brates (some 80 pages), the structural components of animals (350 pages), and structural adaptation (225 pages). On phylogeny (including morphological theory) Hildebrand presents significantly more detail than does Webster. The two books' coverage of morphology is roughly equivalent, with emphasis on different systems. Hildebrand's treatment of function represents an innovation in texts of comparative anatomy. It comprises chapters dealing with structural elements of the body, mechanics of support and movement, running and jumping, digging and locomotion without appendages, climbing, swimming and diving, flying and gliding, and feeding. Emphasis is on locomotor mechanisms, on biomechanics as a branch of functional anatomy. Other functional topics might have deserved equal attention but, in this format, only at the price of a loss of detail leading to memorization rather than understanding. Hildebrand illustrates many simple physical principles with biological examples. A few of these analyses will need to be refined. The illustrations (no photographs are used) are very clear, and their labels are well conceived; only some reptiles appear a bit stylized.

It is inevitable that a reviewer would detect minor errors and discrepancies in a first edition; these seem to be well within acceptable limits. One of the basic problems in this kind of book is the characterization of diversity. This has been solved with variable success. More important is the avoidance of simple statements untrue or misleading beyond the immediate context. Here Hildebrand does somewhat better than Webster and Webster, perhaps because his book had the longer gestation period. I do find it regrettable that neither book clearly emphasizes the importance of a selectionist approach. Too many phrases suggest that structure and function are perfectly matched, that structures have formed to permit the animal to perform actions; the innate imperfections of structures matched to a continuously changing environment are not communicated. Perhaps the course instructors will have to transmit this viewpoint; certainly these books will force the faculty into some supplementary study, which should open additional options and thus accelerate the process of change in the teaching of a once-staid subject.

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Environment and Speciation

Taxonomy and Ecology. Proceedings of a symposium, Reading, England, Sept. 1972. V. H. HEYWOOD, Ed. Published for the Systematics Association by Academic Press, New York, 1973. x, 370 pp., illus. $19.75. Systematics Association Special Volume No. 5.

Bridging the gaps that inevitably develop between subdisciplines of a science is worthwhile, but it is no easy task. The international symposium on relationships and some interdependences of taxonomy and ecology which resulted in the book under review was an attempt to bridge such a gap. The emphasis is heavily on botanical material, and the treatments of different aspects are uneven. Some authors miss the mark completely, there being only a faint tie-in or none at all with the stated subject of the symposium. More than infrequently there are divergent views on the same or overlapping subject matter. This undoubtedly reflects the different backgrounds of the authors and perhaps differences in their understanding of the subject itself. What has emerged in book form is a series of discrete-to-nearly-discrete chapters dealing with only a part of the subject matter that naturally falls under the title.

The most generalized chapters are those of Snaydon, on ecology, genetics, and speciation; of Ehrendorfer, dealing with the significance of major taxonomic characters and morphological trends in angiosperms; and of Heywood, treating the subject of ecological data in practical taxonomy. In other chapters, specific case histories in lichens and other cryptogams, in snails, and in *Columnea*, a genus of the family Gesneriaceae, give a focus for the role of ecological factors in speciation. Few biologists would dispute the idea that pressures exerted by the environment act as catalyzers of evolutionary divergence. That such pressures build up in diverse habitats and may be generated in specific environments is generally recognized. Less well understood is how affected genetic processes ultimately relate to the taxonomy of a given group.

A rapprochement between the practitoners of ecology and of taxonomy is called for in the opening chapter by Snaydon, but the author displays a rather biased understanding of taxonomy and therefore fails to carry such a rapprochement very far. In the final chapter, Heywood looks at ecology from the taxonomist's position and comes closer to a clear exposé of the interlocking features of the two fields. In another chapter of considerable interest, Thompson discusses seed germination in relation to ecological and geographical distribution. The seed and seed germination show a range of responses to the environment that are critical in the higher-plant life cycle. These provide important bases for differences in plant distributional patterns both local and regional. Some interesting information is presented by H. G. and I. Baker concerning the presence and probable significance of amino acids in the nectar of flowers. After showing that amino acids are present in sufficient quantities to be a sought-after nutrition source by appropriate insects, they provide data suggesting that individuals of more advanced families of flowering plants produce a higher concentration of amino acids in their nectar than do members of more primitive families. The evolutionary implications of increased amino acid supply in nectar are discussed.

Looking at the book as a whole, it is hard to see how it fully serves either the general reader of scientific material or the specialist interested in a narrow aspect of the subjects indicated in the title. Some chapters serve to review the literature of their topics but others are more nearly straight reports of the research of their authors. No topic is given coverage complete enough to provide a standard reference.

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Books Received

Acetylcholine. An Approach to the Molecular Mechanism of Action. M. J. Michelson and E. V. Zeimal. Translated from the Russian edition by E. Lesser and Mira Lesser. Pergamon, New York, 1973. xviii, 242 pp., illus. $25.50. International Series of Monographs in Pure and Applied Biology, Modern Trends in Physiological Sciences Division, vol. 38.

Active Psychotherapy. Harold Greenwald, Ed. Aronson, New York, 1974. xviii, 384 pp. $12.50.

Advances in Heat Transfer. Vol. 10. James P. Hartnett and Thomas F. Irvine, Jr., Ed. Academic Press, New York, 1974. xvi, 300 pp., illus. $32.

Advances in Nuclear Physics. Vol. 7. Michel Baranger and Erich Vogt, Eds. Plenum, New York, 1973. xvi, 330 pp., illus. $20.