DISCUSSION AND DEBATE

Behavioral Archaeology: Four Strategies[1]

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To some it might seem as though archaeology has ceased to exist as an organized discipline. "Paleoethnology," "ethnoarchaeology," "action," "living," "experimental," "contract," "public," "processual," "historic," "systems," and "industrial archaeology," as well as many other seemingly disparate programs, compete for the attention of modern archaeologists. This diversification of research interests is so far-reaching that it compels us to ask fundamental questions about what we are doing, why we are doing it, and how it relates to what others are doing. We contend that the expansion of archaeology into little-explored domains is an expectable outcome of several long-term processes operating in the discipline. Clearly, these processes are leading to an expanded conception of the nature and aims of archaeology. Archaeology has not ceased to exist as an organized discipline; it is merely reorganizing into a new configuration.

This paper outlines some features of that new configuration. We show that archaeology can be defined simply as the study of relationships between human behavior and material culture. The kinds of questions that can be asked about these relationships form the basis for our proposal that a behavioral archaeology consists of four interrelated strategies. These strategies are integrated by the circulation of general questions and general laws.

Behavioral Archaeology

A behavioral archaeology is the study of material objects regardless of time or space in order to describe and explain human behavior (Deetz 1972; Leone 1972; Longacre 1972; Reid and Schiffer 1973). The relationships between human behavior and material objects can be approached from several directions, depending on the nature of the questions asked. Therefore, the four strategies of a behavioral archaeology are defined on the basis of question type (Fig. 1).

		Material Objects: Past	Material Objects: Present
Human Behavior	Past	1	2
	Present	3	4

Fig. 1. Strategies of a behavioral archaeology.

Strategy 1

Strategy 1 is concerned with using material culture that was made in the past to answer specific questions about past human behavior. For example, one might ask: What was the population of the Grasshopper Pueblo between A.D. 1275 and A.D. 1400? When was the Joint Site occupied? What plant and animal resources were exploited by the Upper Pleistocene inhabitants of Tabūn? Such specific questions, bound to particular time-space loci, form the basis of archaeology as it has been traditionally practiced.

It should be emphasized that while particular questions deal with both description and explanation of past events and system properties (Binford 1962), explanatory goals have properly come to dominate studies of the past (Willey and Sabloff 1974). As archaeologists grappled with the nature of explanation, they found it necessary to draw on a wide variety of behavioral laws to facilitate documenting and explaining past events. Regardless of whether or not one subscribes to the Hempel-Oppenheim model of explanation, the emerging importance of laws in archaeology is apparent.

Archaeologists working within Strategy 1 are law-users (Binford 1968; Trigger 1970; Fritz and Plog 1970; Watson, LeBlanc, and Redman 1971; Schiffer 1972). Some fail to recognize this fact, yet proceed to make assumptions that function as laws. For example, Jennings (1974:129) remarks concerning the North American Archaic that "as the population increased and regional variation accelerated, there is more and more likelihood of local cultural exchange from group to group."

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It is usually argued that the laws we use derive from ethnology or other social sciences (Trigger 1970), and it is now quite fashionable to discuss the interrelationship of archaeology and ethnology (Chang 1967a, 1967b), even though this relationship is said to involve a one-way flow of general laws into archaeology. While it is certainly true that some archaeologists borrow laws from other disciplines, especially ethnology, it is not true that this flow need be unidirectional. Other archaeologists realize that a science is likely to produce only the laws for which it has a use. Consequently, there is no reason to expect that ethnology, or any other discipline, has produced, or can produce, all the laws required to describe and explain the events of the past (Schiffer 1971). The thrust of this realization has been the development of Strategy 2.

Strategy 2

Research within Strategy 2 pursues general questions in present material culture in order to acquire laws useful for the study of the past. Some general questions that typify Strategy 2 are: What are the traces of various techniques of manufacture on a given type of material? What is the relationship between the population of a site and its habitation area? How long does it take various materials to decay under given conditons of deposition? Why are whole, usable items discarded? These are general questions because they are not bound to specific time-space referents. The answers to these questions take the form of experimental laws. Experimental archaeology (Ascher 1961), action archaeology (Kleindienst and Watson 1956), ethnoarchaeology (Oswalt and Van Stone 1967), and living archaeology (Gould 1968) are labels for variants of Strategy 2.

Although many early studies produced interesting and useful results, in general they treated a narrow range of variables. Most dealt with manufacturing behavior, the traces of use wear on specific types of artifacts, or various processes of decay and noncultural deposition (Clark 1960; Heizer and Graham 1967; Hester and Heizer 1973; Hole and Heizer 1973). We emphasize that Strategy 2 straddles the entire range of behavioral and organizational variables in relation to material, spatial, and even environmental variables. Research efforts guiding this expansion are underway (White and Thomas 1972; Saraydar and Shimada 1973; Schiffer 1973; Binford 1973; Longacre 1974). One looks forward to the day when the full potential of Strategy 2 is achieved.

The development of Strategy 2 results from a longstanding, tacit recognition that behavioral laws are needed to answer questions about the past. By establishing these laws in ongoing systems and by various experiments archaeologists have expanded, more by necessity than design, their realization of what archaeology can become, and what archaeology has already become.

As archaeologists investigated a variety of questions on present material culture, they found, like generations of ethnologists before them, that ethnographic data were not very useful for testing laws about long-term processes of cultural change. There have been two solutions to this problem. The first was to turn to non-anthropological disciplines in search of potentially useful laws. Thus a major trend now evident in archaeology is interdisciplinary borrowing. Principles, methods, and techniques from fields as diverse as systems theory, biological ecology, information theory, and locational geography now frequently punctuate the archaeological literature. Although the ultimate utility of many of these ideas remains to be demonstrated, such borrowings are inevitable and necessary.

The second solution was to explore the possibility that the archaeological record itself might be an ideal laboratory for deriving laws of cultural change processes (Binford 1962; Wauchope 1966; Leone 1968; Zubrow 1971; Woodall 1972; Plog 1973a, 1973b, 1974). Once available, these laws could also be applied to explain and predict contemporary behavioral change. The realization that archaeologists could use their data base from the past to answer questions about long-term change processes has led to the conscious emergence of Strategy 3.

Strategy 3

Strategy 3 is the pursuit of general questions in the study of past material remains to derive behavioral laws of wide applicability that illuminate past as well as present human behavior. The questions that typify this strategy, like those in Strategy 2, are general and do not have specific time-space referents. Examples include: What are the determinants of variability in organizational complexity? What factors explain variability in storage capacity? How do cultural systems adapt to changes in population? As in Strategy 2, these questions are answered in terms of laws. An implication of this strategy is that such laws are potentially relevant to modern social problems and issues.

Strategy 3 with its prominent theme of social relevance is deeply rooted in the writings of the late Paul S. Martin (1954, 1971; Martin, Quimby, and Collier 1947; Martin and Plog 1973; Fritz and Plog 1970). This theme of relevance has been stifled in the past for lack of an appropriate methodological vehicle and has remained only a muted plea until the emergence of explicit concern with formulating laws. Since laws are atemporal and aspatial, they should be applicable to any situation where the initial and boundary conditions are met (Hempel 1966; Reynolds 1971). Though concern with laws provides the long-awaited methodological breakthrough, relevance and the search for laws are not inseparably bound. Laws can be formulated and tested without being applied in a socially relevant context. This is an investigator's prerogative. However, in order for statements derived from the past to be applied in a socially relevant context of the present, they must conform to the format of a law.

Strategy 3 gives substance to the claim that within anthropology only archaeology possesses the requisite time depth necessary to the study of long-term cultural change (cf. Plog 1973b, 1974). It is difficult to imagine insisting on the importance of time depth without also insisting on the need for generating and testing laws since archaeology's contributions to predictive anthropological theory are contingent on these laws (Titiev 1961:183).

Time depth is not archaeology's only potential contribution to anthropology. By virtue of years of research within Strategies 1 and 2 archaeologists now possess an expanding body of theory, method, and behavioral laws for the study of material objects and human behavior regardless of time and space. As archaeologists in urban environments have sought to teach and test archaeological principles, they have turned to modern material culture as an untapped, renewable data base. In exploring the relationships between archaeological principles and material culture, they have discovered that archaeology can make contributions to the understanding of present human behavior and have thereby opened the way to Strategy 4 (Salwen 1973; Reid, Rathje and Schiffer 1974; Rathje 1974).

Strategy 4

Strategy 4 is the study of present material objects in ongoing cultural systems to describe and explain present human behavior. Strategy 4, then, includes the study of contemporary industrial as well as nonindustrial societies. However, its potential contribution to social science derives from the research possibilities of studying modern material culture in modern industrial societies.

The questions asked within Strategy 4 are usually specific questions about ongoing societies. For example: What patterns of meat and liquor consumption characterize different ethnic groups in Tucson, Arizona? Do members of higher socioeconomic groups waste non-renewable resources in Fayetteville, Arkansas? How many times is a television set owned before it is discarded in Los Angeles? The Garbage Project at the University of Arizona is now exploring solutions to many interesting questions in Strategy 4 (Rathje 1974). It is anticipated that Strategy 4 holds much promise for those concerned with archaeological relevance and for those wishing to contribute to the analysis and explanation of modern behavior.

The expansion of research into Strategies 2, 3, and 4 more accurately reflects the development of archaeology as a discipline and should permit a more meaningful processual history of this subject to be presented in the near future. The importance of this expansion to present discussions is that it reflects the essential interrelatedness of all four strategies. The pursuit of Strategy 1 has always required information gained through Strategy 2 and these requirements need not be met exclusively by ethnologists. In like manner, Strategy 3 embodies procedures that seek to contribute to anthropological theory and thereby to an understanding of contemporary behavior. Recognition of Strategy 4 merely closes a logical set of research options to embrace the attainment of goals common to most archaeologists. We emphasize that a behavioral archaeology is a synthesis of what archaeologists have done and aspire to do and that the essential interrelatedness among the strategies has roots deep in the progressive development of the discipline as a whole.

Information Flow

Viewed as a conjunction of four strategies, archaeology is more than a loose aggregation of subfields. Instead, the strategies of a behavioral archaeology are integrated by the flow of general questions and general laws. A behavioral archaeology must exceed the sum of its parts since it depends upon the interaction among all four strategies. This interaction further distinguishes the uniqueness of individual research and highlights the unity of combined research activity.

Strategies 1 and 4 emphasize the idi-

ographic component of archaeology while Strategies 2 and 3 emphasize the nomothetic component. Within this framework, the tiresome debate about archaeology as history or science is seen to revolve around the overemphasis upon one component to the exclusion of the other.

Strategies 1 and 4, concerned with answering particular questions about the past and present, cannot exist without Strategies 2 and 3 to provide needed laws. On the other hand, particular questions raised within Strategies 1 and 4 can lead to the discovery that no appropriate laws are available. This impasse is resolved when a general question, formulated and fed into Strategy 2 or 3, serves as a basis for law construction and testing.

We cannot emphasize too strongly that these research strategies are interdependent and together contribute to a more substantial body of theory and method and a more powerful behavioral discipline. This is not to say that any individual must be competent in the execution of all four strategies. That would be inefficient. It is also apparent that a single investigator may operate simultaneously in more than one strategy. Yet, if questions raised within Strategies 1 and 4 are to be successfully answered, it is necessary that the discipline as a whole support studies in Strategies 2 and 3. Furthermore, if Strategies 2 and 3 are to succeed in producing useful laws, then appropriate questions must be obtained from Strategies 1 and 4.

Conclusion

The development of Strategies 2, 3, and 4 has led to a redefinition of archaeology based on a broad conception of its subject matter and the kinds of questions that are asked. It no longer seems possible to view archaeology as only the study of the past. To be sure, questions in Strategy 1 will properly continue to occupy the research efforts of most archaeologists, but a more productive view of the field as an integrated whole recognizes the essential contribution of other archaeologists. In the framework of a behavioral archaeology, the study of urbanization at Teotihuacan, stone chipping in the Outback, human adjustments to environmental stress, and meat consumption in Tucson, Arizona, are all legitimate and productive archaeological research activities.

Notes

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Reinventing Anthropology: Response to Kaplan and Donald

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I appreciate the serious reviews of *Reinventing Anthropology* by Kaplan (*AA* 76:824-839, 1974) and Donald (*AA* 76:857-861, 1974). They are the first. I would like to clarify a few respects in which my own contribution has been misunderstood, or perhaps been insufficiently clear.

Kaplan (p. 824) suggests that to begin by saying that anthropology, if reinvented now, would not be the same, is a cryptic way of saying that anthropology has become otiose. Later in the essay I state that the point of view is to revise, not to repudiate. The initial remark is a way of dramatizing the problem of departmental boundaries and of parochial interpretations of the notion of "general anthropology." Such problems are familiar in any discipline; I wrote amid what was to me traumatic experience.

The book's major purpose is taken to be "to tell us what forms and directions this revitalization of the discipline ought to take" (p. 824). In my own mind, the major purpose is to question: valid answers depend upon continuing reflection and practical experience.

It is perhaps inevitable that *Reinventing Anthropology* should seem a symbol, and a unitary one. In fact, it is accidental that it is the only U.S. statement of such issues in book-form. Others contemplated books at the time (cf. note 2 of my essay). The book's symbolic status, then, owes more to editorial habit and *Sitzfleisch* than to distinctive passion or position. As it is, the book's main use, apart from serving as a target, has come to be as starting point for discussion of issues that must be part of anthropology's continuing self-reflection and critique. This fulfills its major purpose (it is, indeed, part of a series of "anti-textbooks").

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A key to the book's purpose is need for personal definitions of general anthropology. Kaplan quotes me on this point (p. 826), but takes the passage to refer to claims to knowledge. In fact, the passage occurs in a context devoted to claims to boundaries. Indeed, the passage contains statements to this effect and I do not understand how Kaplan mistook it, unless he assumes that objective knowledge is bound up with a conventional type of department.

Kaplan does apparently take a "personalistic view of anthropological inquiry and knowledge" to comprise organizational and epistemological issues jointly. I can agree with him that the personal factor be recognized in attempts to improve the chance of obtaining objectivity. But in my view, there is an irreducible personal ingredient, and this ingredient is only partly an obstacle to be eliminated. *In part it is a resource to be cultivated.* Different minds and personalities have virtues for different kinds of inquiry and mastery. We should think of the knowledge made available to us by ethnography and scholarship as a richly orchestrated score. Some ideals of objectivity seem to envisage everyone playing the same one instrument, tempo, and tune. We need to come to terms, for reasons both scientific and democratic, with forms of knowledge that are inherently personal and situational. Knowledge accessible to participants in communities, in particular, is often not accessible to "objective" methods employed by some who govern, administer, and research them.

In any case, when many of us object to "objectivity," we are objecting, not to an ideal of adequate knowledge of reality, but to consequences of certain institutionalizations of such an ideal. Like others, I have seen institutionalized definitions of objectivity cripple inquiry, waste money, and destroy opportunities for communities and persons with whom one is personally, as well as ethnographically, concerned. Moreover, the question of knowledge does not have to do with production alone. It has to do at least as much with *distribution.* Political and ethical issues enter anthropology in this regard with especial force. To focus on *objectivity* may obscure questions of *responsibility.* The two concerns are compatible, and acceptance of responsibility can sometimes enhance objectivity, but clearly there is tension between the two; I try to comment on it in pages 48-58.

In maintaining that anthropology is unavoidably a political and ethical discipline in virtue of its subject matter, perhaps I should have added in virtue also of its personnel. A possible interpretation of Kaplan's remarks