.* Christensen, however, following the method

of the American Code, made a new and needless name for the species under *Dryopteris, D. oregana* (1905). By the International Rules, Underwood's combination would stand under *Dryopteris,* and no new name would be necessary. The desirability of retaining the provision will be apparent to those who are striving to avoid unnecessary changes.

Another group of names which it would be unfortunate to displace are well established and clearly defined botanical names which may be invalidated by earlier homonyms inadequately or vaguely published *(nomina subnuda)* or names which have received only horticultural definition.

If the overthrow of later but otherwise valid homonyms by early invalid or inadequately published homonyms can be avoided we feel confident that no serious opposition by followers of the International Rules to the adoption of this proposal will be made.

3. Rejection of generic homonyms, except such as may be specially conserved.

The same principle as just discussed plus the use of *nomina conservanda* as proposed, should apply to generic homonyms: no indubitably invalid names should prevent the later valid use of the same name.

4. Formally accepting the principle of the "Type-method" of applying names.

The principle of types is already accepted and has long been so, at least in some form and degree, by everybody; the point in dispute is the method of applying it. We cannot see that the proposed rules for choosing the types of genera are likely to bring any greater stability and uniformity of usage than at present exist. There is inherent difficulty (to say nothing of futility) in forcing upon the work of old authors a conception of types which never entered their heads. The number of alternatives it has been thought necessary to provide proves this, if proof were needed. Their very number offers large opportunity for such differences of opinion as that which has arisen between Drs. Britton and Maxon in regard to the type of *Pteris* (Jour. Bot. 61: 7); in fact it makes them almost inevitable. There is no possible guarantee that others will show so much respect for current usage and proceed in so conservative a manner as Prof. Hitchcock is disposed to do.

The "type-basis rules" are so nearly those of the American Code that their workings may fairly be inferred from the operation of the latter. Under it a number of the most confusing and deplorable sort of changes have occurred, the shifting of universally familiar names to unfamiliar applications. *Sisymbrium, Erysimum* and *Leontodon* of the 2d edition of Britton and Brown's Illustrated Flora and of the Flora of the District of Columbia are cases in point.

In very many cases, the application of old names has already been definitely fixed by unanimous or practically unanimous current usage (excluding recent changes due to the application of the American Code). There we have only to let well enough alone. The principle of the *nomen conservandum* should be applied, as has been suggested, not only to the names themselves, but to their application. The reasons for conservation have equal force in either direction. Where there is diversity in usage, the doctrine of residues offers the simplest and

most definite means of fixing the application of names. It is surely more logical to work forward from large and involved to smaller and definite groups, following the conceptions of the authors who simplified the complexity, than to work backward from a retroactively chosen type. Once the group to which a given name should be applied is determined, the type species will often choose itself. Of *Erysimum,* for instance, in the generally accepted sense, *E. cheiranthoides* would automatically become the type, being the only one of the original species left after the other generic entities had been withdrawn from the original complex *Erysimum* of Linnaeus.

5. Acceptance of "duplicating binomials," such as *Linaria Linaria.*

Compared with the other changes proposed, this is relatively unimportant. Duplicating binomials have been rejected by the greatest systematists and authors of large Floras of the past, Bentham, Blytt, Boissier, Robert Brown, the De-Candolles, Fries, Gray, Greene, Hartman, the Hookers, Koch, Lamarck, Lange, Ledebour, Nees, Rouy, Torrey and practically all the others; and the long-established botanical usage should not be altered without necessity. The instability complained of by Mr. Sprague as due to the rejection of tautonyms is no greater than that which attends the search for the earliest available name where tautonyms are not concerned.

6. Rejecting the "principle of nomina abortiva."

Discussed by us under nos. 2 and 3.

7. Revision of the list of *nomina conservanda.*

Certainly errors or doubtful cases should be eliminated or defined. But a revision on the lines suggested by Mr. Sprague's remark that the list contains names which, *though current,* are not important enough to be conserved, might well defeat the purpose of the list, which is, of course, to preserve *current* usage. We should not approve a revision primarily intended to cut down the list. Mr. Mackenzie, in his circular letter of November 3, 1924, insists that the recognition of any *nomina conservanda* is dishonest, in that it does not give just consideration to the botanist whose name is excluded. But just consideration to the botanists of the present and future is far more important. The names of plants constitute a language used for intelligible communication among botanists. In this, as in all other languages, usage is a primary factor. We do not insist that injustice is done to the coiners of English words now obsolete because others more generally understood have been conserved. (See General Comments at end of this communication.) Personally we are willing to go even further than the conservation of generic names and to apply the principle to the names of species of first economic importance or to those whose names become completely reversed through the application of an exact method.

8. Making clear how far each of the Nomina conservanda is conserved.

If this means that the application of conserved names should be defined, we heartily agree.

GENERAL COMMENTS

As American botanists who have accepted the International Rules in good faith and have aimed consistently to follow them, we find some of the proposed changes undesirable. It is too often forgotten that nomenclature is not a branch of historical research and not for the use of the professional taxonomists alone, but a practical device, analagous to language. As such, it suffers from every change made for purely nomenclatorial reasons. It is the great merit of the International Rules that they recognize this practical side.

The International Rules were adopted after years of detailed preparation, by a democratic congress of leading systematists representing 17 countries (counting the British Empire as 1). The article about which there has been most discussion (the recognition of *nomina conservanda*) was adopted by a vote of 133 to 36. These figures have been sometimes represented in this country and in England as a result of "manipulation" of the convention by a "*German* majority." But since the maximum Germanic vote (including Austrian and Hungarian) in the convention was 64, it is clear that the majority-total contained at least 69 non-Germanic votes as against the minority vote of 36. Certain American botanists who were in the minority have refused to accept the majority ruling and as a result we have in this country the American Code and its offspring, the Type-basis Code. And the followers of the International Rules are asked to "compromise" with those who have not followed the International Rules on a basis of 5 points for the minority to 3 for the majority in order that we may have an International Code.

The Americans who have accepted the International Rules worked long and ardently for certain practical and time-saving principles, notably for the "Kew Rule" for specific names. This principle, if it had prevailed, would have saved 90 per cent of the changes in specific names which have resulted in America from the adoption of the International Rules. It was lost, but its defenders accepted the majority decision and have felt it a matter of honor loyally to uphold the majority ruling. It is admitted by Professor Hitchcock that followers of the International Rules constitute at least one-half the American botanists; and that those who do not follow them are only a small minority of the botanists of the world. It certainly is not worth while for the majority of botanists to make undesirable changes in nomenclature in order to attract the adhesion to those who, by their past action, have shown unwillingness to accept majority decisions which do not wholly coincide with their wishes. In accepting the International Rules, those who had followed and urged the Kew Rule gave up much more than the followers of the American Code would have had to give up had they also accepted them. *The International Rules are themselves a compromise,* reached by sacrifice on many sides. We may be pardoned if we do not hasten to make further and undesirable compromises for the sake of a uniformity which, after the experiences of 1905, we cannot but fear will prove illusory.

Nevertheless, if the proposals are adopted by a truly representative and duly constituted international congress, we will, of course, accept them, as before.

Would those Americans who are now urging "compromise" be equally ready to accept an adverse decision of such a congress? If so, a real step toward uniformity would be taken.

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"Nothing is constant but change" is a feature of human experience in all lines of activity, often lost sight of, but always with us, and to some people a very troublesome factor in their existence. It is, indeed, in the nature of an inexorable law from which there is no complete escape. Like other natural laws it is probably beneficial in the long run, and may therefore be regarded with more consideration than is often awarded it. We meet it everywhere in the domain of natural science. All attempts to nullify or evade it have only been partially successful, and future trials must have the same fate. Names for objects, places, and organisms come quite within the influence of this law of change; our puny endeavors to stabilize them by rules and legislation can only meet with partial success, and the history of botanical nomenclature is a salient illustration of partial failure, when considered in the operation of its details. Modified conceptions of generic limitations, apparently impossible and probably undesirable to control, put a large percentage of binominals into necessary instability.

As regards the applicability of any elaborate and therefore complicated series of nomenclatorial rules, there will always be some uncertainty in results, and the amount of time and effort required in the attempt to follow them may well be considered, as compared with the conclusions reached by individual students; examples of this are common in literature, differences in interpretation of rules being frequent by the followers of any code.

The advantage of simplicity, with the expectation of some diversity in nomenclature, as against complexity and the futile attempt at absolute uniformity, may, therefore claim consideration at this period of discussion. If approved, it requires allegiance to a few principles only, and, as long ago pointed out, these must neither be arbitrary nor imposed by attempted authority; otherwise they will be resented, and fail in their purpose.

The American Code of Botanical Nomenclature modified in some details by the Type Basis Code, is an attempt at simplification of the International Rules, based on a few principles, and a protest against arbitrary features of those rules. The outlined application of these principles is, perhaps, still too complicated; the emphasis laid upon the basing of species upon type specimens and of genera upon type species, and the complete rejection of hyponyms there first elaborated, are among its most important features and have demonstrated their value, as evidenced by wide acceptance; modification of some details may well be deemed desirable in the light of experience.

But the rejection of generic names properly typified, for the sole reason that their acceptance would change binominals in current usage is arbitrary, autocratic,

and unscientific, therefore abhorrent, repellent, and unwise. The abandonment of the theory of *nomina conservanda,* as at present understood by its misguided advocates, is therefore necessary before a rational system of botanical nomenclature can be obtained. The application of the principle of rejection of hyponyms and of homonyms, should, together with the selection of type species, operate to bury enough debatable generic names to meet all actual requirements, and avoid attempted artificial conservation of names.

Consideration of the international rules of zoological nomenclature will suggest a method for avoiding the use of some generic names without invoking the highly arbitrary one here denounced; these rules have recently been republished by the Biological Society of Washington (Proceedings 39: 75-104).