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Toward an Integrated, Contextual Approach in Archeology

Systematic analysis of 'natural' and 'cultural' materials is not a novel concept in archeology. Many early archeologists were natural scientists by training. Between the 1920's and 1950's a new generation of archeologists, more narrow in their background, frequently utilized the expertise of natural scientists to obtain types of empirical information not otherwise available. Since the 1960's there have been several calls for a new, 'scientific' archeology that aims to achieve high levels of interpretative success based on systematic study stimulated by improved research design. Problem articulation and ad hoc methodologies have become central to grant applications and the costs of research have increased exponentially. Have the results warranted the noise and expense?

The best examples of contemporary archeological research clearly are more complex and more informative than they were a decade ago. But the overall improvement in quality is disappointing. I personally feel that 3 contributing factors can be isolated:

(a) Most of the recent "calls to arms" were written by individuals with little or no training in the natural sciences and with a narrow, if not inadequate concept of ecology. Anthropologists have been widely exposed to the sociological view that ecology is a matter of interrelationships between individuals, groups, or sets of groups within a population of the same species. There seldom is an appreciation that ecology focuses on ecosystems that comprise interdependent ecological communities of different species within a habitat that further includes a multi-component non-living environment. I don't suggest that anthropologists ascribe to a biological definition of ecology, and I am aware that modern, functional ecosystems are

essentially beyond empirical study. For biologists the ecosystem basically is a paradigm within which to organize and interpret data. This suggests that anthropologists in general and archeologists in particular could formulate an ecological paradigm suitable to their particular problem orientation and empirical data, but also conceived much more broadly than existing paradigms (which tend to be fuzzy or inexcusably narrow or both).

(b) The most obvious product of recent, explicitly scientific research is statistical manipulation of remarkably simple empirical data, most of which are traditional and artifactual in nature. Proper statistical processing is an essential component of scientific research, but only a means to an end. When the intellectual framework is too narrow, the results, no matter how elaborately programmed, cannot hope to allow high level interpretations.

(c) University curricula have not generated many students capable of attacking fundamental problems with an integrated, interdisciplinary approach. Curriculum reform was long overdue when a wave of change offered hope for university restructuring during the late 1960's. But the opportunity passed without any tangible results and departmental structures remain as entrenched as ever. In archeology it means that anthropological paradigms -- long productive in stimulating sophisticated, paleo-cultural interpretations -- have fossilized to the point where they now inhibit development of better conceptual frameworks. No matter how many courses in botany, zoology, geology, or geography a student is required to take, he/she will not be able to integrate them into his/her own intellectual make-up unless group ethos (as defined by professional attitudes, curriculum demands, and field experiences) is permeated with a sound, ecological conceptualization. Only a few training programs can chart a measure of success in this regard, small wonder when leading archeological methodologists continue to ignore, sometimes explicitly deny, or even attempt to disprove the fact that prehistoric communities were part of dynamic ecosystems.

As outlined above, these negative factors are all symptoms of a general problem confronting the educational process. The traditional, scholastic curriculum of the Middle Ages and of the small liberal arts college provided

little practical knowledge but tried to teach students how to think, speak and write. This goal has generally been superseded by one that overemphasizes information and methodology. Particularly in archeology, a labor—intensive discipline, professionals and apprentices must focus on economical data sources and data processing techniques. The overall result is too much technology and too little appreciation as to how to use it effectively.

"Materials research" is central to archeological research, in the sense that material objects, empirical data, and appropriate technologies are indispensible to elucidating culture history and the dynamics of ancient societies. But we can do without the disciplinary arrogance of many pragmatic, inductive researchers and of most of the prominent minority that demands a deductive approach. Still in short supply are spokesmen for a truly scientific methodology that combines the best of the deductive and inductive, alternating these approaches repeatedly as problem orientation and research design are conceived, executed, reassessed, and revised. We need individuals who will not only find things but who also study them; people less interested in creating personal images than in interacting with the peer group to achieve understanding; fewer prima donnas and more scholars. Scholarship unfortunately has become a rare commodity. I feel that the scarcity of scholarship is fundamental to the yawning gap between rhetoric and performance in archeology. Its practitioners must read and digest more, sharing in the intellectual ferment of relevant cognate fields with a goal to broaden disciplinary paradigms and with a willingness to discuss fundamental issues with the scholars of related fields.

A more productive paradigm in archeology will require a far greater input of biological and geographical concepts, rather than methodologies. Particularly useful, if elementary, concepts are space, scale, complexity, interaction, and stability. These points can be discussed briefly.

Space. Phenomena are rarely distributed evenly in space. Topography, climates, biological communities, or human groups exhibit spatial patterning and are liable to spatial analysis.

Scale. Spatial analyses must distinguish small, medium and large-scale objects,

aggregates or patterns. Similarly the configurations of living communities and physical aggregates are established, maintained, or modified by processes that operate at several scales and that may be periodic or aperiodic. Micro and macro-studies are evidently complementary and both are desirable for comprehensive interpretation.

Complexity. Environments and communities are not homogeneous. This makes both characterization and delimitation difficult, so requiring flexible, multi-scale, spatial and temporal approaches.

Interaction. In complex environments with uneven distribution of resources, human and non-human communities interact internally, with each other, and with the non-living environment, at different scales, in variable degrees of proximity, and with changing and unequal rates.

Stability. The diverse communities of any environmental complex are all affected to some extent or other by dis_equilibrium, whether a result of internal processes or external inputs. As a result, readjustment, whether minor or major, short-term or long-term, is the rule rather than exception.

These simple points are difficult to apply in practice, and even their recognition is seldom apparent in implicit or explicit archeological research designs. If they were indeed implemented we would have fewer claims for unilinear change or fundamental revolution as well as fewer single-factor hypotheses to account for the dynamism of cultural systems. As I have argued elsewhere (Butzer 1977), the now almost stagnant taxonomic and artifactual approach to Early Man studies could be effectively revitalized by a more sophisticated implementation of geographical and biological concepts to an understanding of hominization and culture change. Similarly, at the younger terminus of prehistory, there is much room for a fruitful application of contemporary experience with space, scale, complexity, interaction and stability (see, for example, Butzer 1976, 1978; Butzer et al., n.d.). A cautious implementation of ethno-archeological data would represent one facet of such an orientation. But above all we need an adequate spatial-temporal approach that reflects a thorough understanding of geographical and biological concepts and their limitations. Such an approach could ultimately provide an effective contextual

paradigm, better suited to archeology than the sociological distortion of 'ecology' on the one hand and the biological systems approach on the other.

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