mation that will appear over time. The theoretical advantages of considering memory as a long-range temporal integration are needlessly thrown away if one treats it just as a defense mechanism against a supposedly intrusive world.

Other readers, who may not share my disagreement with the author on this central point, will find other things to criticize. Blumenthal is far too casual about temporal parameters in the millisecond range; for example, he takes every experimental time constant under 250 milliseconds as equivalent to every other. He also has a remarkably old-fashioned idea of the perception of motion, treating it as a failure of simultaneity rather than as an independent process. His reading is not always critical enough: he has a touching faith in a few 1960's studies of cognitive style (that have never been replicated), in the early Quillian-inspired studies of semantic memory, and in many other experiments that just don't work as well as his theoretical enthusiasm would require. But such faults are easily forgiven in an author who writes so well, who reminds us of so much important psychological history, and who has tried so hard and so ingeniously to see cognitive psychology as an intelligible whole.

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Marine Ecology

Biology of Benthic Organisms. Papers from a symposium, Galway, Ireland, Oct. 1976. B. F. KEEGAN, P. O. CÉIDIGH, and P. J. S. BOADEN, Eds. Pergamon, New York, 1977. xxxiv, 630 pp., illus. \$50.

The broad title of this volume belies its contents. Except for an occasional paper on population genetics or physiology, the research discussed can be classified as either population or community ecology, with a strong emphasis on fieldwork. However, even within this narrower context there is an almost fatal lack of focus. The editors never indicate a rationale for a symposium on benthic ecology. There are too many papers, most of which are too short (63 are contained in 630 pages). With the customary accoutrements of illustrations, references, abstract, and the like there is little room for full presentation of data, detailed analysis, or development of new ideas. The internal organization that might have provided a collective focus is also lacking (the papers are merely arranged alphabetically by author). Obviously related papers, whether by theme, geographical area, habitat, or taxa studied, are scattered throughout, so that any convergent or divergent trends in benthic research are obscured.

Given these constraints, many papers still manage to convey, at least in a cursory way, the present concerns of benthic ecology. First, benthic ecology is still basically a field science with a greater emphasis on methodology and data than on theory, and that is evident in these papers. The book has an abundance of general survey papers, but in addition there are a noticeable number of studies that show imaginative use of new and old methodology to investigate specific hypotheses. These include such papers as Reise's report on the use of caging experiments in contrasting the significant effects of predators in a homogeneous habitat (a mudflat) with the lack of any similar effect in physically heterogeneous environments (seagrass beds), or Jackson's preliminary report on the use of artificial substrates to investigate the effects of habitat size on colonization, competitive interactions, and community structure. Other examples include Arntz's use of an "unsuccessful" cage experiment in examining oxygen depletion and increased predation around secondary habitat islands (the cages), or Buhr and Winter's careful combination of fieldwork and laboratory experiments to link high population densities of the poylychaete *Lanice conchilega* with its dual methods of feeding.

Second, several papers present stimulating, if not new, concepts for benthic ecology. Certainly the most novel approach is that of Barnes and Barnes. Instead of viewing the water-borne larvae of benthic species as only a means for distribution (the traditional view of most benthic ecologists) they discuss the hypothesis that these larvae are quantitatively and qualitatively necessary (as food) to that planktonic system. Their stimulating and sometimes speculative discussion underscores the great need for research in the most neglected area of benthic ecology, its link to the water above. Ölscher and Fedra examine a very different link with the water column, active and passive suspension feeding. By analyzing feeding efficiency, they show how suspension feeders can shuttle the necessary nutrients and energy from the water into soft-bottom communities, thus justifying their view of these animals as "secondary producers" rather than consumers. In a sense West, de Burgh, and Jeal further this view by cataloging the increasing number and kinds of benthic species that can absorb dissolved free amino acids from the water. If this process is significant in the gross nutrition of such a wide range of taxa, its importance to benthic populations and communities is in need of evaluation.

Third, there are an appreciable number of very different but generally well-conceived studies, whose merit may depend on the tastes of the individual reader. Some that I found to be of particular interest include Gerdes's linking of *Amphiura* colonization with long-term current history; Hartnoll's contrasting of the reproductive strategies of two coexisting species of *Alcyonium*, one basically sexual and the other asexual; Rex's correlation of deep-sea zonation rates with trophic level; and Warner's modeling of the ideal shape for filter-feeding organisms.

However, even with these and many other interesting papers, this volume cannot rise above its format. There is neither the detail the specialist would want nor the overall organization, evaluation, and perspective to attract the generalist.

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Books Received

Cryobiochemistry. An Introduction. Pierre Douzou. Academic Press, New York, 1977. x, 286 pp., illus. \$24.65.

Cutaneous Toxicity. Victor A. Drill and Paul Lazar, Eds. Academic Press, New York, 1977. x, 278 pp., illus. \$14.50.

Desertification. Environmental Degradation in and around Arid Lands. Michael H. Glantz, Ed. Westview Press, Boulder, 1977. xix, 346 pp., illus. \$20.

Developmental Art Theory. Geraldine H. Williams and Mary M. Wood. University Park Press, Baltimore, 1977. x, 198 pp., illus. Paper, \$9.75.

Disturbances in Body Fluid Osmolality. Thomas E. Andreoli, Jared J. Grantham, and Floyd C. Rector, Jr., Eds. American Physiological Society, Bethesda, Md., 1977 (distributor, Williams and Wilkins, Baltimore). viii, 50 pp., illus. \$25.

Early History of Planck's Radiation Law. Hans Kangro. Translated from the German edition (Wiesbaden, 1970). Crane, Russak, New York, 1977. xviii, 282 pp., illus. \$39.50.

Ecological Perspectives in Behavior Analysis. Papers from a conference, Lawrence, Kans., Oct. 1976. Ann Rogers-Warren and Steven F. Warren, Eds. University Park Press, Baltimore, 1977. xiv, 250 pp. \$15.75.

Ecology and Systematics of Foraminifera in Two Thalassia Habitats, Jamaica, West Indies. Martin A. Buzas, Roberta K. Smith, and Kenneth A. Beem, Smithsonian Institution Press, Washington, 1977. 139 pp., illus. Paper.

Essays on Individuality. Felix Morley, Ed.

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