Book Reviews

Maya Archeology

Papers of the Peabody Museum, Harvard University. Vols. 62–64 (reports on the ruins of Altar de Sacrificios, Department of Peten, Guatemala). Peabody Museum, Cambridge, Mass., 1969–73. Paper. Vol. 62, No. 1, *The Ruins of Altar de Sacrificios: An Introduction.* Gordon R. Willey and A. Ledyard Smith. xii, 50 pp., illus. + maps. $1.50. Vol. 62, No. 2, *Excavations: Architecture, Settlement, Burials, and Caches.* A. Ledyard Smith. x, 282 pp., illus. + charts. $12.50. Vol. 63, No. 1, *The Ceramics.* Richard E. W. Adams. x, 178 pp. + plates and loose charts. $12.50. Vol. 63, No. 2, *The Human Skeletal Remains: An Osteobiographic Analysis.* Frank P. Saul. x, 124 pp., illus. $5.50. Vol. 64, No. 1, *The Artifacts.* Gordon R. Willey. xiv, 276 pp., illus. $14. Vol. 64, No. 2, *The Hieroglyphic Inscriptions and Monumental Art.* John A. Graham. 124 pp., illus. $5. Vol. 64, No. 3, *The Altar de Sacrificios Excavations: General Summary and Conclusions.* Gordon R. Willey. x, 86 pp. $2.50.

Altar de Sacrificios is an ancient Maya site located in the southwestern part of Guatemala's Department of Peten. It is not a large site; the three groups of major structures are all located within an area about 400 meters square, and in these pole and thatch, rather than masonry, were used extensively for the actual buildings. But in spite of all this, there are a surprising number of carved monuments at Altar (21, compared to the mere 34 known from the huge site of Tikal). This and two other things make the site of particular interest to archeologists: its location on a potential "crossroads" where the Pasion and Salinas rivers join to form the Usamacinta, and its location in a part of the Maya lowlands previously all but unknown archeologically. For these reasons, the Peabody Museum of Harvard University began extensive excavations here in 1958, which were to last through 1963.

The Altar project was specifically concerned with the following problems. First, there was the traditional archeological concern for the acquisition of data, chronological and otherwise, for a region that was virtually terra incognita. Second, there was the question of highland-lowland relationships. There has long been a concern, in particular, about what Preclassic Maya developments in the lowlands might owe to apparently more precocious Preclassic developments in the highlands. The location of Altar on a major river flowing down from the highlands made it a particularly apt selection for investigation of this problem. Third, there was Altar's potential as a "crossroads." What relations did it have to the rest of the Maya lowlands? Was it an important trading post? Was it strategic in a military sense? Fourth, Altar's position on a river system flowing north from a region where strong Mexican (Teotihuacan) influence is apparent to the Gulf Coast of Mexico suggested that it might be a good place to examine the nature of Mexican relations with the peoples of the Maya lowlands. Finally, Altar offered an opportunity to deal with questions of cultural process, such as were starting to become a major concern of Maya archeologists in the 1950's.

The results of the work at Altar are reported in seven separate publications. The first is a general introduction and the last is a general summary with conclusions. Read together, these two reports give the general reader a good overall view of the project's accomplishments. The other contributions are detailed presentations of the excavation data, ceramics, human skeletal remains, artifacts, and hieroglyphic inscriptions.

In this short space, I cannot thoroughly review all the Altar reports. I agree, though, with project director Gordon R. Willey's assessment that the project did a pretty good job with the acquisition of data, establishment of a chronology, and the establishment of cross ties to other known sequences. With respect to other goals, it did not produce final answers, but opened up a number of fruitful paths for future research. Beyond these, though, two points deserve further comment.

In my opinion, the high point of the series is Frank Saul's report on the human skeletons. In the past, with only a few exceptions, we have gotten little more than a few estimates as to age and sex of skeletons found at Maya sites, and often we don't even get that. There is of course good reason for this; preservation of human remains in the hot and humid Maya lowlands is quite poor. Nonetheless, if care is taken, considerable information can be gleaned from such remains, as Saul demonstrates. Of particular interest are indications of a high incidence of debilitating diseases at Altar. These suggest exposure to essentially unhealthy ecological conditions, such that survival was difficult and decline, if not inevitable, was always a real possibility. While this might suggest to some a reason for the ultimate collapse of Maya civilization in the lowlands, it may be noted that my own as yet unpublished analysis of human skeletons from Tikal suggests a different health status for that population. Such differences may well reflect different dietary habits and, ultimately, patterns of subsistence between the northeast and southwest Peten. At any rate, Saul's report sets an important precedent, and Maya archeologists can no longer afford to ignore the skeletal material from their burials, caches, or other contexts.

My other comment has to do with the history of Maya archeology. In this field, the 1950's witnessed a developing interest in sociocultural reconstruction, largely through studies of settlement patterns. One of the pioneers in this field is Gordon R. Willey. This interest was to develop further into greater concern with sociocultural processes in general. In part, this was a logical outcome of the earlier trend; in part it was sparked by the declamations of the "new archeologists."

The Altar reports might not at first glance seem to reflect these trends. Their overall tone is highly descriptive and reminiscent of an older style of report. Indeed, some are quite like the older reports produced by the Carnegie Institution of Washington. This is not surprising in the case of Smith's volume on the excavations; he was, after all, affiliated for some years with Carnegie. It is more surprising in the case of Willey's report on the artifacts. In both, concern with cultural reconstruction and process is at a minimum.

On the other hand, the newer archeological concerns are evident in a number of places. So it is, for example,

that Adams in his report on the ceramics discusses an apparent elite-class funerary ritual, drawing inferences of a sociopolitical nature. So it is also that Willey, in the concluding report, ends with a short section dealing with questions of process. Indeed, as work proceeded at Altar, more descriptive goals were altered with more attention given to cultural matters. Thus, for example, an initial concern with the relation of the Altar sequence to those of other regions of the lowlands developed into a concern with Altar as a possible trading center.

The Altar reports are, then, a mix of the old and the new. Because of this they will, I think, disappoint a number of problem-oriented archeologists whose primary interests lie in the realm of cultural process. This will be unfortunate. While I, too, would like to see more done with the Altar data beyond description, it must be recognized that there is always a need in archeology for detailed data. It is only when such data are available that we are able to pose the right sorts of hypotheses, which then can be tested. Equally important, without such data we are in no position to examine, critically, conclusions about sociocultural processes drawn by others.

In sum, then, we have here a major contribution to the archeology of the Maya lowlands. It may not please every taste, but it establishes some valuable new precedents in Maya archeology. Further, it has already served to pose new hypotheses for further investigation, and it will be valuable for this purpose into the future.

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Sedimentology

Sedimentary Structures of Ephemeral Streams. M. DANE PICARD and LEE R. HIGH, JR. Elsevier, New York, 1973. xvi, 224 pp., illus. $27.50. Developments in Sedimentology 17.

Geologists interpret ancient sedimentary rocks with greatest accuracy when they can match rock outcrop or cores and modern sediments of known origin feature for feature. Information on specific modern sedimentary environments and processes is accruing, but many environments have received little attention. This book will be valuable to sedimentologists because it describes illustrates, and explains the origin of a large number of sedimentary structures in qualitative terms for an environment that has received little previous study. Inasmuch as ephemeral streams are more common than perennial ones in the 25 percent of the earth's surface that has an arid to semiarid climate, ephemeral streams are an important sedimentary domain.

Largely on the basis of data from ephemeral streams in the Uinta Basin of northeastern Utah, the authors describe 42 categories of erosional, transportational-depositional, and postdepositional structures and 14 bedding types. The following information is given for each: name and synonyms, description, a photograph (or photographs), abundance in each of 29 streams studied in detail, origin, likelihood of preservation in rocks, occurrence in other sedimentary environments, environmental significance, and important references. The book includes a description of vertical sequences typical of point bars and channel bars, and concludes with an overview of the significance of sedimentary structures of ephemeral streams compared with other sedimentary environments.

The 138 photographs are a major contribution of the book. Most are close-up views of excellent quality. Many of the sedimentary structures illustrated by Picard and High can be found also in the two atlases of sedimentary structures with English texts that have been published in the last ten years. However, this book is more useful than the atlases for its discussion of the origin, occurrence, and likelihood of preservation of each structure found in ephemeral streams. The authors are keen observers and have sharp eyes for detail. They are perhaps the first to stress the distinction between continuous and discontinuous horizontal lamination as principal bedding types, and astutely point out the common error of many workers who have confused primary streaming lineation with secondary parting lineation.

The book will not satisfy quantitative sedimentologists, because no data on hydraulic parameters, channel geometry, or sediment size are given. The authors make no apology for this omission, and in fact criticize some reports of quantitative laboratory studies as "sometimes clouded by jargon and excessive mathematics." Their qualitative treatment is strong enough to offset this omission, and they have drawn heavily on flume studies to explain the origin of various features.

In physical appearance the book is of high quality. An index is missing, but the table of contents is sufficiently detailed to make one superfluous.

The book will be very useful to the specialist in fluvial sedimentology, to the generalist interested in sedimentary structures, and to the student interested in the identification, description, and origin of some common and some uncommon sedimentary structures.

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Morphometrics

Form and Pattern in Human Evolution. Some Mathematical, Physical, and Engineering Approaches. CHARLES OXNARD. University of Chicago Press, Chicago, 1973. x, 218 pp., illus. $12.50.

Oxnard has produced an unusual and exciting treatment of the methodology of describing and analyzing biological shapes and patterns. His title is somewhat misleading in that human evolution is discussed only to the extent that most of the illustrative examples are based on the bones of primates. The methods and techniques he describes apply equally well to any discipline where the external shape or internal fabric of an object or set of objects must be described and interpreted. The book should thus be of value to a wide range of people who work with morphology in its broadest sense.

The methods to which Oxnard devotes most attention are those which he has personally found effective in his many pioneering studies of structure and function of the primate skeleton. They are basically the methods most useful in discerning patterns and relationships not readily assessable by the unaided eye or the unaided mind. Chapters are devoted to multivariate statistical analysis, clustering techniques, experimental stress analysis using photoelastic properties, and optical data processing. The presentation is definitely not in cookbook style, nor is there any pretense of being comprehensive in coverage. Rather, the reader is introduced to each general method by a reasonably nontechnical discussion of its basic objectives and strategy and is given ample geometric analogies and