# PREFACE

There are two philosophies on the preparation and use of a textbook. Authors who adhere to one philosophy write a book that is large, authoritative, and comprehensive, to serve as a reservoir of information for both teachers and students. Teachers are free to pick and choose at will from the material or to assign the entire body of material in a kind of "overwhelming dose," which gives students all the information they will need, and then some, in a single volume.

The second philosophy—and the one that has guided us in preparing this book—concisely presents the major principles of a field. Once teachers accept the approach and coverage of a book as adequate for their needs, they can use it as a basis for building their courses. Students are thus provided a definite, compact body of material to which they can devote close attention and through which they may be led to explore outside sources of information.

The comprehensive encyclopedic book has much to recommend it, especially in courses for majors or specialists in a field. However, this type of book and the teaching methods that usually accompany it are often frustrating to general students, as they are apt to feel that specialists have written for other specialists and that they are being excluded from the field by technical jargon. All too frequently students leave such a course with only a clutter of half-memorized definitions and a distorted view of the nature of scientific endeavor.

This book has been designed primarily for a one-semester course offered to general students and to students in nursing and home economics programs and paramedical fields such as physical therapy and medical technology. We recognize the great diversity of backgrounds in the natural sciences that characterizes our potential audience, and consequently, we have sought to avoid unnecessary complexity from that viewpoint. Previous courses in introductory biology and chemistry will be helpful, but not absolutely essential. Basically, this book is *a general biology of the microorganisms,* and integrated in this study are some of the fundamental principles of physical science, general biology, and microbiology.

Our overall objective has been to develop our subject within an historical framework because we believe that scientific principles become meaningful only when they are placed within a developmental context. We also believe that a firm theoretical background is preferable to emphasis on application. Thus Parts One and Two possess an instrinsic value of their own and provide a background for understanding the *how* and *why,* not merely the *what,* of Part Three. In many instances, the connection between theory and practice need not be explicitly stated. For example, Chapter 7 in Part Two devotes some attention to the subject of mutation. In our subsequent discussion of disease in Chapter 8, we do not attempt to explain in every instance why this phenomenon has far-reaching implications for the diagnosis and treatment of microbial infections. Rather, it is assumed that students will have assimilated this principle, and others, by the time they reach Part Three of the book and that these principles will increase their understanding of that material.

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Neal D. Buffaloe
Dale V. Ferguson