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Book Review

ECOLOGY AND OUR ENDANGERED LIFE-SUPPORT SYSTEMS

Ecology and Our Endangered Life-Support Systems. Eugene P. Odum. Sinauer, Stamford, CT, 1989. Paperback, 283 pp. ISBN 0-87893-653-1.

Today, the term 'ecology' refers both to the academic discipline and, more recently, to the advocacy of an improved relationship between man and his natural environment. In 1953, Eugene Odum published 'Fundamentals of Ecology' that in succeeding editions has introduced an entire generation of students to this science. Odum's new book might likewise have been titled 'Fundamentals of Ecology', only now the fundamentals would relate as well to the new ecology.

The central theme, as the author emphasizes time and again, is that despite all the advances in modern technology, society remains irrevocably dependent upon natural systems for life support – a condition that is unlikely to change in the foreseeable future. Although a growing number of individuals are at least vaguely aware of this fact, its stark reality still has not penetrated most psyches in our increasingly urbanized population. Otherwise, more progress would have been made in bringing these supporting natural services into the market. They remain, as before, largely 'externalities.'

Professor Odum begins with an example where life-support systems must become conscious and fiscal elements of planning – that of extraterrestrial travel. He underlines the mortal dangers that can arise when something goes wrong with support systems, as happened during the abortive Apollo 13 mission. Of course others, notably R. Buckminster Fuller, have used the 'Spaceship Earth' motif to underscore global interdependency, but few can employ the background, credentials and persuasiveness that Eugene Odum brings to the task. His textbooks on ecology have been enormously effective in teaching how natural ecosystems function. Wisely perhaps, he does not tamper with past success. The core of this book has exactly the same structure as his textbooks, only much of the technical detail has been deleted. What remains is coherent and readily gives the uninitiated a conversational fluency in the concepts of ecology.

What makes the book a good read even for those who have studied his earlier texts is the addition of numerous insights and examples. They are calculated to heighten one's awareness of how the natural world is the often unacknowledged subsidy that makes society and the economy at all possible. They usually deal with very practical consequences of the principal under

discussion, such as how ecological energetics constrain the 'Green Revolution'. Sometimes the author teaches by example ad absurdum, as when he illustrates our natural attraction to the life-support services of low-net-productivity natural areas by urging the reader to imagine a vacation in a cornfield. The examples are separated from the text in a way that does not interfere with the flow of ideas.

This reviewer was weaned on the second edition of Odum's textbook and has spent the last 20 years in the arena of professional ecology. But such familiarity with the contents of this new book did not breed contempt. Rather, the book made quite an impression! There is something about seeing ecological fundamentals and myriad practical problems presented in such adroit juxtaposition that should awe even the most jaded ecologist. Furthermore, presenting ecological problems in the context of the laws of physics imparts a validity and inevitability to these concerns that might otherwise have gone unappreciated.

The author has written this book with the economist clearly in mind. Not that he employs much economic terminology – effort enough must be devoted to ecological definitions. But topics such as cost–benefit ratios, energy futures and the relationship between energy and money abound, and virtually all of the parenthetical examples have strong economic implications. Time and again he harkens back to the need to make explicit the true values of environmental supports. He decries the popular view of ecologists and economists as adversaries and repeatedly underscores the common domain of these companion disciplines. (In fact, this journal is mentioned by name twice during the course of the book!).

No volume is without its minor imperfections. The interest of the economist is apt to lag soon into Chapter 6 on population ecology. The economic story for the first five chapters has been engrossing, with example upon striking example to illustrate each new principle – all building a case that reaches its denouement in the last sentence of Chapter 5, "One is optimistic that public opinion will soon insist that the regulatory-incentive infrastructure necessary to promote internalization of costs be put in place." Then suddenly, as if Ernst Mayr had invoked his 'Declaration of Biological Autonomy', Chapter 6 focuses upon intrabiotic relationships that seem at first remote from the pressing global concerns just portrayed so vividly. Of course, these interactions are indirectly related to economic matters, and the preceding chapters should have developed sufficient momentum of interest on the part of the economist to sustain one through this necessary intermediate tutorial. Fortunately, the sense of urgency quickly returns in the chapters that follow.

The work is very up-to-date, with most citations referring to works written in the last decade and a surprising number to those that appeared in

1988. Nevertheless, events these days move with such overwhelming speed that it is impossible to stay ahead of the newscasts. One yearns to know how the Yellowstone forest fires might have affected the author's fire-control policies (if at all), how even the remote possibility of cold or warm nuclear fusion might change his energy-futures scenario, or how well the popular sentiment away from centralized economies now being expressed in the Eastern bloc bodes for his call to increased top-down management of the combined ecological–economic global system. Not to worry, this book is earmarked for success, and it should not be long before his updates appear in succeeding printings.

In this non-utopian world there unfortunately remains great disparity between the backgrounds of most ecologists and economists. Even among readers of this journal, who are presumably open to interaction between the two disciplines, are to be found many with no formal exposure to ecology. For these individuals Dr. Odum's book is a godsend. It is inexpensive to buy and quick to read. The principles of ecology are interleaved with topics of such popular and compelling interest that education becomes almost painless (even if some of the author's conclusions are not!). This book should go immediately to the top of their must-read list.

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