PIELOU, E. C. *An Introduction to Mathematical Ecology*. 286 pp. Wiley, 1969. $14.95.

Dr. Pielou has written an excellent introduction to ecological mathematics. Her exposition is exceptionally clear and free of mathematical skullduggery. Readers having an elementary acquaintance with differential equations, matrix algebra and its geometrical interpretation, and probability and statistics—a group of readers which should include all undergraduate seniors in ecology—will find her text accessible and illuminating. Except for perhaps half a dozen references to results proved elsewhere, the mathematics is self-contained, and is nearly free of errors.

Dr. Pielou assumes as "fact that ecology is essentially a mathematical subject" (p. v), whatever "essentially" means here. She presents a great variety of mathematical models, measures, and methods actually or conceivably relevant to ecology rather than proposing a systematic statement in mathematical language of some or all ecological theory, its constructs, laws, and empirical achievements. In the present chaotic, explosive state of ecology, such scrupulous modesty—offering weapons rather than claiming victories in battles with Nature—allows the reader to decide for himself which of the mathematics presented is useful; at the same time this modesty spares him, or deprives him of, the excitement of combat.

The book has four parts. The review of models of population dynamics in Part I makes an excellent companion for Keyfitz's *Introduction to the Mathematics of Population*. In Part II, on spatial patterns in single-species populations, material on random maps and mosaics is presented that I have not seen in book form before. Part III describes the analysis of spatial association and segregation in communities with two or more species. While much of this material is referred to in ecological papers as if it were widely known, in fact it is frequently abused. Reading Dr. Pielou's fresh and careful presentation should save practitioners from future unproductive mistakes. Part IV, on many-species populations, explores the Maginot line of ecological theory: species-abundance relations, information-theoretic and other measures of "diversity," and the game of "here is the answer, what is the question?" known as the classification and ordination of communities. Dr. Pielou's hope that studies of classification can ultimately "find an intrinsically sensible objective method that gives consistently good result in all circumstances" (p. 249) is a Death Valley of naiveté in an otherwise Rocky Mountainous range of sophistication.

One of the most interesting frequency distributions in the book is the author index. The modal category (author cited on most pages) is E. C. Pielou. Truncated categories (not cited at all) include D. M. Gates, C. S. Holling, G. E. Hutchinson, R. Levins, R. C. Lewontin, E. C. Olson, R. H. Whittaker, E. O. Wilson, and G. M. Woodwell. Cited once are R. H. MacArthur and K. E. F. Watt. This book should liberate those who assess work in mathematical ecology according to its projection along an axis from Princeton to Davis by informing them of the very substantial efforts, accomplishments, and opportunities in orthogonal directions.—*Joel E. Cohen, Society of Fellows, Harvard University*