THE CODE OF NOMENCLATURE

AND

CHECK-LIST

OF

NORTH AMERICAN BIRDS

Adopted by the American Ornithologists' Union

BEING THE REPORT OF THE COMMITTEE OF THE UNION ON CLASSIFICATION AND NOMENCLATURE

Zoölogical Nomenclature is a means, not an end, of Zoölogical Science

---

NEW YORK
AMERICAN ORNITHOLOGISTS' UNION
1886

University Press:
John Wilson and Son, Cambridge.

PREFACE.

AT the first Congress of the American Ornithologists' Union, held in New York, September 26–29, 1883, the following resolution was adopted: —

"*Resolved*, That the Chairman appoint a Committee of five, including himself, to whom shall be referred the question of a Revision of the Classification and Nomenclature of the Birds of North America."

In pursuance of this resolution the following Committee was appointed: Messrs. Coues, Allen, Ridgway, Brewster, and Henshaw.

The Committee, having held numerous sessions in Washington and New York, presented its Report at the second Congress of the Union, held in New York, Sept. 30 to Oct. 2, 1884, when the following resolution was adopted: —

"*Resolved*, That the Report of the Committee on the Revision of the Nomenclature and Classification of North Ameircan Birds be accepted and adopted, and that it be recommitted to the Committee, with instructions to complete and submit it to the Council as soon as practicable; and that the Council be empowered and instructed to accept and adopt the Report as finally rendered, with such modifications as they may deem necessary, and to publish the same, copyrighted, in part or in whole, and in one or more forms, in the name and under the auspices of the American Ornithologists' Union."

The Committee, having continued its sessions, presented its final report to the Council at a meeting held in Washington on the 21st of April, 1885, when the Report of the Committee was

accepted and adopted, and was referred again to the Committee for publication, the Committee to exercise such editorial revision as might seem necessary.

Pursuant to the foregoing resolutions of the Union and Council, the Committee now offers to the public, in the name and on behalf of the Union, the result of its labors, consisting of a List of North American Birds, preceded by the Code of Rules adopted by the Committee for its guidance in the preparation of the List.

The Committee ventures to hope that the new Code will find favor, not only with ornithologists, but among zoölogists generally.

ELLIOTT COUES.
J. A. ALLEN.
ROBERT RIDGWAY.
WILLIAM BREWSTER.
H. W. HENSHAW.

TABLE OF CONTENTS.

THE CODE OF NOMENCLATURE

AND

CHECK-LIST OF NORTH AMERICAN BIRDS.

I.

INTRODUCTION.

IN beginning its work the Committee found it necessary to examine particularly those rules, precedents, and practices of nomenclature respecting which leading authorities differ, it becoming immediately obvious that no substantial and satisfactory progress in the preparation of a List of North American Birds could be made until various disputed points should be settled. This necessity led to the discussion of the general principles of zoölogical nomenclature, in their special application to the subject in hand; and ultimately resulted in the formation of a Code of Rules for the guidance of the Committee in fixing the name of every North American bird. These rules were considered in their bearing upon Zoölogy at large, as well as upon Ornithology alone; it being obvious that sound principles of nomenclature should be susceptible of general application. Furthermore, since in the nature of the case there can be no personal obligation, and no court of appeal with power to enforce its decision, canons of nomenclature should derive their weight wholly from their merit, and should acquire the force of law only by the common consent of zoölogists. Since nomenclature is a means, not an end, of science, the merit of a code of rules for naming objects rests upon its utility, its availability,

and its efficiency in meeting all necessary and reasonable requirements of a system of classification, — in a word, upon its practical convenience.

Fortunately for the interests of science, the tendency of naturalists has latterly been toward substantial agreement upon most of the fundamental principles involved in nomenclature, variance of opinion coming mainly in the application of those principles in minor details. To prepare an acceptable and entirely available code of rules, the compilers of to-day have therefore to do little more than clearly formulate the current usages of the best naturalists, and consistently apply them to any given case.

Without undertaking to give in detail the history of zoölogical and botanical nomenclature from the Linnæan period to the present day, the Committee deems it proper and needful to advert to certain moot points. While binomial nomenclature may be considered to have originated with Linnæus, who propounded and established its fundamental principles with admirable sagacity, these have in the course of time and to some extent been necessarily modified to meet the requirements of the progress of zoölogical science, by restriction in some directions and extension in others. So radically, indeed, has the aspect of the science changed since the Linnæan period, and so profoundly do modern conceptions in biological science differ from those then held, that a strict binomial system has probably had its day, and may be abandoned, with great benefit to science, in the not distant future. But, assuming that the binomial nomenclature, with some modification, is still to be retained for a while, in its general features, the whole course of scientific nomenclature has shown that the *law of priority — lex prioritatis* — is the one great underlying principle; and the nearly universal tendency is, to hold this principle inviolate, to adhere to it with the utmost possible stringency, and to tolerate the fewer infractions as time advances.[1] But there is unfortunately no

[1] A signal exception to this is found in the just published 'History of British Birds,' by Mr. Henry Seebohm, — an ingenious and thoughtful ornithologist, — who discards the *lex prioritatis*, substituting therefor an *auctorum plurimorum* principle, according to which his method is to use for every bird that specific name which has

unanimity in fixing the date of the beginning of the operation of the law of priority, naturalists being nearly evenly divided in opinion upon this point. The so-called 'Stricklandian Code' fixed the date at 1766,[1] — that of the twelfth edition of the 'Systema Naturæ.' This has been generally accepted by British zoölogists; while many others, especially in America and of late years, consider 1758 as the fittest starting-point, this being the date of the tenth edition of the 'Systema Naturæ,' in which Linnæus first methodically and consistently applied the binomial nomenclature to zoölogy. Botanists are at variance with zoölogists, and with one another, in this particular; some taking as

been oftenest used before, irrespective of its original application, or of its applicability under the law of priority. But a much earlier protest against the strict law of priority, from an entomologist, is to be found in a tract published in 1872, the following title of which indicates the nature of its contents: —

1872. Lewis, W. Arnold. A Discussion | of the | Law of Priority in Entomological | Nomenclature; | with Strictures on its Modern Application; | and | a Proposal for the Rejection of all | disused Names. | — | By | W. Arnold Lewis, | F. L. S., M. Entom. Soc. Lond., Barrister-at-Law. | — | Also containing | A Paper, by the same, read before the British Association | (Section D) on August 7, 1871; | And a Second, by the same, intended as a Contribution to the | Discussion in the 'Entomologist's Monthly Magazine.' | — | London: | Williams & Norgate, 14, Henrietta Street, | Covent Garden. | — | 1872. 1 vol. 8vo, paper cover, title, advt., and pp. 1–86.

(The first paper mentioned in the title is, 'A Proposal for a Modification of the strict Law of Priority in Zoological Nomenclature in Certain Cases,' pp. 69–82. The second is entitled, 'Synonymic Lists and Certainty in Nomenclature,' pp. 82–86.)

Another paper, also by an entomologist, may be consulted with profit. It is entitled as follows: —

1873. Sharp, David. The | Object and Method | of | Zoological Nomenclature. | By | David Sharp. | — | "Nomina si nescis, perit et cognitio rerum." | — | London: | E. W. Janson, 28 Museum Street. | Williams & Norgate, Henrietta St. | — | November, 1873. Paper, sm. 8vo, cover-title backed by preface, and pp. 39.

(Well reviewed by A. R. Wallace, 'Nature,' Feb. 5, 1874, p. 258.)

[1] "In Mr. H. E. Strickland's original draft of these Rules and Recommendations the edition of Linnæus was left blank, and the XIIth was inserted by the Manchester Committee. This was done not as being the first in which the binomial nomenclature had been used, as it commenced with the Xth, but as being the last and most complete edition of Linnæus's works, and containing many species the Xth did not." — *Revised Rules of the B. A.*, p. 28, as printed in Rep. Brit. Ass. Adv. Sci., Birmingham Meeting, 1865. For evidence that Strickland himself was an advocate of Linnæus at 1758, see 'The Auk,' I, 1884, p. 400.

their starting-point the first edition of the 'Genera Plantarum' of Linnæus, published in 1737; others, his promulgation of rules in the 'Philosophia Botanica,' 1751; others, again, his 'Species Plantarum,' 1753. But, furthermore, as some zoölogists used the system methodically in works published prior to 1758,[1] and as generic names were employed in a strict sense by some writers of eminence in zoölogy as early as 1732,[2] the law of priority is restricted in time by neither one of two important codes recently promulgated, — that of the Société Zoologique de France, 1881,[3] and that of the Congrès Géologique International, 1882;[4] the only provisions for the inception of its operation being, that a given name, to be available, shall have been properly published and clearly defined, conformably with the rules of binomial nomenclature.

The Stricklandian Code was nevertheless taken by the International Geological Congress as its point of departure and basis of procedure in the formulation of the Rules it adopted. This code — first promulgated by the British Association for the Advancement of Science, at Manchester, in 1842, later adopted by the American Association of similar name and character, and reaffirmed and again adopted with little modification by the British Association, at Bath, in 1865[5] — has until recently been the principal code of zoölogical nomenclature; it is still recognized as the highest authority by most English-speaking zoölogists, and is followed with more or less reservation and evasion by naturalists at large. In most respects — excepting the rule which fixed the date of the

[1] As Artedi, Scopoli, Pallas, Clerck, etc.

[2] E. g. Breyn; to which may perhaps be added Link, 1722, Klein, 1731 and 1734, Linnæus, 1735, and Tournefort, 1742.

[3] Société Zoologique | de France | — | De la | Nomenclature | des | êtres organisés | — | Paris | Au Sièges de la Société | 7, rue des Grands-Augustins, 7 | — | 1881. Paper, 8vo, pp. 37.

[4] Règles à suivre pour établir la nomenclature des espèces. Rapport du Secrétaire de la Commission H. Douvillé. < Congrès Géologique International. Compte rendu de la 2me Session, Bologne, 1881, (pub. 1882,) pp. 592–608.

[5] See Notes on the modified Rules for Zoölogical Nomenclature, B. A., 1865, by A. E. Verrill, in Am. Jour. Sci. and Arts, 2d Series, Vol. XLVIII., July, 1869, pp. 92–110.

starting-point of nomenclature at 1766 — this honored code was admirably conceived at the time. It had great influence for good, and did much to bring zoölogical nomenclature from a loose and almost chaotic state to a fair degree of stability and orderly consistency. Its principal defects are those which could not then have been perceived and avoided, being inherent in the binomial system itself, as has become obvious in the subsequent forty-three years of progress in zoölogical science, during which time have arisen contingencies and complications which, being unforeseen in 1842, could not have been then provided for. In fine, the Stricklandian Code could not possibly have been made better than the radically faulty binomial scheme upon which it was based, and for the perpetuation of which in all its defects it sedulously provided. No one appears to have suspected, in 1842, that the Linnæan system was not the permanent heritage of science, or that in a few years a theory of evolution was to sap its very foundations, by radically changing men's conceptions of those things to which names were to be furnished. Nevertheless, the half-dozen emendations made to this code by the Bath Committee in 1865 were, with one exception, ill-advised, leaving the code less available and efficient than it had been before. The fact, however, that the Stricklandian Code has been from 1842 to the present year the recognized basis of nearly all attempts to improve the formal rules for zoölogical nomenclature, is ample evidence of its usefulness and general soundness, so long as we must continue to base our nomenclature upon the Linnæan binomial system. The wide-spread recognition of its weight and authority in nomenclature, and the almost universal currency of its leading provisions, which are in the main as satisfactory as any can well be which provide for a strictly binomial system, — in short, the strength of the Stricklandian Code, renders it still the natural and proper basis of any new code which may seek to provide for the comparatively few contingencies to meet which the former one has proven inadequate.[1]

[1] The Committee which drafted the original 'Stricklandian' Code, appointed at a meeting of the Council of the British Association for the Advancement of Science,

It has therefore seemed to your Committee advisable to take the original Stricklandian Code as the initial point of departure; to reaffirm and reproduce as many of its rules as may be desirable, without reference to the changes made in it in 1865, — changes which, with one exception, do not appear to your Committee to be available for adoption, although, for the sake of historical completeness, they may be duly noted in their

held in London, February 11, 1842, consisted of Mr. C. Darwin, Professor Henslow, Rev. L. Jenyns, Mr. W. Ogilby, Mr. J. Phillips, Dr. Richardson, Mr. J. O. Westwood, and Mr. H. E. Strickland (reporter); to whom were afterward added, W. J. Broderip, Professor Owen, W. E. Shuckard, G. R. Waterhouse, and W. Yarrell. The result of their labors appeared in a 'Series of Propositions for rendering the Nomenclature of Zoology uniform and permanent,' first printed in the Report of the Twelfth Meeting of the British Association, held at Manchester, June, 1842, p. 106 *et seq.* They also appeared in the 'Annals of Natural History,' and in the 'Philosophical Magazine.' C. L. Bonaparte submitted an Italian translation to the Scientific Congress held at Padua in 1843. A French translation also appeared in 'L'Institut' (11e Ann., No. 498, pp. 248–251, 13 Juil, 1843), and a review by Dr. A. A. Gould of the 'Propositions' was printed in the 'American Journal of Science and Arts' (Vol. XLV., 1843, pp. 1–12).

At the B. A. meeting at Oxford in 1860, it was "resolved, that the surviving members of the Committee appointed in 1842 — viz., Mr. C. Darwin, Rev. Professor Henslow, Rev. L. Jenyns, Mr. W. Ogilby, Professor Phillips, Sir John Richardson, Mr. J. O. Westwood, Professor Owen, Mr. W. E. Shuckard, and Mr. G. R. Waterhouse . . . . be reappointed, with Sir Wm. Jardine, Bart., and Mr. P. L. Sclater." At the B. A. meeting at Newcastle, 1863, the Committee was reformed again, to consist of Sir Wm. Jardine, A. R. Wallace, J. E. Gray, C. C. Babington, Dr. Francis, P. L. Sclater, C. Spence Bate, P. P. Carpenter, Dr. J. D. Hooker, Professor Balfour, H. T. Stainton, J. Gwyn Jeffries, Prof. A. Newton, Prof. T. H. Huxley, Professor Allman, and G. Bentham, with power to add to its members. For the purpose of eliciting suggestions and recommendations, this Committee reprinted the original 'Series of Propositions,' etc., in a pamphlet entitled as follows: —

Rules | for | Zoological Nomenclature | by the late | Hugh E. Strickland, M. A., F. R. S. | Authorized by Section D of the | British Association | at Manchester, 1842. | — | Reprinted by Requisition of Section D at Newcastle, | 1863. | — | Edinburgh: | Printed by Neill and Company. | MDCCCLXIII. 8vo, pp. 25.

This is the original of the 'Stricklandian Code,' 1842, known also as the 'Rules of the British Association.' Upon this the Bath Committee, in 1865, engrafted its emendations, with the result of what is known as the 'Revised B. A. Rules,' entitled as follows: "Report of a Committee appointed to report on the Changes which they may consider desirable to make, if any, in the Rules of Zoological Nomenclature drawn up by Mr. H. E. Strickland, at the Instance of the British Association at their Meeting in Manchester in 1842." (Rep. 35th Meeting Brit. Assoc. Adv. Sci., held at Birmingham in Sept., 1865, (pub. 1866,) pp. 25–42.)

proper place in this Report; and then to build upon such a foundation with those additional recommendations and suggestions which in the judgment of the Committee are required to meet the demands of the present state of zoölogical science, and which seem most timely in view of its evident tendency, and probable progress in the future.

As is well known, Alphonse De Candolle provided botanists with a code of nomenclatural rules for the Vegetable Kingdom, the admirably sound character of which code caused it to receive the unanimous indorsement of the International Botanical Congress held in Paris in 1867. These rules are almost equally applicable to Zoölogy, the nomenclatural requirements of the Animal and Vegetable Kingdoms being nearly identical; and in general tenor and spirit they are much the same as those of the Stricklandian Code. In 1876, an American zoölogist, Mr. W. H. Dall, was appointed by Section B of the American Association for the Advancement of Science a committee of one, "to obtain an expression of opinion from the working naturalists of America, in regard to the nature of a set of rules for facilitating the decision of questions relating to nomenclature." In pursuance of this duty, Mr. Dall prepared a circular upon the subject, consisting of a series of questions relating to disputed points, which was widely distributed among the publishing naturalists of America, from whom a gratifyingly large number of responses were received. To Mr. Dall's report, as published,[1] embodying the purport of all their replies, was added an Appendix, consisting "of a *résumé* of all the principles and rules of nomenclature as hitherto set forth by the chief authorities on that subject, with the diverse views of different authors concerning each proposition appended to it and authenticated by their initials," the reporter further adding many comments of his own. These principles and rules were compiled equally in the interest of Zoölogy and of

[1] Nomenclature | in | Zoology and Botany. | A Report to the American Association for the Advancement of | Science at the Nashville Meeting, August 31, 1877. | — | By | W. H. Dall, | United States Coast Survey. | — | Salem: | Printed at the Salem Press. | December, 1877. 8vo, paper cover, title, and pp. 7–56.

Botany, and based largely upon the Zoölogical Code of Strickland and the Botanical Code of De Candolle. The Appendix, of thirty-three pages of mostly small type, giving a thorough and nearly complete *résumé* of the subject, forms a mine of information upon current usages and previous rulings in nomenclature. While its general character is that of a digest of what was at the time, or had before been, the laws of the subject, the reporter did not not fail to furnish much original matter, in the form of sound criticism and valuable suggestions on many important points; so that his codification of rules and principles may be consulted with profit by all who are interested in the subject of systematic nomenclature.[1]

In 1881, as already noted, the Zoölogical Society of France adopted a code of rules prepared by a commission specially appointed to consider the subject. These rules, only seventeen in

[1] Mr. Samuel H. Scudder had shortly before Mr. Dall's labors published a valuable paper entitled 'Canons of Systematic Nomenclature for the Higher Groups,' in the Amer. Jour. Sci. and Arts, 3d Series, III., May, 1872, pp. 348–351. (Separate, pp. 1–4.)

Entomology is by far the most extensive branch of Zoölogy, and much has been done by entomologists to promote the sound nomenclature of the department. Fabricius's 'Philosophia Entomologica,' 1778, is said to contain the first set of rules published for entomological nomenclature. Besides some papers already cited, we may in this connection note the following:—

'On some Changes in the Nomenclature of North American Coleoptera which have been recently proposed.' By John L. LeConte, M. D. Canad. Entom., October, 1874, pp. 185–197.

'On Entomological Nomenclature.' Canad. Entom., November, 1874, pp. 201–206; December, 1874, pp. 207–210. (Part I. is 'On the Law of Priority'; Part II. is 'On Generic Types.')

'Historical Sketch of the Generic Names proposed for Butterflies, a Contribution to Systematic Nomenclature.' By Samuel H. Scudder. Salem, 1875. 8vo, pp. 293.

'Observations on Nomenclature' constitute Part I. of Thorell's work on European Spiders, 4to, Upsala, 1869.

'Rules to be submitted to the Entomological Club of the A. A. A. S.,' 8vo, n. d., n. p., "ordered printed by resolution at the annual meeting for 1875," but never published, were drawn up by a portion of the Committee appointed by the Club, viz., J. L. LeConte, Wm. Saunders, and C. V. Riley. These proposed rules, twelve in number, were, like the questions propounded in the Dall circular, extensively circulated, chiefly among entomologists, to elicit responses. They were, however, never finally adopted by the Club.

number, and occupying less than three octavo pages, are likewise intended to apply to both Zoölogy and Botany. Their principal divergence from the Stricklandian Code is at the point of departure for the law of priority, as already stated. The rules are succeeded by a commentary of some thirty pages, prepared by M. Chaper, the reporter of the commission, one third of this matter relating to the starting-point for the action of the law of priority, which is discussed with special reference to pre-Linnæan authors, and favors the non-limitation of the law by the works of Linnæus.

The International Geological Congress, at its meeting held in 1882 at Bologna, also adopted a code of rules intended to apply equally to Zoölogy and Botany. They were proposed by a committee specially appointed for the purpose, who, after adopting certain general principles, took as its basis of departure the Stricklandian Code. These rules are even fewer than those of the code of the French Zoölogical Society, being only eleven in number, and occupying less than two octavo pages. They are followed by twenty-two pages of valuable commentary, offered to the Commission by its Secretary, M. H. Douvillé. This is largely historical, and, like M. Chaper's, argues for the non-limitation of the law of priority by the works of Linnæus, and for its restriction, as above said, only by the requirements of binomiality, proper publication, and clear definition. The only exceptions to the action of this law which the code recognizes as permissible are in the cases of preoccupation of a generic name in the same kingdom, and of a specific name in the same genus.

In 1883, M. A. De Candolle published his important 'Nouvelles Remarques sur la Nomenclature Botanique,' in which he reviews the discussions which were had during the sixteen years following the appearance of his Botanical Code of 1867,[1] and proposes a few changes which he considers that experience has shown to be necessary. These, following upon Dall's digest and upon the action respectively of the French Zoölogical So-

[1] 'Lois de la Nomenclature Botanique, rédigées et commentées par M. Alphonse De Candolle.' Paris, 1867. 8vo, pp. 60.

ciety and of the International Geological Congress, tend in the direction of securing the utmost attainable fixity of names and general stability in nomenclature, by giving the fullest scope possible to the operation of the law of priority.

De Candolle takes the first edition of the 'Species Plantarum,' 1753, as the starting-point of the binomial system in Botany, and therefore as the date of the beginning of the law of priority in respect to species, — a point substantially agreed upon by botanists. For generic names, however, he takes the first edition of the 'Genera Plantarum,' 1757; and his 'Article 15' provides that each natural group of plants must retain the most ancient name appended to it, if it be not inconsistent with the essential rules of nomenclature, whether adopted or given by Linnæus, or since his time; thus implying that the law of priority is not to extend to authors earlier than Linnæus. His provisions in regard to the emendation of names are very strict. His 'Article 60' is: 'A generic name should subsist just as it was made, though a purely typographical error may be corrected. The termination of a Latin specific name may be changed to bring it into agreement [in gender] with its generic name." This is a marked change from his previous code, in which Article 60 enjoined the suppression of hybrid names, or those formed by the combination of two languages.

It is evident, even from the foregoing brief and incomplete summary of some leading authorities upon nomenclature, that the general tendency at present is in the direction of the greatest attainable fixity of names, by the most rigid adherence to the law of priority under all practicable circumstances, and by the disregard as far as possible of all rules requiring the rejection of names for faulty construction, for barbarity, for being meaningless, and even for being literally false, — changes to be made only in cases of obvious typographical errors. The emendations proposed by your Committee to be made in the Stricklandian Code recognize this tendency, and are in harmony with it. Your Committee, however, does not agree to any of the dates which various codes take as their respective starting-points in nomenclature, and especially does not deem it expe-

dient to take different dates for generic and specific names. The Committee, furthermore, in one or two cases, submits some decided innovations, positively at variance with the provisions of any previous nomenclatural code; believing that certain radical modifications are demanded by recent progress in science, and that these are a step in advance.

Referring now to the original Stricklandian Code of 1842, the principal changes which your Committee proposes and recommends for adoption by the Union may be summarized as follows: —

(1.) The adoption of the date of the Xth edition of the 'Systema Naturæ,' 1758, instead of that of the XIIth, 1766, as the starting-point of the law of priority for names of whatever groups; because this date, 1758, is in fact that of the establishment of the binomial system of nomenclature in Zoölogy, and of its first methodical application to the whole Animal Kingdom.

(2.) The rule that prior use of a name in Botany does not make that name unavailable in Zoölogy; with the injunction, however, that duplication of names in the Animal and Vegetable Kingdoms is to be sedulously avoided in future.

(3.) The principle of Trinomials: namely, departure from strict binomiality to the extent of using three words as the name of those subspecific forms which are sufficiently distinct to require recognition by name, yet which are known to intergrade with one another; the name of such forms to consist of three terms, — a generic, a specific, and a subspecific, — written consecutively and continuously, without the intervention of any mark of punctuation, any arbitrary character, any abbreviation, or any other sign or term whatsoever.

Furthermore, the Committee, while insisting strenuously upon the principle of an inflexible law of priority, has nevertheless sedulously attempted to guard, as far as may be possible, against needless or undue rejection of names in current usage in favor of obscure earlier ones which rest upon descriptions so vague or imperfect that their identification can be made out only by the process of exclusion, — by presuming that they can mean nothing else. The safeguard which the Committee proposes for these cases is, that a name to be valid must be iden-

tifiable by the means furnished by the original describer, or at least by such means taken in connection with sources of information contemporaneous with the original description. That is to say, the name of a species or other group, to be valid, must have been identifiable since the time it was proposed, and not have become so subsequently by the advance of the science.

The Committee has also attempted to define as clearly as possible the basis upon which generic, specific, and subspecific names may reasonably and properly rest.

While the Committee feels free to advise and recommend in respect to future practices and principles in systematic nomenclature, it is obvious that no suggestions or rules should be of a retroactive character, or partake of the nature of *ex post facto* laws. Yet, so multifarious and often conflicting have been the usages of publishing naturalists on many points of nomenclature, that in many cases no rule can be adopted which will not be to some extent retroactive. Thus, in seeking to attain a basis of uniformity and stability, it is always necessary to go back to the original forms of names, and consistently adhere to them, in entire disregard of the verbal innovations of purists or grammarians, who, aiming at classical correctness in names, have too often brought about instability and confusion. It seems out of the question to relax the law of priority, let the immediate inconvenient results of adherence to that law be what they may.

And, in respect of any temporary inconvenience, or of any seeming confusion which may be the immediate consequence of its action, the Committee feels able to give assurance that these are far lesser evils than some of those which it hopes to do away with. The case of an unstable and far from uniform system of nomenclature no more shows the need of improvement, than admits of those changes which are necessary ; and though the evils inseparable from all states of transition may be obvious, they are themselves no less transitory, while the good results of the strict and consistent application of sound principles of nomenclature are likely long to endure.

The following series of twenty-one propositions and affirma-

tions, abstracted and condensed from the minutes of the meetings of the Committee, will show at a glance the principal results reached. They are simply the gist of some of the resolutions passed by the Committee in session, the points involved being formally presented beyond, under 'Principles, Canons, and Recommendations.'

(*a*) The Stricklandian Code, B. A. Rules, 1842, 1865, the basis of zoölogical nomenclature: the whole subject to be considered therefrom.

(*b*) Trinomial nomenclature to be provided for.

(*c*) Botanical nomenclature not to be considered; use of names in Botany not to invalidate their subsequent use in Zoölogy.

(*d*) Linn. Syst. Nat., ed. X., 1758, to be the starting-point of zoölogical nomenclature, and of the operation of the law of priority, for *all* names.

(*e*) The law of priority to be inflexible; conditions of its proper application; its application to names of groups higher than genera.

(*f*) The maxim, 'Once a synonym always a synonym,' to be affirmed and extended to species and subspecies.

(*g*) Names to be Latin, or in Latin form.

(*h*) Names to be adopted on certain principles, without regard to persons.

(*i*) Absolute identification required to displace a modern current name by an older obscure one.

(*j*) Basis of a specific or subspecific name to be, either (1) an identifiable published description, or (2) a recognizable published plate or figure, or (3) the original named type specimen; diagnosis to be made upon the status of the name at the time it was proposed; identification of type specimens, to be valid, must be absolute.

(*k*) Basis of a generic or subgeneric name to be, either (1) a designated recognizably described species, or (2) a designated recognizable plate or figure, or (3) a published diagnosis; such names tenable upon (1) or (2), even if wanting (3).

(*l*) Type of a genus to be determined by the 'process of elimination,' if no type is originally mentioned.

(*m*) Generic names not to be invalidated by use of same name for a higher group (*e. g.*, *Accipiter* tenable as a genus, though there is an order *Accipitres*). The same with specific names (*e. g.*, *Pica pica*).

(*n*) Names differing like *Pica* and *Picus* both tenable; differing only like *Spermophila* and *Spermophilus*, the later one untenable.

(*o*) The maxim, "A name is only a name, and has no necessary meaning," affirmed; barbarous, hybrid, meaningless, or descriptively inappropriate names tenable.

(*p*) Original orthography of names to be preserved, unless a typographical error is evident.

(*q*) Transliteration of names, and terminations of personal names, to be provided for.

(*r*) Names raised in rank (as of a subspecies raised to a species, or of a subgenus raised to a genus) to be tenable in the new position.

(*s*) The authority for a name to be that of the original namer.

(*t*) When a generic name sinks into synonymy, any current family or subfamily name derived from such generic name to become untenable (*e. g.*, 'Sylvicolidæ' untenable, since *Sylvicola* is preoccupied).

(*u*) Rule thirteenth of the Stricklandian Code (rendering a specific name untenable when used for a genus) to be ignored.

With reference to the plan and form of the proposed American Ornithologists' Union 'List of North American Birds,' it was proposed and unanimously agreed: —

1. That the term 'North American,' as applied to the proposed List of Birds, be held to include the continent of North America north of the present United States and Mexican boundary, and Greenland; and the peninsula of Lower California, with the islands naturally belonging thereto.

2. That species be numbered consecutively, and that subspecies be enumerated by affixing the letters *a*, *b*, *c*, etc. to the number borne by their respective species; provided, that any subspecies of a species not included in the North American Fauna shall be separately numbered as if a species.

3. That stragglers or accidental visitors, not regarded as components of the North American Fauna, be distinguished by having their respective numbers in brackets.

4. That any subsequent additions to the list be interpolated in systematic order, and bear the number of the species immediately preceding, with the addition of a figure (1, 2, etc., as the case may require), separated from the original number by a period or decimal point, thus giving the interpolated number a decimal form (*e. g.*, 243.1, etc.), in order that the original numbers may be permanent.

5. That species or subspecies for any reason included in the List, in regard to the specific or subspecific validity of which any reasonable doubt exists, shall have their respective numbers followed by a note of interrogation.

6. That Giraud's at present unconfirmed species of Texan birds be included in the List on Giraud's authority.

7. That species and subspecies the zoölogical status of which cannot be satisfactorily determined, like, *e. g.*, *Regulus cuvieri* and *Spiza townsendi* of Audubon, be referred to a hypothetical list, in each case with a brief statement of the reasons for such allocation.

8. That a list of the fossil species of North American birds be added as an Appendix to the List proper.

9. That the names of subgeneric and supergeneric groups of North American birds be included in the List in systematic order, to the end that the List may represent a classification as well as a nomenclature of the birds.

10. That references be given to the original description of the species, and to the publication where the name as adopted in the List was first used; that the number borne by each species and subspecies in the Lists of Baird, 1858, of Coues, 1873, of Ridgway, 1880, and of Coues, 1882, be bracketed in chronological order after the synonymatic references.

11. That a summary statement of the habitat of each species and subspecies, with special reference to its North American range, be included in the List.

12. That the name of each bird shall consist of its generic without its subgeneric name, and of its specific with its subspecific name, if it have one, without the intervention of any other term.

13. That specific be typographically distinguished from subspecific names by the use of a smaller type for the latter.

14. That every technical name be followed by a vernacular name, selected with due regard to its desirability.

15. That the name of each species and subspecies be followed by the name of the original describer of the same, to be enclosed in parentheses when it is not also the authority for the name adopted.

16. That all specific and subspecific names shall begin with a lower-case letter.

17. That the sequence in classification followed in previous Lists be reversed, the List to begin with the lowest or most generalized type, and end with the highest or most specialized.

Although it is deemed by the Committee neither necessary nor desirable to embody in its Report the minutes of its meetings, a few further extracts may be presented in the present connection.

The subject of the formal introduction of trinomials into the binomial system — a matter upon which the Committee lays great stress — was brought up at the fourth meeting, December 15, 1883, in the form of the following resolution, which was unanimously adopted: —

"Whereas, the progress of Ornithology of late years has so greatly increased and perfected our knowledge of the exact morphological relations between allied forms of birds, and has so profoundly modified the conception of species held when the so-called binomial or Linnæan system of nomenclature was formulated and applied, that this system is no longer adequate to handle known facts, or a clear reflection of the modern conception of species based upon such facts, it becomes obviously proper and necessary to modify the system in so far as may be required to meet the new aspect of the case: it is therefore

"*Resolved*, That a trinomial system of nomenclature be adopted upon the basis and in the spirit of the binomial system; such system allowing and providing for the use of names consisting of three terms — generic, specific, and subspecific — for those forms which, as a matter of fact, are known to intergrade in physical characters; two terms — generic and specific — being employed as heretofore for those forms which are not known to so intergrade."

At the seventh meeting, December 19, 1883, the following resolution was unanimously adopted: —

"That the Committee resolve itself into two subcommittees, to one of which is referred the whole subject of specific and subspecific determinations of North American birds, and to the other the subject of formulating and codifying the nomenclatural results reached by the whole Committee; the former subcommittee to consist of Mr. R. Ridgway, Mr. Wm. Brewster, and Mr. H. W. Henshaw; the latter, to consist of Mr. J. A. Allen and Dr. E. Coues; and that Dr. L. Stejneger be requested to co-operate with the former subcommittee in determining questions of synonymy."

At the eighth meeting (second session) of the Committee, held March 8, 1884, the subcommittee appointed to "formulate and codify the nomenclatural results reached by the Committee" presented its report; whereupon the following resolution prevailed: —

"That the report of the subcommittee on formulation and codification of nomenclatural rules be accepted and affirmed; and that the subcommittee be instructed to prepare a fair manuscript copy of the Code, to embody the Nomenclatural Rules which the Committee has adopted and proposes to recommend to the Union for adoption; taking the Stricklandian Code as the basis of departure, disencumbering that Code of whatever may be deemed superfluous or objectionable, and engrafting upon it the Rules and Recommendations which the whole Committee has approved."

II.

PRINCIPLES, CANONS, AND RECOMMENDATIONS.

"In venturing to propose these rules for the guidance of all classes of zoologists in all countries, we disclaim any intention of dictating to men of science the course which they may see fit to pursue. It must of course be always at the option of authors to adhere to or depart from these principles, but we offer them to the candid consideration of zoologists in the hope that they may lead to sufficient uniformity of method in future to rescue science from becoming a mere chaos of words." — H. E. STRICKLAND, 1842.

A. General Principles.

PRINCIPLE I. Zoölogical nomenclature is a means, not an end, of zoölogical science.

REMARKS. — It is to be deplored that it is apparently necessary to raise what is merely a trite truism to the dignity of a principle of nomenclature. But it seems proper to protest in this way against any misconception that the science of Zoölogy consists in the art of naming objects in that branch of science, and also against every wanton, capricious, arbitrary, or otherwise needless and undesirable change of names which have acquired current usage and definite signification in Zoölogy. It is undeniable that a "mere shuffling of names" (A. AGASSIZ) is the chief outcome of much study and much writing which is mistaken for scientific research and the advancement of science.

On this score and in the same tenor may be quoted several expressions from De Candolle,[1] relating to some of the general principles of nomenclature considered as a means to an end.

"Natural History cannot progress, nor can the study of its various branches be carried on and properly correlated, without a regular system in nomenclature which shall be recognized and employed by the majority of naturalists of all countries."

"The rules for nomenclature must be impartial, and founded on motives sufficiently clear and weighty to promote their general comprehension and acceptance."

[1] Quoted from Dall (Rep., p. 23), not from the original.

"The essential principles in everything which relates to nomenclature are, (1) the attainment of *fixity* in the designations for organized beings; (2) the avoidance of names or methods of applying names calculated to result in errors or to throw science into confusion; and lastly, (3) to avoid the unnecessary creation of names."

"No usage conflicting with the rules and liable to introduce error or confusion can be maintained. When no grave objections of this nature are liable to be raised, it may happen that an ancient usage may be conserved without opposition, but all should carefully guard against the imitation or extension of such practices. In the absence of a rule, or if the application of the rules be doubtful, an established usage may be taken as a proper guide."

PRINICIPLE II. Zoölogical nomenclature is the scientific language of systematic Zoölogy, and vernacular names are not properly within its scope.

REMARKS. — "In proposing a measure for the establishment of a permanent and universal zoological nomenclature, it must be premised that we refer solely to the Latin or systematic language of zoology. We have nothing to do with vernacular appellations. One great cause of the neglect and corruption which prevails in the scientific nomenclature of zoology has been the frequent and often exclusive use of vernacular names in lieu of the Latin binomial designations, which form the only legitimate language of systematic zoology. Let us then endeavor to render perfect the Latin or Linnæan method of nomenclature, which, being far removed from the scope of national vanities and modern antipathies, holds out the only hope of introducing into zoology that grand desideratum, an universal language." (*B. A. Code*, 1842.)

PRINCIPLE III. Scientific names are of the Latin form or language, and when derived from another language are to be Latinized in form; but names which have been used in zoölogical nomenclature as if they were Latin words cannot be changed or rejected, if they are otherwise unobjectionable.

REMARKS. — The above principle bears upon a large number of names, not only specific but also generic, and seems to require extended comment, especially as there is no uniformity of practice among zoölogists with regard to this class of names, which includes barbarisms of every kind.

"A pernicious practice, of very old date, exists, of applying to species names not only of barbarous origin, but without Latinization, and totally destitute of euphony. These are chiefly the local appellation of some savage tribe for the organism designated. Thus, we have *Hyperoodon butzkopf* Gray,

Balæna tschiekagliuk and *B. agamachtschik* Pallas, etc." (DALL, *Report*, p. 54.) Much as the infliction of such names upon science is to be regretted for the past, and sedulously as it should be avoided in the future, there appears to be no way by which such barbarisms can be changed or rejected, consistently with the rule requiring rigid adherence to the original orthography of names. Having been introduced in the science *as if they were* Latin words, that is to say, as a part of a Latin binomial designation, they are best treated simply as if misspelled or wrongly constructed: which fault, in the judgment of the Committee, does not require rejection, or even emendation.

The case is otherwise with a class of names of which *patelle viride*, cited by Dall, after Bourguignat, may be taken in illustration. This is not, nor is it intended to be, a Latin binomial introduced in zoölogical nomenclature at all, having no more standing than 'green limpet' could have in the language of science. It is simply a French vernacular name, however similar in sound and shape to *Patella viridis*, and is not properly within the scope of zoölogical nomenclature.

The examples of *Hyperoodon butzkopf* and *patelle viride* represent two large classes of cases of which they respectively furnish a criterion. Names of the former class are not to be modified or rejected; names of the latter class form no part of zoölogical nomenclature, and are not to be considered at all. (See DALL, *Report*, p. 54.)

PRINCIPLE IV. Zoölogical nomenclature has no necessary connection with botanical nomenclature, and names given in one of these two systems cannot conflict with those of the other system; use of a name in Botany, therefore, does not prevent its subsequent use in Zoölogy.

REMARKS. — This has relation to one of the most mooted points among naturalists, and is intended to determine the question whether or not the use of a name in Botany shall prevent its subsequent employ in Zoölogy. The duplication of names in the two great branches of biology, though highly undesirable and to be sedulously avoided, is no sufficient reason for the rejection of a name which has once been introduced in either system of nomenclature. In this particular, Zoölogy may ignore botanical names without ill result. While it is quite true that "the principles and forms of nomenclature should be as similar as possible in Botany and Zoölogy" (DE CANDOLLE), it is no less true that "the manner in which Botany and the different branches of Zoölogy have reached their present state, being far from uniform, and the nature of the organisms treated of being dissimilar, an absolute identity in the application of nomenclature is impracticable, even if it were wholly desirable," though "the fundamental principles and the end to be attained are the same in both branches of study." (DALL, *Rep.*, p. 23.)

In the original Stricklandian Code the 'Rules' were restricted in their application to Zoölogy, and this restricted scope of the 'Rules' was explicitly reaffirmed in the 'Recommendations' prefixed to the Revised Code by the Bath Committee of the British Association in 1865, as follows: "I. That Botany should not be introduced in the Stricklandian Code and Recommendations."

The A. O. U. Committee reiterates this decision, and constructs its canons without reference to Botany, conformably with the usage of British zoölogists, though the rules adopted both by the Société Zoologique de France, in 1881, and the Congrès Géologique International, in 1882, are intended to apply alike to Zoölogy and Botany. Dall's essay also discusses both together.

Since botanists do not reject names because previously used in Zoölogy and indeed pay little regard to the duplication of names in the two kingdoms,[1] there is little reason for the rejection by zoölogists of names used in Zoölogy on account of their prior use in Botany. While there has been heretofore a lack of uniformity in the action of zoölogists in this matter, and an increasing tendency to ignore the B. A. rule requiring the rejection of names in Zoölogy preoccupied in Botany, — and as to make the rejection or adoption uniform would in either case require not far from an equal number of changes (in neither case many), — the adoption of this principle is urged without hesitation.

PRINCIPLE V. A name is only a name, having no meaning until invested with one by being used as the handle of a fact; and the meaning of a name so used, in zoölogical nomenclature, does not depend upon its signification in any other connection.

REMARKS. — The bearing of this principle upon the much desired *fixity* of names in Zoölogy, and its tendency to check those confusing changes which are too often made upon philological grounds, or for reasons of ease, elegance, or what not, may be best illustrated by the following quotation: —

"It being admitted on all hands that words are only the conventional signs of ideas, it is evident that language can only attain its end effectually by being permanently established and generally recognized. This consideration ought, it would seem, to have checked those who are continually attempting to subvert the established language of zoology by substituting terms of their own coinage. But, forgetting the true nature of language, they persist in confounding the *name* of a species or [other] group with its *definition;* and because the former often falls short of the fulness of expression found in the

[1] De Candolle advises botanists to "avoid making choice of names used in Zoölogy."

latter, they cancel it without hesitation, and introduce some new term which appears to them more characteristic, but which is utterly unknown to the science, and is therefore devoid of any authority.[1] If these persons were to object to such names of men as *Long*, *Little*, *Armstrong*, *Golightly*, etc., in cases where they fail to apply to the individuals who bear them, or should complain of the names *Gough*, *Lawrence*, or *Harvey*, that they were devoid of meaning, and should hence propose to change them for more characteristic appellations, they would not act more unphilosophically or inconsiderately than they do in the case before us ; for, in truth, it matters not in the least by what conventional sound we agree to designate an individual object, provided the sign to be employed be stamped with such an authority as will suffice to make it pass current." (*B. A. Code*, 1842.)

These words, which in the original lead up to the consideration of the 'law of priority,' seem equally sound and pertinent in connection with the above principle of wider scope.

B. Canons of Zoölogical Nomenclature.

§ 1. *Of the Kinds of Names in Zoölogy.*

Canon I. Zoölogical nomenclature includes two kinds of names : (1) Common names definitive of the relative rank of groups in the scale of classification ; (2) Proper names appellative of each group of organisms.

Remarks. — *E. g.*, *Familia Falconidæ*. Here the name *Familia* is definitive of the relative rank of *Falconidæ* in the scale of classification ; and *Falconidæ* is appellative of that particular group of organisms, *i. e.*, of the family.

The vast majority of names in Zoölogy are of the second kind, or proper names, and it is to the correct use of these that nearly all rules and regulations of nomenclature solely apply. Common names are very few, being merely those of the score or more of taxonomic groups, successively subordinated in a certain manner, into which zoölogists have divided animal organisms from 'kingdom' to 'individual.' Proper names, on the other hand, number several hundred thousand.

The common names most firmly established among English-speaking zoölogists are the following : *Regnum*, *Classis*, *Ordo*, *Familia*, *Genus*, *Species*, *Varietas*, in regular descent from the most general or comprehensive to the

[1] "Linnæus says on this subject: 'Abstinendum ab hac innovatione quæ nunquam cessaret, quin indies aptiora detegerentur ad infinitum.'"

most particular or restricted. Between all these, however, intermediate groups are commonly recognized, and distinguished by the prefix *sub-* or *super-*; as, *sub-ordo*, *super-familia*. Among these common names those in most general employ are *Subordo*, *Subfamilia*, *Subgenus*, and *Subspecies*. Several other common names are in use, but to a limited extent, and without that definiteness of signification which attaches to the rest, since they are used for groups of very different relative rank by different authors, while the taxonomic subordination of the others is practically fixed. Such common names are *Phylum*, *Tribus*, *Legio*, *Cohors*, *Phalanx*, *Sectio*, etc.

"The above terms are more or less generally accepted; the relative values being more fully and generally recognized in Botany than in Zoölogy. In the literature of the latter branch some of the terms above mentioned are rarely found, though by no means unnecessary for careful discrimination. The term *Tribe* [and also *Cohort*, *Section*, etc.] in Zoölogy has been used with several different values. In this, as in other respects, the inchoate condition of zoölogical nomenclature as compared with that of Botany is clearly apparent." (DALL, *Rep.*, p. 24.)

Considering that fixity and precision are as desirable here as elsewhere in nomenclature, the following scale of common names is recommended as adequate to all practical requirements of even a refined system of classification: —

1. *Regnum:* Kingdom.
2. *Subregnum:* Subkingdom.
3. *Classis:* Class.
4. *Subclassis:* Subclass.
5. *Superordo:* Superorder.
6. *Ordo:* Order.
7. *Subordo:* Suborder.
8. *Superfamilia:* Superfamily.
9. *Familia:* Family.
10. *Subfamilia:* Subfamily.
11. *Genus:* Genus.
12. *Subgenus:* Subgenus.
13. *Species:* Species.
14. *Subspecies:* Subspecies.
15. *Varietas:* Variety.
16. *Animal:* Individual.

CANON II. All members of any one group in Zoölogy are included in and compose the next higher group, and no inversion of the relative rank of groups is admissible.

REMARKS. — Thus, all individuals belong to a species, all species to a genus, all genera to a family, all families to an order, all orders to a class; and so also of the other (intermediate) groups given under head of the preceding Canon.

"The definition of each of these terms or [common] names of groups varies, up to a certain point, according to the state of science or the views of the individual writer using them, but their relative rank, sanctioned by usage, cannot be inverted. No classification containing inversions, such as a division of a genus into families, or of a species into genera, can be admitted." (DE CANDOLLE, as rendered by DALL, *Rep.*, p. 25.)

CANON III. Proper names of groups above genera consist preferably of a single word, taken as a noun and in the nominative plural.

REMARKS. — It seems to the Committee highly desirable that the proper names of groups of whatever grade, down to (but not including) species, should be expressed in one word, to be considered as a nominative plural noun, standing alone, though grammatically, in fact, it may be an adjective or an adjectival form. This would do away with any change of termination according to gender, depending upon implied agreement with some unexpressed noun, as *Aves*, *Pisces*, etc., and bring all names of groups higher than genera into one grammatical category with single-word generic names, the latter being always in the singular, all the former plural.

The practice prevails to some extent of naming groups higher than genera in two or even three words; as, *Passeres acromyodi*, *Oscines scutelliplantares*. This usage is chiefly confined to intermediate groups, as superfamilies or suborders, or those groups of no fixed rank called 'tribes,' or 'sections.' While it is not highly objectionable, it is preferably avoided, a single nominative plural noun being considered adequate to meet all the reasonable requirements of such cases.

CANON IV. Proper names of families uniformly consist of a single word ending in *-idæ;* of subfamilies, of a single word ending in *-inæ;* of other groups, of one word or more of no fixed termination.

REMARKS. — The above Canon sets forth the now wellnigh universal usage of zoölogists as recommended in the following terms by the B. A. Code, 1842: —

"B. It is recommended that the assemblages of genera termed *families* should be uniformly named by adding the termination *-idæ* to the earliest known or most typically characterized genus in them; and that their subdivisions, termed *subfamilies*, should be similarly constructed, with the termination *-inæ*.

"These words are formed by changing the last syllable of the genitive case into *-idæ* or *-inæ;* as, *Strix*, *Strigis*, *Strigidæ;* *Buceros*, *Bucerotis*, *Bucerotidæ*, not *Strixidæ*, *Buceridæ*."

It is a frequent misconception, arising perhaps from some confounding of *-idæ* with *-oidæ*, — a mistake which at least one of the great dictionaries of the English language makes throughout, — that *-idæ* is derived from the Greek εἶδος, signifying likeness; but, like *-inæ*, *-idæ* is simply an adjectival patronymic termination.

The practical convenience of having a fixed termination of the family and subfamily name respectively is great and obvious. It were much to be

desired, but it is idle to hope, and futile to attempt, the introduction of similar uniformity in the terminations of the names of other groups. Evidence of the desirableness and of the tendency are witnessed, for example, in those Cuvierian names of birds which end uniformly in *-rostres;* and of those Huxleian divisions terminating in *-morphæ*. Several zoölogists have used *-oidæ*, *-eæ*, etc., to characterize groups of a particular grade. But such usage is far from uniform or universal; the reverse is current; and names of groups (excepting of families and subfamilies) ending indiscriminately are too thoroughly ingrained in the science to be eradicated without violence to the cardinal rules of nomenclature. It must suffice that names of supergeneric groups be held for nouns in the nominative plural.

CANON V. Proper names of families and subfamilies take the tenable name of some genus, preferably the leading one, which these groups respectively contain, with change of termination into *-idæ* or *-inæ*. When a generic name becomes a synonym, a current family or subfamily name based upon such generic name becomes untenable.

REMARKS. — A practice has prevailed, to some limited extent, of coining names of families and subfamilies without reference to any generic name. This is reprehensible; and equally so is the practice of retaining for such groups a name derived from that of a genus which belongs to another family or subfamily, or which for any reason has lapsed into a synonym, or been found otherwise untenable: the genus *Sylvicola* being untenable in Ornithology, no group of birds can be named Sylvicolidæ or Sylvicolinæ.

CANON VI. Proper names of genera and subgenera are single words, preferably nouns, or to be taken as such, in the nominative singular, of no definite construction and no necessary signification.

REMARKS. — All that relates to the grammatical or philological proprieties, to elegance, euphony, appropriateness or the reverse, is not necessarily pertinent to zoölogical nomenclature. A generic name is not necessarily of classical origin, or even in Latin form, if only it be used as if it were a Latin word, conformably with rules of nomenclature.[1] (This results from Principle V.)

[1] But this concession must not be construed as giving admission to vernacular names formed from a classical root, like many generic names introduced by the Cuviers, Lesson, and notably other French writers of the early part of the present century. Such names have in many cases been later adopted into the science under a proper classical form, and should take date only from this later introduction.

"These names may be taken from any source whatever, or may be framed in an absolutely arbitrary manner. . . . .

"De Candolle justly remarks that it is with generic names as with our patronymics. Many surnames are inconvenient, or even absurd, from bearing an adjectival form, from having an inapplicable meaning, on account of being difficult to pronounce, or for some other reason. But, since they actually exist, why should they be changed? It is not the end of Science to make names: she avails herself of them to distinguish things. If a name is properly formed, and different from other names, the essential points are attained.

"Generic names may be taken from certain characters or appearances of the group, from the chief habitat, names of persons, common names, and even arbitrary combinations of letters. It is enough if they are properly constructed, and do not lead to confusion or error." (DALL, *Rep.*, p. 27.)

In heartily indorsing the tenor of the above extracts, we would nevertheless understand the expressions 'properly formed' and 'properly constructed' to mean rather 'contextually correct'; *i. e.*, the name to be a 'generic' word within the common meaning of that term in the binomial nomenclature, to be put in the place of a generic term, and to be used as a Latin word, whatever its actual 'form' or 'construction.'

CANON VII. Proper names of all groups in Zoölogy, from kingdom to subgenus, both inclusive, are written and printed with a capital initial letter.

REMARK. — The universal usage, and one of the ear-marks by which a professional zoölogist may be known from a literary person who uses zoölogical nomenclature occasionally.

CANON VIII. Proper names of species, and of subspecies or 'varieties,' are single words, simple or compound, preferably adjectival or genitival, or taken as such, when practicable agreeing in gender and number with any generic name with which they are associated in binomial or trinomial nomenclature, and written with a small initial letter.

REMARKS. — There is no inherent zoölogical difference between a 'generic' and a 'specific' name, — the *nomen genericum* and the *nomen triviale* of earlier zoölogists. Both alike designate a 'group' in Zoölogy, — the one a group of greater, the other a group of lesser classificatory value. Some necessary distinction, which has been misconceived to exist between these two names, is simply a fortuitous matter of the technique of nomenclature, apparently arising from the circumstance that the generic and the specific names form the contrasted though connected terms of a binomial

designation. Recognition of the scientific fact, that a 'species,' so called, is not a fixed and special creation, as long supposed, but simply a group of the same intrinsic character as that called a 'genus,' though usually less extensive, and always of a lower taxonomic rank, has done more than any other single thing to advance the science of Zoölogy; for the whole theory of evolution turns, as it were, upon this point.

It is therefore obvious that nearly all that has been affirmed of generic names may be here reaffirmed of specific names. Points requiring further comment are comparatively trivial, and purely technical.

Specific and subspecific names (here conveniently treated together, as were generic and subgeneric names) differ from the names of higher groups chiefly in the fact, that as a rule they are adjectives, not nouns, or at least of such adjectival character as the genitive case of a noun implies. But even to this distinction the exceptions are many. Specific names, like Latin adjectives, unlike generic ones, are liable to change of termination to agree in gender with the generic names with which they may be coupled. Again, like Latin nouns, they are declinable, and may take a genitive case, singular or plural (but the plural is comparatively rare: *e. g.*, *Icterus parisorum*, *Megalæma marshallorum*, *Passerculus sanctorum*). In many cases, no grammatical agreement with the associated generic name is possible. This occurs when the word is barbarous and not Latinized, and also when it is a Latin or Latinized noun in the nominative case.

Specific names have the peculiarity that, though they are always single words, in effect, they may be so loosely compounded as to take a hyphen, and therefore seem like two words. *E. g.*, *Archibuteo sancti-johannis*, *Caloptenus femur-rubrum*. Among strict binomialists, in some departments of Zoölogy, especially Entomology, the propriety of the actual appearance of three words in a binomial designation has been questioned. "The usage of a third word, however, connected with the second by a hyphen, as is common and desirable in the case of gall-insects, *e. g.*, *Cynips quercus-palustris*, is not to be considered an infraction of this [the binomial] rule." (C. V. Riley.) Professor Riley says further, in the same connection: "In some cases, as in the names of gall-insects, it has become the custom to indicate the plant upon which the gall occurs, by combining the name of the plant with the specific name of the insect. Such indication is desirable and useful; . . . . and we are of opinion that the combined specific name, whether the botanical term be abbreviated or in full, should be looked upon as one [loosely compounded] word."

There being no necessary intrinsic difference between a generic and a specific name, zoölogists have sought to make an artificial distinction by using a small or 'lower-case' letter for the initial of every specific name, the capitals being confined to generic and higher names. The old practice was different, substantive specific names, especially those derived from names of persons or places, being written with a capital. The practice still prevails in

Botany, but zoölogists are about equally divided on this score. The case of "specific names to be written with a small initial," was formulated in the original B. A. Code as follows: —

"A convenient *memoria technica* may be effected by adopting our next proposition. It has been usual, when the titles of species are derived from proper names, to write them with a capital letter, and hence when the specific name is used alone it is liable to be accidentally mistaken for the name of a genus. But if the title of a *species* were *invariably* written with a *small* initial, and those of genera with a *capital*, the eye would at once distinguish the rank of the group referred to, and a possible source of error would be avoided. It should further be remembered that all species are equal [?] and should therefore be written all alike. We suggest then, that

"§ C. Specific names should *always* be written with a small initial letter, even when derived from persons or places, and generic names should always be written with a capital." (*B. A. Code*, 1842.)

This suggestion appears to have been very generally adopted, by British zoölogists especially, and of later years by many of those of America. But the framers of the Revised Code, in 1865, cancelled it, in the following terms: —

"VI. The recommendation, 'Specific names to be written with a small initial.' The Committee propose that this recommendation should be omitted. It is not of great importance, and may be safely left to naturalists to deal with as they think fit." (*Recommendations of the Bath Committee, B. A.*, 1865. [§ C. and its preamble, of the Original B. A. Code, are accordingly omitted in the Revised B. A. Code.])

The code of the French Zoölogical Society, and that of the International Zoölogical Congress, each leaves the writer free to follow his own preference in this matter.

Your Committee agrees that it is a trivial matter, hardly to enter into a canon of nomenclature. But its preference is decidedly in favor of the uniform use of the lower case, and, feeling called upon to express its view, it has embodied it in the above Canon, without in the least insisting upon its importance.

CANON IX. Proper names do not attach to individual organisms, nor to groups of lower grade than subspecies; names which may be applied to hybrids, to monstrosities or other individual peculiarities, or to artificial varieties, such as domestic breeds of animals, having no status in zoölogical nomenclature.

REMARK. — Such organisms, having no natural permanent existence, need no recognition by name in a zoölogical system.

§ 2. *Of the Binomial System as a Phase of Zoölogical Nomenclature.*

Few naturalists, whether botanists or zoölogists, appear to have considered the binomial system of naming objects as aught else than the permanent heritage of science, the entire superstructure of which should be built with the binomial nomenclature as the corner-stone, and the whole language of which should conform to the requirements of an inflexible binomial system. From this position your Committee recedes with emphasis.

The Committee considers that the rigidity and inelasticity of that system, which has been followed for more than a century, unfits it for the adequate expression of modern conceptions in Zoölogy, and that therefore a strict adherence to it is a hindrance rather than a help to the progress of science. It believes that strict binomialism in nomenclature has had its day of greatest usefulness and necessary existence ; and that at present it can only be allowed equal place in nomenclature by the side of that more flexible, elastic, and adequate system of trinomials to which the Committee hopes that your action upon its Report will give formal place among the Canons of nomenclature.

The proper place and office of binomials may be formulated in the following Canon.

CANON X. Binomial nomenclature consists in applying to every individual organism, and to the aggregate of such organisms not known now to intergrade in physical characters with other organisms, two names, one of which expresses the specific distinctness of the organism from all others, the other its superspecific indistinctness from, or generic identity with, certain other organisms, actual or implied ; the former name being the specific, the latter the generic designation ; the two together constituting the technical name of any specifically distinct organism.

REMARKS. — The Committee finds little or nothing to cite in illustration or amplification of this Canon. The binomial nomenclature having been considered indispensable and all-sufficient, — in short as a foregone conclusion, — it has received abounding indiscriminate praise, but little searching and discriminating criticism. Your Committee is far from venturing to do away with it at present. It has attempted to define it with more strictness than has perhaps been done before, and by so doing to limit its operation to those cases in which it may still be found useful. The system is,

moreover, so well understood, that what might be further said here may be best brought into the discussion, beyond, of the starting-point of nomenclature and of the law of priority.

§ 3. *Of the Trinomial System as a Phase of Zoölogical Nomenclature.*

CANON XI. Trinomial nomenclature consists in applying to every individual organism, and to the aggregate of such organisms known now to intergrade in physical characters, three names, one of which expresses the subspecific distinctness of the organism from all other organisms, and the other two of which express respectively its specific indistinctness from, or generic identity with, certain other organisms; the first of these names being the subspecific, the second the specific, and the third the generic designation; the three, written consecutively, without the intervention of any other word, term, or sign, constituting the technical name of any subspecifically distinct organism.

REMARKS. — This Canon, the Committee knows, directly contravenes the letter of the B. A. Code, and also, it believes, all previous codes of nomenclatural rules; but it feels prepared to maintain that it is not antagonistic to the B. A. or any other code, being conceived strictly in the whole spirit and tenor of the binomial system, though contrary to its letter. It evidently amplifies, increases the effective force of, and lends a new precision to, the old system. It is also plainly but a step in the direction of brevity, convenience, and explicitness, from the common but awkward practice of separating the third term, in the names of subspecies or varieties, from the second or specific term by the interpolation of 'var.,' which in several codes is formally provided for by special rules. The practice of indicating subspecies, as distinguished from species, by trinomials, has already come into nearly universal use with American ornithologists and mammalogists, and is employed to some extent by other American zoölogists. The system appears also to have found much favor among British and other foreign ornithologists of high standing, some of whom have already employed it in their publications. It seems likely to supply a present want, and subserve, at least for a time, a very useful purpose.

Your Committee's reasons for adopting the system for the class of cases to which it is adapted have already been formally enunciated in this Report (p. 16), in an extract from the minutes of its meetings.

The rules for the practical handling of trinomials, being not different from those for the use of binomials, will be given with the latter, beyond, under the appropriate heading.

A prevalent misapprehension respecting the meaning and office of the trinomial system may be here corrected. Trinomials are not necessarily to be used for those slightly distinct and scarcely stable forms which zoölogists are in the habit of calling 'varieties'; still less for sports, hybrids, artificial breeds, and the like; nor indeed to signalize some grade or degree of difference which it may be desired to note by name, but which is not deemed worthy of a specific designation. The system proceeds upon a sound scientific principle, underlying one of the most important zoölogical problems of the day, — no less a problem than that of the variation of animals under physical conditions of environment, and thus of the origin of species itself. The system is also intimately connected with the whole subject of the geographical distribution of animals; it being found, as a matter of experience, that the trinomial system is particularly pertinent and applicable to those geographical 'subspecies,' 'races,' or 'varieties,' which have become recognizable as such through their modification according to latitude, longitude, elevation, temperature, humidity, and other climatic conditions. Such local forms are often extremely different from one another; so different, in fact, that, were they not known to blend on the confines of their respective areas, they would commonly be rated as distinct species. This large and peculiarly interesting class of cases seems not to have hitherto been adequately provided for in the stringency of binomial nomenclature.

It is obvious, therefore, that the kind or quality, not the degree or quantity, of difference of one organism from another determines its fitness to be named trinomially rather than binomially. A difference, however little, that is reasonably constant, and therefore 'specific' in a proper sense, may be fully signalized by the binomial method. Another difference, however great in its extreme manifestation, that is found to lessen and disappear when specimens from large geographical areas, or from contiguous faunal regions, are compared, is therefore not 'specific,' and therefore is to be provided for by some other method than that which formally recognizes 'species' as the ultimate factors in zoölogical classification. In a word, *intergradation* is the touchstone of trinomialism.

It is also obvious, that, the larger the series of specimens handled, the more likely is intergradation between forms supposed to be distinct to be established, if it exists. This is perhaps one reason why trinomialism has been so tardy in entering nomenclature. For until the animals of large areas become well known, in all their phases, through extensive suites of specimens, neither the necessity of trinomialism, nor the possibility of putting it to the proper test, is apparent. It is gratifying evidence, therefore, of the progress of Ornithology, and of the position attained by that branch of science in America, that the members of an American Ornithological Association have

it in their power first formally to enunciate the principles of the new method, the practicability of which they have already demonstrated to their fellow workers in Zoölogy.

§ 4. *Of the Beginning of Zoölogical Nomenclature proper, and of the Operation of the Law of Priority.*

CANON XII. The Law of Priority begins to be operative at the beginning of zoölogical nomenclature.

REMARK. — This Canon will be disputed by no one who observes the law of priority as a 'fundamental' maxim. The date to be assigned is quite another matter, on which great difference of opinion prevails.

CANON XIII. Zoölogical nomenclature begins at 1758, the date of the Xth edition of the 'Systema Naturæ' of Linnæus.

REMARKS. — With regard to this Canon, the utmost diversity of opinion has prevailed among botanists as well as zoölogists, and the Committee desires it to be subjected to searching criticism. It will first offer a brief historical *résumé*, mainly derived from Dall (*Rep.*, pp. 41–44) and other sources, covering the ground of Botany as well as Zoölogy.

Nomenclatural rules, foreshadowed by Linnæus in his 'Fundamenta Entomologica,' 1736, were first definitively proposed in the 'Philosophia Botanica,' 1751. These rules, however, related almost exclusively to the generic name. In 1745 he first employed for a few plants a specific name (*nomen triviale*), consisting of one word, in contradistinction from the polynomial description which had been as a rule the *nomen specificum* of naturalists. That which now seems the most happy and important of the Linnæan ideas, the restriction of the specific name as now understood, appears to have long been only a secondary matter with him, as he hardly mentions the *nomen triviale* in his works up to 1765. In 1753, in the 'Incrementa Botanices,' while dwelling upon his own reforms, he does not allude to binomial nomenclature. In the 'Systema Naturæ,' ed. x., 1758, the binomial system is for the first time consistently applied to all classes of organisms (though he had partially adopted it in 1745); whence many naturalists have regarded the tenth edition as the most natural starting-point. The system being of slow and intermittent growth, even with its originator, an arbitrary starting-point seems necessary. In the twelfth edition, 1766–68, numerous changes and reforms are instituted, and a number of his earlier names are arbitrarily changed. In fact, Linnæus never seems to have regarded specific names as subject to his rules.

It must be noted that an apparent rather than a real distinction has been

observed, especially by botanists, between the citation of the authority for the names of genera, and that belonging to specific names. In the early part of the eighteenth century a few botanists, among whom Tournefort (Rei Herbar., 1749) may be especially mentioned, had progressed so far as to recognize and name, under the title of genera, groups answering essentially to the modern idea of genera. Linnæus himself adopted a number of these, using the names of Tournefort and others as authorities after the generic name adopted by himself. In this the great Swede has been almost unanimously followed by botanists, though such names take date only from the time of their adoption by Linnæus; very few authors, Bentham being the most prominent of them, having refused to cite any one excepting Linnæus as the authority for such genera.

Whether the course of the majority be considered judicious or not, it is now the accepted usage in Botany. As regards names in general, botanists appear to agree in adopting the date of the Linnæan 'Species Plantarum,' 1753, as the epoch from which their nomenclature must begin. This work contains the first instance of the consistent use of the *nomen triviale*, subsequent to the proposition of the rules in the 'Philosophia Botanica,' to which modern nomenclature is due.

Binomial designations cannot, of course, be reasonably claimed to antedate the period when binomial nomenclature, in a scientific sense, was invented; and, in spite of the solitary instance of 1745, no good reason appears for extending the range of scientific nomenclature to an earlier date than 1751.

(The above is quoted in substance from Dall.)

We have next to consider the action of the Manchester Committee of the British Association in 1842. The wording of the original B. A. Code is as follows: —

"As our subject matter is strictly confined to the *binomial system of nomenclature*, or that which indicates species by means of two Latin words, the one generic, the other specific, and as this invaluable method originated solely with Linnæus, it is clear that, as far as species are concerned, we ought not to attempt to carry back the principle of priority beyond the date of the 12th edition of the 'Systema Naturæ.' Previous to that period, naturalists were wont to indicate species not by a *name* comprised in one word, but by a *definition* which occupied a sentence, the extreme verbosity of which method was productive of great inconvenience. It is true that one word sometimes sufficed for the definition of a species, but these rare cases were only binomial by accident and not by principle, and ought not therefore in any instance to supersede the binomial designations imposed by Linnæus.

"The same reasons apply also to generic names. Linnæus was the first to attach a definite value to genera, and to give them a systematic character by means of exact definitions; and therefore although the *names* used by previous authors may often be applied with propriety to modern genera, yet

in such cases they acquire a new meaning, and should be quoted on the authority of the first person who used them in this secondary sense. It is true, that several old authors made occasional approaches to the Linnæan exactness of generic definition, but still these were but partial attempts; and it is certain that if in our rectification of the binomial nomenclature we once trace back our authorities into the obscurity which preceded the epoch of its foundation, we shall find no resting-place or fixed boundary for our researches. The nomenclature of Ray is chiefly derived from that of Gesner and Aldrovandus, and from these authors we might proceed backward to Ælian, Pliny, and Aristotle, till our zoological studies would be frittered away amid the refinements of classical learning."

So far the original B. A. Code, 1842; which, upon the foregoing considerations, recommended the following proposition: —

"§ 2. The binomial nomenclature having originated with Linnæus, the law of priority, in respect to that nomenclature, is not to extend to the writings of antecedent authors."

The exact date here implied is 1766; and this is explicitly reaffirmed by the Bath Committee in 1865,[1] who added to the foregoing § 2 the words, in brackets: "[and therefore the specific names published before 1766 cannot be used to the prejudice of names published since that date.]"

The action of both the B. A. Committees related, of course, only to Zoölogy. Commenting upon their action, Dall continues: —

"It is said that in the original draft of the report the number of the edition of the 'Systema Naturæ' was left blank, and afterwards filled up by the insertion of the 'twelfth.' This insertion renders the paragraph, otherwise judicious and accurate, glaringly incorrect. What motive resulted in the selection of the twelfth as opposed to the tenth, or of any special edition after

[1] "III. The Committee are of opinion, after much deliberation, that the XIIth edition of the 'Systema Naturæ' is that to which the limit of time should apply, viz. 1766. But as the works of Artedi and Scopoli have already been extensively used by ichthyologists and entomologists, it is recommended that names contained in or used from these authors should not be affected by this provision. This is particularly requisite as regards the generic names of Artedi afterwards used by Linnæus himself.

"In Mr. H. E. Strickland's original draft of these Rules and Recommendations the edition of Linnæus was left blank, and the XIIth was inserted by the Manchester Committee. This was done not as being the first in which the Binomial nomenclature had been used, as it commenced with the Xth, but as being the last and most complete edition of Linnæus's works, and containing many species the Xth did not. For these reasons it is now confirmed by this Committee, and also because these rules having been used and acted upon for twenty-three years, if the date were altered now, many changes of names would be required, and in consequence much confusion introduced." — *Recommendations of the Bath Committee, prefixed to the Revised Code*, 1865.

the adoption of the binomial form by Linnæus, has never been set forth in any satisfactory manner. If any special edition were chosen, the tenth has *prima facie* claims for first consideration. It is as clearly binomial as any, and it is as consistently so. . . . . To a considerable extent, in the works of the naturalists of Northern Europe, the tenth edition has been taken as the starting-point. . . . .

"It would appear that the Committee were 'plus saint que le Pape,' since they would reject names which Linnæus himself was ready to and did adopt. In this connection, Prof. Verrill (Am. Jour. Sci., July, 1869) has made some judicious remarks, calling attention to the works of Pallas, and Thorell has done the same for those of Clerck on the subject of spiders.

"An apologetic paragraph, following the remarks above quoted [see last foot-note] from the B. A. Committee report for 1865, inferentially admits the error of 1842, but goes on and reaffirms it on the ground that confusion would otherwise result.

"It is very doubtful if much confusion would be caused by leaving the question open, since half the naturalists of Europe and America have already adopted the tenth edition of their own motion, and the other half, or a large portion of them, may not unreasonably be believed to be only held back from joining the others by a desire to conform to the rules, even where injudiciously framed.

"In a large part of zoölogy the change would make no difference whatever, since the scientific study of such branches has begun since 1766."

Mr. Dall's own recommendation is as follows : —

"§ LVIII. The scientific study of different groups, having a value greater than or equal to that of a class (classis), having been begun at different epochs, and the inception of that study in each group respectively being usually due to some 'epoch-making' work, the students of each of the respective groups as above limited may properly unite in adopting the date of such work as the starting-point in nomenclature for the particular class to which it refers : *Provided*, — that (1), specific names shall in no case antedate the promulgation of the Linnæan rules (Philosophia Botanica, 1751); that (2), until formal notice by publication of the decision of such associated specialists (in such manner as may be by them determined upon) shall be decisively promulgated, the adoption of the epoch or starting-point recommended by the committee of the British Association in 1842, namely, the twelfth edition of the 'Systema Naturæ' of Linnæus (1766), shall be taken as the established epoch for all zoölogical nomenclature. Lastly, that (3), when the determination of the epoch for any particular group as above shall have been made, the decision shall be held to affect that group alone, the British Association date holding good for all other groups until the decision for each particular case shall have been made by the naturalists interested in it, upon its own merits."

(See also LeConte on this subject, Canad. Entom., November, 1874, pp. 203 *seq.*)

The principle embodied in the above recommendation of Dall is said by him to be "inferentially admitted to be valid by the B. A. Committee in their remarks on Artedi and Scopoli." Thorell, in his monograph of the Spiders, has adopted, so far as species are concerned, a similar plan, taking the binomial work of Clerck, 1757, on Swedish Spiders as his 'epoch-maker.' A. Agassiz, in Echinology, has brought the ancient names of Klein, Lang, Breyn, and others, into scientific nomenclature. G. R. Gray, in Ornithology, goes to the first edition of the 'Systema,' 1735, for genera, and to the tenth, 1758, for species, having many followers in different countries. In America, so far as Ornithology is concerned, the use of 1758 for the starting-point for species is practically universal, the tendency being to take genera from the same date also.

As to replies on this point to the circular issued by Mr. Dall, there are 18 for 1758, 17 for 1766, 1 for 1736, and two botanists for 1753; no answer, 7.

Your Committee, having duly weighed all the evidence before it, is compelled to dissent from the rulings of both the B. A. Committees, and from all others which do not make 1758 the starting-point for zoölogical nomenclature; and it is prepared to give reasons for the decision it has reached.

(1) The Xth edition is the one in which Linnæus first introduced the binomial nomenclature, and in which its use is uniform, consistent, and complete. (2) This date admits to recognition the works of Artedi, Scopoli, Clerck, Pallas, Brünnich, Brisson, in favor of the first-named two of whom, and of the last-named one, the B. A. Committees have had to make special exceptions,[1] thereby rendering the rule inconsistent in itself. (3) The Xth, rather than the XIIth, is already accepted as the starting-point by a majority of the naturalists of North America and of Northern Europe, with obviously a growing tendency to abandon the XIIth. The Commission de Nomenclature de la Société Zoologique de France (1881), and the Rules adopted by the Congrès Géologique International (1882), make no reference to any edition of the 'Systema Naturæ Linnæi,' nor do they place any limit of time for the beginning of the law of priority, but accept all generic and spe-

[1] For example, the paragraph immediately following § 2 in the original B. A. Code reads: "It should be here explained, that Brisson, who was a contemporary of Linnæus and acquainted with the 'Systema Naturæ,' defined and published certain genera of birds which are *additional* [and likewise prior] to those in the 12th edition of Linnæus's work, and which are therefore of perfectly good authority. But Brisson still adhered to the old mode of designating species by a sentence instead of a word, and therefore while we retain his defined genera we do not extend the same indulgence to the titles of his species, even when the latter are accidentally binomial in form." — *B. A. Code*, 1842.

For the exceptions made in 1865 by the B. A. Committee in favor of Artedi and Scopoli, see foot-note on p. 34.

cific names which conform to the rules of binomial nomenclature, even when they antedate the Xth edition of the 'Systema Naturæ.' They even advocate admission of Tournefort's generic names for Mollusks, published in a posthumous work edited by Gautieri in 1742; the genera of Lang, 1722; those of Klein, 1731 and 1734; and those of Breyn, 1732. (Botanists, though dating their departure in binomial nomenclature at 1737, the date of the first edition of Linnæus's 'Genera Plantarum,' adopt Tournefort's genera published in 1700.) The French Commission and that of the Geological Congress do not hesitate to say that the work of these authors is much better than that of Linnæus, who, through vanity or inability to appreciate so well the character of the work of his predecessors in Zoölogy as in Botany (he being pre-eminently a botanist rather than a zoölogist), systematically ignored his more scientific predecessors. (4) Besides admitting the works of other earlier binomialists which the adoption of the XIIth edition would exclude, the date 1758 clears up many questions of synonymy which arise from Linnæus's himself having arbitrarily changed in the XIIth edition many names introduced in the Xth, and in other cases used them in a different sense. (5) Furthermore, it is admitted that in the original Stricklandian draft the number of the edition was left blank, while the context clearly implies that the Xth was the one in mind; and there is nothing in § 2 of the original B. A. Rules which prohibits the adoption of the Xth. (6) Finally, the adoption of the Xth will necessitate very few changes in current names (in the younger departments of Zoölogy none), while it forms a rational and consistent starting-point towards which zoölogists at large are drifting. Therefore we have no hesitation in proposing as a substitute for § 2 of the B. A. Code the foregoing Canon, which, applied to § 2, would make it read as follows: —

"The starting-point of the binomial system of nomenclature in Zoölogy shall be the Xth (1758) edition of the 'Systema Naturæ' of Linnæus, and the law of priority in regard to specific (and generic) names is therefore not to extend to antecedent authors."

There is no question as to the fitness of this rule as regards specific names; there may be in respect to generic names, since names were used for groups in what may be considered a generic sense by many pre-Linnæan writers, although the generic idea appears to have been essentially Linnæan. As a matter of convenience, it seems highly advisable to take the same starting-point for both generic and specific names, and to have the generic names adopted from pre-Linnæan authors date from their adoption by Linnæus or the first subsequent author who used them. Otherwise we endanger the stability in nomenclature which all so much desire to establish, by leaving open a mischievous loophole by means of which a well-established post-Linnæan generic name may be displaced in favor of a pre-Linnæan one. (See further on this point the second paragraph of the preamble to § 2 of the B. A. Code.) In limiting the action of the law of priority to the Xth edition

of the 'Systema Naturæ,' the only objection met with is that of injustice to the pioneers in Zoölogy; but this lacks weight in view of remarks subsequently to be introduced (in reference to bibliography and synonymy), respecting due recognition of their labors. And here your Committee would emphatically urge that, the chief object of zoölogical nomenclature being to secure uniformity of practice in the bestowal and adoption of names, the rules to that end should be formed with reference to principles and without regard to personality, and that therefore the matter of justice or injustice is in this connection without pertinence.

The first rational application of the principles of classification in regard to the recognition of genera, as distinguished from species, is currently attributed to Tournefort in 1700, in his 'Institutiones Rei Herbariæ.' Later (1742), as already stated, he carried in a posthumous work the same practice into Conchology. Other pre-Linnæan zoölogists who recognized genera in a strictly scientific manner are Lang (1721), Klein (1731–1734), Breyn (1732),[1] Adanson (1757), and Clerck (1757). The latter was also a strict binomialist. There are possibly others, but in not fixing the starting-point at 1758 there is the disadvantage of having to admit the generic names of other pre-Linnæan writers the character of whose works gives them no proper scientific standing, as Link, Brown, Columa, etc.

Dr. Asa Gray makes the sensible proposition respecting Botany that "We have only to understand that genera adopted by Linnæus from Tournefort, etc., and so accredited, should continue to be thus cited; that the date 1737 (Linn. Genera, ed. I.), is, indeed, the point of departure from which to reckon priority, yet that botanical genera began with Tournefort; so that Tournefortian genera which are accepted date from the year 1700. That is the limit fixed by Linnæus, and it definitely excludes the herbalists and the ancients, whose writings may be consulted for historical elucidations, but not as authority for names."[2]

On the whole, it seems best that the origin of generic names in Zoölogy should date (as said above) only from 1758; that names adopted from earlier authors by Linnæus date only from their adoption by Linnæus; and that in other cases pre-Linnæan names shall date from their first introduction by subsequent authors after 1758.

CANON XIV. The adoption of a 'statute of limitation,' in modification of the *lex prioritatis*, is impracticable and inadmissible.

[1] "Breynius as early as 1732 had, to some extent, adopted a binomial nomenclature, accurately (for his period) discriminated genera and species, many of which are readily recognized, but which had escaped the notice they deserved till a comparatively recent period." — A. AGASSIZ, *Revision of the Echini*, 1872, p. 12.

[2] Am. Jour. Sci., December, 1883, p. 423.

REMARKS. — In consequence of the frequent subversion of long-current and familiar names rendered necessary under the inflexible action of the *lex prioritatis*, through the discovery of some long-forgotten work in which occur names of earlier date than those currently in use for certain species, it has been repeatedly suggested by various writers that a 'statute of limitation,' in modification of the *lex prioritatis*, which should forever suppress and render ineligible names found in early and long-forgotten works, or names which for any reason have been for a considerable period overlooked, would prove a help towards securing stability in nomenclature. If such an end could be attained it would certainly prove a boon, and the importance of the proposition has led your Committee to give it attentive consideration. Having therefore considered the proposition in all its bearings, your Committee feels called upon in this connection to record its conviction that such a statute is inadmissible, for the following reasons. The proposition, as generally stated (see DALL, *Rep.*, p. 47), is to the effect that a name which has not been in use for a period of twenty-five years (or whatever period may be agreed upon) shall be thereafter excluded from use in that special connection, or, alternatively, that a name which has been universally, or even generally, adopted for a like period cannot be displaced for an earlier obscure name. The insuperable objection to any rule of this character is its vagueness and the uncertainty of its applicability, arising from the difficulty of absolutely determining that a name has not been in use for a given period, or whether another name has been universally used, or what shall be taken as 'current' or 'general,' in case anything short of 'universal' be allowed. Unless perfect agreement could be obtained, — and of this there is very little probability, — the proposed rule would tend to increase rather than lessen the confusion it would be the design to remove. As regards obsolete or forgotten works, others equally troublesome might be found to have escaped the operation of such a rule, in consequence of their date of publication falling just outside the period of limitation. Again, it might be difficult to decide whether or not a somewhat obsolete and more or less forgotten work was sufficiently obsolete to be set aside. Furthermore, it sometimes happens that certain names may be current among writers of one 'school' or nationality, which are rejected by those of other schools or nationalities ; while in other cases it might be difficult to decide whether a more or less well known name had really sufficient currency to retain its place against an earlier less known but strictly tenable name. In some cases, of course, there would be no uncertainty as to the currency of a name under question, but in many such doubt would arise, and unanimity of opinion and practice in such case would be hopeless.

The 'statute of limitation' principle is akin to the *auctorum plurimorum* rule ; both are Utopian, and both radically set at defiance the *lex prioritatis*.

CANON XV. The law of priority is to be rigidly enforced in respect to all generic, specific, and subspecific names.

REMARK. — In respect to subspecific names in relation to the law of priority, see beyond, under Canon XXIX.

CANON XVI. The law of priority is only partially operative in relation to names of groups higher than genera, and only where names are strictly synonymous.

REMARKS. — "While this generalization has not been formally enumerated in the B. A. Rules, it has become practically the general usage of naturalists. Thorell explicitly adopts it, and indeed it is impracticable to follow any other course, especially in relation to the more ancient names. A time will doubtless arrive when mutations in the names of the higher groups, particularly families, will be as unnecessary as they are undesirable; but in Zoölogy that time has not yet come.

"It should be clearly borne in mind that such changes are only allowable when by mutation of the characters, or through newly discovered facts, the name in question has become glaringly erroneous, or liable to introduce errors or confusion into science. In family names this occurs most often when a genus from whose name that of the family may have been taken is removed from association with the majority of the genera which that family has included, and that genus is inserted in another family which has already a well-established name. Also, when a large number of genera are redistributed into families, widely differing in their limits from those in which they had previously been known. In either of these cases the liability to error may be so great as to render a new name desirable. The answers to Query XXIII. of the circular [sent out by Mr. Dall] indicate that a majority of American naturalists concur in this conclusion." (DALL, *Rep.*, p. 27.)

A good instance of the soundness of this Canon is seen in the several ornithological groups named by Huxley, ending in *-gnathæ* and *-morphæ*. Many of them were already named groups, more or less exactly recognized; but the very different bases and definitions given them rendered it desirable that the names also should be different.

§ 5. *Of Names Published Simultaneously.*

CANON XVII. Preference between competitive specific names published simultaneously in the same work, or in two works of the same actual or ostensible date (no exact date being ascertainable), is to be decided as follows: —

1. Of names the equal pertinency of which may be in question, preference shall be given to that which is open to least doubt.

2. Of names of undoubtedly equal pertinency, (*a*) that founded upon the male is to be preferred to that founded upon the female, (*b*) that founded upon the adult to that on the young, and (*c*) that founded on the nuptial condition to that of the pre- or post-nuptial conditions.

3. Of names of undoubtedly equal pertinency, and founded upon the same condition of sex, age, or season, that is to be preferred which stands first in the book.

Canon XVIII. Preference between competitive generic names published simultaneously in the same work, or in two works of the same actual or ostensible date (no exact date being ascertainable), is to be decided as follows : —

1. A name accompanied by the specification of a type takes precedence over a name unaccompanied by such specification.

2. If all, or none, of the genera have types indicated, that generic name takes precedence the diagnosis of which is most pertinent.

§ 6. *Of the Retention of Names.*

Canon XIX. A generic name, when once established, is never to be cancelled in any subsequent subdivision of the group, but retained in a restricted sense for one of the constituent portions.

Remarks. — This rule, adopted from the B. A. Code, has been generally accepted as sound in principle, but as difficult of application, especially in relation to what portion of the original genus, when subdivided, shall retain the original name; — in other words, what, in accordance with modern usage, shall be taken as the 'type' of the original genus, in cases where no type is specified.

In recommending this provision the B. A. Committee urged: "As the number of known species which form the groundwork of zoological science is always increasing, and our knowledge of their structure becomes more complete, fresh generalizations continually occur to the naturalist, and the number of genera and other groups requiring appellations is ever becoming more extensive. It thus becomes necessary to subdivide the contents of old

groups and to make their definitions continually more restricted. In carrying out this process, it is an act of justice to the original author, that his generic name should never be lost sight of; and it is no less [even more] essential to the welfare of the science, that all which is sound in its nomenclature should remain unaltered amid the additions which are continually being made to it." (*B. A. Code*, 1842.)

CANON XX. When a genus is subdivided, the original name of the genus is to be retained for that portion of it which contained the original type of the genus, when this can be ascertained.

REMARK. — This principle is universally conceded, and requires no special comment.

CANON XXI. When no type is clearly indicated, the author who first subdivides a genus may restrict the original name to such part of it as he may judge advisable, and such assignment shall not be subject to subsequent modification.

REMARKS. — This in substance is the rule promulgated by the B. A. Committee in 1842, and it has been reiterated in most subsequent nomenclatural codes. Its propriety is perfectly apparent, and, as regards the future, no trouble need arise under it. It has happened, however, in the subdivision of comprehensive genera of Linnæus and other early authors, that most perplexing complications have arisen, successive authors having removed one species after another, as types or elements of new genera, till each of the species included in the original genus has received a new generic designation, while the old generic name, if not lost sight of, has come to be applied to species unknown to the author of the original genus! This of course is obviously and radically wrong.

The B. A. Committee suggests that, when authors omit to specify a type, "it may still in many cases be correctly inferred that the *first* species mentioned on their list, if found accurately to agree with their definition, was regarded by them as the type. A specific name or its synonyms will also often serve to point out the particular species which by implication must be regarded as the original type of a genus. In such cases we are justified in restoring the name of the old genus to its typical signification, even when later authors have done otherwise." De Candolle would restrict the old generic name, when no type is specified, to the oldest, best known, or most characteristic of the species originally included in the genus; or to that section of the old genus most numerously represented in species.

As Dall observes, "It would, manifestly, be liable to introduce errors and confusion, if it were insisted that the first species should invariably be taken

as the type, or were it permitted to take species subsequently added to the group, and which the original author did not know when he established his genus. No arbitrary rule will suffice to determine, off-hand, questions of so much complication as is often the decision in regard to the type of an ancient genus which has been studied by a number of authors." (*Rep.*, pp. 39, 40.)

CANON XXII. In no case should the name be transferred to a group containing none of the species originally included in the genus.

REMARK. — This rule is in strict accordance with the B. A. Code and with current usage.

CANON XXIII. If, however, the genus contains both exotic and non-exotic species, — from the standpoint of the original author, — and the generic term is one originally applied by the ancient Greeks or Romans, the process of elimination is to be restricted to the non-exotic species.

REMARKS. — The purpose of this restriction in the application of the 'principle of elimination' is to prevent the palpable impropriety of the transference of an ancient Greek or Latin name to species unknown to the ancients. By the unrestricted action of the principle of elimination the genus *Tetrao*, for example, becomes transferred to an American species, viz., *Tetrao phasianellus* of Linnæus, the transference being in itself not only undesirable, but, as it happens, subversive of currently accepted names. The working of the proposed modification of the principle of elimination may be thus illustrated.

The genus *Tetrao* Linn., 1758, contains the following

NON-EXOTIC SPECIES.	EXOTIC SPECIES.
1. *urogallus* (*Urogallus* Flem., 1822).	3. *canadensis*.
2. *tetrix*.	5. *phasianellus*.
4. *lagopus* (*Lagopus* Briss., 1760).	6. *cupido*.
7. *bonasia* (*Bonasia* Steph., 1819, + Bon., 1828).	

This leaves *tetrix* as the type of the genus *Tetrao*, since *Lyrurus* Sw. was not established for it till 1831.

On the other hand, the process of unrestricted elimination would result as follows: —

1. *urogallus* (*Urogallus* Flem., 1822);
2. *tetrix* (*Lyrurus* Sw., 1831);
3. *canadensis* (*Canace* Reich., 1852);
4. *lagopus* (*Lagopus* Briss., 1760);
5. *phasianellus* (*Pediocætes* Bd., 1858);

6. *cupido* (*Tympanuchus* Glog., 1842; *Cupidonia* Reich., 1850);
7. *bonasia* (*Bonasia* Steph., 1819, + Bon., 1828);

which would leave, as type for the genus *Tetrao*, *T. phasianellus*, which was the last species to be removed from the genus *Tetrao*, its removal being made by Baird in 1858, who made it the type of a genus *Pediocætes*. No species being now left to bear the name *Tetrao*, it must be restored either to *T. phasianellus* (under the unrestricted action of the principle of elimination), or to *T. lyrurus* (under the above-proposed restricted action of the principle of elimination). In the latter case, this ancient Greek name for a European species of Grouse would be still retained in nearly its original sense.

As in the case of *Tetrao*, so in the cases of many Linnæan and Brissonian genera, it has happened that, in the process of gradual elimination, exotic (or non-European) species only have been finally left in the original genus, while the European species have successively been made types of separate genera.

CANON XXIV. When no type is specified, the only available method of fixing the original name to some part of the genus to which it was originally applied is by the process of elimination, subject to the single modification provided for by Canon XXIII.

CANON XXV. A genus formed by the combination of two or more genera takes the name first given in a generic or subgeneric sense to either or any of its components. If both or all are of the same date, that one selected by the reviser is to be retained.

REMARKS. — The propriety of this rule is too obvious to require special comment. It therefore follows that a later name equivalent to several earlier ones must be cancelled, and that the earliest name applied to any of the previously established genera thus combined is to be taken as the designation of the new combination.

CANON XXVI. When the same genus has been defined and named by two authors, both giving it the same limits, the later name becomes a synonym of the earlier one; but in case these authors have specified types from different sections of the genus, and these sections be raised afterward to the rank of genera, then both names are to be retained in a restricted sense for the new genera.

CANON XXVII. When a subgenus is raised to full generic rank, its name is to be retained as that of the group thus raised. In like manner, names first proposed or used in a subspecific sense are tenable in case the subspecies be raised to full specific standing, and are to have priority over a new name for the subspecies so elevated.

REMARK. — This of course relates to names which are otherwise tenable, — in other words, have been duly published, and are not synonyms.

CANON XXVIII. When it becomes necessary to divide a composite species or subspecies, the old specific or subspecific name is to be retained for that form or portion of the group to which it was first applied, or to which it primarily related. If this cannot be positively ascertained, the name as fixed by the first reviser is to be retained.

REMARK. — This is simply the extension of the rules already provided for the determination of generic types to species which are composite in character, to which the general principles of elimination already set forth are equally applicable.

CANON XXIX. When a species is separated into subspecies, or when species previously supposed to be distinct are found to intergrade, the earliest name applied to any form of the group shall be the specific name of the whole group, and shall also be retained as the subspecific designation of the particular form to which it was originally applied. In other words, the rule of priority is to be strictly enforced in respect to subspecific names.

REMARKS. — While this principle is generally recognized, one ornithological writer of prominence[1] has introduced the practice of connecting the names of conspecies or subspecies in accordance with the supposed nearest affinities of such forms, regardless of priority of names. Such disregard of the law of priority, however, can lead only to instability and confusion, without any adequately compensating advantages. If we knew beyond question what was the original or stock-form of a group of conspecies, and the lines of evolution of the various imperfectly segregated forms, it would be possible to show the genetic relation of such forms in our nomenclature, and were nomenclature classification some gain might thus result. But since

[1] Mr. Henry Seebohm.

nomenclature is not classification, and since our knowledge of genetic relationships even within specific groups is egregiously imperfect, only change and confusion can result from any attempt to express genetic relationship in the collocation of subspecific designations.

In cases where obscurity might arise from designating the earliest-named form of a group of subspecies by simply a binomial name, the specific term may be repeated (*e. g.*, *Melospiza fasciata fasciata*), or it may be followed by the word *typica* (*e. g.*, *Melospiza fasciata typica*).

For the sake of brevity it may be even desirable, where the context makes the reference unequivocal, to abbreviate the second term of the trinomial, as is done with the generic part of binomial names (*e. g.*, *M. f. rufina* = *Melospiza fasciata rufina*).

Canon XXX. Specific names when adopted as generic are not to be changed.

Remarks. — This Canon is diametrically opposed to § 13 of the original B. A. Code, which declares that "specific names, when adopted as generic, must be changed." The Bath Committee, however, recommended that, when a specific name had been raised to a generic, "it is the *generic name* which must be thrown aside, not the old specific name." Both rulings were to the effect that the specific and generic names of a species should not be identical; the only objection thereto urged by the B. A. Committee being the "*inelegance* of this method." Many of these 'inelegances' had already crept into zoölogical nomenclature, and they have since greatly increased, although the majority of authors have avoided them. Yet all the later codes are at least constructively in favor of their admission, and they have recently received sanction in other high quarters. (*Cf.* Dall, *Report*, pp. 50, 51.) To rule against them would be clearly contrary to the principle of stability in names and the spirit of the present Code. While your Committee would strongly discourage the practice of elevating specific names to generic rank, those already thus instituted should be accepted.

"The practice," says Dall, "is objectionable on account of its producing tautological inelegance, and because it has resulted in the formation of a number of generic names of adjective form. On the other hand, in connection with certain of the Linnæan and other ancient and universally known species, it had several beneficial effects. It recalled the typical form for which the genus was constituted, and in many cases it might rightly be regarded rather as a change of rank than the creation of a new name. The ancient species . . . . often covered an assemblage of forms equivalent to a modern genus." Respecting the ruling of the Bath Committee, Mr. Dall continues: "This innovation, the sweeping character of which the Committee cannot have realized, if carried into effect would uproot hundreds of the generic names best known to science, and so familiar that the fact that they

were originally specific names has been almost totally forgotten. Its spirit is opposed to the fundamental principles of nomenclature, and the end to be gained is of the most trivial character." (DALL, *Rep.*, pp. 50, 51.)

CANON XXXI. Neither generic nor specific names are to be rejected because of barbarous origin, for faulty construction, for inapplicability of meaning, or for erroneous signification.

REMARKS. — As already stated under Canon VI., of which this is the corollary, a name is merely a name, and should be treated as such, without regard to its construction or signification. This principle, while contrary to provisions of the B. A. Code and to the practice of many writers, has the sanction of modern authorities, and is in line with present tendencies in respect of fixity of names in nomenclature, as already explained.

CANON XXXII. A *nomen nudum*, generic or specific, may be adopted by a subsequent author, but the name takes both its date and authority from the time when, and from the author by whom, the name becomes clothed with significance by being properly defined and published.

§ 7. *Of the Rejection of Names.*

CANON XXXIII. A generic name is to be changed which has been previously used for some other genus in the same kingdom; a specific or subspecific name is to be changed when it has been applied to some other species of the same genus, or used previously in combination with the same generic name.

REMARKS. — In other words, a generic name cannot be tenable for more than one genus in the same kingdom, nor a specific or subspecific name for more than one species or subspecies of the same genus. This is in accordance with custom and all previous codes. In the present unsettled state of opinion regarding the status of forms considered by some writers as specific, and by others as subspecific, it seems best to place subspecific designations on the same basis in this respect as specific ones.

Therefore the maxim, "Once a synonym always a synonym," applies alike to generic, specific, and subspecific names.

A diversity of opinion prevails among naturalists in relation to whether a generic name which has lapsed from sufficient cause into synonymy should

be entirely rejected, or whether it may be considered available for a new and valid genus. Usage seems strongly against the retention of such names; but a few writers have advocated their admissibility in some other class of the Animal Kingdom, or even the admissibility of the same name in different orders of the same class, as among insects. Inasmuch as a fixed rule is desirable, and as practice and precept are both on the whole favorable to the maxim quoted above, — names in one department of Zoölogy being continually changed when found to be preoccupied in another department, — and as most previous codes explicitly state that a generic name to be tenable must not be in double employ in the same kingdom, it seems to your Committee that the formal adoption of the maxim, "Once a synonym always a synonym," as regards generic names, must meet with general approval.

A 'synonym' is properly one of two or more different names for one and the same thing. A 'homonym' is one and the same name for two or more different things. But in the usage of naturalists this distinction of meaning is not generally recognized. Thus the examples about to be adduced in illustration of the operation of Canon XXXIII. are homonyms, not synonyms. It is therefore necessary to premise that your Committee includes homonyms in the maxim just cited.

The application of the maxim to specific and subspecific names has been less generally admitted, but can be shown to rest on a sound principle, since it aims at, and is calculated to promote, stability in names. The object of the rule, in its present application, is to make the use of the specific name altogether independent of the generic name; to oblige authors to use always the same specific name, even when they disagree as to the generic appellation. In many cases, it is true, the revival of a specific name which has lapsed into synonymy may lead to no confusion, but the cases where the reverse may occur are far more frequent. To illustrate: Gmelin, in 1788, described a Lark as *Alauda rufa*. Audubon, in 1843, also described a Lark as *Alauda rufa*. In the mean time, however, the *Alauda rufa* of Gmelin has been found to be a true *Anthus*, and being therefore transferred to that genus is called *Anthus rufus*. Now as these birds belong to widely separated families, it may be claimed that there is no possibility of confusing Audubon's name with the *Alauda rufa* of Gmelin, and that therefore the name *rufa* of Audubon is perfectly tenable. There are many parallel cases in zoölogical literature, and the tendency is to recognize both names as valid. But the case is not always so simple, being susceptible of several complications. For instance, to continue the above illustration hypothetically, let us suppose that, before the generic distinctness of the two species was discovered, the name of the Audubonian *Alauda rufa* had been found to be preoccupied and accordingly changed to *rufescens*, and that for many years the species was known as *Alauda rufescens*. Finally the original *Alauda rufa* is removed to *Anthus*, and some writers restore to Audubon's species its origi-

nal name of *rufa*, while others prefer to retain the better known and later more current name *rufescens*.

Again: In 1804 a *Munia* was named *Loxia albiventris* by Hermann; in 1860 Swinhoe named a Crossbill *Loxia albiventris*. These birds certainly belong to different genera, and there is no fear of their being confounded. But it may be contended (indeed was long since so claimed by Lesson) that Hermann's *Loxia albiventris* (a *Munia*) is the true type of the genus *Loxia*, and that the Crossbills should be called *Crucirostra*. Others maintain that the latter are the true *Loxiæ*. Each view may have advocates, and we shall have two species bearing the name *Loxia albiventris*, whereas the rule, "Once a synonym," etc., at once debars the later name.

Again: Temminck, in 1828, named a bird *Procellaria tenuirostris* (Pl. Col., 587). In 1839 Audubon named a bird *Procellaria tenuirostris* (Orn. Biog., V., p. 333). By many authors these two species are referred to different genera, the former being regarded as a *Puffinus*. Schlegel, among others, considered them congeneric, and changed (Cat. Mus. P. B., Procellariæ, p. 22) the *tenuirostris* of Audubon to *smithi*. In doing this he was of course fully justified, from his view of the relationship of the two birds; while others, referring them to different genera, would, by current usage, be equally justified in retaining the same specific name for both species.

One further illustration: In 1788 Gmelin named a bird *Procellaria cinerea*. In 1820 Kuhl applied the same name to another species afterwards called *Procellaria kuhlii*. These two species are now commonly looked upon as belonging to different genera, the former being an *Adamastor*, the latter a *Puffinus*. They are not, however, called *Adamastor cinereus* and *Puffinus cinereus*, but *A. cinereus* and *P. kuhlii*.

These illustrations will serve as examples of the complications that arise and the instability which results from present methods in such cases, and show the lack of uniformity of usage now prevailing. Cases of this sort are in reality very numerous, and often egregiously misleading. Your Committee urges that the adoption of the maxim, "Once a synonym always a synonym," in relation to specific, as well as to generic names, will eradicate a prolific source of instability in nomenclature, and provide a consistent and uniform rule for a very troublesome class of cases. So long as naturalists differ in opinion respecting the limits of genera, the absence of such a rule leaves too many specific names open to personal arbitration and individual predilection.

CANON XXXIV. A *nomen nudum* is to be rejected as having no status in nomenclature.

REMARKS. — A name, generic or specific, which has been published without an accompanying diagnosis, or reference to an identifiable published figure or plate, or, in case of a generic name, to a recognizably described

species, is not entitled to recognition, being merely a name, and therefore having no status in nomenclature. It may, however, be brought later into use, under the restrictions embodied in Canon XXXII.

CANON XXXV. An author has no right to change or reject names of his own proposing, except in accordance with rules of nomenclature governing all naturalists, he having only the same right as other naturalists over the names he has himself proposed.

REMARK. — This is so obvious, that it seems trite to dignify the matter by formulation as a Canon; yet not a few writers fail to recognize the fact, and claim the right, not only to emend the orthography of names proposed by themselves, but to change genera and subgenera by substituting for them new types, and to use the original type as the basis of another new genus.

CANON XXXVI. A name resting solely on an inadequate diagnosis is to be rejected, on the ground that it is indeterminable and therefore not properly defined.

CANON XXXVII. If an author describes a genus and does not refer to it any species, either then or previously described, the genus cannot be taken as established or properly defined, unless the characters given have an unmistakable significance.

CANON XXXVIII. A species cannot be considered as named unless both generic and specific names have been applied to it simultaneously, *i. e.*, unless the species has been definitely referred to some genus.

REMARKS. — *E. g.*, a West Indian Seal (*Monachus tropicalis* Gray) was once described by an author, who, because in doubt as to its generic affinities, simply gave, as he says, "the trivial name *Wilkianus* for the species," without referring it to any genus. Authorities, however, agree that a species thus designated cannot be considered as named.

CANON XXXIX. A name which has never been clearly defined in some published work is to be changed for the earliest name by which the object shall have been so defined, if such name exist; otherwise a new name is to be provided, or the old name may be properly defined and retained, its priority and authority to date from the time and author so defining it.

§ 8. *Of the Emendation of Names.*

CANON XL. The original orthography of a name is to be rigidly preserved, unless a typographical error is evident.

REMARKS. — In view of the fact that stability of names is one of the essential principles in nomenclature, and that the emendation of names, as shown by the recent history of zoölogical nomenclature, opens the door to a great evil, — being subject to abuse on the part of purists and classicists, who look with disfavor upon anything nomenclatural which is in the least degree unclassical in form, — it seems best that correctness of structure, or philological propriety, be held as of minor importance, and yield place to the two cardinal principles of priority and fixity. The permanence of a name is of far more importance than its signification or structure, as is freely admitted by the best authorities in both Botany and Zoölogy. Your Committee would therefore restrict the emendation of names to the correction of obvious or known typographical errors involving obscurity. They would therefore reject emendations of a purely philological character, and especially all such as involve a change of the initial letter of the name, as in cases where the Greek aspirate has been omitted by the original constructor. It therefore follows that hybrid names cannot be displaced; although it is to be hoped that they will be strenuously guarded against in future; and that, in general, word-coiners will pay the closest attention to philological proprieties.

"The tendency among working naturalists is to retain names in spite of faults." (A. GRAY.)

"A generic name should subsist just as it was made, although a purely typographical error may be corrected." (DE CANDOLLE.)

§ 9. *Of the Definition of Names.*

CANON XLI. A name to be tenable must have been defined and published.

REMARKS. — "Unless a species or group is intelligibly defined when the name is given, it cannot be recognized by others, and the signification of the name is consequently lost. . . . . Definition properly implies a distinct exposition of essential characters, and in all cases we conceive this to be indispensable, although some authors maintain that a mere enumeration of the component species, or even of a single type, is sufficient to authenticate a genus." (*B. A. Code*, 1842.)

Any tenable technical name is called the *onym*, as distinguished from an

anonym, *nomen nudum*, or mere name unaccompanied by diagnosis; or from the *chironym*, an unpublished manuscript name; or from a *pseudonym*, a nickname or vernacular name. The *onym* is of two kinds; the *graphonym*, resting upon a published plate, diagnosis, or description, and the *typonym*, based upon indications of a type species or type specimen (see Canons XLII., XLIII.). *Onyms* are further named *mononyms*, *dionyms*, *trionyms*, or *polyonyms*, according to whether they consist of one, two, three, or more words. (*Cf.* COUES, *The Auk*, I., Oct. 1884, p. 321.)

CANON XLII. The basis of a generic or subgeneric name is either (1) a designated recognizably described species, or (2) a designated recognizable plate or figure, or (3) a published diagnosis.

REMARKS. — Some writers insist that a generic or subgeneric name in order to be tenable must be accompanied by a diagnosis. However proper such a requisition may seem theoretically, the principle is thoroughly impracticable, and if enforced would lead to hopeless confusion. The custom of naturalists has been quite otherwise, and the mere mention of a type has been found to be often a better index to an author's meaning than is frequently a diagnosis or even a long description. Either of the three alternatives given above may alone be accepted as a proper definition. In the case of a diagnosis, it must of course give some character or characters by which the organism it is intended to designate may be unmistakably recognized.

CANON XLIII. The basis of a specific or subspecific name is either (1) an identifiable published description, or (2) a recognizable published figure or plate, or (3) the original type specimen or specimens, absolutely identified as the type or types of the species or subspecies in question; but in no case is a type specimen to be accepted as the basis of a specific or subspecific name, when it radically disagrees with or is contradictory to the characters given in the diagnosis or description based upon it.

REMARKS. — It therefore follows that a specific or subspecific name resting on a description which was originally so vague as to render the name indeterminable, or which has become so through the later discovery of closely allied species, may be established by reference to an authentic type specimen, when such exists; but if the description proves to be so glaringly erroneous as to present characters contradictory to the type specimen, the type specimen is not to be taken as the basis of the name; the name in such case is to be ignored or treated just as it would have to be if no type specimen

existed; and the species is to be reintroduced into science under a new name, as a new species, and with a proper description.

The authenticity of a type specimen is often a matter of the highest importance. The evidence will vary in different cases; it may be merely circumstantial, but of such a nature as to be positive in character; or the specimen may bear a label in the handwriting of the original describer signifying it to be his type; or the history of the specimen may be so well known to those having it in charge that there can be little reason for doubt in the matter. But tradition, in the general sense of the term, cannot be regarded as satisfactory evidence; and nothing short of the written statement of the author, securely attached to the specimen, affirming it to be the type, should in future be considered satisfactory evidence. Still, this requirement cannot be insisted upon for the past, since in few cases have types been heretofore thus designated, though their authenticity may be in many cases beyond cavil. Your Committee would recommend that in future authors should not only specify their types in their descriptions, and label them as their types, but should designate the collection in which they are deposited.

CANON XLIV. In determining the pertinence of a description or figure on which a genus, species, or subspecies may respectively rest, the consideration of pertinency is to be restricted to the species scientifically known at the time of publication of the description or figure in question, or to contemporaneous literature.

CANON XLV. Absolute identification is requisite in order to displace a modern current name by an older obscure one.

REMARKS. — The purpose of the foregoing rules (Canons XLIII.–XLV.) is to check the tendency to replace current names by earlier ones, the identification of which may be determined only by a process of elimination — on the ground that they can relate to nothing else — based on our present knowledge of Zoölogy, but which cannot be determined from the imperfect description given by the original describer, alone or supplemented by the contemporaneous literature of the subject; — in short, the identification of which rests on our present knowledge of the species inhabiting the assigned habitat of the form in question.

CANON XLVI. In describing an organism which is considered to represent a new genus as well as a new species, it is not necessary to formally separate the characters into two categories, generic and specific, in order to render tenable the names given to the organism in question, although such a distinction is desirable.

Remarks. — In the case of fossil organisms, represented by a few fragments, the practice of giving a general description is especially common; but even here, as in all other cases, it would be far better to give a formal diagnosis or description of the generic characters as distinguished from the specific.

§ 10. *Of the Publication of Names.*

Canon XLVII. Publication consists in the public sale or distribution of printed matter, — books, pamphlets, or plates.

Remarks. — In Botany the distribution, by sale or otherwise, of labelled specimens, bearing the date of their distribution, is likewise recognized as publication.

In respect to the matter of publication, the B. A. Committee wisely recommend as follows: "A large proportion of the complicated mass of synonyms which has now become the opprobrium of zoölogy, has originated either from the slovenly and imperfect manner in which species and groups have been originally defined, or from their definitions having been inserted in obscure local publications which have never obtained an extensive circulation. Therefore . . . . we would strongly advise the authors of new groups always to give, in the first instance, a full and accurate definition of their characters, and to insert the same in such periodicals or other works as are likely to obtain an immediate or extensive circulation."

Mr. Dall, on the same point, makes the following judicious and explicit recommendations.

"To avoid increasing the difficulties encountered in dealing with the already enormous mass of scientific names, authors are earnestly recommended to take the following precautions in publication: —

"1. To publish matter containing descriptions of new groups or species [or changes in nomenclature], in the regularly appearing proceedings of some well-established scientific society, or in some scientific serial of acknowledged standing and permanence.

"2. If a separate publication or independent work be issued by any author, copies should at once be sent to the principal learned societies, scientific libraries, and especially to those persons or associations known to be employed in the publication of bibliographical records or annual reviews of scientific progress.

"The work should also be placed at the disposition of the scientific world by an advertisement of copies placed in the hands of some firm, society, or individual for sale or distribution.

"3. To avoid most carefully the publication of new names or changes of nomenclature in newspapers; in serials not of a scientific nature or of limited circulation; in the occasional pamphlets issued by weak, torpid, or obscure

associations which are distributed [only] to members or not at all; and in brief lists, catalogues [especially sale catalogues], or pamphlets independently issued, insufficiently distributed, or not to be found on sale." (*Rep.*, p. 46.)

The question of the restriction of the nature of the channels of publication through which new species and genera, and changes in nomenclature, should be made public, is considered by Mr. Dall, and was even included among the subjects covered by his circular, the replies to which were to the effect that, while such restriction would be very desirable, it seemed impracticable; an opinion reluctantly concurred in by Mr. Dall himself.

"It is clearly," Mr. Dall continues, "the duty of every publishing author to concur as far as possible in the suppression of methods leading to confusion," and to comply with recommendations "intended to lead toward this result."

CANON XLVIII. The reading of a paper before a scientific society or a public assembly does not constitute publication, and new genera and species first announced in this way date only from the time of their subsequent and irrevocable publication.

REMARKS. — It often happens that papers are read before a scientific body which are never printed. No one would claim publication in such cases. Often many months elapse between the reading of a paper before a society and its publication in the proceedings of the society. Credit for original discovery may be thus secured; but, in deference to the fundamental principle of fixity in nomenclature, new names or changes in nomenclature proposed in such papers obviously cannot be allowed to antedate actual publication.

CANON XLIX. The date borne by a publication is presumed to be correct till proved otherwise; although it is well known that in many instances, as in the proceedings or transactions of societies, and in works issued in parts, the date given is not that of actual publication; and when this fact can be substantiated, the actual date of publication, if it can be ascertained, is to be taken.

REMARKS. — It is notorious that the dates on the title-page of the completed volume of works issued in parts often antedate — sometimes postdate — the actual publication of the different parts, or are otherwise erroneous. Also, that the volumes of proceedings of learned societies not unfrequently bear simply the date of the period or year to which they relate, even when not published till months, and sometimes years, after the ostensible date;

and that serial publications, when not issued promptly, as not unfrequently happens, are sometimes antedated by several months. This state of things is happily less prevalent now than formerly, and is more frequently the result of inattention, or failure to appreciate the importance of precision in such matters, than from any motive of unfairness. At the present time authors in good standing are careful to make permanent record of the date of publication of each part of a work issued in successive brochures, or printer's 'signatures'; and societies not unfrequently give the exact date of the appearance of each signature or part of their various publications. This, it is needless to urge, is a practice which should become general.

Where doubt arises as to the priority of publication between a properly dated work and one improperly or dishonestly dated, it would hardly be unfair to throw the *onus probandi* on the publishers of the latter, or to favor the work the date of which is not open to question.

Finally, respecting the matter of publication, your Committee would submit the following.

Naturalists would do well (*a*) to indicate exactly the date of publication of their works, parts of works, or papers; (*b*) to avoid publishing a name without indicating the nature of the group (whether generic, subgeneric, or supergeneric) it is intended to distinguish; (*c*) to avoid including in their publications any unaccepted manuscript names, since such names only needlessly increase synonymy; (*d*) societies, government or other surveys, or other publishing boards, should indicate the date of issue of each part of works published serially or in instalments, as well as of all volumes and completed works.

Furthermore, the custodians of libraries, public or private, would do well to indicate, either in the work itself or in a proper book of record, the date of reception of all publications received, particularly in the case of those of a serial character, or which are issued in parts. (This, it may be observed, is a practice carefully adhered to in well-regulated libraries of the present time.)

§ 11. *Of the Authority for Names.*

CANON L. The authority for a specific or subspecific name is the first describer of the species or subspecies. When the first describer of the species or subspecies is not also the authority, it is to be enclosed in parentheses; *e. g.*, *Turdus migratorius* L., or *Merula migratoria* (L.).

REMARK. — Ordinarily the use of authorities may be omitted, as in incidental reference to species of a well-known fauna in faunal lists, etc.; but, on the other hand, the use of authorities may be of the greatest importance

in giving exact indication of the sense in which a name is used; for instance, in check-lists, or monographic and revisionary works.

In writing the names of subspecies the authority for the specific or second element of the name may nearly always be omitted.

The relation of authorities may be otherwise indicated; as, *e.g.*, *Merula migratoria* L. sp.; or *Merula migratoria* Sw. & Rich. ex L.; or *Merula migratoria* Sw. & Rich. (L. sub *Turdus*), etc.; but the method first above mentioned has the merit of the greater simplicity and brevity.

Two very different practices have prevailed among naturalists in respect to authorities for names. The B. A. Code gave preference to the authority for the specific name, for the following reasons: "Of the three persons concerned with the construction of a binomial title . . . . we conceive that the author who *first* describes and names a species which forms the groundwork of later generalizations, possesses a higher claim to have his name recorded than he who afterwards defines a genus which is found to embrace that species, or who may be the mere accidental means of bringing the generic and specific names into contact. By giving the authority for the *specific* name in preference to all others, the inquirer is referred *directly* to the original description, habitat, etc., of the species, and is at the same time reminded of the date of its discovery." Agassiz and others opposed this practice, and gave preference to the referrer of the species to its proper genus, on the ground that it required greater knowledge of the structure and relationship of species to properly classify them than to simply name and describe them. By this school, the authority is considered as constituting part of the name. This method is also in accordance with the usage of the older zoölogists and botanists, from Linnæus down. But it often happens that the authority for the combination of names used is not that of the classifier, but of the author who has merely 'shuffled names,' or worked out the synonymy in accordance with nomenclatural rules, and has had nothing to do with the correct allocation of the species.

CANON LI. The authority for a name is not to be separated from it by any mark of punctuation (except as provided for under Canon L.).

REMARKS. — In respect to punctuation and typography, in relation to names and their authorities, usage varies; but it is quite generally conceded that no comma need be used between the name and its authority; "the authority," as Verrill has suggested, "being understood to be a noun in the genitive case, though written in the nominative form, or more frequently abbreviated." In printing the authority is usually and advisably distinguished by use of type differing from that of the name; if the latter be in Italic type the authority may be in Roman, or if in small capitals or in antique, the authority may be in Italic type, etc.

Canon LII. The name of the authority, unless short, is to be abbreviated, and the abbreviation is to be made in accordance with commonly recognized rules, and irregularly formed and non-distinctive abbreviations are to be avoided.

Remarks. — In the case of a few well-known names usage may be considered to have established certain deviations from strict rule in the matter of abbreviation of authors' names, as the use of L. for Linnæus, DC. for De Candolle, Bd. for Baird, Scl. for Sclater, etc. In general, names of one syllable are short enough not to require abbreviation; when, however, it seems preferable to shorten them the first consonants are retained (as Br. for Brown), or the first consonant and the last, or last two when the name ends with a consonant or consonants (as Bd. for Baird, Gld. for Gould, Cs. for Coues, etc.). For names of more than one syllable, the first syllable and the first letter or letters of the second syllable should be retained (as Aud. for Audubon, Bon. for Bonaparte, Gorm. for Gorman; not Grm., which might stand for either Gorman, Garman, or Germar). To avoid confounding two names which begin with similar syllables, two syllables may be given, with one or two consonants of the third (as Bertol. for Bertolini, to distinguish it from Bertero), or the first syllable with the addition of a characteristic final consonant of the name (as Michx. for Michaux, as opposed to Micheli; or Lamx. for Lamouroux, as distinguished from Lamarck).

If several prominent authors in the same department of Zoölogy have the same name, they may be distinguished, if thought necessary, by prefixing their respective initials, or an abbreviation of the Christian name to the usual abbreviation; or if father and son, by affixing *fil.* or *f.* to the name of the younger.

In short, the points to be aimed at in abbreviating names of authorities are uniformity and distinctiveness. As Mr. Dall (whom in this matter we have closely followed) remarks, in some late works, only those familiar with the literature of the subject "can divine whether *Bth.* is the equivalent of Bentham, Beuth, or Booth, *Sz.* for Schultz, Steetz, or Szowitz; or what is the equivalent of *Htsch.*, *Hk.*, *H. Bn.*, *Bn.*, *Btt.*, *Lm.*, *Reich.*, or *Spng.*"

C. Recommendations for Zoölogical Nomenclature in the Future.

§ 12. *Of the Construction and Selection of Names.*

Recommendation I. As already provided under Canon II., the rules of Latin orthography are to be adhered to in the construction of scientific names.

Remarks. — "In Latinizing Greek words there are certain rules of orthography known to classical scholars which must never be departed from. For instance, the names which modern authors have written *Aipunemia*, *Zenophasia*, *poiocephala*, must, according to the laws of etymology, be spelt *Æpycnemia*, *Xenophasia*, and *pœocephala*. In Latinizing modern words the rules of classic usage do not apply, and all that we can do is to give to such terms as classical an appearance as we can, consistently with the preservation of their etymology. In the case of European words whose orthography is fixed, it is best to retain the original form, even though it may include letters and combinations unknown in Latin. Such words, for instance, as *Woodwardi*, *Knighti*, *Bullocki*, *Eschscholtzi*, would be quite unintelligible if they were Latinized into *Vudvardi*, *Cnichti*, *Bullocci*, *Essolzi*, etc. But words of barbarous origin, having no fixed orthography, are more pliable, and hence, when adopted into the Latin, they should be rendered as classical in appearance as is consistent with the preservation of their original sound. Thus the words *Tockus*, *awsuree*, *argoondah*, *kundoo*, etc., should, when Latinized, have been written *Toccus*, *ausure*, *argunda*, *cundu*, etc. Such words ought, in all practicable cases, to have a Latin termination given them, especially if they are used generically." (*B. A. Code.*)

Recommendation II. In Latinizing personal names only the termination should be changed, except as in cases provided for under Recommendation IV.

Remarks. — "In Latinizing proper names, the simplest rule appears to be to use the termination *-us*, genitive *-i*, when the name ends with a consonant; . . . . and *-ius*, gen. *-ii*, when it ends with a vowel, as *Latreille*, *Latreillii*, etc." (*B. A. Code.*) Since proper names for species, however, are used mainly — and we recommend that they be so used exclusively — in the possessive case, a still simpler and now generally adopted rule is to add an *i* to the name; as, *Latreille*, *Latreillei; Hale, Halei; Baird*, *Bairdi;* but euphony may in some instances require the fuller form, and here — as in many other instances — is a case where an author has the opportunity of displaying his good taste. It should be understood that this rule does not apply to names which are already Latin or Latinized in the nominative case. Thus *Linnæus* should become *Linnæi; Cygnæus*, *Cygnæi; Gunnerus*, *Gunneri; Nathusius*, *Nathusii; Nicolaus*, *Nicolai;* — not *Linnæusi*, *Cygnæusi*, *Gunnerusi*, *Nathusiusi*, *Nicolausi.* The same principle may also be safely followed in cases where the form of the name is perfectly Latin, though there may be some doubt whether it originally was Latinized or not; as, *Baldami* from *Baldamus*, *Blasii* from *Blasius;* not *Baldamusi*, *Blasiusi.* If the name were *Blase*, the genitive would be *Blasei*, as distinctive from *Blasii.* This recommendation of applying the regular Latin genitive whenever possible without obscuring the name, is particularly to be observed in

many names ending in *a*, the genitive of which should be *æ;* as, *Molina*, *Molinæ;* *Cara*, *Caræ;* *Costa*, *Costæ;* *Orellana*, *Orellanæ;* *Lozana*, *Lozanæ;* *Marmora*, *Marmoræ;* *Botta*, *Bottæ;* and not *Molinai*, *Carai*, *Costai*, *Orellanai*, *Lozanai*, etc. A greater difficulty is experienced with some Italian and Spanish names, and similar ones of Roman origin, ending in *o* or *io*. Simply adding an *i* would in many cases give absolutely absurd results; as, *Antonio*, *Antonioi*. In such cases the only proper way seems to be to apply the regular Latin genitive, or to derive a genitive in the regular manner from a supposed regular Latin nominative form of the name: thus, *Antonii*, from *Antonio;* *Xamarri*, from *Xamarro;* *Naceyri*, from *Naceyro;* *Guirai*, from *Guirao;* *Durazzi*, from *Durazzo;* *Morozzi*, from *Morozzo*. A few names ending in *io*, the derivation of which from a true Latin nominative form is not obvious, may be treated in a similar manner; as, *Fatio*, *Fatii*, and not *Fatioi*, though we have seen *Fationis*, the propriety of which we have no means of determining. Analogous application may be made in case of similarly ending names not of Latin origin; as, for instance, *Kaleniczenki* seems preferable to *Kaleniczenkoi*.

The above suggestions apply to names of men. It has been the custom to add *æ* to the name, instead of *i*, to indicate that the person whose name was thus used is a woman, but *-iæ* will in many, perhaps most, cases be found preferable, on account of its greater euphony; for instance, *Maxelliæ*, and not *Maxwellæ;* *Blackburniæ*, not *Blackburnæ*.

It is sometimes recommended that a personal specific name be put in the adjective form when it is not the name of the original collector or describer of the species. "Thus *Corvus corax*, Brun non Linnæus, or a new *Corvus* collected by Brun, would be *C. bruni*. A *Corvus* named after one's friend Brun, or an ornithologist Brun, would be *C. brunianus*." This recommendation is impracticable, however, since *-ianus* is too long a termination to append to most names, as it might give us specific names like *Artzibascheffianus*, *Seidensacherianus*, *Olph-Galliardianus*, *Grandidierianus*, *Macgillivrayianus*, *Selys-Longschampsianus*, etc.

When Christian names which have a Latin or Latinized equivalent are adopted for species, the form should accord with the rules of Latin declination; *e. g.*, *Alexandri*, *Caroli*, *Francisci*, *Hectoris*, *Ludovici*, *Guillielmi*, *Annæ*, *Margarethæ*, *Phœbes;* not *Alexanderi*, *Charlesi* or *Karli*, *Frantzi* or *Françoisi*, *Hectori*, *Louisi* or *Ludwigi*, *Williami;* much less *Annai*, *Margareti*, *Phœbei*, or the like. In many cases of women's Christian names, especially such as have no Latin or Latinized equivalent, the name may be left unaltered and uninflected, for instance, *Ingeborg*, *Gefion*, etc.; a practice which may be extended to names which in their present form are so altered that their derivation is not longer obvious, as *Fanny*, and the like. But in many cases the proper Latin form or equivalent is obvious; as, *Mariæ* from Mary, *Luciæ* from Lucy, *Gratiæ* from Grace, etc.

So much for specific appellations derived from personal proper names, the

use of which, if practised with discretion, is not objectionable. But care should be exercised as to introducing names of persons who have not rendered some noteworthy service to science, either as investigators, collectors of materials, or promoters of zoölogical investigation. The same remark will apply with still greater force to generic names, in respect to which the Bath (1865) Committee of the British Association makes the following sound suggestion : —

"*Specific names* from persons have already been sufficiently prostituted, and personal *generic* names have increased to a large and undeserving extent. The handing down the name of a naturalist by a genus has always been considered as the highest honour that could be given, and should never be bestowed lightly.[1]"

The simplest rule for forming a generic appellation from a personal name seems to be to ascertain first the genitive of the name according to the above suggestions, and then to append an *a*. In this case, however, the silent *e* at the end of a name should be dropped ; *e. g.*, *Latreillia*, not *Latreilleia*. In some other cases the author will need to exercise his taste in forming the words when the genitive form does not end in *i*.

It has been suggested that the name be "disembarrassed from all titles and all preliminary particles" ; but it is evident that in many cases the "preliminary particle" is so important a part of the name that its exclusion would make the name unrecognizable. While, therefore, it is proper to omit the Germon *von*, for instance, in *Lanius homeyeri*, it would hardly be defensible to write *Busi* or *Mursii*, instead of *Dubusi* or *Desmursii*, when intending to honor Du Bus or Des Murs by naming a species after him. That 'particle' does not mean 'article' need hardly be mentioned, and names like La Fresnaye, etc., should not be dismembered, though in German names the article also has to be left out when the particle is dropped.

RECOMMENDATION III. The *best* zoölogical names are those which are derived from the Latin or Greek, and express some distinguishing characteristic of the object to which they are applied.

REMARKS. — This is Recommendation 'A.' of the B. A. 'Recommendations for the Improvement of Zoological Nomenclature in the Future,' under which the B. A. Committee considers 'Classes of objectionable names.' This subject has also since received detailed consideration from De Candolle in his 'Lois de la Nomenclature botanique,' and Mr. Dall has devoted several pages to it in his 'Report' (pp. 29–31), all of which may well be consulted in this connection. The principal of these recommendations may be summarized as follows : —

[1] "Hoc unicum et summum præmium laboris, sancte servandum, et caste dispensandum ad incitamentum et ornamentum Botanices. — *Phil. Botan.*, p. 171."

1. Avoid adjective generic names. "The names of genera are in all cases essentially substantive, and hence adjective terms cannot be employed for them without doing violence to grammar. The generic names *Hians*, *Criniger*, *Cursorius*, *Nitidula*, etc., are examples of this incorrect usage." (*B. A. Code.*)

2. Avoid generic names in the genitive case. Like adjective names, these can be used only in violation of both good taste and grammatical construction. (DALL.)

3. Avoid geographical names, which should never be used for genera, and only with discrimination for species. — Even for species, formerly some authors (Wagler, for instance) went so far as to substitute others whenever they occurred, while other authors (Swainson, for example) would tolerate them only when they applied *exclusively;* as, *Lepus hibernicus*, *Troglodytes europæus*, etc. The B. A. Committee were "by no means disposed to go to this length. It is not the less true that *Hirundo javanica* is a Javanese bird, even though it may occur in other countries also, and though other species of *Hirundo* may occur in Java. The utmost that can be urged against such words is, that they do not tell the *whole truth*." (*B. A. Code.*) The B. A. Committee advised restriction of such names to species confined to the countries whose names they bear.

4. Avoid barbarous names unless they are euphonious, easily modified to a Latin form, and are more or less well known in their original form as names of the species or genera to which they are to be applied; *e. g.*, *Ajaja*, *Ara*, *Macao*, *Pompadora*, *Skua*, *Tijuca*, etc.

"Some authors protest strongly against the introduction of exotic words into our Latin nomenclature, others defend the practice with equal warmth. We may remark, first, that the practice is not contrary to classical usage, for the Greeks and Romans did occasionally, though with reluctance, introduce barbarous words in a modified form into their respective languages. Secondly, the preservation of the trivial names which animals bear in their native countries is often of great use to the traveller in aiding him to discover and identify the species. We do not therefore consider, if such words have a Latin termination given to them, that the occasional and judicious use of them as scientific terms can be justly objected to." (*B. A. Code.*)

5. "Technical names. — All words expressive of trades and professions have been by some writers excluded from zoology, but without sufficient reason. Words of this class, *when carefully chosen*, often express the peculiar characters and habits of animals in a metaphorical manner, which is highly elegant. We may cite the generic terms *Arvicola*, *Lanius*, *Pastor*, *Tyrannus*, *Regulus*, *Mimus*, *Ploceus*, etc., as favourable examples of this class of names." (*B. A. Code.*)

6. Mythological names should be applied with great care, and only when they have some perceptible reference or allusion to the object on which they are conferred. They may sometimes be used as generic names "with

the same propriety as technical ones, in cases where a direct allusion can be traced between the narrated actions of a personage and the observed habits or structure of an animal. Thus when the name *Progne* is given to a Swallow, *Clotho* to a Spider, *Hydra* to a Polyp, *Athene* to an Owl, *Nestor* to a gray-headed Parrot, etc., a pleasing and beneficial connexion is established between classical literature and physical science." (*B. A. Code.*)

7. Avoid hybrid names. — "Compound words, whose components are taken from two different languages, are great deformities in nomenclature, and naturalists should be especially guarded not to introduce any more such terms into zoology, which furnishes too many examples of them already. We have them compounded of Greek and Latin, as *Dendrofalco*, *Gymnocorvus*, *Monoculus*, *Arborophila*, *flavigaster*; Greek and French, as *Jacamaralcyon*, *Jacamerops*; Greek and English, as *Bullockoides*, *Gilbertsocrinites*." (*B. A. Code.*)

8. Avoid generic names closely resembling others already in existence, even when the etymology may be different; as, *Pica* and *Picus*, *Otostomia* and *Odostomia*, *Tachyphonus* and *Trachyphonus*, etc. The danger of confusion in such cases is evident, and should be guarded against.

9. "Corrupted words. — In the construction of compound Latin words, there are certain grammatical rules which have been known and acted on for two thousand years, and which a naturalist is bound to acquaint himself with before he tries his skill in coining zoological terms. One of the chief of these rules is, that in compounding words all the radical or essential parts of the constituent members must be retained, and no change made except in the variable terminations. . . . . A name made up of the first half of one word and the last half of another, is as deformed a monster in nomenclature as a Mermaid or a Centaur would be in zoology; yet we find examples in the names *Corcorax* (from *Corvus* and *Pyrrhocorax*), *Cypsnagra* (from *Cypselus* and *Tanagra*), *Merulaxis* (from *Merula* and *Synallaxis*), *Loxigilla* (from *Loxia* and *Fringilla*), etc. In other cases, where the *commencement* of both the simple words is retained in the compound, a fault is still committed by cutting off too much of the radical and vital portions, as is the case in *Bucorvus* (from *Buceros* and *Corvus*), *Ninox* (from *Nisus* and *Noctua*), etc." (*B. A. Code.*)

10. "Nonsense names. — Some authors having found difficulty in selecting generic names which have not been used before, have adopted the plan of coining words at random without any derivation or meaning whatever. The following are examples: *Viralva*, *Xema*, *Azeca*, *Assiminia*, *Quedius*, *Spisula*. To the same class we may refer *anagrams* of other generic names, as *Dacelo* and *Cedola* of *Alcedo*, *Zapornia* of *Porzana*, etc. Such verbal trifling as this is in very bad taste, and is especially calculated to bring the science into contempt. . . . . It is contrary to the genius of all languages, which appear never to produce new words by spontaneous generation, but always to derive them from some other source, however distant or obscure. And it

is peculiarly annoying to the etymologist, who after seeking in vain through the vast storehouses of human language for the parentage of such words, discovers at last that he has been pursuing an *ignis fatuus*." (*B. A. Code.*)

11. Indicate the etymology of each name proposed. — While it is not now intended that names erroneously constructed shall be subject to emendation (see above, Canon XL. and Remarks), it is highly desirable that the etymology of all generic names newly proposed should be clearly indicated.

12. Avoid names of great length, or of harsh and inelegant pronunciation. Words of more than five syllables should as far as possible be avoided. In the construction of names it is obvious that euphony should be regarded. Thus such names as *Eschscholtzi*, *Sylviorthorhynchus*, *Strigymnhemipus*, *Synthliborhamphus*, *Xiphidiorhynchus*, *Wurmizusume*, etc., are decidedly objectionable.

13. Avoid comparative names. — Specific names expressive of comparative size, as *minor*, *minimus*, *maximus*, should be avoided, as they may be rendered inaccurate by the later discovery of additional species. Names denoting resemblance to another species or genus should be also avoided, as *Picoides*, *Emberizoides*, *Pseudoluscinia*, *rubeculoides*, etc. (*B. A. Code.*)

14. Generic names compounded from those of other genera, if not too long, and properly formed (not made corrupt by trying to render them shorter), may sometimes be adopted with advantage, since they serve to express the position of a genus intermediate between, or allied with, two other genera. (*B. A. Code.*)

15. Avoid making a wrong application of the ancient names of animals. Names of animals found in classic authors have in numerous cases been applied at random to exotic genera or species wholly unknown to the ancients. This practice should be discouraged. The use, however, of ancient names, *when correctly applied*, is most desirable, for it is better in framing scientific terms to select old words than to form new ones. (*B. A. Code.*)

16. In modifying existing names — as, for instance, of genera in naming subgenera or sections, or of species in designating allied species — by means of prefixes and suffixes, the following precautions should receive attention. Before a Greek derivative *eu-* and *pseudo-* may be used, the former especially in modifying generic names ; after a Greek derivative, *-astrum*, *-oides*, or *-opsis*. Before a Latin derivative, *sub-* may be used ; after it, *-ella*, *-una*, *-ina*, *-ites*, etc. The prefix *eu-* may be used before generic names ; the prefixes *sub-* and *pseudo-* should be restricted to specific names ; the suffixes are applicable to either generic or specific names. Usage has justified to some extent the application of these modifications to words of uncertain etymology or arbitrary formation, in connection with which Greek syllables should be entirely avoided. So far as specific names are concerned, *pseudo-* may be employed when it is desired to connect the name of a species with another with which it has been confounded. The suffixes *-ella*, *-una*, *-ina*, are used in

modifying a Latin generic name, to indicate that a new genus thus named is in some way related to the one whose name is thus modified. They are also used in reforming a name which is inadmissible for any reason, in order to preserve a suggestive and convenient similarity. For instance, *Cæcilia*, if employed for a shell, but which was found to be preoccupied in some other class, might be modified to *Cæcilianella*, in order that convenience in consulting indices might be conserved for the new name in connection with the old one. (DALL, *Rep.*, p. 30.)

17. Geographical specific names are formed by adding the suffixes *-us*, *-ius*, *-icus*, *-inus*, *-itus*, (or their feminine or neuter equivalents, as the case may require,) and *-ensis*, the name itself suffering no modification except in its termination.

18. Manuscript names used by collectors in their notes or on labels, if well chosen, may be adopted, the adopter of the name of course supplying a description; and he should further state that the name has not previously been formally introduced. Without this precaution the use of manuscript names is highly objectionable, and has been the source of great confusion and annoyance. The manuscript names of Beck, Solander, Leach, and others, have long been stumbling-blocks, from having been quoted by naturalists with no reference to the fact that they were unaccompanied by descriptions, and therefore without standing. (DALL, *Rep.*, p. 33.)

19. In subdividing an old genus it would be better to make the subdivisions agree in gender with that of the original group, in order that specific names may be preserved unaltered.

§ 13. *Of the Transliteration of Names.*

RECOMMENDATION IV. Names adopted from languages written in other than Roman characters, as the Greek, Russian, Arabic, Japanese, etc., or from languages containing characters not represented in the Roman alphabet, as the Spanish, French, German, Scandinavian, Western Slavonian, etc., should be rendered by the corresponding Roman letters or combinations of letters.

REMARKS. — The transliteration of letters not Roman into those of the Latin alphabet is a matter of some difficulty and uncertainty, as philologists are not yet in agreement as to the rules. The only alphabet in regard to which scholars nearly agree being the Greek one, the commonly adopted system should be followed, and also in case of names derived from the modern Greek language. In regard to the other alphabets, it is to be recommended that in transliterating the spelling be as nearly phonetic as

possible, and in accordance with the sound indicated by the letters of the Latin alphabet. This is to prevent such transliterations as *yessoensis* for *jessoensis*, *Chernik* for *Tschernik*, *y* and *ch* having sounds in the Latin alphabet different from those which they are intended to indicate in the above words. There are two methods of transliterating the Russian alphabet. One is by rendering the letters by the corresponding Latin letters, which method should always be followed in geographical names, with the proviso, however, that where the Russian name in the nominative case ends with the letter ъ the ending Latinizing the word is to be appended to the soft consonant preceding the ъ: *e. g.*, nom. *Orloff* (ending in Russian ов), gen. *Orlovi*, adject. *Orlovianus*, and not *Orloffi*, *Orloffianus*, this being in conformity with the spirit of the Russian language, which has gen. *Orlova*. The other method of transliterating the Russian letters, much used by Russians themselves, is to render them by the corresponding letters of the Polish language. The alphabet of the latter is only quasi-Roman, however, though most of the letters have the same value as the Roman letters. This method of transliteration should only be resorted to when a Russian author is in the habit of so transliterating his own name, and it is known to the scientific world in that form: for instance, *Severzowi*, and not *Severzovi*, he himself invariably spelling his name Severzow when writing it in Roman letters.

In regard to names derived from the Japanese language, it is to be remarked that the Japanese have now officially adopted a system of transliteration according to the "Italian pronunciation," which should be followed.

In most modern alphabets which are based upon the Roman one occur a few peculiar letters which have to be transliterated, as the Spanish *ñ*; the French *é*, *è*, *â*, and *ç*; the German *ä*, *ö*, *ü*; the Scandinavian *å*, *ø*; the Slavonian *č*, etc. The Spanish *ñ* may be rendered by doubling the consonant so marked, or by *ni*, according to circumstances; the French *é*, *è*, and *â*, simply by omitting the marks of accent, and *ç* by *s*; the German *ä*, *ö*, and *ü*, by *æ*, *œ*, and *ue*; the Scandinavian *å* and *ø*, by *ao* and *œ*; the Slavonian *č* or *cz*, by *tsch*. However, if a name has a different but settled transliteration, this should be employed, as, for instance, *Taczanowskii*, and not *Tatschanovskii*, as the person using such transliteration must be content to have his name mispronounced, as in the case quoted, the usual pronunciation being *Takzanowski* (and we have seen it Latinized by French authors into *Tackzanowskia!*). But what about names like *Tetrao mlokosiewiczii*, named after an obscure forester somewhere in Russia? The best recommendation we can make is to avoid them altogether. Do not burden our nomenclature with names of persons whom science does not know, or with names which civilized people cannot read at sight, nor pronounce when read, nor remember when read and pronounced.

§ 14. *Of the Description of Zoölogical Objects.*

Recommendation V. When naming a new species or subspecies, always give a diagnosis, as short as possible, but still containing all the essential features by which the species or subspecies may be distinguished from the other known members of the genus to which it is referred. Base the diagnosis on the type specimen, and indicate the museum where the type is deposited, and the catalogue number by which it may be identified. Give a comparison with the nearest allied forms, and tabulate, if possible, the characters of the new form in a 'key' to the genus, or a section of it.

Recommendation VI. When establishing a new genus, always mention at least the family to which it is considered to belong, and a single typical species; give then the diagnostic characters by which the members of the genus may be distinguished from those of the allied genera.

§ 15. *Of the Bibliography of Names.*

Recommendation VII. In preparing tables of bibliographical references in works of a revisionary or monographic character, all published works which throw light upon the history of the organisms in question are subject to citation.

Remarks. — The object of such citation is twofold; — (1) to afford a guide to the literature of the subject; (2) to show what name or combination of names is tenable for the organism under consideration, and the authorities for such names.

Recommendation VIII. Citations are to be made in chronological order, the earliest name given to the organism standing first, and the other designations following in due sequence; then under each designation are to be arranged, also in chronological order, the several works or papers which treat of the organism under such designation. The date of publication is always to be made a part of the citation.

Remarks. — The pre-Linnæan or early historical references are thus separated from the nomenclatural or synonymatic, on which, however, the latter often depend, and are therefore historically important. All bibliographical references are in a measure historical, but a distinction has been made between such as are strictly historical and those mainly biological. While it may be impracticable to separate them into distinct series, it will greatly facilitate the labor of later students of the group if authors will indicate the character of the knowledge conveyed in the work cited by a brief parenthetical statement following the citation, as biographical, descriptive, embryological, monographic, geographical distribution, etc., as the case may be, — a practice already adopted by some writers. The extent to which bibliographical references may be profitably cited will vary with the nature of the work in hand, but in works of a monographic character, they should include all essential works, whether relating to the status of names, or to the development, relationship, habits, or distribution of the organism under consideration.

Since pre-Linnæan authors are necessarily subject to citation, although their names of groups are untenable (unless later adopted by binomial writers), the relation of their work to the science becomes duly recognized, and they acquire such credit as the character of their work may entitle them to receive. Much has been said on the score of justice in relation to the early authors; and it has been claimed that to ignore their names of groups in our nomenclature is to do them great injustice. Your Committee, however, begs leave to submit, as already stated under Canon XIV., that the matter of justice or injustice in relation to authors is not to be considered in matters of nomenclature, which should be based exclusively on certain general principles of utility, convenience, and practicability. In every historical *résumé* of our knowledge of particular groups or species, every author who has contributed to our knowledge, whether pre-Linnæan or modern, polynomial or binomial, receives his due modicum of recognition, meted in proportion to the merit of his endeavors. So that he is not only recognized in bibliographical citation, but in every sketch of the progress of our knowledge of the organisms about which he may have written.

Recommendation IX. When the diagnostic characters or the limits of a group have been changed, such change should be shown by an abridged indication of the character of the change, as 'mut. char.,' 'pro parte,' to follow the citation.

§ 16. *Of the Selection of Vernacular Names.*

Recommendation X. Vernacular names, though having no standing in scientific nomenclature, and being not strictly sub-

ject to the law of priority, have still an importance that demands the due exercise of care in their selection, especially with reference to their fitness and desirability.

Remarks. — It not infrequently happens that well-known, abundant, and familiar species have several nearly equally familiar vernacular designations, in which case the most euphonious and otherwise most fitting should be selected and given prominence. In the case of two equally unobjectionable names, the earliest should be given preference. In general, vernacular names may well be selected on the *auctorum plurimorum* principle.

Since many species known to science are without vernacular names, otherwise than unknown barbarous ones, and since it is necessary, or at least desirable, sooner or later to supply them with vernacular designations, these should be as far as possible formed by translating, or in part adopting, the technical names of science; and authors of monographic works, like, for example, the British Museum 'Catalogue of Birds,' or faunal works, like many which might be named, (but which unfortunately in too many cases ignore vernacular names,) would do their fellow naturalists, and through them the public, a favor by considerately supplying vernacular designations to species, particularly in such departments of Zoölogy as Mammalogy and Ornithology, and indeed Vertebrates generally, together with the better known or more exemplary forms among Invertebrates.

CHECK-LIST

OF

NORTH AMERICAN BIRDS,

ACCORDING TO THE CANONS OF NOMENCLATURE

OF THE

AMERICAN ORNITHOLOGISTS' UNION.