

Preface

COMPLEX PROCESSES HAVE BEEN
EXPLAINED STEP-BY-STEP

"TO SUM UP" SECTIONS HAVE BEEN
ADDED

TECHNICAL TERMINOLOGY HAS BEEN
REDUCED

CHAPTERS HAVE BEEN REWRITTEN

KEY POINTS HAVE BEEN OUTLINED

CHAPTER SUMMARIES HAVE BEEN
RETAINED

This second edition of *Biology* has been written for introductory biology courses. Our most important considerations were to give the student the information needed to have a comprehensive view of modern biology, while at the same time making the material *understandable*. If it took two paragraphs instead of one to explain a concept properly, we used two. If four pictures provided a better explanation than one, we used four. Whenever it was possible to take a difficult process and break it down into its sequential steps, we did it, and we placed a picture at each step. (See "How Are Proteins Synthesized?" starting on page 116, "Mitosis" on page 131, "Meiosis" on page 137, "The Mechanism of Nerve Action" on page 398, and "The Mechanics of Heart Action" on page 488, for example; there are several other similar sections.)

Whenever a section contained a particularly complex idea, we added an itemized summary, "To Sum Up," at the end of it. We tried in every way possible to anticipate the students' questions and to answer them simply and clearly.

Many so-called technical terms have been omitted, and the overall word count of the book has been decreased substantially. More pictures have been added, and they have been made larger.

Many chapters have been redone completely. The ecology chapters, for instance, have been rewritten after discussion with biology teachers all over the country, and the pictures, especially the photographs, were carefully chosen to complement the text and improve the discussion. Large, full-color photographs help improve the ecology chapters. The Chemistry of Life, Cellular Respiration, The Genetic Code and Protein Synthesis, and other chapters have been modified to make them more accessible to the student. The final part, "Evolution, Ecology, and Animal Behavior" has been reorganized to integrate the chapters within.

Each chapter begins with an itemized list entitled "Some Key Points." Written without using any technical terms, these sections are meant to introduce the student to the important points of the chapter. At the same time, itemized, detailed Chapter Summaries have been placed at the end of each chapter. These summaries were especially well received in the first edition.

CHAPTER-END QUESTIONS HAVE BEEN
ADDED

As many as 15 questions have been added at the end of each chapter. These questions, entitled Ask Yourself, have been written to help the student review and understand the text. For the convenience of the instructor, answers to all questions appear in the Instructor's Manual. An exception to the general format occurs in the two chapters dealing specifically with genetics, where Genetics Problems and Answers of a more quantitative nature appear. Additional questions and answers dealing with genetics are found in the Instructor's Manual.

RECOMMENDED READINGS HAVE
BEEN UPDATED

An updated list of Recommended Reading, again chosen for the student who would like to do some follow-up reading of relatively non-technical material, has been placed in the students' Study Guide and in the Instructor's Manual.

THE INDEX HAS BEEN EXPANDED AND
THE GLOSSARY HAS BEEN UPDATED

The Index in the second edition contains about twice as many entries as the previous one. Its approximately 6000 entries make it the most comprehensive and useful index available for a book of this type. Also, the already comprehensive Glossary has been updated and made more complete.

COLOR PORTFOLIOS EXPAND BASIC
INFORMATION

Like the first edition, the second edition contains several full-color portfolios that expand on themes introduced within the text. These color portfolios (such as "How Animals Move," following page 430, and "What Animals See," following page 414) were one of the favorite features of both teachers and students. We are gratified that the portfolios have proved to be entertaining, but perhaps even more important, they are also instructive and supportive.

BOXED ESSAYS HAVE BEEN UPDATED

Users of the first edition told us that they enjoyed the boxed essays. The reviewers of the present edition urged us to include the essays in the new edition. So we did, updating, adding, shortening, and generally trying to make them even more useful and interesting.

CAPTIONS ARE SHORTER AND LABELS
HAVE BEEN ADDED

The length of the captions has been reduced, so that the student receives the necessary information quickly and clearly. To supplement this change, many labels have been added to photographs to increase their usefulness. On the other hand, if a label on a drawing seemed unnecessary or overly technical, it was deleted.

MANY PICTURES HAVE BEEN ADDED

Finally, the number of pictures has been increased markedly. Many new scanning electron micrographs are included, full-color photographs are used when they enhance the discussion, and several simplified drawings have been inserted in place of (or in addition to) single, comprehensive ones. In general, the pictures are larger, clearer, and more instructive. Photographs have been grouped into compact picture essays when several photographs did the job better than one (see Chapter 26, The Mechanisms of Evolution, for example, especially pages 526, 527, and 537). All in all, we tried to be consistently aware of the power of well-chosen pictures, and did our best to use them in the students' best interests.

Preparing a revision can be terribly boring, but we felt only positive feelings about this revision. Every time we discovered an opportunity to improve the book we were exhilarated by the actual process of finding a better way. We look forward to a third edition, and we ask you to help us make it even better than this one. If you have any suggestions, write to us in care of Addison-Wesley.

ACKNOWLEDGMENTS

We were fortunate to have the assistance of many reviewers, all of whom spent a great deal of time reading the manuscript and scrutinizing the pictures in the course of making many intelligent and insightful suggestions. We would like to thank them all:

Teresa Audesirk
University of Missouri
Sara Bennett
Chesterfield, New Hampshire
Richard Boohar
University of Nebraska
William Bowen
University of Arkansas
Robert C. Evans
Rutgers State University
Kathleen Fields
Cambridge, Massachusetts
Paul Hertz
Barnard College
Craig Himes
Bloomsburg State College
Joseph Hindman
Washington State University
Joyce Maxwell
California State University-Northridge
Charles R. Noback
College of Physicians and Surgeons
Columbia University
Richard St. John
Widener College
John Schmitt
Ohio State University
Genevieve Tyrdik
Slippery Rock State College
Charles K. Wagner
Clemson University

We would also like to thank the staff of Addison-Wesley, especially our editors, James Funston and Nancy Kralowetz.

New York
December 1982

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