Book Reviews

Awkward Reminders

Models in Ecology. J. MAYNARD SMITH. Cambridge University Press, New York, 1974. xii, 146 pp., illus. $10.50.

In the first sentence of his preface, Maynard Smith notes that "ecology is still a branch of science in which it is usually better to rely on the judgement of an experienced practitioner than on the predictions of a theorist." Having thus primed our biases, he proceeds with a valiant effort to present ecological theory in simple terms, vigorously opposing himself at almost every turn with awkward reminders of simplifying assumptions and exceptions. This conflict is particularly apparent in chapter 8, which reviews attempts by Kerner and Leigh to construct a statistical mechanics of populations. The equations are derived (or merely presented), and then destroyed with a discussion of the weaknesses of the equations to predict and of unrealistic assumptions behind their derivations. The reader is left with mixed feelings—with a better understanding of a few complicated problems but mostly with an insight into our inability to understand populations.

Maynard Smith uses his inimitable skill of reducing problems to their most basic form in a heroic, and I believe largely successful, attempt to bring the semimathematical ecologist to an awareness of the awesomely hairy state that population ecology is now entering. But this skill does not generally leave the reader with a better understanding of the concepts; I find the book slightly depressing in that the author's staunch support of the value of simple models is largely undermined by his own examples.

A wide range of topics is covered beginning with predator-prey interactions without consideration of age structure, and then incorporating breeding seasons and age effects. The form of the basic equations and causes of oscillations and their stability are discussed. Age structure per se is not mentioned, however.

Competition, largely from a classical viewpoint, but again with a treatment of population fluctuations and their stability, is the subject of another chapter.

Short-range migrations—that is, the dynamics of dispersion—are explored, and a particularly nice account is given of the effects of such movements on predator-prey stability.

Much of the book is devoted to the question Is stability a consequence of complexity? Complexity both within and between trophic levels is considered and some interesting conclusions are reached. The main conclusion seems to be that complexity encourages instability if the values of the population interaction coefficients (α's) are randomly distributed. Since, in general, stability appears to be greater in more complex systems, we conclude that the alpha values are nonrandom—in fact, that certain patterns in alpha value distribution are likely. That these patterns might be predictable from considerations of selective advantages to individuals seems obvious. Unfortunately selection pressures on alphas are discussed only very briefly and indirectly (chapter 11 on coevolution).

The final chapter discusses territoriality. This chapter is something of an enigma in that neither its inclusion nor its conclusions are clearly tied to the bulk of the material in the book. We are left with little beyond the observation that territoriality should stabilize (note: "stabilize," not "limit") populations. An additional but undiscussed conclusion is that density of breeding colonies can be tripled if the members simultaneously shuffle their territories about (as population pressures force an approximate solution to the packing problem) before settling down. Could this somehow be related (via kin selection) to the perplexing synchrony of nesting behavior in some birds? Is mating synchrony *not* the important fact, but merely a consequence of the shuffling process?

As with any book, this one has its annoyances: chapter headings occasionally are misleading, an occasional conclusion is made the derivation for which is either nonexistent or given much later (with no forewarning), and some of the mathematics is rather opaque. But, on the whole, the book is well organized and written. The only disappointment is that there is a paucity of the insights that characterize most of Maynard Smith's writing. Maybe this reflects the complexity of the material; perhaps, in spite of the author's protests, population dynamics of multiple-species systems is simply not amenable to treatment with simple, general models.

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Wellsprings of Anthropology

Encountering Aborigines. A Case Study. Anthropology and the Australian Aboriginal. KENELM BURRIDGE. Pergamon, New York, 1973. xii, 250 pp. Cloth, $12.50; paper, $6.95. Pergamon Frontiers of Anthropology Series.

It has often been suggested that the ethnographic experience, the experience of trying to comprehend the world as construed by a people culturally alien to the observer, is an important prelude to understanding the patterning of one's own culture. It should be a matter of some interest, then, when a man with such an extensive background in field ethnography as Kenelm Burridge undertakes the task of putting anthropology in its cultural context. Although the title of the book might suggest it is a review of the accumulated anthropological knowledge of the Australian Aborigines, that is not the case. Rather, it is concerned with the way the anthropological enterprise has been shaped by the context of Western civilization, as that enterprise is revealed through its praxis among the Aborigines.

Burridge begins, in the manner of an ethnographer who has access to historical materials for the group under study, by relating the existence and character of anthropology to the intellectual and moral heritage of Western civilization. Members of other cultures have engaged in the collection of observations on peoples alien to themselves, but it is only people who participate in the Western cultural heritage who have developed an intellectual discipline based on these observations. More specifically, Burridge sees the