THE SPOKEN LANGUAGE OF BOTANY.

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SOME months ago there appeared in print, over the initials "E.L.G.," the following:

"The eminent dendrologist, Prof. C. S. Sargent, whose good services in the cause of correct nomenclature have been everywhere recognized, has newly discovered that Halesia, long in use for certain American shrubs, is but a homonym, and in a recent issue of *Garden and Forest* (vol. vi., p. 434) has offered Mohria as a substitute. In this choice he does not discover that he has made another homonym; but this is certainly the case, for, as a spoken name—and the language of plant nomenclature is unquestionably a spoken language—*Mohria* is identical with *Morea*, a name already twice employed, first by Medicus and afterwards by Salisbury . . . "—*Erythea*, I. 236.

And thereupon the author, *for the reason he has stated*, publishes a new generic name for Mohria.

Later (*Erythea* I. 246), the same author says: "Maintaining the ground we took that Mohria is at best but a homonym of Morea, we offer the following instead of Swartz's Mohria:" — thereupon again publishing a new generic name.

These quotations are given to show the importance of the question which I wish to present in this paper—a question to which there seem to be two answers, one, that indicated by the course of Professor Greene in the paragraphs quoted, and the other, which I propose now to outline.

This question has been suggested before, but the instances cited are the first which I have noticed that tend toward an active carrying out of an answer to it; and it is in the hope that that solution of the problem may not be adopted—believing as I do that it would lead to ultimate confusion and the injection of the personal equation to a greater degree than ever into the science of nomenclature —that I write this paper.

Professor Greene has stated that the language of plant nomenclatute is unquestionably a spoken language. This, I think, is hardly, as yet, true; for my experience has been that the German spoken plant-name language differs sadly from the English, the English from the French, the French from the American and each from the other.

But it has been decided that uniformity is a useful thing in plant nomenclature. It is perhaps less patent, but extremely probable, that such a spoken language would be a useful thing. These true, it follows that that language should be uniform.

We have agreed that we will not represent any two different plants by identical names. To the date of Professor Greene's notes, above cited, that prohibited identity was identity of letters—of spelling. But we have now to consider a second factor of language—usually the more important, here, I think, the less—sound. And his work indicates that when we find two plants represented by words identical in sound, even though the letters that go to make up the names in each case are not identical, we shall substitute for the name latest in point of time another not identical in sound with the former. That seems to be his solution of the nomenclatural problem upon the addition of the sound-factor.

But, as I have said, I should regret to see it adopted. I think it will be admitted that a means which will involve less change in existing postulates to accomplish a desired result is better than a means which will involve greater change. The desired result in this case is to do away with homonyms in a spoken language of botany. The addition of the sound factor is responsible for such homonyms; (for, for the purposes of this discussion, we will assume that under the rules already in force we have done away with all those whose identity is an identity of spelling—of letters) and it seems to me but reasonable that, if we are to introduce this factor, it should be so introduced as not to disturb in the slightest degree the written language already in existence. The means of doing this is plain. All that is necessary is to assign to each of the twenty-six letters which the written language of botany has employed, a separate, distinct and invariable sound, and we have, as a result, a spoken language in which no sound homonyms exist—in this way obviating the necessity of disturbing in the slightest degree the written language already in existence.

To take, for example, the instance above noted. Professor Greene has noticed the two names *Mohria* and *Morea*. So long as the language of botanic nomenclature remains merely written, these are not homonyms. But if we make it a spoken language, then—in Professor Greene's opinion—they become so. This assumption leads us inevitably to the conclusion that in Professor Greene's spoken language of botany the letter *e* represents a sound identical with that represented by the letter *i*, and that the letter *h* has no sound value—and he is thus compelled to disturb the established written language to adapt it to the suggested spoken language.

In the system which I have proposed, the letter *e* would represent a sound distinct from that represented by the letter *i*, and the letter *h* would have its own definite sound, a sound present in *Mohria* but absent from *Morea;* and therefore I should not be compelled to disturb the established written language to adapt it to the suggested spoken language.

This is the most important consequence of the spoken language which I here propose, and it seems to me that its importance is vital.

A second result of the application of the principle here suggested is that it would produce a uniformity in this spoken language throughout the world; and until this were done, we, as Americans, would have no right to object to some Finnish or Russian botanist making changes in the written language (which is already common to all of us) because, in his particular tongue there might be too close a similarity in the sound of two plant names.

I have prepared a system of sound-values to be given to each letter in accordance with the above plan, observing the following principles:

(1.) Each letter has invariably the same sound in every combination.

(2.) Each letter has a sound distinct from the sound of every other letter.

I do not submit this schedule at the present time, for the reason that I have prepared it, having in view merely the sounds of the Latin-European tongues, and English and German; and I fear that I may have introduced sounds difficult of pronunciation for those who use other languages than these. The practical selection of the most convenient sound in each case is a matter of considerable difficulty, since many names have been published involving peculiar combinations of letters, many of which we are accustomed to regard as being without sound value.

With regard to accent, the simplest rule I have been able to formulate is this: "All words are accented on the last vowel which is followed by a consonant." This rule seems to work very well in this—it is absolute in its application—uniform—, and yet results in variety in the accent of words, some being accented on the antepenult, some on the penult and some on the ultima. I confess it was with somewhat of a shudder that I broke away from classic traditions in the matter of quantity accent; but the advantages of this over the classic rule are so evident, that I feel that I could in time become reconciled to it.

For one must remember that the Latin of botanic names is not classic Latin in many cases, and that the application of quantitative rules in the determination of accent is in such cases merely arbitrary.

I have hesitated for some months about publishing this paper, but it has seemed to me at last that, if the question of a spoken language of botany is to be raised, it is important to define such a language at its outset; and as I have felt that the definition here set forth is one most likely to obviate that potential store of silent synonyms, which must otherwise come upon us, I have suggested it as a basis for improvement.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as a proof of good faith.

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The Editor will be glad to publish any queries consonant with the character of the journal.

The Ling on the Pacific Slope.

THE ling (*Lota lota maculosa*) is found over a wide territory of North America east of the Rocky Mountains. I have taken it in the Great Lakes, at Winnipeg, in the Red River of the North, and it was reported to me at the head waters of the Saskatchewan, where it is said to ascend the smaller streams during the spawning season in such numbers that many could easily be killed by a single discharge of a shot gun. I have also taken it in the Missouri at Craig, Montana. In short, it is found in all three of the large water basins of the Atlantic slope—the Saskatchewan, St. Lawrence and Mississippi.

At Golden, B.C., on the Columbia, I was told by a fisherman that in Autumn he had caught ling five feet long on night lines, but I secured no further evidence of their occurrence in the Columbia system during my explorations in that region in August, 1892. When I reached Sicamous on Shuswap Lake in the Fraser system I was at once asked if I had secured any ling, of which they had some for dinner. As described to me, this ling appears to be a species of *Lota*. I did not succeed in getting any specimens at this place, as the Indians, who alone knew where to take them, had left on the morning of my arrival.

Since then I have received a large specimen from Golden, B.C., on the Columbia, which was secured for me by Mr. Green, manager of the Queen's Hotel at that place. A comparison of this specimen with one from Lake Michigan does not show any specific differences. The known distribution of *Lota lota maculosa* is therefore extended to the Pacific slope.

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The Native Calendar of Central America and Mexico.

I THINK it necessary to notice one or two errors in Dr. Brinton's article in *Science*, Feb. 16, for it seems he has made precisely the mistake he attributes to me. But first it is proper to say that, as his reference to Dr. Seler's explanation of *chic-chan* relates to a different work from that referred to by me, my criticism on this particular point was inapplicable.

If Dr. Brinton will examine my article in the *American Anthropologist*, he will see that my reference to the month names is limited expressly to those of the tribes of the Maya stock, hence his reference to the Nahautl names is out of place. It would be well for reviewers to read carefully and make themselves acquainted with that which they are reviewing.

And again Dr. Brinton has wholly missed the point in my reference to the Java week. I certainly thought it was so clear that a person with but half an eye would see that the singular fact alluded to was that the Javanese, in assigning the days of their week and certain colors to the points of space, like the Zunis assigned a *mixed color* to the focus. A similar assignment of mixed color to the centre is seen on plate 12, Borgian Codex.

Further comparison of the Polynesian calendar with that of Mexico and Central America will be seen in a Bulletin now in press and soon to be issued.

CYRUS THOMAS.

BOOK REVIEWS.

Nagualism. A Study in Native American Folk-Lore and History. By DANIEL G. BRINTON, A.M., M.D., LL.D., D. Sc., Professor of American Archæology and Linguistics in the University of Pennsylvania. Philadelphia, David McKay. 1894, 65 p., 8°, $1.00.

"NAGUALISM" is a word which the reader will search for in vain, even in the Century Dictionary, although Dr. Brinton points out that it has been in occasional use in English and American books for seventy years past. It means the doctrines taught by the sect or secret society of the "Nagualists," who for more than three hundred years have perpetuated in Mexico and Central America many of the superstitions and rites of their ancestral heathenism, strongly infused with a debased Christianity; which did not prevent a cordial hatred of that religion and of the race which introduced it from being a cardinal maxim in their creed.

The Nagualists were also adepts in occult art, as skilful jugglers as those of India, telepaths, mesmerists and were-wolves. They had a secret slang or *argot* of their own, full of dark references and symbolic expressions, examples of which are given. The scenes of their mystic rites were glens and caves, where they held licentious orgies or ascetic penances. In the arts of divination and medicine they were acknowledged masters, and their horoscopes, founded on the ancient native calendar, were accepted with blind faith.

Historically, they played an important part in the history of the country, as they were the instigators of nearly all the revolts of the natives against the Spanish power, a fact overlooked by previous writers, but clearly enough shown in this volume. One of the most remarkable facts brought out is the prominence accorded to women in this secret order. They seem to have been the leading spirits, entrusted with its fullest powers, and often to have controlled its most momentous actions.

It will be seen that the subject of this monograph is an entirely new one, and of unusual interest.

Text-Book of Comparative Geology. By E. KAYSER, Ph.D., Professor of Geology in the University of Marbury. Translated and Edited by PHILIP LAKE, M.A., F.G.S. London, Swan, Sonnenschein and Co.; New York, Macmillan and Co. 1893, 596 illustrations, 426 p., $4.50

AMONG the numerous valuable additions to geological literature in the year 1893, probably none will be better appreciated by English speaking readers than this new text-book of comparative geology. The subject is one much misunderstood and undervalued accordingly, not only by the English geologist, for whom the above work is primarily intended, but also here in America. It is frequently regarded as vain to attempt to correlate palæontological zones, and to compare closely one region with another, yet it is safe to say that without some such broad conception of the science little real progress can be made. It is truly remarked by the translator in his preface that it is only to the use of the comparative