Book Reviews

• **Readers' comments on reviews should be addressed to the Editor.**

Development

DEVELOPMENTAL BIOLOGY, by N. J. Berrill. 1971. McGraw-Hill Book Co., New York. 535 p. $12.95.

This is an excellent book for undergraduates or beginning graduate students who have had at least an introduction to biology. Descriptive embryology, formerly emphasized in textbooks, is balanced here by new focuses from the advances made in molecular biology and genetics. Relevant experimental evidence takes on important proportions in producing an integration fundamental to a basic understanding of the present dynamics in developmental research. The author says: "The dominant theme is that of self-assembly and directed assembly of organized substance. . . . Inquiry and concepts are stressed throughout the book, rather than accomplishments and answers, the treatment reflecting the fact that at all levels the inquiry is open-ended."

The book is interestingly written and fortified by clear illustrations. Each chapter ends with a summary of concepts and a list of readings. The many facets treated are included under three headings: assembly of cell and organisms; the nature of animal development; and organization, reconstitution, and differentiation.

I highly recommend this textbook by the competent and scholarly N. J. Berrill.

Sister Jeanne d'Arc Schleicher
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EMBRYOLOGY OF THE CHICK AND PIG, by Bruce M. Harrison. Rev. ed., 1971. Wm. C. Brown Co., Dubuque, Iowa. 211 p. $4.95.

In certain relatively static fields of biology, revising a book is more a matter of improving details than of integrating newer information. Such is the case here. As a guide to the student who is beginning his study of the gross developmental anatomy of the chick and the pig this manual is excellent. The drawings, although simple, are good approximations to what the user can actually expect to see under the microscope. For most stages sufficient sections are shown to give some sense of spatial continuity for most structures. The labeling is quite adequate, although there are some mistakes. The book goes somewhat beyond the narrow confines of the subject: the technique of slide-making and the structures that produce, package, and care for the gamete, zygote, and embryo are also considered.

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Ecology

FUNDAMENTALS OF ECOLOGY, by Eugene P. Odum. 3rd ed., 1971. W. B. Saunders Co., Philadelphia. 584 p. $11.75.

The numerous modifications and additions in this edition should insure the continued popularity of this textbook and increase its value as a general reference for ecologists.

Like the previous two editions, the book has three parts: basic ecologic principles and concepts; the habitat approach; and applications and technology. Parts 1 and 3 have been extensively reworked and expanded. Important topics receiving broader and updated coverage in part 1 include biogeochemical cycles, mechanisms for biologic control of the abiotic environment, self-regulation of ecosystems, and applications of species-diversity indices for describing and quantifying community structure. New chapters pertain to the species and the individual in the ecosystem, the development and evolution of ecosystems, and (a contribution by Carl J. Walters) the nature and potential role of mathematical modeling in ecology.

Part 3 emphasizes the shift from the population to the ecosystem as the focal point in applied ecology that has developed during the past decade. Here Odum pleads the case for man's need to develop a positive attitude towards ecologic management of the human population. Major changes in this part of the book include the addition of chapters on pollution and environmental health, on remote sensing as a tool for the study and management of ecosystems (by Philip L. Johnson), on perspectives in microbal ecology (by William J. Wiebe), on ecology of space travel (by G. Dennis Cooke), and a chapter called "Toward an Applied Human Ecology." The contributed chapters provide insight into some new, relatively complex, and little-known aspects of modern ecology, which until now have been missing from most ecology textbooks. There is an excellent, up-to-date bibliography. On the whole, the revisions and additions in this edition significantly improve an already proven product.

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LEADERS OF AMERICAN CONSERVATION, ed. by Henry Clepper. 1971. Ronald Press Co., New York. 360 p. $10.00.

The 316 persons included were nominated by one or more of the 40 member organizations of the Natural Resources Council of America. A page facing the preface lists the criteria of selection: among others, "A basic requirement is that the contribution shall have been meritorious," and "An essential qualification for listing is the individual's performance of those acts that accomplished socially desirable results." A six-page introduction is a general account of conservation movements and activities during the last century.

Each of the alphabetically arranged biographies is about one page long and provides a condensed factual account of the person's career. This unique compilation considers administrators, educators, researchers, and writers on natural resources. Most of the biographies are of Americans, although a few foreigners who have made special contributions on problems in America are included. The omission of such well-known students of environmental problems as Commoner, Ehrlich, Graham, Kormondy, and Nearing, to mention a few who quickly come to mind, is rather surprising. Of the 316 leaders included, only 20 were born before 1850. The earliest, by birthdate (1785), is Audubon. Oddly, Thoreau is not included.

The size and shape of the volume is pleasing, the binding is durable, and the paper and type size are superior. It should be useful to conservationists in general and as a reference book in libraries.

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CLEAN AIR – CLEAN WATER FOR TOMORROW, by Reed Miller and the editors of Science Book Associates. 1971. Julian Messner of Simon & Schuster, Inc., New York. 190 p. $4.50 (hardback).

This book gives the reader the up-to-date essentials necessary to understand what makes clean air and water. The book is not superficial. The authors cite specific pollutants and discuss their chemical nature and their physiologic

effects on living things and on works of art, buildings, and other valuable materials. The authors show that local pollution of air and water may lead to total contamination of the world.

A good section of the book is devoted to discussing the efforts of agencies and governments to keep our air and water clean. There is an interesting survey of ideas for future sources of energy; the pros and cons are presented, so that the reader gets a good picture of what these will take in terms of time, effort, and capital. Perhaps the excellent coverage here given to this crucial problem will help the public to make important decisions.

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Education

THE TIMELY AND THE TIMELESS, by Bentley Glass. 1970. Basic Books, Inc., New York. 108 p. $4.95.

In today's society science is not considered a part of the lives of men. Glass tries hard to show why this situation must be rectified. The literate, technologic society must grasp the import of science as part of and for the culture. A primary role of education is to help man appreciate the nature of science and its application in the established culture and the implications for the counterculture. The counterculture must become aware of the methods of science as means to distinguish what is real from what is not.

To this end, Glass suggests that the education of the citizen of the future must deal with science as a social and historical process. This is not merely the study of scientific inquiry; it must include the relations of science to man's value systems and goals. Although the scientist attempts to view reality objectively, he exercises a degree of subjectivity in his selections of those aspects of reality he wishes to study, and this gives some direction to the growth of science.

Glass draws heavily on the writings of John Dewey to support the notion that science and education must deal with that which is relevant to the individual interacting with society (the timely dimension) as well as to man's place in the universe (the timeless dimension). He criticizes the conservative nature of education and asks that reform be accelerated. Literacy per se is insufficient: a literate society must understand the interdependence and complexity of the natural sciences, social sciences, arts, and humanities. Hence a basic question of the future is one that has remained with us through time: how do we relate science to education?

Glass suggests that such a relationship can be better understood if an awareness of science as a dynamic social process is fostered. However, several problems must be considered before a complete cognitive framework can be erected. He points out the need for a determination of factors limiting the growth of science—factors that may determine equilibrium or extinction. He suggests that the following may be major limiting factors: (i) volume of scientific information; (ii) specialization necessary for the scientist to carry out his work; (iii) the rapid rate of educational obsolescence; (iv) side effects of technologic developments, both social and political; and (v) psychologic resistance by the population, as well as inadequate support by that population. He also points out the need for a study of the relation of the growth of science to technologic improvement, population size, rate of population increase, and the welfare of the people. Furthermore, Glass asserts the need to evaluate technologic developments before they are released into society.

Unfortunately, 10% of the book is devoted to describing the rationale and some history of the Biological Sciences Curriculum Study (BSCS). Supposedly this is to serve as an illustration of what can be done. It is questionable whether BSCS and the other curriculum studies of the 1960s ever achieved even a fraction of what Glass outlines so perspicuously in this book.

This is a timely, meaningful book for all educators. Glass's proposal for continuing education, although not particularly innovative, should be considered seriously. After all, it has to do with the self-renewal of society—a timeless concern.

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THE SECONDARY TEACHER AT WORK, by Leonard M. Douglas. 1967. D. C. Heath & Co., Boston. 220 p. $3.95 (softback).

The preface indicates that this book was written to serve as (i) a textbook for a pre-service general-methods-of-teaching course and (ii) a sourcebook on educational problems for inexperienced teachers. The number of in-service teachers who will choose to obtain this book will be few, however; and I hope there are not too many teacher-education courses around for which this would be a relevant book.

There is essentially nothing in this book that was not available in similar books 20 years ago. It includes chapters dealing with psychology, student potential, classroom records, elementary statistics, tests, reports to parents, planning, teaching methods, teaching aids,