SOME THEORETICAL ASPECTS OF
CURRENT THOUGHT
IN ARCHAEOLOGY
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In the last decade there has been a major shift in the theoretical base of archaeology in the United States from a concept of artifacts as the major indicators of cultural development to relationships between artifacts as the indicators of cultural processes. The furor raised over this change in outlook was considerable, and has not left anyone in American archaeology unaffected. It has forced archaeologists to re-examine their preconceptions and methods of both excavation and interpretation of data, if only to defend themselves against more analytically discriminating adversaries, shown the possibilities inherent in a complete use of good logical method, opened new vistas on what is possible in archaeology (and reopened some old ones), and given many hope that at last it might be possible to develop some general laws of the processes of cultural development which archaeology has always held to be its major goal.

The nature of archaeology and its goals have been debated by the advocates of a "new" archaeology (a term used to describe W.W.Taylor's design for archaeological research in R.B.Woodbury, 1954:294). Taylor remarks that archaeology in America is always placed in anthropology, but is usually defined as the reconstruction of culture history (1948:26). This position is seldom held among the new archaeologists today. Taylor himself
said that archaeology dealt with past actuality and sequential time with its main interests in culture, and was a non-experimental discipline as its subjects could not be reconstructed in a laboratory (1948:42). He places the goal of archaeology in explaining the formal, functional, and developmental aspects of the workings of culture (1948:43), it would seem, through cross-cultural studies, a point typical of anthropology in general (A.C. Spaulding in Binford, 1968:38). K.C. Chang feels that the goal of archaeology should be the isolation of social groups and the characterization of their activities (1967:231-232), while F.T. Plog would study long term cultural change (1974:10-11). However, Taylor points out that the field itself encompasses history, folklore, art, architecture, geology, and the study of human evolution (1948:5). This diversity has left its mark on the goals and concepts of archaeology. There is some truth to Chang's statement that "the ultimate aims of archaeology... vary from one archaeologist to another." (1967:241).

In order to understand the nature of the differences between the new archaeology and what may be referred to as traditional archaeology or as Taylor calls it, the comparative approach (1948:5), a shot synthesis of the conceptual basis of the latter will be attempted here, followed by
a discussion of some of the more current concepts.

Binford states that the traditional view of archaeological theory was poorly or sloppily thought out, making few distinctions between homology and analogy, and observational units and analytical units, but these might be attributed to failings on the part of individuals. More to the point would be traditional archaeology's view of culture as the sum of culture traits, and the use of logical induction rather than the standard scientific method of deductive reasoning (1968:26-27).

Traditional archaeology is characterized by a normative view of culture, dealing with the modes or norms of a society (K.V. Flannery in Leone, 1972:103-104) which made the ideological basis of culture the prime focus of study through artifacts (Binford, 1972:196-197). Interestingly, Walter Taylor subscribed to a normative view of culture, defining it on two levels. The first, a holistic concept of learned, cumulative, mental patterns for behavior used to understand and react to experience and held individually, and the second was a partative concept of the above, a traditional system of traits that can be separated into a cohesive segment of the whole of culture and shared among a group, or "society" (1948:98,100-101,109-110). Culture in this view is transmitted through learning and diffusion according to the opportunities for social interaction avail-
able, and decreasing as the social distance increases. Discontinuous
distribution of culture under this system is thought to result from the
influence of natural barriers to contact, inhibitions in societal value
systems, or the intrusion of new peoples (Binford, 1972:196-197). Pat-
terning reflected in artifacts indicates the degree of shared ideas in
culture, and used typology to measure this (Binford, 1972:250). Variability
of patterning in culture was expected to be limited, change being gradual
and noted by relative frequencies of artifact taxa, an increase in the
number of taxa recognized over time, and a transformational sequence of
artifact development (Binford, 1972:252). Practices (and patterns)
within a culture were thought to be originally uniform and distinct from
other cultures; multiple practices (and patterns) of a cultural function
are thus due to outside influence (Binford, 1972:236). Formal similarity
among independent units is a measure of genetic relationship or affiliation
between those units, and variability here is due to interruptions of the
flow of information through the population, change due to accretion of new
ideas, innovations, or borrowings, or separate cultural population move-
ments (Binford, 1972:238, 252). The entire focus of this system is on the
relationships outside of any cultural unit under investigation, using
taxonomic and spatio-temporal or chronological sequences based on the
presence or absence of manifestations of culture in comparable units (Taylor, 1948:79, 95). The system is somewhat limited due to the difficulties in determining archaeologically the difference between traits arising organic to a culture, traits diffused to it, and traits linked genetically in it (Binford, 1968:8).

Walter W. Taylor felt this to be unrewarding, and attempted to remedy the situation by proposing an alternative, the "conjunctive approach", describing human cultures with a focus on interrelationships within a culture rather than relationships outside of the culture (1948:7). He attempted to interpret the materials produced by archaeology in terms of the non-material aspects of cultural behavior (1948:95-96). Taylor felt that the archaeologist should define his subject, a human group, on spatial data, and separate the archaeological information inferentially, paying attention to the affinities and relationships between the artifacts and their environments (1948:113), developing a cohesive cultural base on which to define a social group, and determine a culture context for the group, which can then be compared with the contexts of other groups, typing and classifying the data in order to bring out similarities or differences that indicate the relationships between groups (1948:147-148). As can be seen, this is largely an application of the traditional framework of theory to a new type of data dealing with a new focus of subject matter. It should be borne in
mind that it was intended to apply inside a culture, a point that escaped some of Taylor's critics; his synthesis of the data did not give a clear concept of the culture in general (Woodbury, 1954:295). It was not meant to do so, however, being aimed at producing particular information on the culture itself. Consequently, Taylor voiced disapproval of the chronicle and temporal cultural relationship studies then in vogue; despite his opponents' claims, these did not produce the proper data for the conjunctive approach (Woodbury, 1954:293).

M.P. Leone makes a more valid point that recreation (or more properly, construction—Taylor in Leone, 1972:31) of past lifeways is not possible with modern technical abilities, the data being difficult to acquire and more easily handled in other disciplines (Leone, 1972:21, 25). This point was noted early on (Woodbury, 1954:292), and resulted in archaeology's rejection of anthropological functionalism as a paradigm, one of the reasons for the confusion in theory found today, archaeology previously having gotten its theoretical base from general anthropology (Leone, 1972:25).

In more recent years Lewis R. Binford has attempted to remedy this situation by developing a new view of the nature of culture. Binford felt that culture should be seen as man's extrasomatic means of adaptation to the environment, and simply this applied in a specific instance (or niche, presumably) in the partative sense. Culture is not seen as
being shared, but rather, participated in (Binford, 1972:198). Culture in particular is viewed as being partitioned into inter-related systems of energy, matter, and information. These systems have form and structure, which can itself modify the form (Binford, 1972:236). Practices in culture are variable and diversified in direct relationship to the complexity and social organization of the group studied, and multiple practices are expected as a by-product of cultural evolution (Binford, 1972:236-237). Taxonomy should reflect the multivariate nature of culture and its independently operating variables (Binford, 1972:199). Evolution operates selectively on different groups, and variability is produced in those groups independently of other cultures. The purpose of archaeology is to explain how this is done (Binford, 1972:238). K.V. Flannery calls this the process school, viewing a culture as overlapping or articulated subsystems of culture (Leone, 1972:103). Binford defines process as the dynamics of cause and effect operating in a system between its components or between the system and its environment responsible for changes in the organization or content of a culture or the integration of new formal components into the system (1968:14 and 1972:117).

The new archaeologists have a new idea on the nature of the archaeological record as well. The data include not only artifacts or similar cultural items, but features such as hearths, trash heaps, post holes, etc.,
for their own sake, not merely for what can be found in them, and activity loci as well as non-artifactual data of some relevance, which M.P.~eone calls "ecofacts" (all from Leone,1972:164-167). The data are expressions and statements about cultural subsystems, and all artifacts operate in all cultural subsystems to some degree, and can be made potentially to inform on any subsystem, artifacts being assumed to be mutually, if unequally, interdependent on all subsystems of a system. Variation in an artifact class represents variation in the subsystems in which an artifact operates; hence, it is the variation range that is important in this theory rather than the normal type (Leone,1972:89-90). Because of this interdependence, factors that influence design and use of artifacts influence other areas as well, giving Binford the idea that the archaeological record preserves information on all aspects of culture (1968:22). K.C.Chang feels that this may even extend as far as the cognitive systems of the people in a culture (Chang,1967:228). Not all will agree with these extreme viewpoints, but as Taylor points out, even if the use, meaning, or function of an artifact is never known, some pertinent points of information may always be gleaned from the data on materials, style, or method of manufacture (1948:170). Binford's point is derivable from his theoretical base, however, and he points out that the limits of the archaeological record have never been experimentally established, making state-
ments that the record cannot inform on some subjects to be speculative (1968:22).

The systemic or process school of thought utilizes variation rather differently than the traditional or comparative school. Sally R. Binford states that variability between lithic assemblages on the same level of culture reflects differences in jobs performed with the artifacts, differing type of settlement or utilization of the site, replacement of one functional unit for another (keyed to stylistic variability), or error in sampling on the part of the investigator. She also supports the view of function as most natural to the analysis of variability and an understanding of the multiple determinants that cause the nature of an assemblage (in Binford, 1968:50). Variation between assemblages within a site may represent activity variants rather than culture change or separate traditions. Variability between sites may represent differences in settlement type rather than regional traditions. Since change is thought to be due to evolutionary adaptive pressure, transitions should be viewed at the basis of the adaptation, rather than in the tool types developed within the frame of adaptation. Tools tend to change from less efficient to more inefficient quickly and replace rather than supplement the older types. This is an example of functional change; style change is less abrupt and more additive, and shows less likelihood of clustering in time (J.R. Binford
in Binford, 1968:54, 57). Robert Whallon, Jr. writes that style can be related to sociocultural systems in which the item was produced and functioned. Style has aspects and levels of behavior that can be analyzed and measured. The nature of diffusion of stylistic practices and ideas within and between groups is determined by the nature of interactions among artisans, which are defined by or are the result of the social organization of their groups (in Binford, 1968, 223). L.R. Binford says that style cross-cuts functional categories, and helps social cohesion by giving members of a group a focus of identity in through the use of distinctive patterns (1972:25).

One of the major points made by Taylor was an increased use of inference from the data. As there were few known ways to test inferences in the first half of this century, few persons desired to stick their necks out on statements that couldn't be verified. Taylor tried to combat this by pointing out that all archaeological interpretation was basically inferential, and a little more of it couldn't hurt, but he produced no set of method for making it any safer to do in print (Taylor, 1948: 145, 156-157 and Binford, 1972:8), although he seemed to recognize the need for it (1948: 5-7). The problem is more acute today. F.T. Plog points out that few archaeologists can use material produced by another archaeologist, there being no useful or relevant data (which was not the case with the
traditional comparative school). One only collects what one has been taught to collect, or intends to collect. This unsatisfactory state can be corrected by assuming for archaeology some simple theoretical models for culture and a finite number of data collection variables (Plog, 1974:5). K.C. Chang feels that these should be derived from ethnography (1967:223), but J.F. Leetez feels that the data produced by archaeology is sufficiently different from that of ethnography to warrant its own set of analogous categories (in Leone, 1972:115). It is an area that needs exploration.

Remote phenomena such as past culture can only be observed indirectly, and means and instruments for observation and interpretable data acquisition are necessary for this (J.M. Fritz in Leone, 1972:136). Typology has long been one of these means and statical analysis of randomly sampled data is becoming important (Sonia Ragir in Leone, 1972:178, 181).

"Explication and explanation" of the record, or the devising of laws of culture, is facilitated in the new archaeology by embracing the 'scientific method' and basing arguments on deductive logic, rather than inductive logic (Binford, 1972:70 and Fritz & Plog, 1970:405).

Law to the new archaeologist is an explicit statement of relation between two or more variables which is true for all times and places. Laws are produced by hypotheses, which are the basic statements of law,
explicit, plausible, and testable though not confirmed. Hypotheses are confirmed when the relation of variables can be proven to be true (and the more relations so proven, the 'truer' the law), or when the relation can be predicted given the law in data not yet examined (Fritz & Plog, 1970:405). This is most easily seen in statements of cause and effect (Binford, 1972:114-115). There are many ways to produce and test hypotheses which depend mainly on the imagination of the investigator, but one widespread method is cultural analogy. An analogy is a correspondence in function or agreement in one or more other respects, indicating agreement in other respects, the probability of this being dependent on the number and importance of the agreements. Direct-historical analogies, where there is cultural continuity between the societies investigated is most relevant, while general comparisons of artifact behavior or environmental exploitation is less so (Binford, 1972:34-35 and Chang, 1967:229-230). The use of analogy is in the generation of an hypothesis to explain data in the record, such as room construction attributes, and correlating this with other similar examples such as modern room construction attributes. The proposition is tested by correlating independent data in the other examples associated with the hypothesis and looking for analogous data such as associated artifacts (J.N. hill in Binford, 1968:116).
It should not be inferred from the emphasis that the new archaeology has given up inductive logic; this still occupies a strong place in the method of the investigator. However, deduction is given the greater weighting in argument (Binford, 1972:113; Fritz & Plog, 1970:405; and J.M. Fritz in Leone, 1972:135-157).

It may be noted from the foregoing that Taylor's desire for more inference is being fulfilled today, but with a stress on the testing of hypotheses and control of data that he did not make. None the less, it is difficult to evaluate the usefulness of current theory or classification (which is part of theory) because of implicit assumptions that underly these. Just why a hearth is a hearth, a chopper a chopper, or a point a point is seldom made explicit, and thus amenable to testing and verification (Fritz & Plog, 1970:407-408, 411-412). These examples may not be very important, but the do relate to a state of mind that takes one's assumptions seriously.

Current archaeological thought has expanded in recent years, with much more being done in more diverse areas than previously, but some major trends stand out:

There is an increased focus on the systemic nature of culture, a theory of integrated cultural practices that has expanded the data derived from the archaeological record.
There is stress on more exacting control of data acquisition and processing (both the above from J.F. Deetz in Leone, 1972:110). This has produced increased interest in Historical archaeology and material culture, as these fields have the additional value of control by means of records or other sources outside the standard archaeological record (R.L. Schuyler in Leone, 1972:123-124). This requires better inter-field relationships between ethnologists and archaeologists, perhaps with each having a grounding in the others' discipline (Binford, 1968:345-346 and 1972:62-63) in order to give the ethnologists a sense of temporal depth and give the archaeologist a better source of analogy (Riley, 1967:239 and Chang, 1967:233). We know some of the effects of culture on technology today; perhaps this new data will enable us to delineate the impact of technology on culture (Leone, 1972:26-27).

Another trend (Deetz in Leone, 1972:110) is a concern over the proper use and role of analogy that may be produced by the instances listed above.

Lastly, current thought has developed a new concept of the nature of culture as a means of adaption to ecological pressures, which has expanded the number of possible reasons for culture change. This has produced much interest in cultural ecology, which holds the content and
structure of a society to be primarily or wholly determined by technology and sociodemography developed in exploiting the environment. Analysis is directed at economic tasks, extraction of natural resources, and their consumption as food or manufacture as implements, inorder to determine the nature of the tasks performed and the composition of the groups performing them (J.K. Sackett in Binford, 1968:70), even though these data may be the most difficult to secure (Taylor, 1948:191).

Archaeology has contributed precision of description to anthropology, deriving this from a care for descriptive rigor, with all of its techniques of acquisition and description of data, and the difference between native and analytical categories. Archaeology has marshalled geography, demography, ecology, and biology in support of anthropology for the understanding of cultural behavior (Leone, 1972:xii-xiii). It may soon marshall a few more ideas (K.V. Flannery in Leone, 1972:107). The upcoming years look to be interesting for the archaeologists of the world.
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