

Archaeology

The Explanation of Culture Change: Models in Prehistory. COLIN RENFREW, ed. Pittsburgh, PA: University of Pittsburgh Press (G. Duckworth, London, 1973). xv + 788 pp., figures, graphs, maps, tables, chapter notes, indexes. \$29.95 (cloth). (Proceedings of a meeting of the Research Seminar in Archaeology and Related Subjects held at the University of Sheffield, December 14-16, 1971.)

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This volume presents sixty-three papers originally circulated prior to a "research seminar," held in 1971 with the explicit aim "to discuss afresh both the aims of archaeology and the new approaches and methods of research" (p. ix). Organizationally it is best evaluated as the latest in a series of three comparable compendia, preceded by Ucko and Dimbleby's *The Domestication and Exploitation of Plants and Animals* (1969) and Ucko, Tringham and Dimbleby's *Man, Settlement and Urbanism* (1972). Thematically it can best be compared with Clarke's *Models in Archaeology* (1972).

The papers are loosely arranged in seven sections: (1) explanations of culture change; (2) data processing and the measurement of variation; (3) explanation of Paleolithic artifact variability; (4) changes in population density, subsistence, and land use; (5) investigations of social change; (6) movement, trade, and contact; and (7) systems theory and multivariate analysis applied to culture change. As in the case of its two predecessors, this organization is nominal, with conceptual and factual papers scattered through all but the opening and concluding sections, and with the themes of "data processing" ranging from safety pins to philosophical reality. In view of such limited selectivity, as well as the inclusion of several trivial or irrelevant essays, it seems appropriate to confine comments to the major conceptual

analyses and to those substantive contributions of particular methodological interest.

The section on epistemological issues is an integral component of an evaluation of contemporary archaeology. The first section as well as scattered articles throughout the volume contribute to this aspect of archaeological research design. In general, confrontation of the implications of epistemological issues has led to a disillusionment with the potentials of archaeological data itself. The pragmatic view of epistemology as espoused by perhaps the majority of archaeologists is exemplified in F. Hole's artifact-derived viewpoint, as contrasted with the conceptual view of logic-derived models of explanation espoused by D. H. Mellor. Essentially, the now increasingly untenable ideal systems of explanation in archaeology are upheld.

Specifically, L. S. Klejn's paper advocates a "systems" perspective that is by now anachronistic, especially in view of the increasing sophistication concerning *types* of systems models as evidenced in the paper of J. J. Wood and R. G. Matson. Similarly, W. Bray's attempt to re-focus attention on the biological component to human evolution provides a useful orientation, although the complexity and dynamics of change necessitate a concentration on the cultural component. The contributions of F. Plog, P. J. Watson, and several others are published elsewhere in greater detail, and cannot be adequately discussed here.

The more analytical/synthetic treatments are few in number. G. Sterud, in the opening paper, presents an insightful tracing of a particular, evolutionary, paradigm that characterizes the development of the discipline itself. Unfortunately, in his view, new approaches require the total rejection, not the mere amplification, of old (traditional) perspectives. E. Leach provides a somewhat more optimistic prospectus for archaeology in the "concluding address" by noting that fads, be they functional or taxonomic, are paradigms, neither good or bad, just different. The discussion of epistemology, then, is

an ongoing and complex aspect of new approaches in archaeology.

The second section, on quantification, deals almost exclusively with computer recipes for instant archaeological explanations. R. A. Watson's argument for the existence of what remain analytical categories, not real data, fails in the end to establish a cultural significance to problem definition. P. Mortensen's caution that the interpretation of such results will *always* be subjective is a useful caveat. More generally speaking, it would seem that a naive faith in the infallibility of the machine in providing solutions to the archaeologist's problems results in a lack of articulation in the programming of sociocultural research.

The group of papers on Paleolithic themes is highlighted by L. R. Binford's significant but rambling paper. In answering criticisms levelled at his so-called functional approach to Mousterian artifact assemblages, Binford (a) further argues that "stylistic" and "ethnic" variability have not been demonstrated in the archaeological record prior to the Upper Paleolithic, (b) disposes of Bouchud's reindeer-based argument for year-round occupation at French Mousterian sites, and (c) argues that standard Old World typological statistics would be difficult to apply to cultures that curate, preserve, and transport stone tools, e.g., the modern Nunamiut and the prehistoric Australians. R. Whallon advocates spatial analysis of the artifacts of single occupations (hardly a novel approach) to recognize potential toolkits and so test the "functional" argument. The potential impact of such nearest-neighbor analysis and dimensional analysis of variance, as applied exclusively to artifacts, remains to be seen and compared with older and effective tests already applied to spatial associations of artifacts and specific bones. P. Mellars develops interesting conceptual criteria to contrast the material technology of the Mousterian and Upper Paleolithic in France, particularly the capacity of the latter to devise qualitatively new varieties of stone tools, and to shape bone antler and ivory into a variety of relatively complex and controlled forms. However, his inferences on subsistence activities are faulty, and he seems unaware that birds were taken in the Oldowan of Bed I, Olduvai, at Acheulian Ambrona, and Mousterian Leben-

stedt, while fish were taken at both Olduvai and Lebenstedt. N. David presents thought-provoking suggestions—admittedly difficult to test—for population dynamics and culture change in the Upper Paleolithic and his view, that the inherent tensions of a "stable" ecosystem are intrinsically dynamic, contradicts Binford's contention that stability of environment corresponds with stability of artifact form. C. B. M. McBurney opens with the puzzling assertion that sedimentation rates in certain unspecified cave sequences are constant with time and unaffected by cultural factors. This "law" asserted, he attempts to show the existence of time trends in artifactual composition, on the basis of gross level-by-level correlations of artifact types and certain animals, that ignore the exclusive significance of micro-level, demonstrable spatial associations. Next to these papers, F. Bordes' contribution stands as a classic example of "stratigraphic prehistory," with industrial units linked to a hyperdetailed climato-stratigraphy that supposedly links French cave sediments and loesses.

Altogether these papers on Paleolithic artifact variability reflect the range of archaeological explanations of artifact differentiation, but contribute little to explicating differences among the artifacts themselves. The now-familiar Binford and Bordes ethnic-versus-functional positions, the ethnographic explanation of David, the statistical manipulations of McBurney, and the representative activities approach of J. R. Sackett are mutually exclusive devices as used here. There is no real attempt to account for complex phenomena in complex and coherent ways, and the lack of communication apparent in most of these papers is sufficiently glaring as to suggest an inability or unwillingness for reading and dialogue.

The more traditional papers focus on Holocene archaeology beginning with P. M. Dolukhanov's "neolithization" of Europe. This article includes useful data on Russia but its gross climatic explanations constitute less than an "ecological approach"; his resuscitation of the ill-founded "Mesolithic crisis" is hardly original. A. J. Ammerman and L. L. Cavalli-Sforza expand on their "wave of advance" diffusionist model for the spread of early farming in Europe. D. R. Harris explores ethnoecological and archaeo-

logical approaches to early tropical agriculture. A. G. Sherratt's examination of soil and terrain conditions at selected Near Eastern and European Neolithic sites is valuable, but does not qualify as a new "interpretation of change in European prehistory." M. Tosi discusses the potential importance of early urban developments in eastern Iran and Turkmenistan for the rise of the Indus culture, while M. Gibson analyzes changing settlement patterns in late prehistoric Mesopotamia. C. Renfrew proposes that chiefdoms developed in Neolithic Wessex, and that each region with its causewayed camp functioned as such a social unit; however, A. Fleming is less sanguine and explores other alternative "models" as well. M. J. Rowlands and B. Ottaway examine trade relationships within late European prehistory, while N. Hammond does the same for Maya trade. W. L. Rathje outlines his elaborate systems approaches to Lowland Classic Maya civilization, much as already presented in earlier publications. A last category in this group of papers is provided by R. A. Crossland's stimulating outline of factors effecting language change through time.

In the papers dealing with social change, A. P. Phillips tests Harner's model on select Neolithic sites in Europe, suggesting that unilineal descent systems are indicated. This unselfconscious evolutionary approach is matched by the functional one of R. Layton, the ethnographic of B. Orme, and the ethological of V. Reynolds. With all due respect to their intent, these articles appear slightly anachronistic in a volume of this caliber.

In overview, the principal accomplishment of the *Explanation of Culture Change* seminar is to produce a plethora of papers—good, bad, or mediocre—and to publish these, for better or worse. The editor has provided no introduction and no evaluation, other than a brief preface. This may explain why Clarke's parallel volume seems much more directed, preceded as it is by an authoritative and penetrating *mise en point*. One feels that *Explanation of Culture Change* is in fact mainly concerned with changes in archaeology, rather than culture, and that it is an example of disciplinary introspection, rather than a forward-looking evaluation of prospects and perspectives.

The participants themselves undoubtedly represented a wide spectrum of positions on the archaeological thought continuum, but their interaction was somehow minimal. Furthermore, there is a disturbing undercurrent of fascination with innovation or novelty for its own sake, and all too little sense of confrontation of the newly recognized linkages between epistemology and empiricism. The lasting value of the volume is as a comprehensive presentation of the range of archaeological thinking on a broad spectrum of prehistoric investigations. It will also be appreciated as an artifact of the 1970s, symptomatic of a growing intellectual ferment in archaeology, but hardly an articulate predictor of future potentials.

References Cited

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To say the least, Woodall's slender volume is an unusual introduction to archaeology. It contains not a single photograph or drawing. It does not discuss dating, stratigraphy, or even classification. Without pictures of artifacts or archaeologists, without illustrated sequences, and without types and radiocarbon, can this be archaeology? That the answer is yes indicates just how much the nature of the field has changed in the past decade under the impact of the new archaeology. It is Woodall's purpose in this book to describe the new archaeology and its development to introductory students.