field of biology. Unfortunately, books on biochemistry often tend to put the reader to sleep. And the present book—despite the excellent detail, the innovative chapters, and the excellent figures—is dull.

If I were to spend $16.75 (or ask my students to do so) I would invest a little more and purchase A. L. Lehninger's *Biochemistry* ($19.95) instead.

James E. Perley
College of Wooster (Ohio)

Education

HOW TO PREPARE FOR THE AMERICAN COLLEGE TESTING PROGRAM, by Murray Shapiro (ed.), Fred Obrecht, Sam Rifkind, Delores Bright, and Elizabeth Nuckolls. 1972. Barron's Educational Series, Inc., Woodbury, N.Y. 474 p. $4.95 (softback).

This book is not only a "how to do it" guide; it is also a valuable manual for self-improvement. It should be in the library of every high-school counselor and teacher who advises college-bound students. It begins with a general discussion of how to get into the appropriate college and then briefly describes what college entrance exams are and what purpose they serve. A general explanation of the American College Testing Program examination battery follows. The remaining 92% of the book is devoted to sample questions like those found in each of the four battery tests. Despite the recurring references to other Barron books (it sounds like advertising) and an occasional slip (the reference to "state normal schools" sounds dated), the book is well written: as the preface says, "The effort has been a labor of love as well as a meticulous chore." If prospective college students carefully study this book they will probably improve their fund of knowledge as well as improve their chances of getting better ACT scores and of gaining entry to the colleges of their choice.

James L. Koevenig
Florida Technological University
Orlando

Environmental Biology

READINGS IN HUMAN POPULATION ECOLOGY, ed. by Wayne H. Davis. 1971. Prentice-Hall, Inc., Englewood Cliffs, N.J. 251 p. $7.95.

This is a collection of 31 reprints from a wide range of sources. Readings in the first section explore aspects of the population problem ranging from the "doom and gloom prophecy of imminent extinction of the species" to articles exposing the "nonsense of the so-called population problem." The second section is concerned with social problems and population growth; again, many sides of the issue are presented. The section on economics and population growth discusses the implications of population growth and decline in the light of resources and finances. The final section takes up the questions of family planning, compulsory birth control, and government intervention. This collection will be useful to teachers and students.

Richard A. Dodge
Columbia (Calif.) Junior College

POPULATION, ENVIRONMENT, AND PEOPLE, ed. by Noel Hinrichs. 1971. McGraw-Hill Book Co., New York. 225 p. $2.95 (softback).

This book, composed of 24 original essays, is drawn from testimony given to the delegates to the First National Congress on Optimum Population and Environment, held in Chicago in 1970. The authors include Paul Ehrlich, Philip M. Hauser, Raymond F. Dasmann, Garrett Hardin, A. E. Keir Nash, Stewart L. Udall, and George Wald.

The book is divided into four parts: on the basic problem, on the human factor, on possibilities for action, and on "the larger concept"—a reminder of the importance of man and his place in the scheme of things, providing us with a better motivation for the struggle ahead. In addition there is a foreword by René Dubos and an introduction by the editor, and each article is introduced with an appropriate review.

This book should be an invaluable source for students, teachers, and the general public.

Clark O. Wilder
Wasson High School
Colorado Springs, Colo.

ENERGY AND POWER, by Albert Hinkelbein. 1971. Franklin Watts, Inc., New York. 128 p. $4.95 (hardback).

The author's description of the blackout that occurred in the northeastern United States in November 1965 shakes the reader's complacent attitude about energy and heightens his interest in the discussion of forms and methods of harnessing energy, energy transport, hazards, and future problems. The book reads like a novel with historical overtones.

The temperature of the human body is said to be 98.4 F—not the usually accepted figure. In discussing Brownian movement the author attributes the motion of pollen grains to their being dragged around by molecules rather than as a result of random collisions of smaller molecules with the grains. Hinkelbein's prediction that ^{235}U will provide the world's energy needs for the next 200 thousand million years fails to emphasize this as only a possibility through the use of breeder reactors and that nuclear power from the present fission reactors would consume most of the ^{235}U within a century. In a discussion of future projects the author omits tidal energy and, except for a caption and a diagram, fails to adequately treat of geothermal energy.

American students will be unfamiliar with the European examples and illustrations, the English expressions and spellings, English currency, and the English notation of dates and decimal fractions. The vocabulary is uneven and the transition between topics is weak. Although the book has excellent photographs and some good descriptions of the historical developments and equipment associated with energy, the shortcomings make this a book of doubtful value to the average junior-high-school student.

Richard J. Medve
Slippery Rock (Pa.)
State College

BREEDING OURSELVES TO DEATH, by Lawrence Lader. 1971. Ballantine Books, New York. 127 p. $2.95 (softback).

This is an historical record of the Hugh Moore Fund, the peace foundation that was instrumental in publicizing the "population explosion." Almost half the book consists of photographs of people who have been engaged in the program—Richard Nixon, Dwight Eisenhower, J. F. Kennedy, and Arthur Godfrey among them—and newspaper advertisements sponsored by the organization. The four appendices consist of a list of leading Americans who have cooperated with the program, some representative ads, two "collected comments," and an account of Hugh Moore's business background. The book provides little of value to teachers or students, except that it demonstrates that a cause can be aided by persistent work, good organization, and endorsement by prominent people.

W. Robert Stamper
Cheltenham High School
Wyncote, Pa.

THE MYSTERIOUS WORLD OF CAVES, by Ernst Bauer. 1971. Franklin Watts, Inc., New York. 129 p. $4.95 (hardback).

This attractively illustrated description of caves and caving is for readers of junior-high-school age and up. With its long discussion of the rudiments of cave-exploration techniques, accentuated by good color photographs and a glossary of caving terms, it is an invitation to join the expanding ranks of amateur speleologists. Bauer also discusses problems of cave surveying, photography, biology, hydrology, and geology; thus he encourages a scientific as well as a merely adventurous interest.

The author presents evidence of early man found in caves and describes cave animals and plants. His discussion of the formation of caves is easy to understand but contains some misleading statements and errors; for example, the

statement that limestone was laid down as sediment "several thousands of millions of years ago" is a great exaggeration and shows a lack of grasp of the earth's time-scale. However, in describing techniques of dating the more recent cave features Bauer shows a better grasp of time.

Colorful block diagrams and sketches are used to good advantage to show the basic structure of caves and how they are related to other geologic features. Some of the sketch maps are less successful: they are oversimplified and lack adequate captions. Plan maps intended to show links between cave patterns and "natural geological faults" and "the basic geological structure" are simply too sketchy to give the lay reader any basis for accepting the author's statements.

Bauer is to be complimented on his attention to wind caves, ice caves, lava caves, wave and waterfall caves, beach caves, sandstone caves, and other such features; that is, he does not confine himself to describing the more common and more spectacular limestone caves, which most people call to mind when they think of caves.

This is an attractive, readable introduction to caves and caving. Its inclusion of examples from all over the world gives it international appeal. The author provides a good, up-to-date list of further readings, mostly in the form of popular books; but I wish he had also cited some of the technical literature for the use of people seriously interested in speleology. I recommend this book to school and college libraries and to anyone, but especially to the junior- or senior-high-school student, who is fascinated by caves.

William D. Romey
Earth Science Educational Program
Boulder, Colo.

ECOLOGY OF SOIL ANIMALS, by John A. Wallwork. 1970. McGraw-Hill Publishing Co., London. 289 p. Softback and hardback; prices not given.

As ecology comes of age it is inevitable that more and more specialized textbooks should appear. Most of these will be used in specialized courses, and some will be used to supplement general-ecology works. In any case most of these demand more background than can be expected of the typical secondary-school student. *Ecology of Soil Animals,* however, may be an exception. There is, necessarily, considerable technical detail, but a successful compromise seems to have been reached between simplification and sophistication.

The first three chapters introduce the soil environment: its physicochemical formation, its contents, and the resulting types. There is also a summary of the more common relationships between soil types and vegetation. The next seven chapters treat of the animals that inhabit the soil permanently or temporarily. Here the emphasis is on habits, habitats, and economic importance; the taxonomic treatment is minimal.

Perhaps the greatest value of the book for secondary-school students lies in the final four chapters, which deal extensively with the relationships among the constituents of a soil community. Population dynamics and the flow of energy through the soil populations are emphasized. Finally, relatively simple techniques for collecting, preserving, and identifying specimens are presented.

Each chapter includes an extensive bibliography and numerous diagrams, photographs, graphs, and tables; but a glossary is needed. Altogether, this is a fine work.

James L. Mariner
Fountain Valley School
Colorado Springs, Colo.

HOW WILL WE FEED THE HUNGRY BILLIONS?, by Nigel Hey and the editors of Science Book Associates. 1971. Julian Messner Co., New York. 191 p. $4.50 (hardback).

WORLD FOOD, by Edith Raskin. 1971. McGraw-Hill Book Co., New York. 160 p. Price not given.

Both of these books provide plenty of information for readers young and old, and they should be useful as background material for teachers of social studies and science. *Hungry Billions* includes the addresses of information sources and gives suggestions for further reading (more classic than current). Both books are profusely illustrated with photographs, which sometimes are more space-filling than necessary to the message. The young reader may, however, find all the pictures quite interesting. In *World Food* the style is awkward at times, and some of the explanations of esoteric terms or concepts are less than clear. Hey's style is better.

Many of the same topics are treated in both volumes. Raskin emphasizes the long development of domesticated food plants and animals, and she supplies interesting descriptions of various food preparations. Hey stresses environmental necessities (water, soil) and technology in his discussion of ways to provide food for the masses. Both authors offer some fascinating descriptions of processes designed to provide high-protein foods; for example, the growing of single-cell protein (SCP) on a crude-petroleum substrate, extraction of leaf protein from weeds, and domestication of exotic animals.

Both books offer more predictions and unsupported claims for the projects they describe than actual evidence of workable solutions. Hey, however, calls attention to what may be overoptimism in such proposals as the broad-scale farming of the sea, deserts, arctic regions, and tropics. Raskin's view of the "green revolution" is overly green, and neither author weighs the practical estimates of food supply and distribution against the probable needs created by exponential population increases. The increasing immunity to pesticides exhibited by many insects is not considered, nor is the incidental waste of food, such as the spoiling of fish for human consumption by runoff from fields treated with crop-burgeoning chemicals.

I enjoyed reading *World Food,* but disappointment edged in as I neared the end: there still has been no coming to grips with the extent of the problem in relation to its possible alleviation. I looked again at the dust-cover blurb; it promises, "Because of such advances, people both in the developing and developed countries will sit down to food of a quality and quantity they did not think possible." Young people should be encouraged to read books of this kind critically, with an eye to what is omitted as well as to what is presented.

Helen H. James
Southern Illinois University
Carbondale

200,000,000 YEARS BENEATH THE SEA, by Peter Briggs. 1971. Holt, Rinehart & Winston, Inc., New York. 238 p. $7.95 (hardback).

Briggs recounts in documentary form 12 voyages of *Glomar Challenger,* the first oceanographic research boat equipped for deep-sea drilling. Scientific, human-interest, and humorous aspects are interwoven throughout the narrative as the crew seeks to understand the geologic changes in the sea floor. Samples were taken from the Atlantic and Pacific ocean floors, and probes to a depth of 3,322 feet provided evidence of geologic events of more than 193 million years ago. The use of Foraminifera as biochemical as well as geologic indicators of the past history of the sea is explained. Computers controlled and guided the critical exploratory drilling operations. The recently advanced "plate tectonic" hypothesis served as a basis for the interpretation of data. According to this view the surface of the globe consists of approximately 10 crustal blocks ("plates"), which move separately; where they collide the crust is reshaped.

Glomar Challenger corings showed that the oceans have no sediments older than 200 million years. This fact and the concept of seafloor-spreading and continental drift (for which fresh evidence was uncovered) fit well into the plate hypothesis. Drilling into the sedimentary rock on the Pacific floor revealed that it has shifted 2,000 miles northwestward over the past 125 million years: the bottom that once was at the equator