

preface

For many students the exposure to college biology is a brief, one-time experience. For this to be a positive experience, both the professor and the textbook are responsible for presenting the scope, history, and flavor of scientific endeavor in a coherent and interesting manner. This is best accomplished using basic biological concepts supported by accurate examples and illustrations.

This text is an outgrowth of classroom experiences encountered in 8 years of teaching more than 10,000 nonscience majors from every region of the country and many foreign nations. In a book of this scope, a great deal of material has been, and should be, omitted, particularly that involving excessive scientific detail. A single college experience in biological science should not burden the student with the task of assimilating a massive number of facts. It is preferable that the discoveries and theories arising from scientific inquiry be presented in the form of essential principles to which the student can relate. To achieve this goal many of the essential principles of biology are presented from a human viewpoint. This method provides a familiar frame of reference from which many biological concepts can be developed.

In following the standard, or classical, approach, the book presents first the basic principles of chemistry, energy, and cell biology and progresses to the biology of organisms, ecology, and evolution. The second part emphasizes human structure and function and includes a chapter on behavior. It has been my experience that the vast majority of students are extremely curious about human function.

Each chapter is introduced with a brief statement, along with a list of learning objectives and a preview of the more difficult or pertinent terminology. These words, together with other important terms, also appear in boldface italics within the body of the text. Since many students are put off by terminology, much attention has been given to assure that terms are clearly defined and accessible. Illustrations in the form of drawings and photographs are important learning aids, and many of their captions provide additional explanatory information. Marginal notes have been provided throughout the text to reinforce important terms and concepts. At the end of each chapter are a concept review in summary form and a list of discussion questions. Complementing the many two-color drawings are 126 full color photographs contained in 32 pages; these are distributed in eight sections so as to appear as close as possible to corresponding text areas.

Considering the varied and immense scope of modern biology, a textbook on general principles must necessarily be selective. In using this text, the instructor may choose a sequence of chapters that better suits his topic preference or his desire to present a shorter course of study. For example, the chapters covering evolution and behavior could be omitted in a short course. Similarly, the chapters on viruses, animals, plants, and ecology could be rearranged to fit a different topic sequence without harm to the book's integrity. There is some evidence that an increasing number of institutions are offering a short one-term course in biology for biology majors who subsequently take a rigorous botany or zoology course. The text's emphasis on fundamentals and its flexibility as a teaching tool (which is further discussed in the accompanying Instructor's Manual) makes it an excellent candidate for this curriculum requirement.

Accompanying the textbook are two ancillaries. The Instructor's Manual highlights points in each chapter, explains major concepts in more detail, offers suggestions as to topic rearrangement for different course structures, and acts as a general aid to the instructor. The Student Guide offers study aids in the form of brief chapter summaries, terms to define, and sample test questions (true-false, multiple choice, sentence completion). Answers for these items will appear at the end of the guide.

I have reserved this paragraph to thank a group of extraordinary people at

Saunders College Publishing; my indebtedness to them is staggering. Not only are they highly competent professionals, but they have been enthusiastic supporters, dispensing invaluable suggestions and personal kindnesses whenever the need arose. The Publisher, Don Jackson, initiated this project by providing me the opportunity to write for Saunders. His confident support is acknowledged with deep appreciation. Mike Brown, Editor, actually is Robinson Crusoe's Friday in disguise. To recount his deeds of professional and personal service on my behalf would require the assistance of a small computer. For his counsel, friendship and innumerable courtesies, I shall always be grateful. Patrice Smith, Project Editor, provided me more encouragement and reinforcement than there is space here to relate. From beginning to end, she has been an indispensable guide and a fount of inspiration. Lloyd Black, Developmental Editor, directed the illustration program and provided enormous assistance in many areas. His diligence and concern have been a boon throughout, and I sincerely thank him.

Most of the full color photographs were supplied by Bruce Russell of Biomedia Associates and by Carolina Biological Supply Company. For their artistic contributions, an especial thanks.

Although many people have been involved in the development of this book, I want to pay special tribute to Doris Helms of Clemson University. Her incisive and creative suggestions proffered with great good humor were invaluable. In addition, I want to thank the following reviewers for their many helpful corrections and suggestions: William Bessler, Mankato State University; George Bleekman, American River College; Gwendolyn Burton, Community College of Denver, North Campus; Bruce Chorba, Mercer County Community College; Sid Crow, Georgia State University; Gerald Dotson, Community College of Denver, North Campus; Charles Granger, University of Missouri, St. Louis; Joseph Hindman, Washington State University; David Husband, University of South Carolina; Clarence Wolfe, Northern Virginia Community College.

Finally, to all of those behind the scenes at Saunders College Publishing and to my typist Sharon Creitz, thank you for everything you have done.

Tuscaloosa, Alabama
November, 1981

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