under one incapable of producing the desired uniformity. If we may trust President Jordan's frank statement of the results of his extensive experience with the method advocated by Professor Britton, "The process of elimination has never been consistently followed, nor can the process be so defined that it can yield fixed results in the case of the complex genera of the last century."*

Instead of supplying an argument for continuing longer on the same lines, the variety and instability inevitable under the method of elimination afford an excellent reason for seeking a more satisfactory rule of procedure. And to obtain this it is not, as Professor Britton seems to imply, necessary that 'historical types' or the expressed wishes of the authors of genera shall be disregarded. Those who are interested in the possibility of such improvements should, however, consider the several steps in the order of their importance and cease to make confusion between the taxonomic principles and the merely nomenclatorial incidents of the process.

The first essential of systematic biology is a convenient and stable taxonomy.

A satisfactory degree of convenience was attained over a century ago by the adoption of the binomial system, involving the joint recognition of generic and specific names.

Stability can be secured by the uniform use of the oldest names applied under the binomial system of nomenclature.

Generic and specific names have nomenclatorial standing when they have been used as parts of binomials.

Priority requires that a species shall bear the oldest name applied to it, and, conversely, that a specific name shall be used only for the first species to which it was applied.

Effective priority or stability in the application of a generic name can be attained by restricting its use to the congeners of the first species to which it was applied as part of a binomial.

All such principles and methods have, however, their logical and practical limitations and exceptions, but it is quite illogical and unpractical to ignore or set aside a more important for a less important consideration. It is essential that we have some one species permanently designated as the nomenclatorial type of each genus, but it is not essential that it be the first species, and there are good reasons for admitting two exceptions, not of the method of types, but of this suggestion for its nomenclatorial application.

Exception 1.—Describers of genera may designate their type species in the papers in which their generic names are published.

Exception 2.—Generic names adopted into binomial nomenclature from older writings should be used in their original application. It is not, however, desirable or expedient that such restorations be carried in botanical literature farther back than Tournefort's 'Institutiones' (1700).

The first provision enables us to conserve such parts of systematic literature as can be readily adjusted to present ideals and methods, while the second avoids too abrupt a break between the binomial and the prebinomial literature of botany, and at the same time obviates the principal objection to 1753 as the initial date for botanical nomenclature.

Until an equally practicable alternative proposition is brought forward, the use of the first species as generic type should receive the support due to the idea of stability in biological taxonomy, whether the above exceptions be admitted or not. The exceptions do not, however, militate in any sense against the principles involved, and will but slightly increase the labor of applying the method of types. It is accordingly to be hoped that they will be deemed a sufficient concession by those who have approached biological studies from the traditional and historical standpoints, but who are still able to realize the difference between a rule of nomenclature and a primary requisite of biological taxonomy.

O. F. COOK.

WASHINGTON, D. C., April 15, 1901.

* SCIENCE, November 23, 1900, XII., 786.

THE PROPER NAME OF THE ALPINE CHOUGH.

TO THE EDITOR OF SCIENCE: My suggestion in a recent number of SCIENCE (N. S. Vol. XIII., p. 232) that the name of the alpine chough should stand as *Monedula pyrrhocorax* L. (Hass),

in view of Hasselquist's use of the name in 1762, for the *Upupa pyrrhocorax* Linné (1758), which latter name was changed to *Corvus pyrrhocorax* by Linné in 1766, Hasselquist's name therefore having priority over the latter one by four years. Hasselquist's name having appeared first in 1757, and later in a German translation of his work,* Mr. P: S. Sclater (SCIENCE, N. S. Vol. XIII., p. 626) thinks the name should not stand, as it was first described prior to 1758, and after that date only in a translation of Hasselquist's work. If Mr. Sclater's view be adopted, will it not be necessary to exclude many names occurring in the 10th and 12th editions of the *Systema Naturæ*, because they were originally described in earlier editions of that work?

Whether the alpine chough occurs in 'Lower Egypt' or not has in my opinion little bearing on the matter. The question is, is *Monedula pyrrhocorax* Hass, the same as *Upupa* (=*Corvus*) *pyrrhocorax* Linné; and we have Linné, who personally examined Hasselquist's collections, as an authority in the affirmative.

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BOTANICAL NOTES.

THE STUDY OF MOSSES.

DR. A. J. GROUT, of the Brooklyn Boys' High School, has made the study of mosses much easier by the publication of a very pretty little book, entitled 'Mosses with a Hand-Lens,' and two sets of dried and carefully prepared specimens under the titles of 'North American Musci Pleurocarpi' and 'Hand-lens Mosses.' The book is a thin octavo volume of about seventy-five pages, and is a non-technical handbook of the more common and more easily recognized mosses of the Northeastern United States. It is illustrated by helpful figures, which, if not as smoothly engraved as some to be found in recent text-books, have the merit of clearly showing what they are intended to show. The descriptions are, as indicated above, non-technical, but they will perhaps prove all the more helpful to most beginners on that account. In all, one hundred species are noticed. The volume closes with an appropriate glossary of bryological terms and a brief index. The first collection of specimens will enable the beginner to recognize the genera and species represented, although this was not the use which Dr. Grout had in mind in their preparation. They were designed rather for the benefit of the professional bryologist, but they will serve the beginner as well, since they illustrate the plants and their fruits. The second collection, which is just now appearing, was evidently suggested by the use here indicated. It consists of similar specimens, carefully selected and supplied with neat printed labels.

* 'Iter Palæstinum,' etc., 1762.

BOTANICAL FACILITIES AFFORDED TO STUDENTS BY THE NEW YORK BOTANICAL GARDEN.

IT is probably not generally known to what extent the rich treasures of the New York Botanical Garden are available to students of the several phases of botany. Although the institution is in the first lustrum of its existence, it inherited the collections of books and specimens left by Dr. Torrey after a long life of accumulative activity. There are thus nearly one million specimens in the herbarium and about nine thousand volumes in the library. Added to these are the native plants growing in the woodlands, meadows and swamps of the two hundred and fifty acres of land constituting the domain of the Garden, supplemented by the plantations of herbaceous and woody vegetation, and the already large collections under glass in the great Plant House. The laboratories, of which there are physiological, embryological, chemical, morphological and taxonomic, are housed in the fine building known as the 'Museum Building.' They occupy a suite of fourteen rooms on the upper floor of the building, and are admirably planned for the several lines of work to be done in them. From a recent statement by the director we learn that opportunities are afforded for work in the following subjects: Physiology of the cell, ecology, morphology of algae, morphology of fungi, morphology of bryophyta, morphology of pteridophyta, morphology of spermatophyta, experimental morphology, taxonomy of algae, tax-