



Biological warfare...

Pollution . . . Population explosion . . . Biology-based subjects in the daily news are vital concerns to today's student! But is he merely reading about these problems and not understanding them? **BIOLOGICAL SCIENCE, Revised Edition**, by William H. Gregory and Edward H. Goldman, will give him the necessary background—plus the latest developments in the life sciences and related fields. A central theme, evolutionary relationships, provides cohesiveness as each aspect of biological knowledge is presented. There is expanded treatment of molecular genetics, ecology, and conservation, and chapters on the relation of man to his environment. A Laboratory Manual, Teachers' Manual and Key, and Tests are also available.



A XEROX COMPANY □ Boston □
Arlington Hgts., Ill. 60005 □ Atlanta, Ga. 30324 □ Dallas, Texas 75229 □
Palo Alto, Calif. 94304 □ Waltham, Ma. 02154 □ Toronto 375, Canada

For further information, write to the Ginn sales office serving you.

respectful recognition to medical immunology, as indicated above, and to the vast, independent discipline of immunochemistry; but the heart of the book is immunity as a biologic phenomenon with particular attention paid to the cellular level.

The titular authors were assisted by 11 contributors. Of the 15 chapters, some have one author, others have two or three. According to the blurb on the dust jacket, "The unevenness of style and approach characteristic of many multi-authored works has been eliminated." I agree: the writing is not only fairly even; it is clear, generally simple, and understandable to a biology teacher who makes no pretense of being an immunologist. Illustrations, while not numerous, are informative, pertinent, and well reproduced. Each chapter has an extensive bibliography. The index is adequate.

The book begins with a survey of forms of immunity, types of antigens, and types of antibodies. A taxonomic chapter briefly surveys immunity in invertebrates and then considers the classes of vertebrates. Metabolism of antigens and antibodies is considered on the organismal, cellular, and subcellular levels. A chapter on the puzzling subject of immunologic memory (where

does the organism store its unused capacity for immunity?) closes the first half of the book.

The second half stresses medical aspects. Interspersed among these chapters are discussions of antigen-antibody reactions (immunochemistry) and of the relationship between immunology and genetics. The latter subject is treated in a fascinating chapter by David Talmage, called "Theories of Antibody Formation." To Pauling, Watson, Burnet, and others the genetics-immunology relationship lies at the heart of modern biology; and Talmage's chapter, while understandably short on answers, does raise interesting questions.

There is one surprising omission in the book: nothing is said about immunity in plants. Nevertheless, this well-done book will be most useful to alert biology teachers.

Stanley L. Weinberg
Ottumwa (Iowa) High School

Molecular Biology

THE MECHANISM OF PROTEIN SYNTHESIS.
Vol. 34 of *Cold Spring Harbor symposia on quantitative biology*, ed. by Leonora Frisch. 1969. Cold Spring

Harbor Laboratory, Cold Spring Harbor, L.I., N.Y. 879 pp. \$22.00.

In June 1969 some 350 scientists gathered at Cold Spring Harbor to discuss the mechanism of protein biosynthesis, a subject of ever-increasing complexity. This volume records the formal presentations of that symposium.

WHAT A
PIECE OF
WORK IS MAN!



how noble
in reason!
how infinite
in faculties!

BOTANY TODAY:

New Doubleday Natural History Press Books for Student and Scientist

PLANT DISEASES

Frederick L. Wellman

In this illustrated introduction to plant pathology, Dr. Wellman demonstrates how research and deduction are used to pinpoint and combat plant diseases and plant destroyers—from such "traditional" enemies as bacteria and insects to the newer threat of misused pesticides. \$5.95

PLANT GROWTH

Arthur C. Gentile

Dr. Gentile clearly traces the complete growth process in plants, from seed germination to primary and secondary growth and full maturity. He describes many of the modern discoveries of research botanists, including plant growth regulators widely used to control size and ripening of fruit. \$5.95

RESEARCH METHODS IN PLANT SCIENCE

Richard M. Klein and Deana T. Klein

This is an encyclopedic, illustrated handbook for all plant experimenters. For students and amateur botanists as well as professional plant scientists, it emphasizes the *how* of experiments in plant structure, environment, cultivation, biochemistry, growth, reproduction and pathology. It is the only complete "nuts and bolts" guide to every experimental detail, from getting or making equipment to running tests. 174 illustrations. \$15.00

NP **DOUBLEDAY**
NATURAL HISTORY PRESS

Doubleday & Company, Inc., Garden City, New York 11530

Paul Zamecnik provides historical perspective in a superbly written introduction. The main sections deal with ribosome structure; structure and binding of tRNA; ribosome cycling; initiation; translocation and elongation; termination; mammalian systems; sequences of mRNA; and translation of mRNA. Most of the information was derived from studies with bacteria but it would appear that, in general, similar mechanisms are operative in mammalian systems. In higher organisms two kinds of mechanism are operative. One is contained in mitochondria or chloroplasts and is similar to that in bacteria; the other is found in cytoplasm and is distinctly different from the synthetic mechanisms of bacteria, although certain features are retained.

Zamecnik's fine introduction is matched by an equally good summary chapter, by Peter Lengyel. This book is recommended to those who wish to be brought up-to-date in the field of protein biosynthesis—especially teachers of biochemistry and their students.

Ralph H. Kathan
University of Illinois
at the Medical Center
Chicago

MOLECULAR-GENETIC MECHANISMS OF DEVELOPMENT, by Zhores A. Medvedev. 1970. Plenum Press, New York and London. 432 pp. \$25.00.

Use of the term morphogenesis as an umbrella under which all chemical,

genetic, physiologic, and embryologic processes combine to yield an adult organism, whether virus or elephant, will not offend those whose work and thoughts naturally include more than one of the historical disciplines of biology, but it may appear strange to those who work and think only within one well-defined discipline. Medvedev has given us a view of developmental biology that includes biochemistry (molecular biology), genetics, and embryology. Not that this hasn't been done before; but this book is special for two other reasons.

Medvedev compares comparative ontogeny with comparative phylogeny; this is, by beginning with a brief account of the DNA-RNA-protein legend the reader follows both an ontogenetic plot (DNA → adult) and a phylogenetic plot (viruses → bacteria → etc. → mammals). The phylogenetic part of the story is not as historical as it is comparative and contemporary, but the idea of evolutionary development is not obscure.

The DNA → adult account won't be immediately obvious to the beginning student: certain sections are written superficially, others at research depth. This unevenness of style will disturb the reader who is not familiar with molecular biology in detail, since the concepts of development relating to DNA replication, transcription, and translation run throughout the book. Unfortunately this trend excludes what I think are very exciting experiments with cells, tissues, and organs.

I recommend this book to the teacher who wishes to get at the molecular basis of differentiation but not to the general student being exposed to biology for the first time.

Val Woodward
University of Minnesota
St. Paul

Zoology

TURTLES AND THEIR CARE, by John Hoke. 1970. Franklin Watts, Inc., New York. 89 pp. \$3.25.

This is a comprehensive, well-organized volume about land and aquatic turtles found in the United States. The book is generously illustrated with photographs of suitable indoor and outdoor tanks and of children caring for the turtles. Directions are given for building and preparing these habitats, which simulate the natural environment, indoors and outdoors. A teacher who wished to use this book as a guide to setting up a tank for a few turtles in a classroom might be a little daunted by the pictures of the elaborate tanks and by the array of filters, heaters, and humidifiers necessary for the well-being of the amphibian pets. This book