plete, since many of the species have received only cursory attention aside from that devoted to them by Miller. Pathologists concerned with diseases caused by *Hypoxylon* would have welcomed information on pathogenicity. For example, *H. pruinatum* causes a destructive canker in a number of species of *Populus* and is of interest to, and has been studied in some detail by, forest pathologists, but this is not evident from the present monograph. *Hypoxylon pruinatum* has been renamed *H. mammatum* by Miller; while one cannot quarrel with the taxonomic legality of this change, it is unfortunate that the name cannot be conserved, since the specific epithet *pruinatum* has been so long and so widely used by those concerned with the pathogenic aspects of the fungus.

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Too Abridged?

A New System of Anatomy. Sir Solly Zuckerman. Oxford University Press, New York, 1961. xiii + 579 pp. Illus. $17.50.

This book, physically attractive but weighing 5 pounds, is a combination of dissecting guide, atlas, and text, trimmed to fit the program of the student's first year in medical school at the University of Birmingham (England); during this year, the time allotted for dissection is 303 hours, divided among the parts of the body as follows: upper limb, 44 hours; lower limb, 44 hours; thorax, 23 hours; abdomen, 75 hours; head and neck, 117 hours. The way in which the subject matter on the anatomy of the entire body is compressed into the pages of this book and the author's justification for so doing are best explained in his own words: "Knowing that the average student soon forgets the mass of anatomical detail he is sometimes enjoined to learn, and with the object of encouraging the kind of study which provides a three-dimensional idea of the structure of the body, I have tried to eliminate detail which has no apparent scientific or educational value, or which, to the best of my knowledge, has little obvious clinical significance."

In the brief introduction, the student's attention is directed to variation in human anatomy: "Do not be surprised if, for example, in the cadaver you are dissecting, an artery arises from some main trunk differently from the way described. Indications are given in the text about those structures which are most variable in their disposition." Subsequently the indications are given most often by such expressions as: "there usually springs"; "it normally gives"; and "these normally begin."

"The nomenclature used is, wherever possible, an English equivalent of the Paris *Nomina Anatomica*." Terms of direction, following the *N.A.* and based on the anatomical position, are explained on page 4 but discarded thenceforth for such terms as upper, lower, above, behind, below, in front of, upward, backwards and the like.

Most of the figures are "touched-up photographs of actual dissections which display what a student should see when he follows the text." There is a softness about these which is very pleasing to the eye but which, at the same time, makes it necessary to refer to the text (or, hopefully, to the cadaver) to determine significant details, such as sites of attachment. This soft quality makes the bones appear to be made of rubber or plastic.

The text is an intricately woven blend of explicit directions for using the scalpel, instructions to turn the freed structure first this way and then that, and descriptions of what "you will see." Although the second paragraph of the preface begins, "Topographical anatomy is essentially a visual discipline," it is likely that the student will see what he is directed to see rather than what the cadaver presents. Thus, the great opportunity of using his training in dissection to develop and train his powers of observation (the most essential attribute of the physician) is wasted and dissection becomes merely an exercise —not an educational experience.

On two counts this book fails, in my opinion, to provide a satisfactory introduction to the study of anatomy, an introduction through which the student should gain the confidence and independence to explore and interpret any anatomical problem that may confront him: (i) the explicitness of directions for dissecting and observing anatomical structures and their relationships will limit the student's ability to discover the structure of the cadaver; (ii) the size of the book, even though the information is restricted, will discourage him from consulting comprehensive reference works. Perhaps more than any other of the abbreviated anatomy texts published during the last decade, both in this country and in Great Britain, this one is likely to strip the student of any enthusiasm he brings to the subject.

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Ascomycetous Fungi

A World Monograph of the Genus Pleospora and Its Segregates. Lewis E. Wehmeyer. University of Michigan Press, Ann Arbor, 1961. ix + 451 pp. Illus. $15.

For more than a century, the ubiquitous genus *Pleospora* has been used as the repository for a varied array of fungus forms that have dark muriform spores. More than a hundred mycologists have described species in the genus itself or species improperly placed in related genera, necessitating transfer. Except for a few limited compilations, such as that in Saccardo's *Sylloge Fungorum*, no thoroughgoing attempt has been made heretofore to bring taxonomic order out of the existing confusion by a comparative study of available material, but Lewis Wehmeyer, in this monograph, has undertaken the task. He met the problem presented by inadequate and often erroneous descriptions in the widely scattered literature by basing his studies and the resulting taxonomic decisions on 1200 specimens representing a large proportion of the named species. From this material he derived data for a comprehensive account of the comparative morphology, the host, and the geographic distribution of the genus.

Taxonomically the genus is divided into five subgenera, of which all but one are described as new. One hundred species are recognized, with 18 in three segregated, but closely related, genera. Several hundred binomials are reduced to synonymy. Species are separated on a strictly morphological basis, with particular attention to the spores. Drawings or photomicrographs, or both, of the spores of all but two species emphasize this latter point. Conidial stages known to be possessed by some of the species are not discussed. Each species is adequately described, its synonyms cit-

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.

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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.

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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.

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