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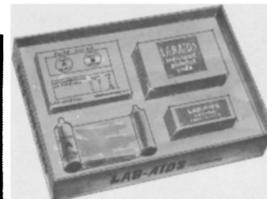
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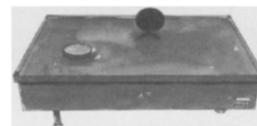
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vey of some of the conflicting values that surface as we seek solutions to environmental problems. The book has three parts: an overview of environmental problems; man in his environment; and pathways to solutions. There are thought-provoking questions at the end of each chapter. The topics are broad enough to engage the interest of students in junior and senior high schools. There is a list of student projects.

The book is well written and is worthwhile, especially considering its low price. More inquiry and analysis questions would have added to its value.

*Richard H. Kruse*  
Ankeny (Iowa) High School

**ECOLOGY, POLLUTION, ENVIRONMENT**, by Amos Turk, Jonathan Turk, and Janet T. Wittes. 1972. W. B. Saunders Co., Philadelphia. 217 p. \$3.95 (soft-back).

This supplementary book for high-school and lower-division college students is accurate, well organized, basic, and easy to read. Its primary weakness is its failure to show the humanitarian and social relationships of the problems it discusses. Basic information is presented on most of the environmental

issues. An added feature, not usually found in supplementary books, is study questions at the end of each chapter.

*Jim McCain*  
Jefferson College  
Hillsboro, Mo.

### Physiology

**LECTURES ON DEVELOPMENTAL PHYSIOLOGY**, by Alfred Kühn. 2nd ed., 1971. Springer-Verlag, New York. 535 p. Price not given.

Kühn quotes Alexander von Humboldt as saying, "I find published lectures insipid." Although Kühn has attempted to avoid insipidity, these are lectures and they do lack what must have been the fire of the lecturer; they are not inspiring reading. Furthermore, the book is a translation from the German, and the sentence structure of the original often shows through and imposes an additional load on the already stressed cognitive mechanisms of the reader.

The 36 lectures, the references, and the three helpful indexes cover the *Entwicklungsmechanik* ("developmental mechanics") of the Metazoa fairly well as it was understood in 1965, the date of the original writing. Considerable attention is also given to similar

processes in plants and, to a much smaller extent, in protozoans. The coverage is not encyclopedic; for example, regeneration is discussed in considerable depth for *Hydra*, *Tubularia*, and the planarians, but the amphibians are scarcely mentioned. The depth of treatment is often great, as in the three-page discussion of the development of holothurian anchor-plates as illustrative of certain properties of developmental fields.

This is a work of sound scholarship, but it is not an easy one. It can be recommended only to students and teachers who already have a good grounding in modern experimental embryology.

*Werner G. Heim*  
Colorado College  
Colorado Springs

### Textbooks

**ORDER: IN LIFE**, by Edmund Samuel. 1972. Prentice-Hall, Inc., Englewood Cliffs, N.J. 403 p. \$13.00.

In searching for some thematic approach to their subject, most biology teachers have periodically contemplated the many-faceted phenomenon of "organization." Now a new biology book, directed at students, according to advertisements, has aptly focused on "order: in life"—but perhaps with more

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relevance to mentor than to pupil.

After an introductory chapter on the pattern of scientists' classic search for order in nature, there are, to epitomize, considerations of order as evidenced in classification, ecology, evolution, morphology, genetics, molecular dynamics (including the origin of life), development, and behavior.

On beginning Chapter 1, about scientific endeavor in general, the reader cannot help but rejoice that finally a textbook has appeared that will afford an innovative and orderly look at biology. Then, as successive chapters proceed—and for the ordinary reader the 400 pages may proceed slowly—there arises a suspicion that this may prove to be largely a history-of-biology book, from Michel Adanson to Sewall Wright. Increasingly, however, emerges an inter-fingering of molecular biology, with the treatise finally ending on a somewhat philosophic note. The fact that there are two indices—one for persons

and one for subjects—emphasizes the duality.

The volume is well illustrated with worthwhile line drawings, as well as diagrams, tables, and graphs. The use of drawings rather than photographs gives some feel for the character of the book. Each chapter begins with one or more pertinent quotations and ends with a section called "Thoughts," which tends to be a reflective summary. The author writes with authority, drawing easily and readily upon mathematics and the physical sciences—which is no surprise when one discovers that Samuel has a particular interest in biophysics, as well as in molecular and developmental biology. Indeed, the chapter "Life: Matter and Energy" is the readable high point of the book. However, some faith in Samuel's knowledge of the history of science may be shaken by his statements that the Darwin-Wallace papers were presented before the Linnaean Society on 20 August 1858 (actually

July 1) and that the *Beagle* initially set sail from Devonport in late October 1831 (her first two unsuccessful sailings were not until December 10 and 21).

Some element of artificiality is created by the dogged delegation of certain scientific notions to the "candle" or "clock" class of models and by scattered allusions to "belief-webs, such a web being a rational system . . . giving 'causes' for observable facts." Furthermore, the logical organization of material in the book on occasion becomes more obscure than some organization in nature. The level and diversity may not discourage the teacher who uses the book for his own perusal or for an advanced seminar on the subject of life, but those who picked the book, by title and advertisements alone, for a beginning course are bound to be disappointed.

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