PREFACE

Although there is a copious supply of electron microscopy textbooks and monographs concerned with animal cells and tissues, there are few whose thrust is plant cell biology. Because of the unique characteristics of the higher plant cell, i.e., the cell wall and often a large central vacuole, the techniques employed for animal cells are often not directly applicable to plant cells. Because many of the available methods for the optical microscopy of plant cells/tissues are now quite dated, *Plant Electron Microscopy and Cytochemistry* includes chapters regarding light microscope cytochemistry, autoradiography, and immunocytochemistry. Recent developments in fluorescence, confocal, and dark-field microscopies are highlighted. Light microscopy is often employed in conjunction with electron microscopy as correlative microscopy. With regard to electron microscopy, recent advances in conventional transmission and scanning electron microscopies are presented together with highly contemporary ancillary techniques. The latter include: high-resolution radioautography, immunoelectron microscopy, x-ray microanalysis, and electron systems imaging, as well as atomic force and scanning tunneling microscopies. Prior to the summation, *Plant Electron Microscopy and Cytochemistry* concludes with a chapter centering about the uses of electron microscopy in molecular biology.

Although this manual is concerned with higher plants, some chapters present information relevant to lower plants. In this connection, the position of the fungi has been debated for years. Most taxonomists do not include fungi in the plant kingdom. However, this manual includes some fungal systems since they are involved in wood decay.

Finally, though Humana Press has published *Electron Microscopy Methods and Protocols* by M. A. Nasser Hajibagheri in 1999, *Plant Electron Microscopy and Cytochemistry* is dedicated to plant studies, and should be quite useful to professors, certain graduate and undergraduate students, and postdoctorals, as well as government and industrial scientists.

William V. Dashek

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