kin relationships to new reservation realities.

Parsons gives a sweeping, speculative, and very intriguing paper examining the parallel dyads of husband-wife and brother-sister as metaphors or models for other kinds of social arrangements over the course of European history. Here his thinking is congruent with the recent work of David Schneider and Terence Turner on the subject of the elementary forms of kinship, converging on a more sophisticated statement of systems theory with refinements from Lévi-Strauss, Piaget, symbolic analysis, and other such sources. One is struck by the contrast between this style of Parsonianism and the kind represented by much of the less interesting work in this volume: it was the application of wholly inappropriate empiricist-positivist pseudoscience methods and attitudes that led to the disaffection of many contemporary anthropologists with what they took to be Parsonianism, not the system itself, which I think will only now begin to emerge with its real virtues appreciated.

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Marine Invertebrates

Experimental Coelenterate Biology. HOWARD M. LENHOFF, LEONARD MUSCATINE, and LARY V. DAVIS, Eds. University of Hawaii Press, Honolulu, 1971. x, 282 pp., illus. $12.

This small book is very much what the title proclaims and, as well, presents reviews and original findings by the editors, two visiting instructors (R. Mariscal and A. Reed), and a group of 15 graduate students. The impetus came from a program sponsored by the National Science Foundation, devised by the staff of the Hawaii Institute of Marine Biology, and utilizing the facilities of the Institute's laboratory on Coconut Island, Oahu. The intent of the program was to train graduate students in experimental research. No single aspect of coelenterate biology was selected for the program, although the approach was primarily biochemical. The volume is divided into four parts, which speak for the breadth of approach, as follows: Growth and Development; Feeding Behavior, Food Transport, and Metabolism; Endosymbiosis with Algae; and Calcification. No research is reported on neurophysiology, an active field of coelenterate biology, and behavioral studies are limited to feeding behavior. Nor are any of the reports ecological, although some of the results obtained have ecological implications. The research was carried out in 1967.

Of particular value are the introductory chapters by various of the editors to each of the four sections of the book. The section Growth and Development is introduced by two chapters, one by Lenhoff and one by Davis. Lenhoff's chapter is interesting, not because of its breadth as a review, but because of his attempt to elucidate the principles of coelenterate culture methods. Surely the particular success in the raising of various hydras is largely responsible for the detailed advances in knowledge that have come from study of these beasts. Davis provides in his chapter a careful review of culture methods for colonial hydroids and a useful discussion of stolonal growth and elongation. The introduction to the section Feeding Behavior, Food Transport, and Metabolism by Lenhoff is divided between a review of the chemical control of feeding behavior and a more general review of work on the metabolism and biochemistry of coelenterates. His review draws heavily on work of his own and his collaborators. Buried in this section of the book is a particularly useful appendix to a chapter by Mariscal. This consists of a revised key, with illustrations, to coelenterate nematocysts. The two final sections of the book are introduced by chapters by Muscatine. These are both scholarly chapters and are important and useful reviews of the endosymbiosis of algae and coelenterates and of calcification in corals. No one should begin a study of these subjects without thoughtful use of these chapters.

Science (**160**, 1141 [1968]) carried a report of the program that gave rise to this volume and a succinct summary of the research findings that are published in it. These need not be reviewed again here. However, the book has an unusual aspect. The introduction states that 8 of the 25 papers (chapters) have already appeared in scientific journals. From the footnotes of chapters 8 through 11 and 13 through 16, one can determine where and by whom these eight papers were published. No further comment may be called for than to note that of these eight previously published papers all ascribe a junior authorship to Lenhoff, while Muscatine and Davis share a junior authorship along with Lenhoff on one paper each.

Current and future students of coelenterates will find this volume a handy general reference, and it deserves a place in the library of anyone interested in marine biology.

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Electrolysis

Ionic Interactions. From Dilute Solutions to Fused Salts. S. PETRUCCI, Ed. Academic Press, New York, 1971. Two vols. Vol. 1, Equilibrium and Mass Transport. xiv, 410 pp., illus. $19.50. Vol. 2, Kinetics and Structure. xiv, 282 pp., illus. $16.50. Physical Chemistry, vol. 22.

These volumes, part of a series under the general editorship of Ernest M. Loebl, set out to cover diverse sources of information on ion-ion and ion-solvent interactions in the entire range from dilute solution to fused salt. Equilibrium and transport properties are examined in the first volume both to see how they give insight into ionic interactions and, because of their practical importance, to see how these properties can be predicted or correlated from a consideration of ionic interactions. Statistical mechanics forms the basis for discussion of the Debye-Hückel electrostatic theory, ion pairing, and conductance. (Debye's model is frequently referred to as the "primitive" model, the implication being that something better is available.) Extensive attention is devoted in the second volume to experimental means of determining what species are present in the solution—to infrared, Raman, ultraviolet, and visible spectra. The dynamics of solvation and relaxation from a perturbation in pressure or temperature provides additional insight into the species present and their lifetimes. Absent are nuclear magnetic resonance spectroscopy, x-ray investigation of radial distribution functions, studies of the kinetics of reactions of ions in solution, and a consideration of the kinetic theory of liquids.

The authors provide a good introduction to the literature and, in a very complex field, give a passable account of theory and results. At times, it should be mentioned, this becomes

tedious and lacks perspective. One is likely, however, to come away with the awareness that a variety of complementary techniques are used to investigate ionic interactions and that much progress has been made, even recently, in their interpretation.

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Interdisciplinary Approach

Annual Review of Materials Science. Vol. 1. ROBERT A. HUGGINS, RICHARD H. BUBE, and RICHARD W. ROBERTS, Eds. Annual Reviews, Palo Alto, Calif., 1971. x, 420 pp., illus. $10.

To those among us who were trained in traditional disciplines but who have grown to appreciate the advantages of an inherently interdisciplinary approach to the study of materials, the birth of this new series is indeed welcome. The excellence and breadth of the coverage in the first volume have set a high standard for future issues, both for the contributors and for the editorial staff.

The editors have deliberately not organized this first volume, or the next "early" volumes, into sections that could have been described in terms of the traditional academic fields—chemistry, metallurgy, physics, and so on—nor have they fallen into the trap of basing their organization on specific and seemingly representative classes of materials, such as insulators, metals, and semiconductors. Rather, they have placed the emphasis on the broader and more unifying aspects of materials science relating to preparation, structural and chemical characterization, and scientifically interesting and technologically important properties. This reviewer hopes that the editors retain this approach not only in the first and "early" volumes but in all subsequent ones.

The series should be of considerable interest and value to researchers, both engineers and scientists, in industrial and academic environments, as well as to graduate students in science and engineering. In particular physicists and chemists working on materials studies who have taken a parochial view of their disciplines can benefit from it. The articles are critical and in-depth appraisals of different aspects of materials science rather than research papers and as such serve a pedagogical function by introducing the reader to the spirit and philosophy of the materials science approach. The editors point out that there is a question as to whether or not materials science is indeed a discipline in the same sense that physics or metallurgy is. I prefer to view it as an approach to the study of materials. In any event, this annual review series will give its readers a clearer indication of just what materials science really means to those who have identified themselves with its label.

There is one short but significant paper that I have chosen to single out for comment: that by J. C. Phillips on the "Development and application of theoretical techniques to problems in materials science." I would hope that this paper, as well as the many other recent papers by Phillips and his coworkers, demonstrates that significant theoretical progress can be made in reconciling the seemingly different approaches taken by physicists and chemists to problems in chemical bonding and structure in solids. It clearly identifies opportunities for creative theoretical inputs to this new field.

In closing, I can only give this volume high praise and hope that the series will provide increasing numbers of scientists with the benefits of a broad interdisciplinary approach to materials problems.

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Physiological Adaptation

Endocrines and Osmoregulation. A Comparative Account of the Regulation of Water and Salt in Vertebrates. P. J. BENTLEY. Springer-Verlag, New York, 1971. xvi, 300 pp., illus $16.80. Zoophysiology and Ecology, vol. 1.

This volume is a highly promising start to a series of monographs edited by Donald S. Farner and a distinguished group of coeditors and intended primarily for advanced graduate students.

Bentley manages to cover a broad and complicated subject in a manner not previously attempted. The exact endocrine mechanisms involved in osmotic regulation among most vertebrates remain poorly defined. The author first presents a brief survey of the problems, physiological principles, and organs involved in vertebrate osmoregulation, then reviews vertebrate endocrine organs, their secretions, and their actions, and finally presents chapters on each major vertebrate group, starting with mammals and descending the phylogenetic tree to end with the fishes. The text is informative and readable, and the organization should allow readers to pick out what they may need for review before delving into the more detailed chapters on specific vertebrate groups.

The author uses many tables to present data, mercifully selected and not inclusive. Unfortunately some of these were carelessly set in type, and though this is usually more annoying than confusing some of the data might have been presented more effectively as illustrations. The few figures used are well chosen. The author's antipodal origin may explain why one of the few figures that appear to be original is a map of Australia. This may also account for the fact that monotremes and marsupials are dealt with at more length than are the placental mammals, although they have not exploited a comparable range of osmotic environments. It is legitimate for the author to emphasize those aspects of this vast subject in which he has the most interest and knowledge, however.

Almost as many pages are devoted to fishes as to mammals, birds, and reptiles combined. This is fitting. Fishes comprise the vast majority of living vertebrate species, they have a complicated evolutionary history relating to osmoregulation, and they face more dramatic osmotic stresses and show a greater variety of adaptations than do tetrapods.

In general the author has done a skillful job in dealing with the subject matter. One may find some instances in which he seems to generalize from inadequate data or to oversimplify on the basis of information derived from a limited number of species, but these are few. The author points out the dangers of attempting to interpret nonmammalian endocrine processes as if they must somehow conform to the mammalian patterns. He is also quite careful to point out just how rare facts are in many areas. This serves a useful purpose in suggesting some of the areas that hold promise for future investigation.

There are about 900 references. Although this bibliography is far from complete the works listed appear to be well selected, with particular emphasis on recent studies and including many papers published in 1970. The bibliography should be an adequate starting place for one new to the field.

This volume should be very well suited for the graduate student audience to whom it is directed. It should also serve a much larger group, physiologists, endo-