

teraction of Other Sensory Systems with the Sonar System, Sonar in the Blind, Social Communication Content in the Pulse Outside the Echolocation, Neural Processing Involved in Sonar, Theories of Sonar Systems and Their Application to Biological Organisms, and Experiments To Conduct To Obtain Comparative Results. There is a final section of discussion and conclusions.

Like most symposium volumes this one includes much from earlier literature, but it also contains a wealth of new material and much more "cross-fertilization" than has been apparent in the past. Engineers and psychologists are beginning to talk to each other. Even the old material is brought into perspective; and having it readily available with the new in a single book is a great convenience to the reader. This is a book that anyone interested in the field will be happy to have, and the organizers of the symposium and the editor are to be congratulated on a successful accomplishment.

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## Ancient Civilizations

**Handbook of Middle American Indians.** Vol. 4, Archeological Frontiers and External Connections. GORDON F. EKHOLM and GORDON R. WILLEY, Eds. University of Texas Press, Austin, 1967. 375 pp., illus. \$15.

One of those publishing efforts to which the term "monumental" may justly be applied is the 11-volume *Handbook of Middle American Indians*. As a previous reviewer commented in *Science*, there can be no doubt that "the completed handbook will be a major scholarly contribution and an indispensable reference work." Since each of the volumes is focused on a particular theme, each may be individually reviewed, although it can be fully appreciated only in its context as part of the series. The present volume consists of 15 essays, all by leading scholars and all concerned with the external and marginal connections of the native civilizations of Middle America, here meaning the Aztecs, the Mayas, and their predecessors. The vigor and creativity of these civilizations are evident in the archeological record of peoples who lived a very great distance from Middle America, and it is these long-

distance contacts and influences that are the concern of this volume. The essays may be divided into four groups, their distribution reflecting our knowledge of the various regions: six articles are concerned with influences on the "northern periphery" ranging from Baja California across to the eastern United States; five articles deal with Central America and the Caribbean; two deal with the Andean area; and two consider trans-Pacific influences.

Except for the more controversial discussion of possible trans-Pacific influences, the contributions are designed to be up-to-date summaries of archeological knowledge for specific regions. Some of them incorporate a great deal of information based on recent excavation programs (notably the article of C. C. DiPeso on the northern Sierra); most are summaries of already-published material, but are highly useful because of the diffuseness of the body of literature on which they are based. The summaries were for the most part prepared some time ago, and like all summaries tend to be somewhat out of date by the time they appear in print. How out of date can be appraised from the excellent 29-page bibliography included in the volume: there are 59 references dated 1960, with a sharp fall-off to only three dated 1965. Most of the articles were completed about 1962 and have been given little updating.

Illustrations for the articles range from none at all to carefully prepared summary illustrations of artifact types. Most of the illustrations were not prepared for this volume but have been reproduced from other works. The principal shortcoming of the volume lies in the inadequacy of the illustrations; there is no illustration of innumerable artifact types referred to in the text, and the reader is forced to go to the original sources if he wants to know what many of the archeological finds look like.

Much of what is said has been published elsewhere, and with some exceptions the articles are more summary than synthesis. This does not, however, diminish the tremendous utility of the volume, which spans a far-flung and difficult literature and compactly presents the experts' point of view. On a number of significant topics, future researchers will find it an excellent beginning point.

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## Histamine

**Handbook of Experimental Pharmacology.** Vol. 18, Histamine and Anti-Histaminics. Part 1, Histamine, Its Chemistry, Metabolism and Physiological and Pharmacological Actions. MAURICIO ROCHA E SILVA, Ed. Springer-Verlag, New York, 1966. 1027 pp., illus. \$46.

The editor of the present compendium invited each of the 36 contributing authors, among whom are many of the world's leading histamine researchers, to present his own research and point of view as well as review his topic exhaustively and with its history in mind. These efforts have produced a readable and important encyclopedia.

The historical approach is particularly useful in explaining the diverse roles of histamine in living tissues, for this chemical has played an important part in the development of modern pharmacology. In an introduction Sir Henry Dale points out that "in the early 20th century, a newly progressive pharmacology . . . needed to be alert for evidence of the occurrence in normal animal tissues of substances (such as histamine) having activities which would make them likely contributors to the genesis of such symptoms as would call for medicinal treatment." Dale reviews the early work showing the similarity of the pharmacological effects of histamine to allergic phenomena, the subsequent demonstration of histamine release in anaphylaxis, and the development of antihistaminics.

The editor's instructions to the authors have resulted in an exhaustive compilation of information from a variety of disciplines and individuals spread over many years and countries. The integration of this information will provide a heuristic challenge for the reader, and presentation of individual viewpoints illuminates the multitude of theories and controversies over the physiological roles of histamine.

The opening chapter of the book covers the chemistry of histamine, its isolation from tissues, biological and chemical measurement, and occurrence in a variety of tissues. The chapter ends with a section wherein Riley and West detail their important work in establishing that most of the histamine in mammals is localized in mast cells. In these studies Riley and West integrated the data of many years of research on distribution of histamine in