

opposition of a few members of the House of Commons who wish to introduce a Church of England 'Test' for the professorships in Kings College.

COL. W. C. BRECKINRIDGE, of San Antonio, has given \$30,000 to the University of Texas to be used for a dormitory and confectory for the women students of the medical department.

DR. A. C. ABBOTT has been appointed to succeed Dr. Billings, who has resigned the chair of hygiene in the University of Pennsylvania.

DR. EDWIN F. NORTHRUP, of Syracuse, N. Y., has been elected associate professor of physics in the University of Texas. Dr. Northrup is a graduate of Amherst College, was later a graduate student at Cornell University, and a fellow for two years at Johns Hopkins University.

MR. B. M. DUGGAR has been appointed assistant in cryptogamic botany in Cornell University.

PROF. THOMPSON has resigned from the chair of ophthalmology in Jefferson Medical College and will be succeeded by Dr. de Schweinitz.

DR. BURNEY YEO has been appointed by the Council of King's College professor of the principles and practice of medicine in succession to Dr. Lionel Beale, and Dr. John Curnow has been appointed to the chair of clinical medicine in succession to the late Sir George Johnson.

DR. C. v. EHRENFELS, of Munich, has been appointed assistant professor of philosophy in the University of Prague, and Prof. R. Anschütz, of Bonn, has been appointed acting director of the Chemical Institute of the University.

DISCUSSION AND CORRESPONDENCE.

A PROTEST AGAINST QUADRINOMIALISM.

IN the present days when systematists are continually confronted with puzzles in nomenclature, which owe their origin mainly to the inadequate descriptions and careless methods of the older naturalists, it seems of the greatest importance for us to consider carefully any new practices that may be proposed by writers of today, and to call attention to their good or bad points before they are adopted by others.

A case in point will be found in papers by Dr.

C. Hart Merriam, in 'North American Fauna,' Nos. 10 and 11. This is practically the proposition to introduce 'quadrinomials' into our nomenclature. Trinomialism, the use of 'subspecies,' has of late years become almost universal among zoologists in this country, and its advantages are well known. Dr. Merriam has always been a strong advocate of trinomialism, but in the papers just referred to he goes a step further and describes 'subspecies' of 'subspecies,' which is practically quadrinomialism, though he so writes the names as to use only three words.

For instance, *Blarina brevicauda*, is the common short-tailed shrew of the northeastern States. In the Southern States it merges into a smaller subspecies known as *Blarina brevicauda carolinensis*. In tropical Florida still another subspecies is found which Dr. Merriam names *peninsulæ*. This, according to our established usage would stand as *Blarina brevicauda peninsulæ*, but Dr. Merriam writes it *Blarina carolinensis peninsulæ* (N. A. Fauna, No. 10, p. 14).

It will be noticed that *carolinensis* is thus treated as the 'species' of which *peninsulæ* is made a subspecies, while on the preceding page *carolinensis* is itself treated as a subspecies of *brevicauda*.

In other words, the author prefers to unite in the trinomial name the two forms which are geographically contiguous and to omit the fourth name, *brevicauda*, for the sake of brevity. This is of course nothing more nor less than quadrinomialism.

There is no doubt but that quadrinomials or any form of polynomials may be employed under the same rules that now govern us in the use of binomials and trinomials, but the question arises, are they desirable or useful? Decidedly not. Trinomials serve a useful purpose in the designation of geographical races, which while quite distinct in their extremes are connected by a perfect series of intergrades. No other satisfactory method of designation has ever been suggested for these. But here let us draw the line. We cannot express the whole relationship of a species in its name, and if we could the name would become useless as such; and when it comes to dropping out a portion of it we only tend to confusion. Do we not lose

just as much by omitting *brevicauda* in the instance quoted as by inserting *carolinensis*?

Moreover the adoption of such a practice will necessitate the rearrangement of most of our existing trinomial nomenclature, and in such cases as the Song Sparrows or Horned Larks among our birds it will be no small matter to decide which of the numerous subspecies shall be relegated to 'sub-species' and in which instances the species name shall be omitted.

Furthermore, is not an author who uses quadriminoms, expressed or implied, placing himself in the same category with Brisson and other post-Linnean authors who were more or less polynomial? And when we ignore their works entirely, what right have we to recognize more recent writers who are not consistently binomial?

In conclusion it seems to me a matter of serious regret, when the A. O. U. Code of Nomenclature has practically become the standard for American zoologists and botanists, to see a member of the A. O. U. Committee on Nomenclature breaking away from the Code and proposing such innovations as the above. Is not such individual action directly opposed to the ultimate stability of our nomenclature?

WITMER STONE.

ACADEMY OF NATURAL SCIENCES,
PHILADELPHIA, August 3, 1896.

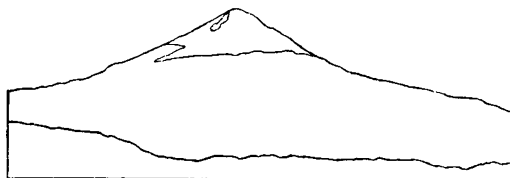
IMPOSSIBLE VOLCANOES.

TO THE EDITOR OF SCIENCE: I wish to echo the protest expressed by J. Paul Goode in a recent issue of SCIENCE, against the illustrations of impossible icebergs, with which our text-books are filled, and ask that impossible volcanoes be put in the same category.

The picture which has done service in geographies for many years as a representation of Popocatepetl is about as severe a libel on a respectable volcano as one could well imagine. A tall cross, such as no traveller in Mexico ever saw, and luxuriant palms such as never grow at the altitude from which Popocatepetl can be seen, make up a tropical foreground beyond which a symmetrical, snow-capped cone with a slope of from 40° to 50° rises to an impossible height and extends to an impossible magnitude.

All this is untrue, and it would seem, considering the number of excellent photographs of

the volcano extant, unnecessary. Besides, it tends to perpetuate a common misconception as to the slopes and heights of mountains which it is time to correct. Many of the pictures of mountains appear rather to record the feelings of the artist after he has climbed to their summit than to represent their actual profile.



It ought to be generally understood that the average slope of a mountain of any kind can rarely be more than 35° and is usually much less. During a recent visit to Popocatepetl, I measured its slope from several points of view, and found it never more than 30°. In making a sketch of the volcano, however, I found that I labored under the optical delusion which leads one to exaggerate the steepness of mountain slopes, and which probably accounts for their usual faulty representation. The slope as I represented it on the paper, with what I thought to be a fair degree of accuracy, proved on holding the paper between my eyes and the volcano to be far too steep. It was only after several trials that I could give it the requisite flatness.