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4-1-1992

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Janovy, John J. Jr., "Review of *Phylogeny, Ecology, and Behavior* by Daniel R. Brooks and Deborah A. McLennan, University of Chicago Press, 1991" (1992). *John Janovy Publications.* Paper 56.
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J. Parasitol., 78(2), 1992, p. 316
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BOOK REVIEW . . .

Phylogeny, Ecology, and Behavior, by Daniel R. Brooks and Deborah A. McLennan, University of Chicago Press, Chicago, Illinois. 1991. 434 p. Hardback $45, softcover $21.

The subtitle of this book—*A research program in comparative biology*—accurately describes not only Brooks' and McLennan's work, but also their personal view of the directions organismic biology must take. The term "comparative" is both redefined, at least for those in midcareer, and generalized. The redefinition is a constraining and clarifying one: comparison is by means of the techniques of phylogenetic systematics, and use of those techniques reveals the context within which an organism's traits are embedded. The generalization is achieved through application of cladistic methods to a wide variety of phenomena, including reproductive and feeding behavior, ecology, zoogeography, and problems of coevolution and community structure. The examples are drawn from a broad array of organisms, including many host–parasite associations.

Brooks and McLennan intend for this book to "reestablish the channels of communication" among ecologists, behaviorists, and evolutionary biologists. To make their points, the authors describe an extensive series of case studies. For example, Funk's studies of cytogenetics, morphology, and ecology are used to show how the origin and "causes" of diversity and convergence in the plant genus *Montanoa* can be discovered (Funk and Raven, 1980; Funk, 1982). Although evolution of the composites may seem outside the realm of parasitologists' interests, the overall approach illustrated by this work is of importance to all biologists. In fact, it is just such an intellectual exercise that shows how hopelessly outdated are the evolution chapters of most current freshman texts.

The book also serves as a primer for biologists who may have worked hard to keep up with the language of molecular biology without realizing that the broader field of evolutionary biology was also undergoing its own remarkable upheavals. *Phylogeny, Ecology, and Behavior* opens with a clear and logical explanation of the vocabulary, the underlying ideas, and the concepts used by modern systematists. Of particular value in this regard is the list of "Answers to some common questions and misconceptions" at the end of *Part one: The basic issues.* And the authors' constant reminder of what kinds of observations constitute evidence for coadaptation or cospeciation and thus what a study shows or does not show tends to tie the later chapters to the basic principles outlined in the beginning.

The writing style ranges from delightful to straightforward; but, for those who are disinclined to be patient with colligation, especially as practiced in a branch of modern biology, the deeper exploration of relatively complex papers, such as those discussed in *Part three: Phylogeny and the evolution of ecological associations,* can seem dauntingly arcane. But the literary structure of the book alleviates most of this problem. For instance, the authors open their discussion of an especially unsettled topic—community evolution—by admitting the diversity of published interpretations of community structure, reviewing the various models of multispecies associations, and providing a summary of the theoretical roles of phenomena such as preadaptation, host-switching, resource tracking, back-colonization, and stochastic processes. But these apparently abstract ideas then are brought to life with concrete examples.

Parasitologists whose research relies on cladistic methods are often well acquainted with the broader original literature of modern systematics, if for no other reason than that host phylogeny, ecology, zoogeography, and behavior provide the context for interpretation of parasite evolution. But this book reveals the extent to which such cross-fertilization can enrich our intellectual milieu and strengthen the image of parasitology as a basic discipline. Personally Dan Brooks has been highly successful in his efforts to participate in the general field of evolutionary biology, both as an empiricist and a theorist. This joint endeavor with Deborah McLennan has resulted in what is perhaps his most accessible, and therefore quite valuable, book to date.

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