

tions of the students in its native habitat. As a matter of fact, however, the author does not adhere strictly to the advice above given but generally takes it for granted that the plant has also been observed while growing.

Chapters are given on seeds, germination, the root, stem, leaf, flower and fruit. Then the so-called flowerless plants are taken up, and the sea weeds and their allies, molds and rusts, mosses and liverworts, ferns and horsetails are studied. The conifers and leading families of monocotyledons and dicotyledons follow in their natural order.

Each chapter begins with a list of material needed for study, contains minute and practical directions to the student and closes with an admirable summary. Copious references to the literature of the subjects are given in foot notes. One of the most valuable features of the work are the numerous questions asked and the special topics for study which the author suggests under each group. Simple physiological experiments, such as any student working alone, or teacher even in our district schools can easily perform, are described. Such subjects as seed dispersion and protection, fertilization, assimilation, respiration, and transpiration, adaptation of various plant organs to their environment as well as plant relationships are treated in a fresh and interesting manner quite different from the ordinary laboratory guides.

When one considers the great diversity and looseness of terminology employed by many prominent botanical writers, the difficulty as well as the necessity is apparent of having accurate definitions and plant descriptions. The glossary at the close of Professor Spalding's Guide is most commendable, and constitutes one of the many admirable characters of work which we heartily commend to all lovers of plant life. Not only secondary schools, but also students working by themselves will find it exceedingly helpful. We know of nothing better adapted to the short winter courses given by some of our Agricultural Colleges, and for use in University Extension instruction.

GILBERT H. HICKS.

The New Check-List of Plants.²—The recent considerable changes in botanical nomenclature have made necessary such a book as the one here noticed. We have had in various monographs and scattered notes in botanical journals so many records of changes, and notices of others which should be made, that any one doing critical work has been compelled to make a catalogue for himself, or lose much time whenever he worked over a new lot of species. One does not have to subscribe to everything done by the committee to feel that the

work will be a useful one. Take a couple of cases from *Papaveraceæ*; all remember something of the discussion as to the proper generic name for the "Dutchman's Breeches," given in our manuals as *Dicentra*. Here we find that *Dicentra* was proposed by Bernhardt in 1833, and that he was anticipated by Borckhausen who published the name *Dielytra* in 1797, but who was himself preceded by Adanson who in 1763 first used the name *Bikukulla*, which in its corrected form *Bicuculla* is, therefore, the name we should cite in this instance.

Again we have the genus *Corydalis* in our manuals; but if we look up its history we find that this name was proposed by Ventenat in 1803; but Scopoli's name *Neckeria* precedes this by more than a quarter of a century (1777), while Adanson's name *Capnoides* is earlier still (1763).

We are becoming so democratic, even in science, that it is desirable that the reasons for changes and modifications should be laid before the public. Even the most obscure botanist is nowadays entitled to know why an old plant comes out under a new name. It may vulgarize science somewhat and take from it that element of the mysterious which it formerly possessed, if we lay these things before the world. When the world learns that the pronouncements of "Science" are after all only the judgments of, say, Professor Britton, Professor Coulter, Professor Scribner, or some other mortal, it may not stand in such ignorant, open-mouthed wonder as it formerly was wont to do. It may even cry out against them, and demand that the golden calf be set up again. But if these professors set forth plainly that their work is plain work, the plain and straightforward statement of facts, the world will eventually cease to be the blind idolaters of that which they do not understand.

This book is quite likely to be railed at by some people who are themselves botanists. In one respect it is a revolutionary work, or rather, it is the mark of a revolution, and in all revolutions there are some who fear the consequences. This book is the sign that the day of "authority" as such, is ended, and the day of "law" has begun. The day of botanical "equality before the law" has come, and the humblest botanist now may lawfully correct the greatest.

What, now, is this work? It includes the names of about 4350 species, each of which has been critically examined, and as far as pos-

* List of Pteridophyta and Spermatophyta growing without cultivation in Northeastern North America. Prepared by a committee of the Botanical Club, American Association for the Advancement of Science, 1893-1894. Price \$3.00 (Memoirs of the Torrey Botanical Club, Vol. V.)

sible, its synonymy adjusted in accordance with the Paris Code of 1867, as interpreted by the botanists at Rochester in 1892 ("Rochester Rules"). Thus the point of beginning for generic and specific names is 1753, the date of the first edition of the *Species Plantarum* of Linnaeus, and in all cases "priority of publication" has been regarded as of prime importance in the determination of the name to be employed. Thus we have here given that name for each plant which these botanical laws indicate, and in the list of synonyms we find the names which these same laws compel us to reject. The treatment may be better understood by a couple of examples, as follows:

1953. *Cleome serrulata* Pursh, Fl. Am. Sept. 441 (1814).

Cleoma integrifolia T. & G., Fl. N. A. I: 122 (1838).

4303. *Taraxacum taraxacum* (L.). Karst. Deutsch. Fl. 1138 (1880-'83).

Leontodon taraxacum L., Sp. Pl. 798 (1753).

Taraxacum officinale Weber., Prim. Fl. Holst. 56 (1780).

Taraxacum dens-leonis Desf., Fl. Atlant. 2: 228 (1800).

What more could be asked? The whole history of the species is here given so plainly that any one may verify each step for himself. That the work will be found to contain errors and omissions goes without saying. The committee did not expect to present a faultless work, but they did set before themselves the task of making an honest, plain list in which they record their findings, and for this the botanists of all sects and schools, in all parts of the world owe them a deep debt of gratitude.

CHARLES E. BESSEY.

Bulletin of the U. S. Fish Commission Vol. XII.³—This quarto volume contains eleven important papers on fishes of the United States, prepared by specialists, together with a report on the Oyster Industry of Maryland, by C. H. Stevenson. Much of the information imparted in these papers is new, and valuable either from an economic, or a purely scientific standpoint. All are splendidly illustrated with page plates, making in all 118 plates accompanying the text. The following table of contents shows the range of subjects treated.

Bean, T. H. Bibliography of the Salmon of Alaska and adjacent Regions.—Life History of the Salmon.—Eigenmann, C. H. On the

³ Bulletin of the United States Fish Commission. Vol. XII for 1892. Washington, 1894.