cially effective. Dissections of the pelvis, shown in Section 6, include both male and female and demonstrate relationships and structural details by conventional and lateral approaches to ischio-rectal fossa, perineum, and pelvic structures. The anatomy of the prostate and prostatic urethra is demonstrated in interesting detail. The paucity of female subjects in many anatomy laboratories adds value to the dissections of the female pelvis and perineum. The skill and detail expressed throughout these dissections should be instructive and challenging to the student, and they may be appreciated by the professional anatomist who finds little time available for preparation of comparable demonstrations.

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Laboratory Innovation

Atlas of Plant Morphology. Portfolio 1, *Photomicrographs of Root, Stem, and Leaf* (xvii + 60 pp. 1959. $3); Portfolio 2, *Photomicrographs of Flower, Fruit, and Seed* (xxii + 48 pp. 1962. $2.75). Emma L. Fisk and W. F. Millington. Burgess Publishing Company, Minneapolis, Minn.

For many years the preparation of drawings has been a mainstay in the organization of laboratory courses in botany, especially in plant anatomy and morphology. On the theory that an accurate, well-labeled drawing is graphic representation of the student's powers of observation and ability to interpret what he has seen and that this is equal to understanding, the laboratory drawing method of instruction persists today in many educational institutions. Considering the ultimate reward to the student, the question of whether or not the time spent in preparing such illustrations is too time-consuming and merely an exercise in art work was doubtlessly in the minds of authors Fisk and Millington when they sought to replace, in large part anyway, this means of expression by producing an atlas of photomicrographs all set up for labeling.

The photomicrographs are to supplement the study of microscopic preparations, not to replace them. Properly used, say the authors, the photographic plates enhance the quality of the student's observations and drawings (supplementary drawings are recommended where necessary) and free the student for more actual study of the specimens. This has been successfully demonstrated in classes taught by the senior author at the University of Wisconsin. Whether laboratory courses in descriptive botany will be materially affected, whether teachers of botany will alter their ideas about the value of laboratory drawings as a basis for such courses, or whether these two atlases will become widespread in their use will depend, of course, on the experiences of teachers who elect to try this method of laboratory instruction. Old ideas die hard, especially those that have been proven valuable by respected and successful teachers in many countries.

The titles of the two portfolios explain, almost, their contents. Each consists of a series of punched sheets suitable for insertion in a standard three-ring, loose-leaf binder; each has three sections: a brief introduction, several pages of explanatory text, and the atlas proper, the bulk of the portfolio. The photographs are halftones, and each is directly labeled with only the common and scientific name of the plant of which a part is depicted in the photograph. The legend section is essential, for only here is the plant part named, and only here is there a guide to the tissues and cells illustrated. It also serves as a table of contents.

It would be unfair to criticize the quality of each photomicrograph, for in general, they comprise a very fine set of photos, considering the limitations of reproduction by the halftone method, the large-scale publishing, and the price of the folios. It is apparent that the microtechnical operations previously necessary for the production of stained tissues were superb, and the original photomicrographs were doubtless of high caliber.

There are a few typographical errors and omissions in the legends, and some morphological terminology to which I might take exception. But, these are really inconsequential. However, there is one observation that should be directed to potential users and to the authors: Many of the anatomical features that are mentioned for examination in the legends cannot possibly be distinguished in the relevant illustration. The following might be cited as examples: alternate bordered pits in wood of *Quercus alba*; tracheids and apotracheal wood parenchyma in *Q. borealis*; details of the vascular system in developing carpels of *Ranunculus*; and spines on pollen grains of *Gossypium* and *Silphium*. The legend should be modified for any illustration on which the anatomical features mentioned are not easily identified on the published photomicrograph.

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Mostly Bacillus

Spores. vol. 2. H. Orin Halvorson, Ed. Burgess, Minneapolis, Minn., 1961. ix + 296 pp. Illus. $5.

This is a collection of 15 original research papers. The majority of the papers are followed by a "discussion" that is actually the presentation, by another authority working in the same specific area of spore research, of related work.

The broad scope of the research presented will make the book of interest to a number of different disciplines. For those interested in the metabolism and physiology of the bacterial spore itself there are papers on the biochemistry of the sporulating cell, spore permeability, the differences in spore and vegetative cell enzymes, the possible roles of DPA in the spore, the cytological and chemical changes in heat-killed and germinated spores, and the effects of physical and chemical agents on germination. Papers touching upon genetics, pathogenicity, radiation resistance, and the fungi are also included. The authors of one paper have developed a hypothesis of the pathogenesis of anthrax, while another investigator reports the differences in *Neurospora* ascospores activated by heat versus those activated by chemicals. In another paper, the correlation of radiation resistance with the development of certain, as yet unidentified, cystine-rich structures in the developing spore of bacteria is discussed. In the area of genetics, there are papers on the transformation of certain characters of the vegetative cells of *Bacillus subtilis* by DNA and the ability of phage-infected bacterial spores to transduce other strains.

Individuals who are particularly in-