

Book Reviews

Handbook of Middle American Indians

To summarize the information gained by several generations of researchers is an awesome task, even when the field of specialization covered is a limited one scarcely out of the stage of pioneering exploration. Volumes 2 and 3 of *The Handbook of Middle American Indians, Archaeology of Southern Mesoamerica* (University of Texas Press, Austin, 1966. 1102 pp., \$15 per volume), edited by Gordon R. Willey, achieve a degree of completeness in this enormous undertaking that the rapid expansion of research in the area will probably make impossible for future compilations. These two volumes, and the entire 11-volume series under the general editorship of Robert Wauchope, will undoubtedly be the most widely used and frequently quoted reference source on the archeology and ethnography of Middle America for many years to come.

The 39 articles (by 31 authors and co-authors) in these volumes deal with five geographic subdivisions of Southern Mesoamerica: the Guatemalan Highlands, the Pacific Coast of Guatemala and Chiapas, including the upper Grijalva Basin and Chiapas Highlands, the Maya Lowlands, Southern Veracruz and Tabasco, and Oaxaca. The uneven distribution of archeological investigation is evident in the allocation of articles. Fifteen articles deal with the Maya Lowlands, nine each with Oaxaca and the Guatemalan Highlands, four with Veracruz-Tabasco, and only two with the important Pacific coastal slopes. One or two syntheses or general surveys are provided for each of the areas, and for the better known areas, specialized topics (sculpture, architecture, writing and calendrics, pottery, figurines, settlement patterns, and preconquest ethnology, for example) are presented in separate articles.

The summary articles vary considerably in content and approach because of the differential states of knowledge with respect to the various areas

and the different viewpoints of the authors. All provide good background information and an arrangement of important sites into broad temporal periods. The surveys by E. M. Shook (of the Guatemalan Coast) and by G. W. Lowe and J. A. Mason (of Chiapas) are based on data obtained from limited reconnaissance and therefore stress the distribution of sites and artifacts in time and space. Only for the excellent résumé of the Chiapa de Corzo sequence was the sort of information available that permits deeper insight into culture history. Somewhat more data are available for the Veracruz-Tabasco area discussed by M. D. Coe, but many of the reports are chaotic and contradictory. Coe has taken the trouble to rework primary sources and provide the first reasonable synthesis for the area. S. F. Borhegyi (on the Guatemalan Highlands) and I. Bernal (on Oaxaca) provide excellent and up-to-date syntheses for areas in which much information is unpublished or has been published in obscure sources; both reconstructions are as good as, or better than, anything else now available. For the best known of the areas, the Maya Lowlands, E. W. Andrews and J. E. S. Thompson provide separate syntheses for the Northern and Southern sectors respectively. Andrews's point that the Northern Lowlands deserve an interpretation independent from schemes devised to fit areas to the south should be influential in future studies, although some of his specific interpretations will be controversial. Thompson has previously done such outstanding work in interpreting the large body of data from the Southern Lowlands that many of his ideas are already familiar, but in this synthesis he has stressed new information that changes earlier hypotheses.

The selection of specialized topics reveals the traditional emphasis of Mesoamerican archeology on elite culture. Thirteen articles deal with archi-

itecture, sculpture, and writing, but only two treat settlement patterns and neither domestic structures nor cultural ecology are considered as separate topics. More information on the latter topics will certainly be available for consideration in future compilations.

A number of the statements in these volumes already need revision. This is less a criticism of the authors and editors than a tribute to the unusual vitality of Mesoamerican studies in the last decade. It is now almost impossible to write anything that is not outdated in some respect by the time it is published. The fact that changes of interpretation are inevitable should not seriously effect the value of the data in the handbook series.

Any system of organization has inherent weaknesses. In the present case, the presentation of material by geographic divisions tends to obscure the interrelationships between areas. Although there are many references to external influences on particular areas, it is difficult to comprehend the ways in which all of Mesoamerica functioned as an interrelated system. A few articles dealing with important trends that cross-cut areal boundaries would have been welcome, but perhaps they will be forthcoming in later volumes of the series.

The illustrations and references are one of the most useful aspects of these books. That the illustrations are well chosen and of high quality is demonstrated on the cover of this issue of *Science*. The maps and charts provide much new data and will be used as much as the text. The 37-page reference section is comprehensive through 1960, with references after that date sporadic and dependent on the date of final revision of each article.

In short, this is a basic research source without which no library that deals even peripherally with Mesoamerican archeology will be complete.

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Man and the Sea

La Découverte des Mers (Presses Universitaires de France, Paris, 1965. 128 pp. Paper) by Jean-Marie Peres is a brief introduction to the history of man's interest in the sea, from the Mediterranean world to the great explorations, to the beginnings of ocean-

ography, and on to the bathyscaphe and autonomous scaphanders. Although the treatment is concise and condensed, it is inevitable that in such a broad sweep the author may have occasionally overlooked matters that are of less interest to him than they are to some of his readers; nevertheless, Peres has done rather well in preparing an introduction to still un-navigated seas.

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Pharmacology

In **Screening Methods in Pharmacology** (Academic Press, New York, 1965. 332 pp., \$12), Robert A. Turner has performed a commendable service by assembling, under one cover, a wide variety of techniques for the screening of potentially useful pharmacological agents. The book is far from being a mere list of procedures, because Turner included not only detailed descriptions of the methods employed in testing for specific types of activity, but also chapters devoted to the basic principles of screening programs. In addition, there is an appendix containing helpful statistical formulas for evaluating the significance of screening data. There is an adequate, and frequently cited, bibliography of more than 250 papers.

Unfortunately, the care with which the techniques have been assembled and described is not matched by the quality of the introductory chapter on autonomic pharmacology, or by the quality of the discussions accompanying the methodology, the general level of which is all too often below what might reasonably be expected by the research workers and educators to whom the book is directed. Little or no attempt is made to distinguish the merits or particular use of the alternative methods described, a failing that can become important—for example, when the specific use of pentylenetetrazole in screening for agents active against petit mal, as contrasted with grand mal epilepsy, is not mentioned.

More disturbing is the presence of numerous factual errors and confusing explanations. Thus the author ascribes to tryptamine the ability to displace catecholamines which is in fact possessed by tyramine. The ter-

minal sympathetic transmitter is confusingly described as "epinephrine, norepinephrine, or a mixture of these." In the chapter on sympathomimetic agents, the author endeavors to explain the biphasic response of blood pressure to administration of epinephrine in terms of "excitatory and inhibitory properties" of the amine itself and the lower level needed for vasodepression, without recourse to the concept of alpha and beta receptors which is essential if the effect is to be understood. A description of the action of tyramine includes a statement assigning to the catecholamines the role of "catalysts" for some direct action of this compound which earlier is classified as acting indirectly.

Although the theoretical background detracts from its value, this book should prove useful, not only to those presently running, or about to initiate a screening program, but also to those engaged in the teaching of pharmacology.

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General Chemistry Textbooks

The two general chemistry textbooks reviewed here are first-rate but very different books. They are **Concepts of General Chemistry** (Davis, Philadelphia, Pa., 1965. 588 pp., \$8.50) by C. R. McLellan, Marion C. Day, Jr., and Roy W. Clark and **Principles of Chemistry** (Prentice-Hall, Englewood Cliffs, N.J., 1966. 729 pp., \$8.95) by Lewis G. Bassett, Stanley C. Bunce, Alison E. Carter, Herbert M. Clark, and Henry B. Hollinger.

Concepts of General Chemistry is a fine product of the authors' attempt to overcome a deficiency in general chemistry which they have noted in modern-day students—namely that many students have been learning fundamental principles but paying less and less attention to the chemical reactions that these principles seek to explain, with the result that some students "are not certain of the product of the reaction between NaOH and H₂SO₄." As a result, these authors have attempted to write a book that strikes a balance between theoretical and descriptive general chemistry. They have taken the term "general chemistry" fairly seriously and have included chapters on organic chemistry and industrial chem-

istry, although biochemistry is omitted. Furthermore, they have included material on topics that have become a part of the freshman curriculum, including the chemistry of coordination compounds and of the rare gas elements.

It should be emphasized that the book is definitely designed for students who have not had previous training in calculus, and the discussions of chemical kinetics and chemical equilibrium do not include mention of the calculus. The order of the presentation of the subjects is quite logical in my judgment; nuclear structure is treated near the beginning of the book, so that the influence of nuclear structure on chemical bonding can be discussed quite freely thereafter.

The book is written in a lucid style; answers are included to selected problems, of which there are a generous number, and adequate information in the form of tables, drawings, excellent photographs, and the like is included. The book is published on especially good paper stock, but the binding leaves something to be desired. This book should be seriously considered for use as the textbook in a modern general chemistry course that does not include calculus.

The *Principles of Chemistry* is much different from the book by McLellan, Day, and Clark. Of its nine chapters, one is devoted to modern inorganic chemistry and another to modern physical-organic chemistry. The remaining chapters could well be classified as "physical chemistry." In my judgment this book should not be used in a class of freshmen, unless most of them have something more than a nodding acquaintance with calculus.

The book is also well written, but is definitely for use in a course for which the students have been carefully selected with respect to their previous preparation and their ability in mathematics and science.

There is no question in my mind that the freshman chemistry curriculum is tending to be oriented more and more toward physical chemistry. This is an excellent way to introduce chemistry at the college level, provided that students have had first-rate courses in chemistry, physics, and mathematics in secondary school. For such students, this well-written book can be highly recommended. The chapters on chemical bonding, equilibrium, classical thermodynamics, and kinetics are long, but mature freshmen should be able