

Sigma Xi, The Scientific Research Society

Review: [untitled]

Author(s): J. G. Torrey

Source: *American Scientist*, Vol. 59, No. 6 (November-December 1971), p. 764

Published by: [Sigma Xi, The Scientific Research Society](#)

Stable URL: <http://www.jstor.org/stable/27829982>

Accessed: 25/08/2011 14:04

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Sigma Xi, The Scientific Research Society is collaborating with JSTOR to digitize, preserve and extend access to *American Scientist*.

<http://www.jstor.org>

An outstanding feature is the large number of good problems at the end of each chapter. The author also heavily annotates the book with references to detailed treatments of subjects in question. The value of this work lies in its appeal as a moderately priced, quick reference text providing the fundamentals of radiation physics.—*Jack O. Haller, Bureau of Radiological Health, Rockville, Maryland*

HORECKER, Bernard L., and Earl R. Stadtman, eds. *Current Topics in Cellular Regulation*, Vol. 2. 349 pp. Academic Press, 1970. \$17.50.

This second volume of the series *Current Topics in Cellular Regulation* contains review articles covering a wide variety of possible biochemical control mechanisms. The types of control discussed range from allosteric proteins to the complexities of yeast mitochondrial biogenesis.

Several specific enzymes which act at key regulatory points in metabolic pathways of both mammalian and bacterial cells are discussed. Of considerable interest is the review of DPN-linked isocitric dehydrogenase of animals, often considered a major control of citric acid cycle activity. The possible contribution of the known effectors of the enzyme *in vitro* are considered in relation to the intact cell or mitochondria. Similar detailed analyses of the control of fructose 1-6 diphosphatase, phosphoribosyltransferase, and aspartic transcarbamylase are well presented.

On a higher level of organization, the regulation of the biosynthesis of aromatic amino acids and vitamins in microorganisms is discussed not only in terms of regulation of the pathways common to synthesis of all classes of aromatic compounds but also the steps at which each unique amino acid is controlled. Both feedback inhibition and repression are considered to play important roles. In a similar vein, the biochemical regulation of the various steps involved in cholesterol biosynthesis is compared in normal and malignant tissues. In the latter, key controls appear to have been lost although the implications of this loss to the neoplastic growth is unclear.

One of the most fascinating articles was a review covering concentrations of metabolites in the cell and their implications in metabolic regulation. The authors have compiled and evaluated critically the published data on the intracellular concentrations of certain key metabolites as well as enzymes using them as substrates. These data allow an informative discussion of K_m 's for substrates plus substances known to act as allosteric effectors established for these enzymes in the purified state. Finally, the biogenesis of yeast mitochondria is discussed from a genetic and biochemical view in a very comprehensive review.

In general, the articles are well written

and have excellent bibliographies. Biochemists whose major interests include enzymology, control of metabolic pathways, or organelle and membrane synthesis should find this book thought-provoking and well worth their time.—*Diana S. Beattie, Biochemistry, Mount Sinai School of Medicine*

KOZLOWSKI, T. T. *Growth and Development of Trees*, Vol. 1: *Seed Germination, Ontogeny, and Shoot Growth*. 433 pp. Academic Press, 1971. \$23.

There is a long-standing argument in universities where forestry schools and academic departments reside on the same campus over who should teach botany to prospective foresters. Should plant physiology be taught by a forester who understands the special interests of the students or should it be taught in an academic department where a broad approach to plants would also include trees? *Growth and Development of Trees* by T. T. Kozlowski represents a reasonable attempt at compromise.

This volume should serve as a reference for botanists in general and foresters in particular. In it the author has attempted to bring the laboratory research on the physiology and anatomy of plants, both woody and herbaceous, together with the field observations, lore, and lingo of the field- and forest-based biologist. He has drawn especially on recent literature, which is part of the "rapidly expanding body of information on the nature and control of growth of woody plants."

The explosive growth of information in this subject is reflected in the author's decision to produce two companion volumes. Volume 1 emphasizes seed germination, seedling development and maturation, bud and leaf growth, and the integration of shoot growth in woody species. The second volume will deal with the vascular cambium and its products, root development, and reproduction. The author has selected many illustrations but they tend not to be tied very closely to the text and, in some cases, are not referred to at all or only in passing.

While this book is not one for casual reading or for browsing, it should be a useful reference, especially to bridge the gap between a forester's specialized terminology and perspective and that of the more academic botanist.—*J. G. Torrey, Biology, Harvard University*

LAEVASTU, Taivo, and Ilmo Hela. *Fisheries Oceanography: New Ocean Environmental Services*. 238 pp. London: Fishing News (Books), 1970. \$13.80

"The specific aim of this book is to show how to apply accumulated knowledge of the environment to fisheries problems and how to establish environmental forecasting services for fisheries."

The preceding sentence is quoted from the middle of p. 1 of the first of ten chapters in which the authors set out to meet this goal. It is difficult to decide for whom the book is intended, for reasons which follow.

The first and second chapters describe the layout and the importance of environmental forecasts to fisheries. The last chapter consists of two brief appendices, the first of which describes an expendable bathythermograph and the second a code (now being replaced by a standard international code) for reporting these data. Chapter 9, "Some Problems and Programs in Fishery Oceanography," was written by the late W. M. Chapman and consists of a clear and concise description of non-governmental and intergovernmental organizations having an interest in the living resources of the sea. This chapter, which contains its own literature citations, is informative but clearly misses the mark with respect to the stated aim of the book. The remaining material is more relevant. Chapter 3 is a slightly modified version of a similar chapter in a previous book by the same authors (Hela and Laevastu, 1962, *Fisheries Hydrography*).

In Chapter 4 some oceanographers will object to the cursory treatment given to scales of variability in both time and space as related to sampling and analysis of ocean data and to the lack of details concerning waves and currents. On the other hand, some administrators or fishermen will find it confusing to be confronted by vague vector notation and differential equations in the same chapter. Chapter 5, which discusses data processing, storage, and retrieval, is extremely brief.

The first part of Chapter 6, by Glenn Flittner, relates to the objectives of the book very well. It describes the present capabilities and problems involved in tuna forecasting, and emphasizes the desirable relationship between naval weather forecasting and fisheries prediction. The remainder contains useful information for fishermen on gear and weather. The seventh chapter, on submarine acoustics, serves as an introduction to a complex subject, and Chapter 8 much too vaguely relates to the establishment of forecasting services.

It is apparent that this book is extremely variable in the levels of its subject matter content; it is also variable with respect to technical details. While the separate author, subject, species, and geographic indices are useful, the figures and charts range in quality from good to poor. The number of typographical errors seems unnecessarily high, and the writing style lacks clarity in several places. The task defined by the authors is a difficult one, especially when the thin line between oversimplification and excessive technical detail has been blurred.—*Saul B. Salla, Intergovernmental Oceanographic Commission, Unesco*