PREFACE

Recent advances in fixation of tissues for electron microscopy have resulted in the preservation of a greater detail of fine structure than was previously anticipated. In addition they permit a better preservation of tissues for routine examination of control sections in the light microscope. Adequately differentiated, toluidine blue-stained sections of one micron or less in thickness, when examined in the light microscope, allow a considerable improvement in resolution over conventionally prepared sections. As a consequence, it was decided that a coordinated study by both light and electron microscopy of thin sections of the most commonly encountered tissues of animals would be of value to the student of biological structure. Some aspects of cell and organelle surfaces, obtained by the freeze-etching technique, have been included to provide a tridimensional concept of the cell. Functional aspects have been considered wherever applicable and, in this respect, a few illustrations of the results of histochemical, cytochemical, and autoradiographic studies have been included. Unless otherwise stated, the tissues have been taken from the perfused laboratory rat.

This atlas is a condensation of Volumes I and II of "Cells and Tissues by Light and Electron Microscopy" (Academic Press, Inc., New York and London, 1970). It is designed to provide the student with the essentials for a basic knowledge of animal cells and tissues.

EDMUND B. SANDBORN

ACKNOWLEDGMENTS

The experimental work which made this book possible was supported by grants from the Medical Research Council of Canada, the Muscular Dystrophy Association of Canada, the National Cancer Institute of Canada, the Quebec Heart Foundation, and the Quebec Research Council. For the laboratory space and services and for routine maintenance I am deeply indebted to the Université de Montréal.

I acknowledge with appreciation permission to reproduce figures from the following publications: the *Journal of Ultrastructure Research*, the *Canadian Journal of Physiology and Pharmacology*, and the *Revue Canadienne de Biologie*. Figures 1 (6) and 2 (64) are reproduced by permission from the *Journal of Ultrastructure Research* **11**, 123–138 (1964) and **18**, 695–702 (1967); Figure 1 (64) is reproduced by permission of the National Research Council of Canada from the *Canadian Journal of Physiology and Pharmacology* **44**, 329–338 (1966); Figures 1 (8), 1 (84), 3 (121), and 2 (132) are reproduced by permission from the *Revue Canadienne de Biologie* **24**, 243–276 (1965).

I extend my appreciation in particular to Dr. Pierre Bois, Professor and Director of the Department of Anatomy, Université de Montréal, for his support and for his valuable advice and to Dr. Serge Bencosme of Queen's University, Kingston, Ontario, who, through his enthusiasm for and devotion to the teaching of electron microscopy to students, was responsible for my interest in the field of ultrastructure.

I sincerely thank my assistants Miss Cécile Venne, Mrs. Andrée Aubin Delfour, and Miss Marie-Thérèse Fortin who investigated the inner ear in our laboratory. I also thank Drs. Réal Gagnon, Pierre Jean, and Bernard Messier for their valuable assistance and suggestions in the preparation of the original text.

I express my appreciation to Miss Emilienne Lambert for the drawing of the cell.