tributed membership, its strong hold on the sympathies of scientific men, the high appreciation in which it is held throughout the country, and the appropriate constitution of its Council, all point to the American Association for the Advancement of Science as a suitable nucleus for a Senate of Science—whenever the time arrives for establishing such an organization.

An obstacle in the way of instituting an American scientific body of general character may be noted: Our country is one of magnificent distances, so that the cost of attending meetings or sessions is necessarily large; and equitable representation in a general body would seem to require provision for meeting costs of travel incurred by delegates. Doubtless this could be effected through *pro rata* assessment on the constituent associations, if the central organization were once well under way; and it is possible that the burden might be measurably diminished by migratory meetings, after the fashion of the associations for the advancement of science in different countries. The difficulty might perhaps be overcome by securing a foundation through donation, bequest, or otherwise; certainly it is not insuperable in these days of unprecedented scientific prestige, and of rapid increase in material prosperity through the applications of science.

Summarily, it would seem appropriate for American scientists to draw inspiration and suggestion from American statecraft as to organization; it would seem timely to start a movement toward the more comprehensive organization of American science in connection with the first great assemblage of scientific men in the western half of the country; and it would seem especially fitting to initiate the movement at the approaching meeting in Denver of that organization which would most properly serve as a nucleus for an American Senate of Science.

W J M.

SOME STRANGE PRACTICES IN PLANT NAMING.

In a recent issue of the *Bulletin* of the Catholic University of Washington, the distinguished professor of botany in that institution, Dr. Edward L. Greene, presents what he announces to be the first of a series of papers entitled 'Some Literary Aspects of American Botany.' It should be a source of gratification to the whole scientific fraternity that public attention has been thus called to the philological abuses so prevalent among the latter-day writers. This first paper contains a trenchant and forcible criticism of the titles applied to many recent botanical serials; and the author's commentary on such examples as 'Contributions to the Myxogasters of Maine,' and 'Contributions from the Herbarium of Franklin and Marshall College' is scarcely less instructive than entertaining.

It is a significant fact that this article by Professor Greene has already elicited a paper on a kindred topic, written by Dr. P. A. Rydberg and published in *Torreya* for June. As the latter author confines himself, however, to a discussion of personal specific names and their mode of construction, I may be permitted to offer a brief commentary on the subject of plant names in general, from both the orthographical and etymological standpoint.

It has always been a widely accepted principle of scientific nomenclature that a specific once published cannot be subsequently altered in form except upon 'reasonable grounds'; but there has been, and still continues to be, a wide divergence of opinion as to what constitutes reasonable grounds for such alteration. The author of the name has usually been allowed more latitude in this respect than other writers; and in past botanical literature there are consequently many changes in orthography, corrections of typographical errors, etc., made either by the author himself, or more

frequently by other writers who may have had occasion to review his work. These alterations extend all the way from simple substitutions of one letter for another to the replacement of the name itself, generic or specific or both, by an appellation considered more appropriate. When to this uncertain element in plant nomenclature we add the whole vexed question of the principle of priority and the subject of type determination, it seems remarkable that in the progress of botanical science so few opposing schools of belief have been developed.

It may be profitable to give some consideration to the various views that have been entertained regarding the extent of alteration permissible in the case of incorrect or inappropriate scientific names. For convenience in discussion the various categories under which changes have been made will be taken up under separate headings.

1. *False Descriptive Names.*—Botanical nomenclature includes countless numbers of these, many of which have found acceptance from time immemorial. Thus *Polygala* is wholly destitute of milky juice; the stem-leaves of *Campanula rotundifolia*, which are frequently the only leaves discernible at maturity, are narrowly linear; *Viola villosa* is in no sense villous; and *Lunaria annua* is usually biennial. While the modern nomenclator would find little support in an attempt to change such names on the ground of their unsuitability, the practice was common among writers of the first half of the nineteenth century, as well as among the immediate successors of Linnaeus. Rafinesque, in particular, was fond of reading the riot act to his contemporaries for what he considered an outrageous disregard of natural characters in the assignment of plant names, as the following verbatim passage, selected at random from the 'New Flora of North America' (Vol. 2, page 95) will show:

"My genus *Diplostelma*, which Nuttall had wrongly reduced to *Actinocarpus*, in Collins' herb. (there is no such genus, he meant probably *Actinospermum* of Elliott) has been described by him under the name *Chetanthera* in his new plants. * * * My name is the best, although Nuttall's dates of 1834, *Chetanthera* means bristly anthers, while this is not the case, he ought to have named it *Chetopappus*, but as the pappus is double and different mine is the best, and must be retained."

In the case of *Lunaria annua* mentioned above, published by Linnaeus in 1753, we find that Moench subsequently altered the name to *biennis* in recognition of its biennial character. Writers like Bentham and Gray did not adopt this extreme view, but if in the transfer of a species from one genus to another the specific designation became inappropriate through duplication of the idea contained in the generic name, they invariably took the liberty of changing it. Thus when *Anemonella thalictroides* was transferred to *Thalictrum*, it became *Thalictrum anemonoides*. Inasmuch as the acceptance of such a combination as '*Thalictrum thalictroides*' would imply an agreement with the doctrine of the entity of specific names it was entirely natural and logical for Bentham and his associates, who were strong opponents of that doctrine, to consider such cases exceptional to the rule of priority. If, however, we admit that a specific name is meaningless when disassociated with a generic, there seems no good reason why we should not continue the process of alteration, and follow in the footsteps of the immediate post-Linnaeans. There can be no half-way ground between him who would substitute '*biennis*' for '*annua*' on the one hand, and the botanist who believes in the immutability of specific names on the other.

2. *False Locality Names.*—The writings of Linnaeus and his contemporaries abound in instances of this sort. In many cases

the anomaly that now exists in such specifics as *Berberis Canadensis* and *Cercis Canadensis*—neither of the plants mentioned occurring beyond the Carolinian zone—results from the ignorance of geography displayed by the Old-World botanists of that day; frequently it is due to the great political changes that have taken place in this country during the last one hundred and fifty years. Even in modern times it is a common occurrence for a species to receive its designation from the State in which it was first discovered; and the fact that it may subsequently be found to extend into many other States has never been considered a sufficient reason for renaming it. But what are we to say of *Asclepias Syriaca*, which is exclusively an American milkweed? Decaisne promptly renamed it *Asclepias Cornuti*, and in this he was followed by Gray and other botanists. There are several writers of the present day who favor the alteration of names that state a geographical untruth.

A large number of genera, dedicated to individuals, have been incorrectly spelled, either through the author's ignorance or the compositor's blunder. Examples are Nuttall's *Wisteria*, dedicated to Dr. Wistar; Brown's *Lechenaultia*, named for Leschenault; and Rafinesque's *Scoria*, published as a misprint for *Hicoria*. De Candolle's rule in this connection was: "When a name is drawn from a modern language it is to be maintained just as it was made, even in the case of the spelling having been misunderstood by the author, and justly deserving to be criticized." Dr. Gray considered this rule too absolute, and admitted corrections not only of orthography, but also of errors in the construction of names of Latin or Greek derivation. If the eminent botanist of Harvard University were alive to-day it is to be feared that a large portion of his time would have to be devoted to this work if he wished to thoroughly revise the nomenclatorial output of the present generation.

3. *Names falsely constructed.*—This includes words derived from modern languages without adaptation to the Latin or Greek form, and those compounded of elements from two or more languages. The writings of Adanson and Necker are full of generic examples of the latter type, and many of these have been taken up under the operation of the law of priority. Of the Adansonian names *Ananas*, *Sesban*, *Cajan*, *Sabal*, *Konig*, *Gansblum*, and *Rulac* it will be observed that none are in strictly correct Latin form, and with the exception of *Konig* and *Gansblum* they are all, I believe, of unknown derivation. It might naturally be inferred that the whole list should stand or fall alike; yet the curious inconsistency is found, that while *Sabal* has been accepted by botanists of every school for several generations, and while *Cajan*, *Sesban* and *Ananas* have been taken up under the Rochester code and are adopted by all its followers, the mere suggestion of *Rulac*, *Gansblum* or *Konig* as generic possibilities is received with amusement or contempt by the average botanist.

Before discussing these latter cases in detail, however, let us refer to the other class in my third category, consisting of so-called hybrid names constructed of elements from two distinct languages. Of these, modern botanical literature is furnishing a rich and ever-increasing store of examples. They may consist: (1) Of Greek terminations welded upon Latin nouns or *vice versa*, resulting in such products as 'graminoides' or the still more remarkable 'cenchrusoides.' (2) They may be compound adjectives, of which one element is Greek, the other Latin; this type is well illustrated by 'pseudocaudatum,' 'polyclavatum' and 'magnasora,' all of which have been recently published in the same journal. (3) Personal generic titles composed of an English proper name with a classical adjective used

as prefix or suffix, like *Vaseyanthus*, *Pringleophytum*, *Neonelsonia*, and *Paleohillia*. It was Dr. Otto Kuntze who astonished the world and carried off the palm in this class by the establishment of such genera as 'Sirhookera' and 'Peckifungus.'

I am quite well aware that these compound personal names have many defenders even among prominent scientists; it is argued that since personal genus-names are properly formed by the addition of the Latin suffixes *-a*, *-ia*, *-ella*, *-ina*, etc., there can be no objection to making these suffixes consist of an adjective or noun. But while the practice may not be technically incorrect, it is certainly not harmonious with the fundamental principles of etymology, and the results, whether we consider them from the standpoint of euphony or signification, are frequently ludicrous. Moreover, they often originate on account of an inordinate and misdirected desire to honor a collector with more than one generic dedication. This has become a common practice, although formerly it was held as a general principle that one genus, and one only, could be dedicated to a single individual; while in the case of species, it was customary to single out one striking new plant from the list and designate it in honor of the collector, other new species receiving descriptive names. But nowadays, if John Smith, let us say, visits some remote country and returns with a series of specimens containing several new genera and perhaps thirty new species, the botanist who determines his collection, finding a previously-published Smithia, establishes a 'Neosmithia' and a 'Smithiophytum,' perhaps also a 'Smithiocarpus' or a 'Pseudosmithia'; while among the new species we shall probably find a 'Smithii' for each separate genus. The same traveler is likely to be similarly honored if he reaps an equally rich harvest in another locality the following year.

Another objectionable class of names belonging to the same general type are those derived from localities with the addition of the Latin suffix *-ensis*. Originally this was applied to names of States or countries already in the Latin form; and *Virginiensis*, *Carolinensis*, etc., are irreproachable. But then we began to have *Bostoniensis*, *Tennesseensis* and *Wyomingensis*; one writer has furnished us with 'Bajensis,' from Baja, the Spanish name of a small Californian town; and within the last few months a distinguished German systematist, having occasion to describe a new *Selaginella* from a certain locality in Africa, has applied to it the graceful and flowing designation 'njam-njamensis.'

Whatever may be one's individual views concerning combinations of English personal names with Latin suffixes, I am sure that very few defenders will be found for the other classes mentioned, of which 'graminoides' and 'pseudocaudatum' are types. To those whose classical vocabulary is limited, the pages of the Latin lexicon afford numerous suggestions for specific names irreproachable in form and pregnant with meaning; it seems strange that so large a proportion of our systematists regard the rules of etymology and grammar as of so little importance in plant naming. Glancing over the pages of one or two of our prominent serials, I noted the following examples of Latin and Greek hybrids, many of which are as clumsy in their lack of euphony as they are faulty in their construction: 'paucicephala,' 'pauciphylla,' 'curvicarpus,' 'cresenticarpus,' 'cuspidocarpus,' 'arenicoloides,' and 'polyclavatum.' I have not thought it worth while to discuss such specific names as 'annulum' for annulatum; 'arenicolum' for arenicola; and 'glabrissimum' for glaberrimum, though these were actually published in all seriousness by authors of whom better work might have been expected.

In his review of De Candolle's 'Nouvelles Remarques sur la Nomenclature Botanique' Dr. Gray, in commenting upon the suppression of the fourth section of article 60 in the Paris Code, enjoining the rejection of names formed by the combination of two languages, observes: "Let us hope that we shall not be driven to the acceptance of the specific name 'acuticarpum' which one of our botanists has recently perpetrated." Whatever may be our views of nomenclature we must admit that in intellectual and philological attainments the botanists of the past generation are our superiors, and we cannot fail to award them respect and admiration for their vigorous efforts in behalf of the purity of scientific terminology. The list of recently published names above cited, on the other hand, may be accepted as evidence of what plant nomenclature in the twentieth century is coming to.

Having thus discussed at some length the various forms of false or otherwise objectionable plant names, with some slight indication of the historical practice in each case, we are led naturally to a consideration of the final question, what is to be done with these names? To my mind a serious discussion and an authoritative reply to this question are of vital importance at the present stage of botanical nomenclature in this country. We now have a working code, based on sound general principles and appealing in its practical operation to the spirit of law and order rather than to the fickle quality of individual judgment. Yet this code is absolutely silent upon the important question of correctness in plant naming. To be sure, it reaffirms the canons of the Paris code except where they conflict with its newly established principles. But the Paris Code is an instrument of considerable age, and, excellent as are most of its provisions, few botanists would now subscribe to all the Decandollean requirements. The modern tendency is to avoid interference with any erroneously constructed terms unless the mistake is one of gender or orthography. The sentiment against altering false descriptive and false locality names like *Lunaria annua* and *Asclepias Syriaca* is even more strong; and this attitude seems reasonable, since these names are entirely correct in form, and the fact that they are untrue or anachronistic is frequently not the fault of the original author.

Objections, however, to the alteration of incorrectly constructed names like 'graminoides' are of little force in view of the position taken by many writers with regard to barbaric and other names not in the Latin or Greek form. I have already pointed out how certain Adansonian genera have been accepted without question while others of the same stamp are rejected. An attempt has been made to Latinize some of these by adding the termination *-a*; but the result is bastard Latin at best, and is far from the spirit of Adanson's original intention. Konig, for example, a word distinctly German in form, has been changed to Koniga! If by the mere Latinization of a name derived from some modern language it is to be considered legitimate, then why not take Gansblum of the same author and make it Gansblumia? The logical application of this theory would make it possible to adopt 'Washtubbia' and all of the other wonderful creations in the 'Nonsense Book of Botany.'

I am quite well aware that to retain in their present form the barbaric names of Necker and Adanson and the Aztec atrocities of ten or more syllables published by Hernandez in 1790 would be open to serious practical objection; but it is absolutely certain that all should stand or fall alike. *Sabal* has no more rights than *Rulac* or *Konig;* and if the Latin termination of *Bikukulla* entitles it to admission there is no shadow of an excuse for altering the *k*'s to

c's, as has been done in our recent manuals. If, on the other hand, we adhere to the view that a name, to be worthy of acceptance, must be in Latin form, we have no recourse but to abolish 'graminoides,' 'polyclavatum,' and the other hybrids, relegating them to the same limbo of obscurity with *Gansblum*, *Catjang*, *Rulac* and similar creations.

After uniformity in recognizing the rights of the doctrine of priority, the most important thing is to secure uniformity in our treatment of the names assured to us through the operation of that principle. It is true here, as in most other affairs, that the fewer exceptions we admit, the greater the practical benefit of the rule. At the present time our writers are serenely pursuing their individual preferences, correcting a name when they deem it advisable to do so, or even making substitutions of one name for another through one of the causes above discussed. It matters little whether we establish a rule of absolute permanency, retaining names in exactly the form in which they were first published, or whether we admit certain fixed exceptions; but the determination of a case should always be settled by authority and never left to personal caprice. No principle can be maintained if it is to be followed only at discretion.

One practical obstacle to any improvement of existing conditions is to be found in the tendency of the age itself. In this connection, let me quote a paragraph or two from the article by Professor Greene above referred to:

"It is easy to trace to its origin this condition of scanty mental equipment evinced by a great number of the botanical writers of to-day. Young men of the present are more than ever in haste to be earning wages and getting rich. It is a vulgar spirit which pervades—it is everywhere confessed—all classes of youth, as well as of older people. Even they who aspire to what were once known as the learned professions, will hardly allow themselves the expenditure of time, not to say money, that is necessary to acquire anything beyond the most elementary and superficial education. * * * Nature study is captivating, perhaps much more so than grammatical, linguistic and metaphysical studies, to youth in general. There is no doubt of that. Neither need it be called in question that even a single branch of natural history study, long and ardently pursued, must have the effect of training a mind to careful and minute observation, and to reasoning and reflecting, and this is an important part of an education. But in our time few if any nature students are content with observing and thinking. All must write and print; and this whether they have or have not learned to write."

Against this somewhat discouraging state of affairs we are to set the tendency of the present time to recognize law as paramount and personal judgment as an uncertain guide. If botanists of all schools can be brought together in a strong and united effort to improve the literary and etymological side of nomenclature, it will not be difficult to secure agreement upon some sound general principle which will command the respect and win the adherence of every working scientist. There is here a subject upon which conservatives and radicals may unite, and a condition of affairs which cries aloud for attention and reform.

CHARLES LOUIS POLLARD.

U. S. NATIONAL MUSEUM.

THE USE OF HYDROCYANIC ACID GAS FOR EXTERMINATING HOUSEHOLD INSECTS.

WITH the growth of our population and the consequent crowding together of residences, the problem of the prevention and control of household insects is deserving of careful consideration from a sanitary stand-