ed, its host and geographical distribution outlined, and the specific collections used for the study discussed in detail. A key to genera and species is provided, with the suggestion that it be used as a guide only for general determinations. It is noteworthy that Wehmeyer found it necessary to designate only six new species and to make a limited number of transfers. Under the headings "Nomina dubia," "Species excludenda," and "Species non vidi," the author deals with several hundred names present in the literature. He ignored many species, for which presumably neither authentic material nor adequate descriptions were available.

The book will be a necessity for any mycologist concerned with the genus or its relatives.

JOHN A. STEVENSON
4113 Emery Place,
Washington 16, D.C.

Synthesis by Topic

Contemporary Botanical Thought. A series of lectures arranged by the Botanical Society of Edinburgh. Anna M. MacLeod and L. S. Cobley, Eds. Quadrangle Books, Chicago, Ill., 1961. ix + 197 pp. Illus. $6.50.

The stated intention of this volume is to contribute to a unified concept of botany at a time of ever greater specialization. The procedure, however, has been to divide botany into eight traditional fields and to assign each to a different contributor: morphology, to C. W. Wardlaw; taxonomy, J. S. L. Gilmour; genetics, Kenneth Mather; evolution, E. J. H. Corner; ecology, A. S. Watt; mycology, N. F. Robertson; physiology, Meirion Thomas; and plant cell structure, Irene Manton. From this series of individual papers, the reader has the privilege of constructing any unifying concepts that may occur to him. With the notable exception of evolution, the contributors were well chosen and most of them performed an admirable job of synthesis, within the scope of their respective topics. Consequently, the concise appraisals of morphology, genetics, ecology, mycology, physiology, and cell structure will provide perspective and orientation to those not widely read or actively working in these fields. The chapter on taxonomy is a beautifully written special plea to abandon attempts to construct phylogenetic classifications in the interest of nomenclatural stability; the chapter on evolution is a potpouri.

All users of plant names will concur with Gilmour concerning the desirability for stabilization, but taxonomists may legitimately question his major premise that a return to the pre-Darwinian concept of a natural system would help. A system based on "general resemblance," which he advocates, scarcely differs in practice from one based on the presumed degree of phylogenetic relationship, which in nearly all instances is estimated from the degree of phenotypic similarity. In effect only the orientation of taxonomy, not its operation, changed after Darwin; even name changing was no less prevalent in the good old days. Gilmour's concern over the naming of cryptic entities as species is legitimate, but nomenclature problems arising from this source are minor compared to those inherent in horticultural materials following generations of spontaneous or deliberate hybridization, to say nothing of the problems generated by the routine misidentifications by botanical gardens and other sources of material.

Students of evolution acquainted with population genetics will be surprised to find orthogenesis seriously proposed by Corner to explain the parallel evolution he has noted in his taxonomic study of figs. Because he is unable to see any survival value in such parallel developments as geocarpy, Corner attributes them to a clockwork-like mechanism that, once wound, unwinds in a set manner with predetermined consequences. He also finds that perhaps a dozen species could still be wound up to give additional parallel series, but gives no indication of what attributes signify this capacity, let alone the force that might wind them. It is evident that he could benefit from reading Mather's paper in this same volume. He might then learn that mutations are not merely a juggling of characters, and he might also find an explanation other than "cytoplasmic structure" for the "immutability" of genera and higher categories.

The brevity of the articles should make the book particularly attractive and valuable to those who lack the time or incentive to work through more detailed reviews.

HARLAN LEWIS
Department of Botany,
University of California, Los Angeles

Ecological Approach

Methods and Materials for Teaching the Biological Sciences. David F. Miller and Glenn W. Blaydes. McGraw-Hill, New York, ed. 2, 1962. x + 453 pp. Illus. $7.95.

This well-known volume, useful to all teachers of the biological sciences, has been modified and extended somewhat in this revision, its first since the original publication in 1938. Part 1, a 115-page section entitled "Classroom Methods for Teaching Biological Principles," puts even more stress upon the importance of ecological principles. The same chapter headings are used, and several chapters have been reprinted intact. While most of this section is just as applicable today as when first written, the treatment of "the scientific method" as consisting of four elements might have been changed on the basis of numerous recent analyses. The discussion of trends in the curriculum stresses the "integrated, or truly unified, course." This organization, still untried in many schools and colleges, has rich possibilities for pupil involvement.

Part 2, "Sources, Preparation, and Uses of Materials," has been extended in numerous places. Major additions include more possibilities for the use of ecological principles, a section on radiation biology, and one on the use of chromatography. Additional information on bacteria and slime molds is also included.

Illustrations have been regrouped and a few additional ones included. The bibliography has been extended and brought up to 1958. The many references on collecting, culturing, and preserving specimens should be especially useful to those who might wish to go beyond the many procedures included in this volume.

That no reference is made to the activities of the Biological Sciences Curriculum Committee seems especially unfortunate, since one version of the BSCS material stresses ecology and places great importance on laboratory work with a wide range of materials. Teachers using the BSCS materials will find this volume particularly helpful, and all biology teachers will find it a very useful addition to their professional library. This is a book that should be worn out from continuous use.

FLETCHER G. WATSON
Graduate School of Education,
Harvard University