Book Reviews

Prehistory and History

Reconstructing Complex Societies. An Archaeological Colloquium. Cambridge, Mass., April 1972. CHARLOTTE B. MOORE, Ed. American Schools of Oriental Research, Cambridge, Mass., 1974. x, 170 pp., illus. Paper, $10. Supplement to the Bulletin of the American Schools of Oriental Research, No. 20.

During the 19th century the rise of prehistoric studies in Western Europe initiated a splintering of archeology that has continued to the present. Perhaps it was expectable that the first prehistorians would find little in common with their classical colleagues, but it is surprising that the more recent concern with common subject matter has not reversed the trend toward specialization. For example, postmedieval archeology, or the study of the emergence of modern Europe between about 1400 and 1750, is in the hands of humanists and historians, while its counterpart outside Europe, historic sites archeology, is carried out primarily by anthropologists. These two fields and several other branches of general historical archeology exist in almost total isolation from each other except on a purely technical level. In an attempt to break down the artificial barriers of geography and disciplinary specialization, an international colloquium of 20 area experts was convened at the Massachusetts Institute of Technology. The common topic selected for discussion was the archeological investigation of complex societies. The meeting was organized by Miranda C. Marvin, Lawrence E. Stager, and Anita M. Walker, and the resulting monograph has been edited by Charlotte B. Moore.

Eight major contributions, with appended comments by other participants, emerged. Near Eastern studies are represented by an article on Mesopotamia by Robert McC. Adams and a more specialized one on tells by G. Ernest Wright. Colonial New England is broadly surveyed by James Deetz, and the American Southwest is represented by William A. Longacre in a report on the Grasshopper project. Sudanic civilization is outlined by Daniel McCall. The two major nuclear zones of the New World are represented by an article on Inca economics by Craig Morris and one on the rise of the great Maya center at Kaminaljuyu by William T. Sanders. Finally, the Mediterranean basin is the topic of Colin Renfrew's paper. Gordon Willey carries out his normal synthesizing role with a concluding summary.

Even this listing of papers reveals that the range and variety of topics, although impressive, is oddly limited. Deetz's "A cognitive historical model for American material culture," which is actually a reprinting sans illustrations of an article from *Ceramics in America* (M. G. Quimby, Ed.), is the only contribution from the more recent branches of historical archeology. One gets the impression that the organizers were victims of what they set out to counter; that is, they are not aware of the broad range of subfields of historical archeology, *all* of which concentrate on complex societies. Indeed, it is clear that they failed to even ask the most basic question of what constitutes complexity. This oversight not only helped to narrow the selection of topics, it also led to the incorporation of inappropriate selections and to a rather peculiar arrangement of the papers that were presented.

Longacre, for example, presents a long-awaited detailed listing of all the innovative techniques used over the last decade to explore the 14th-century Grasshopper pueblo in east-central Arizona. This project, which has received continuing support from the National Science Foundation, is of interest to all archeologists, and although the range of techniques, including statistical sampling, geochronology, and physical anthropology, might well, as the author suggests, be transferable to complex societies, the Grasshopper pueblo is not a complex culture. This article is clearly out of place in the monograph. McCall's paper, in turn, is simply a brief, programmatic statement on an area that has seen little original research. Its inclusion is welcome, as all too often the complexity of native African civilizations is ignored. In contrast, Wright's "The tell: Basic unit for reconstructing complex societies in the Near East" concerns an area that has long drawn the attention of archeologists. His thesis that tells (that is, mound-sites created by the superimposition of towns and cities at one location) are unique to the rise of civilization in the Near East and thus the natural focus of research is of interest, but the commentary by Charles Redman in which an expanded regional approach is advocated is more in tune with current methods.

The core of the monograph is the remaining four articles, and if these are rearranged into a logical, evolutionary order they bifurcate. Two are concerned with societies moving toward civilization, two with societies that have passed that threshold. Such a rearrangement is not uncalled for considering the strong theme of evolutionary theory, especially Service's band-tribe-chiefdom-state developmental typology, that underlies the articles.

Colin Renfrew uses Service's concept of chiefdom to focus on the internal structure of certain prehistoric European cultures, while Sanders takes a more traditional sequential approach in applying the same type to the transition from chiefdom to full civilization at the Maya city of Kaminaljuyu. Renfrew does not, as one commentator accuses him of doing, simply list the criteria of a chiefdom (for example, a ranked society, redistributive mechanism, lack of legalized force) as established by Service, find correlates in the archeological record, and then pigeonhole such manifestations as chiefdoms. Rather he carefully analyzes the concept, including Service's recent reversion to an older scheme, and then judiciously uses it to delineate two subtypes of chiefdoms that may have existed in Europe during the third millennium. His "group-oriented chiefdom" is associated with a simple technology and a local and intermittent redistributive system that results in massive public, or group, monuments. Such local clusterings are proposed for the "henges" of southern Britain and the limited number of elaborate late Neolithic "temples" on Malta. Lack of specialization, little differentiation in burial patterns, and a regional subdivision of the island's settlement pattern all support this interpretation. Whereas the group-oriented chiefdom produced impressive public monuments and little evidence of status differences, the second subtype, or "individualizing chiefdom," produced obvious and spectacular differences in wealth and status. A widespread and continuous process of redistribution led to the concentration of power and wealth in the hands of individual chiefs or small groups, and monuments are associated with these units rather than the entire society. A much higher level of technology is required for such a development. Renfrew detects such groupings in much of the Aegean during the third millennium. Differential treatment of the dead, the appearance of local

fortifications, a possible central redistributive storehouse, and many other features would designate several sites in Greece, the Cyclades, Crete, and northwest Anatolia as individualizing chiefdoms.

Concerning the implications of his dual typology Renfrew is not completely clear, but he seems to imply that the individualizing chiefdom had more potential for evolving toward a state structure than did the group-oriented chiefdom.

Sanders, using the broader spectrum of Service's tribe-chiefdom-state triad, traces the development of Kaminaljuyu in the Guatemalan highlands. Application of the scheme reveals a tribal organization in the Middle Formative (800 to 500 B.C.) that alters into a chiefdom in the Late and Terminal Formative (500 B.C. to A.D. 300). A ramage-type of chiefdom that was capable of constantly expanding as society grew in size and complexity is posited which during the Early and Middle Classic (A.D. 300 to 700) was accelerated toward a full state structure by an intrusion from Teotihuacan in Mexico. This elaboration of Kaminaljuyu society was not, in Sanders's opinion, completely external in origin. A key differential between a chiefdom and a state-civilization is the inability of the chief to enforce his decisions. It is possible that foreign merchants from Teotihuacan may have also served as mercenaries, as the later Aztec pochteca did, thus enabling local chiefs to transform themselves into true political leaders. Even with the collapse of Teotihuacan and the withdrawal of its influence from the Valley of Guatemala, Kaminaljuyu did not revert to a chiefdom level but continued as a full civilization.

Archeological evidence for Sanders's interpretation is presented in a convincing fashion although the data are very incomplete and biased toward the social rather than the economic sphere. A long-term, elaborate sampling project at the site has revealed a small, undifferentiated hamlet settlement pattern for the Middle Formative representing an equalitarian, tribal society. Continuity into the Late Formative is enhanced only by the addition of ceremonial burial-mound centers. These are not residential and probably reflect the emergence of localized chiefdoms that could marshal labor for ritual but not personal use. By the Terminal Formative true civic centers appear, including some but not much evidence for chiefly control of trade and raw materials, especially obsidian. Kaminaljuyu became paramount in this period, and some energy is redirected into elite residences, which in turn show internal variation. It is tempting to compare the transformation between the Middle and Terminal Formative in the Valley of Guatemala with some of the aspects of Renfrew's group-oriented and individualizing chiefdoms.

Both Sanders and Renfrew regard their interpretations as tentative, with Sanders's use of data being more consistent and impressive primarily because he personally established the research design used at Kaminaljuyu. A number of the commentators, especially C. C. Lamberg-Karlovsky and Ruth Tringham of Harvard, launch traditional attacks on both papers. The admonitions that the data are incomplete, that typology distorts "reality," and that cross-cultural studies are invalid are all wheeled out. The best answer to such criticisms is expressed in Renfrew's own words (p. 73): "Like all models [the Service formulation's] virtue is not that it may be true but that it may be useful. . . . The first task is to discern some order among the data, and then to explain it. No doubt the concepts of today will seem very crude in a couple of decades, but that is no cause for apology."

Fully established civilizations, Mesopotamia and the Inca Empire, are the subject matter of the remaining papers. In the case of the former a fully internal documentary history has been preserved, while for the Andean region the rich Spanish ethnohistoric sources are an ample substitute. Such external documents give Craig Morris the advantage of knowing the nature and organization of Inca nonagricultural production, while archeology supplies much-needed data on the actual production techniques and local operations. A compound at Huanuco Pampa, a late Inca provincial capital, produced enough spindle whorls and other textile-related artifacts to demonstrate its function as a state cloth-producing center. Large amounts of Inca pottery may also imply *chicha* (maize beer) production, although here the evidence is less clear. Ethnohistoric data, and archeological evidence, also suggest the social unit involved was that of the *aqllakuna* or "chosen women." Inca society, although fully civilized, was still primitive in certain aspects. Centers such as Huanuco Pampa served to spread certain of the aspects of urbanism across the landscape, thus avoiding the logistical complexity of a few major centers. A labor force was concentrated at one point to produce the cloth that was a vital integrative item in the expansion of Inca culture and political power, and, in turn, the state housed and fed a large nonagricultural population, perhaps in part with *chicha*.

Mesopotamia in contradistinction reached a more evolved level of civilization. However, Robert Adams warns that an overly urban bias may mask a much more complex situation. Adams borrows a model from Chinese scholarship—Owen Lattimore's classic frontier hypothesis. He does not, as Lamberg-Karlovsky claims in his commentary, arbitrarily transpose this model onto the Mesopotamian scene. Rather he uses it to generate a qualitatively different model that would see historic Mesopotamia not merely as a succession of crystallizing and disintegrating urban phases, but as a fluid, and perhaps more adaptable, system imperceptibly ranging from a full urban commitment to full nomadic orientation. Insecure and vacillating ecological and political factors prevented the majority of the population from endorsing a totally urban way of life. Even the city dwellers maintained their relationship to the countryside and were capable of returning to the village or even a seminomadic life if conditions demanded such a change. In his earlier writings, such as *The Evolution of Urban Society*, Adams has discussed this concept, but with an emphasis on the origins of urbanism or the boundary relationship between urban and nonurban areas. Here the focus is shifted to the internal structure of established urban society. This view is radically different from that traditionally offered by historians, and it has significant implications for the very definition of civilization. To picture the city as part of a continuous and fluid regional process, with strong ties to previous levels of sociocultural integration, as against viewing it as a stable end product of such an evolution, is indeed innovative. It must be admitted, at the same time, that Adams's proposal is based primarily on recent or contemporary ecology and ethnography and is archeologically untested.

Reconstructing Complex Societies as a whole is unified by the theme of methodology and by the use of models derived from the social sciences. Methodology is clearly the focus of Longacre's paper and Redman's comments. Indirectly it elevates the articles by Sanders and Morris above the others as far as their data base is concerned. Both are grounded on projects involving intensive and extensive excavation and sampling of an entire site or region. Adams, of course, has followed a similar approach in his Mesopotamian work. Nevertheless it is the use of models based on anthropological theory that truly distinguishes the monograph. This review was opened with some negative comments, but ultimately a work should be evaluated from the perspective not of what should or could have been but of what was achieved. The organizers of the colloquium were certainly successful in collecting some of the more insightful researchers in several areas and in getting them to produce meaningful articles. The articles by Renfrew, Sanders, and Adams are not only im-

portant area contributions, they may turn out to be the basis for much future research and analysis.

As a final caveat it must, at the same time, be pointed out that the colloquium and its synthesizer, Gordon Willey, did not give enough emphasis to a thread that connects reconstructions of complex societies. The distinguishing feature of such reconstructions is not methodology; regional approaches, sampling techniques, and broadly based research designs are required for the study of both complex and noncomplex societies. Nor is it the use of anthropological theory, which is also not necessarily limited to the study of advanced societies. It is the fact that in reconstructing truly complex societies the archeologist usually must deal with internal documentary histories or, as in the case of the Inca, an external equivalent. It is the appearance of extensive documentation that clearly sets off complex from noncomplex society. This crucial factor is only dimly perceived in most of the papers in this volume because of the manner in which the colloquium was organized.

The exceptions are the papers by Morris and Adams. Morris calls for a continuous interdigitation of archeological and ethnohistorical sources during the actual fieldwork phase of a project rather than a post-hoc attempt to fuse two separate syntheses. Such an approach can readily be endorsed and will lead to a much fuller cultural reconstruction, but it is Adams who comes closest to the more crucial point. In his discussion of Mesopotamia he warns that much of that region's written history was produced by an urban elite whose values and commitments would eliminate and distort certain ranges of data. It is only the appearance of documents that enables a researcher to approach values and belief systems directly. Both an emic and an etic analysis are thus possible. Written sources may, of course, be used to gain insights into human behavior and so greatly enhance the etic level, which is also directly approachable in archeology. At the same time an emic interpretation based on the beliefs and concepts associated with such behavior, irrespective of what causal relationship is espoused, is also available and interpretable for the first time.

Deetz's brief (4 pp.) and reprinted article is thus the most significant paper in the monograph. It is interesting that Willey in his concluding remarks did not know what to do with this offering. How to classify it? Was it even science? Willey was not convinced. "A cognitive historical model for American material culture" is not, as Willey puts it (p. 152), the work of "a poet who is willing to submit his vision to the computer"; it is a scientific study of the ideological subsystem of American society and its three major transformations between 1620 and 1835. It is just as empirically based as Morris's investigation of the Inca economic subsystem or Adams's proposal for a total patterning of Mesopotamian culture. It is true that Deetz's theoretical perspective is different from that of most of the symposium participants; he is not a materialist. However, it is research such as his, which clearly could be materialistic in orientation, that will give a total cultural view of past societies. It is when archeologists combine recent advances in methodology and theory with the recognition of the true potential of documents that the research design for the study of complex societies will be complete. This completion will in turn be an important force in the reunification of all the subfields of general archeology.

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Archeological Methodology

Mathematics and Computers in Archaeology. J. E. DORAN and F. R. HODSON. Harvard University Press, Cambridge, Mass., 1975. xii, 382 pp., illus. $18.

The substantial increase in the importance and prominence of quantitative procedures in archeological research over the past two decades, in the form of statistical methodology and model building, makes the appearance of *Mathematics and Computers in Archaeology* timely. The plethora of analytical procedures that have been introduced to archeology in recent research papers has created a need for a text that discusses their utility to the archeologist critically and at a level understandable to the reader with little training in statistics and mathematics. This book should help fill that need even though the authors do not attempt to cover all the procedures that have been suggested, but limit themselves to those appropriate at the level of the attribute and the item.

Quantification, it should be noted, is not new to archeology. Rather, in the last few years there has been an explicit linking of quantification with scientific archeology stemming from the emphasis of the "new archeologists" on a Hempelian-based covering law model of explanation. This book provides a counterargument to that position: it explicitly rejects the primacy of the covering law model in archeological reasoning and in its place develops an approach to the use of quantification that gives primacy to description in the form of data analysis and to common sense.

The book begins with two chapters giving an overview of what constitutes mathematical and statistical reasoning. Though a single chapter each cannot do justice to these two topics, the chapters are sufficient for making the point, repeatedly stressed by the authors, that proper mathematical modeling and statistical inference demand a degree of understanding and conceptual precision not yet existing in archeology. Models that are mathematically tractable are too simplified to be of use (or at least their utility has not yet been demonstrated), and more complex models require simulation procedures that depend on a level of detail and accuracy not yet available in archeological data (p. 315). The usefulness of statistical significance testing is also questioned, since the archeologist generally does not, or cannot, define populations to which meaningful statistical inference can be made, or is so constrained by data acquisition procedures that the notion of random sampling is meaningless except with reference to uninteresting populations.

In the place of statistical analysis, Doran and Hodson argue for *data* analysis—analytical procedures whose aim is to discover patterning in data—leaving the inferential part of the analysis to the archeologists (p. 57). Their argument is not so much a rejection of the utility of statistical inference as a pragmatic realization that the link between the populations of interest—the target populations, that is, the society that produced the artifacts—and the data available to the archeologist is not statistical. The linkage is via a series of not yet well-formulated relationships that are specific to each situation (pp. 94–95), and statistical significance testing is thus an exercise without any substantive meaning. The exception is those situations in which a random sample is drawn from a population such as a collection of all shards recovered from a site or all survey units in a region.

Neither the inferential process itself nor the criteria for its validity are discussed, other than to put emphasis on common sense (pp. 101, 341). The new archeologists may not be happy with this position—what is common sense to one person may be anathema to another. Doran and Hodson nonetheless are properly providing a counterweight to the appeal to a covering law model of explanation that does not come to grips with the procedure for constructing an explanation, as opposed to determining whether a given argument can be accepted as explanatory. The hypothetico-deductive approach, they write, "fails to recognize that all reasoning, be it scientific,