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ARCHAEOLOGY AS ANTHROPOLOGY

LEWIS R. BINFORD

ABSTRACT

It is argued that archaeology has made few contributions to the general field of anthropology with regard to explaining cultural similarities and differences. One major factor contributing to this lack is asserted to be the tendency to treat artifacts as equal and comparable traits which can be explained within a single model of culture change and modification. It is suggested that "material culture" can and does represent the structure of the total cultural system, and that explanations of differences and similarities between certain classes of material culture are inappropriate and inadequate as explanations for such observations within other classes of items. Similarly, change in the total cultural system must be viewed in an adaptive context both social and environmental, not whimsically viewed as the result of "influences," "stimuli," or even "migrations" between and among geographically defined units.

Three major functional sub-classes of material culture are discussed: technomic, socio-technic, and ideo-technic, as well as stylistic formal properties which cross-cut these categories. In general terms these recognized classes of materials are discussed with regard to the processes of change within each class.

Using the above distinctions in what is termed a systemic approach, the problem of the appearance and changing utilization of native copper in eastern North America is discussed. Hypotheses resulting from the application of the systemic approach are: (1) the initial appearance of native copper implements is in the context of the production of socio-technic items; (2) the increased production of socio-technic items in the late Archaic period is related to an increase in population following the shift to the exploitation of aquatic resources roughly coincident with the Nipissing high water stage of the ancestral Great Lakes; (3) this correlation is explicable in the increased selective pressures favoring material means of status communication once populations had increased to the point that personal recognition was no longer a workable basis for differential role behavior; (4) the general shift in later periods from formally "utilitarian" items to the manufacture of formally "nonutilitarian" items of copper is explicable in the postulated shift from purely egalitarian to increasingly nonegalitarian means of status attainment.

IT HAS BEEN aptly stated that "American archaeology is anthropology or it is nothing" (Willey and Phillips 1958: 2). The purpose of this discussion is to evaluate the role which the archaeological discipline is playing in furthering the aims of anthropology and to offer certain suggestions as to how we, as archaeologists, may profitably shoulder more responsibility for furthering the aims of our field.

Initially, it must be asked, "What are the aims of anthropology?" Most will agree that the integrated field is striving to *explicate* and *explain* the total range of physical and cultural similari-

ties and differences characteristic of the entire spatial-temporal span of man's existence (for discussion, see Kroeber 1953). Archaeology has certainly made major contributions as far as *explication* is concerned. Our current knowledge of the diversity which characterizes the range of extinct cultural systems is far superior to the limited knowledge available fifty years ago. Although this contribution is "admirable" and necessary, it has been noted that archaeology has made essentially no contribution in the realm of explanation: "So little work has been done in American archaeology on the explanatory level that it is difficult to find a name for it" (Willey and Phillips 1958: 5).

Before carrying this criticism further, some statement about what is meant by explanation must be offered. The meaning which explanation has within a scientific frame of reference is simply the *demonstration* of a constant articulation of variables within a system and the measurement of the concomitant variability among the variables within the system. Processual change in one variable can then be shown to relate in a predictable and quantifiable way to changes in other variables, the latter changing in turn relative to changes in the structure of the system as a whole. This approach to explanation presupposes concern with process, or the operation and structural modification of systems. It is suggested that archaeologists have not made major explanatory contributions to the field of anthropology because they do not conceive of archaeological data in a systemic frame of reference. Archaeological data are viewed particularistically and "explanation" is offered in terms of specific events rather than in terms of process (see Buettner-Janusch 1957 for discussion of particularism).

Archaeologists tacitly assume that artifacts, regardless of their functional context, can be treated as equal and comparable "traits." Once differences and similarities are "defined" in terms of these equal and comparable "traits," interpretation proceeds within something of a theoretical vacuum that conceives of differences and similarities as the result of "blending," "directional influences," and "stimulation" between and among "historical traditions" defined largely on the basis of postulated local or regional continuity in the human populations.

I suggest that this undifferentiated and unstructured view is inadequate, that artifacts having their primary functional context in different operational sub-systems of the total cultural system will exhibit differences and similarities differentially, in terms of the structure of the cultural system of which they were a part. Further, that the temporal and spatial spans within and between broad functional categories will vary with the structure of the systematic relationships between socio-cultural systems. Study of these differential distributions can potentially yield valuable information concerning the nature of social organization within, and changing relationships between, socio-cultural systems. In short, the explanation of differences and similarities between archaeological complexes must be offered in terms of our current knowledge of the structural and functional characteristics of cultural systems.

Specific "historical" explanations, if they can be demonstrated, simply explicate mechanisms of cultural process. They add nothing to the explanation of the processes of cultural change and evolution. If migrations can be shown to have taken place, then this explication presents an explanatory problem; what adaptive circumstances, evolutionary processes, induced the migration (Thompson 1958: 1)? We must seek explanation in systemic terms for classes of historical events such as migrations, establishment of "contact" between areas previously isolated, etc. Only then will we make major contributions in the area of explanation and provide a basis for the further advancement of anthropological theory.

As an exercise in explication of the methodological questions raised here, I will present a general discussion of a particular systemic approach in the evaluation of archaeological assemblages and utilize these distinctions in an attempted *explanation* of a particular set of archaeological observations.

Culture is viewed as the extra-somatic means of adaptation for the human organism (White 1959: 8). I am concerned with all those sub-systems within the broader cultural system which are: (a) extra-somatic or not, dependent upon biological process for modification or structural definition (this is not to say that the form and process cannot be viewed as rooted in biological process, only that diversity and processes of diversification are not explicable in terms of biological process), and which (b) function to

adapt the human organism, conceived generically, to its total environment both physical and social.

Within this framework it is consistent to view technology, those tools and social relationships which articulate the organism with the physical environment, as closely related to the nature of the environment. For example, we would not expect to find large quantities of fishhooks among the recent archaeological remains from the Kalahari desert! However, this view must not be thought of as "environmental determinism" for we assume a systematic relationship between the human organism and his environment in which culture is the intervening variable. In short, we are speaking of the ecological system (Steward 1955: 36). We can observe certain constant adaptive requirements on the part of the organism and similarly certain adaptive limitations, given specific kinds of environment. However, limitations as well as the potential of the environment must be viewed always in terms of the intervening variable in the human ecological system, that is, culture.

With such an approach we should not be surprised to note similarities in technology among groups of similar levels of social complexity inhabiting the boreal forest (Spaulding 1946) or any other broad environmental zone. The comparative study of cultural systems with variable technologies in a similar environmental range or similar technologies in differing environments is a major methodology of what Steward (1955: 36-42) has called "cultural ecology," and certainly is a valuable means of increasing our understanding of cultural processes. Such a methodology is also useful in elucidating the structural relationships between major cultural sub-systems such as the social and ideological sub-systems. Prior to the initiation of such studies by archaeologists we must be able to distinguish those relevant artifactual elements within the total artifact assemblage which have the primary functional context in the social, technological, and ideological sub-systems of the total cultural system. We should not equate "material culture" with technology. Similarly we should not seek explanations for observed differences and similarities in "material culture" within a single interpretative frame of reference. It has often been suggested that we cannot dig up a social system or ideology. Granted we cannot excavate a kinship terminology or a philosophy, but we can and do exca-

vate the material items which functioned together with these more behavioral elements within the appropriate cultural sub-systems. The formal structure of artifact assemblages together with the between element contextual relationships should and do present a systematic and understandable picture of the *total extinct* cultural system. It is no more justifiable for archaeologists to attempt explanation of certain formal, temporal, and spatial similarities and differences within a single frame of reference than it would be for an ethnographer to attempt explanation of differences in cousin terminology, levels of socio-cultural integration, styles of dress, and modes of transportation all with the same variables or within the same frame of reference. These classes or items are articulated differently within an integrated cultural system, hence the pertinent variables with which each is articulated, and exhibit concomitant variation are different. This fact obviates the single explanatory frame of reference. The processes of change pertinent to each are different because of the different ways in which they function in contributing to the total adaptive system.

Consistent with this line of reasoning is the assertion that we as archaeologists must face the problem of identifying *technomic* artifacts from other artifactual forms. Technomic signifies those artifacts having their primary functional context in coping directly with the physical environment. Variability in the technomic components of archaeological assemblages is seen as primarily explicable in the ecological frame of reference. Here, we must concern ourselves with such phenomena as extractive efficiency, efficiency in performing bio-compensatory tasks such as heat retention, the nature of available resources, their distribution, density, and loci of availability, etc. In this area of research and explanation, the archaeologist is in a position to make a direct contribution to the field of anthropology. We can directly correlate technomic items with environmental variables since we can know the distribution of fossil flora and fauna from independent data — giving us the nature of extinct environments.

Another major class of artifacts which the archaeologists recover can be termed *socio-technic*. These artifacts were the material elements having their primary functional context in the social sub-systems of the total cultural system. This sub-system functions as the extra-somatic means of articulating individuals one with an-

other into cohesive groups capable of efficiently maintaining themselves and of manipulating the technology. Artifacts such as a king's crown, a warrior's coup stick, a copper from the Northwest coast, etc., fall into this category. Changes in the relative complexity of the socio-technic component of an archaeological assemblage can be related to changes in the structure of the social system which they represent. Certainly the evolutionary processes, while correlated and related, are not the same for explaining structural changes in technological and social phenomena. Factors such as demography, presence or absence of between-group competition, etc., as well as the basic factors which affect technological change, must be considered when attempting to explain social change. Not only are the relevant variables different, there is a further difference when speaking of socio-technic artifacts. The explanation of the basic form and structure of the socio-technic component of an artifactual assemblage lies in the nature and structure of the social system which it represents. Observable differences and changes in the socio-technic components of archaeological assemblages must be explained with reference to structural changes in the social system and in terms of processes of social change and evolution.

Thus, archaeologists can initially only indirectly contribute to the investigation of social evolution. I would consider the study and establishment of correlations between types of social structure classified on the basis of behavioral attributes and structural types of material elements as one of the major areas of anthropological research yet to be developed. Once such correlations are established, archaeologists can attack the problems of evolutionary change in social systems. It is my opinion that only when we have the entire temporal span of cultural evolution as our "laboratory" can we make substantial gains in the critical area of social anthropological research.

The third major class of items which archaeologists frequently recover can be termed *ideo-technic artifacts*. Items of this class have their primary functional context in the ideological component of the social system. These are the items which signify and symbolize the ideological rationalizations for the social system and further provide the symbolic milieu in which individuals are enculturated, a necessity if they are to take their place as functional participants

in the social system. Such items as figures of deities, clan symbols, symbols of natural agencies, etc., fall into this general category. Formal diversity in the structural complexity and in functional classes of this category of items must generally be related to changes in the structure of the society, hence explanations must be sought in the local adaptive situation rather than in the area of "historical explanations." As was the case with socio-technic items, we must seek to establish correlations between generic classes of the ideological system and the structure of the material symbolism. Only after such correlations have been established can archaeologists study in a systematic way this component of the social sub-system.

Cross-cutting all of these general classes of artifacts are formal characteristics which can be termed stylistic, formal qualities that are not directly explicable in terms of the nature of the raw materials, technology of production, or variability in the structure of the technological and social sub-systems of the total cultural system. These formal qualities are believed to have their primary functional context in providing a symbolically diverse yet pervasive artifactual environment promoting group solidarity and serving as a basis for group awareness and identity. This pan-systemic set of symbols is the milieu of enculturation and a basis for the recognition of social distinctiveness. "One of the main functions of the arts as communication is to reinforce belief, custom, and values" (Beals and Hoijer 1955: 548). The distribution of style types and traditions is believed to be largely correlated with areas of commonality in level of cultural complexity and in mode of adaptation. Changes in the temporal-spatial distribution of style types are believed to be related to changes in the structure of socio-cultural systems either brought about through processes of in situ evolution, or by changes in the cultural environment to which local socio-cultural systems are adapted, thereby initiating evolutionary change. It is believed that stylistic attributes are most fruitfully studied when questions of ethnic origin, migration, and interaction between groups is the subject of explication. However, when explanations are sought, the total adaptive context of the socio-cultural system in question must be investigated. In this field of research archaeologists are in an excellent position to make major contributions to the general field of anthropology, for we can work directly in terms of

correlations of the structure of artifact assemblages with rates of style change, directions of style-spread, and stability of style-continuity.

Having recognized three general functional classes of artifacts: technomic, socio-technic, and ideo-technic, as well as a category of formal stylistic attributes, each characterized by differing functions within the total cultural system and correspondingly different processes of change, it is suggested that our current theoretical orientation is insufficient and inadequate for attempting explanation. It is argued that explanations of differences and similarities between archaeological assemblages as a whole must first consider the nature of differences in each of these major categories and only after such evaluation can adequate explanatory hypotheses be offered.

Given this brief and oversimplified introduction, I will turn to a specific case, the Old Copper complex (Wittry and Ritzenthaler 1956). It has long been observed and frequently cited as a case of technological "devolution" that during the Archaic period fine and superior copper utilitarian tools were manufactured, whereas, during Early and Middle Woodland times copper was used primarily for the production of nonutilitarian items (Griffin 1952: 356). I will explore this interesting situation in terms of: (1) the frame of reference presented here, (2) generalizations which have previously been made concerning the nature of culture change, and (3) a set of hypotheses concerning the relationships between certain forms of socio-technic artifacts and the structure of the social systems that they represent.

The normal assumption when thinking about the copper artifacts typical of the Old Copper complex is that they are primarily technomic (manufactured for use in directly coping with the physical environment). It is generally assumed that these tools were superior to their functional equivalents in both stone and bone because of their durability and presumed superiority in accomplishing cutting and piercing tasks. It is a common generalization that within the realm of technology more efficient forms tend to replace less efficient forms. The Old Copper case seems to be an exception.

Absolute efficiency in performance is only one side of the coin when viewed in an adaptive context. Adaptive efficiency must also be viewed in terms of *economy*, that is, energy expenditure versus energy conservation (White

1959: 54). For one tool to be adaptively more efficient than another there must be either a lowering of energy expenditure per unit of energy of conservation in task performance, or an increase in energy conservation per unit of performance over a constant energy expenditure in tool production. Viewed this way, we may question the position that copper tools were technologically more efficient. The production of copper tools utilizing the techniques employed in the manufacture of Old Copper specimens certainly required tremendous expenditures of both time and labor. The sources of copper are not in the areas of most dense Old Copper implements (Wittry 1951), hence travel to the sources, or at least the establishment of logistics networks based on kin ties extending over large areas, was a prerequisite for the procurement of the raw material. Extraction of the copper, using the primitive mining techniques exemplified by the aboriginal mining pits on Isle Royale and the Keewenaw Peninsula (Holmes 1901), required further expenditure of time and labor. Raw materials for the production of the functional equivalents of the copper tools was normally available locally or at least available at some point within the bounds of the normal exploitative cycle. Extraction was essentially a gathering process requiring no specialized techniques, and could be accomplished incidental to the performance of other tasks. Certainly in terms of expenditures of time and energy, as regards the distribution of sources of raw materials and techniques of extraction, copper required a tremendous expenditure as opposed to raw materials of stone and bone.

The processing phase of tool production appears to present an equally puzzling ratio with regard to expenditure of energy. The processing of copper into a finished artifact normally requires the separation of crystalline impurities from the copper. Following this processing phase, normal procedure seems to have been to pound and partially flatten small bits of copper which were then pounded together to "build" an artifact (Cushing 1894). Once the essential shape had been achieved, further hammering, grinding, and polishing were required. I suggest that this process is more time consuming than shaping and finishing an artifact by chipping flint, or even the pecking and grinding technique employed in the production of ground stone tools. It follows that there was a much greater expenditure of time and energy in the produc-

tion of copper tools than in the production of their functional equivalents in either bone or stone.

Turning now to the problem of energy conservation in task performance, we may ask what differentials existed. It seems fairly certain that copper was probably more durable and could have been utilized for a longer period of time. As far as what differentials existed between copper and stone, as regards cutting and piercing functions, only experiments can determine. Considering all of the evidence, the quality of durability appears to have been the only possible realm which could compensate for the differentials in expenditure of energy between stone and bone as opposed to copper in the area of procurement and processing of the raw material. What evidence exists that would suggest that durability was in fact the compensatory quality which made copper tools technologically more efficient?

All the available evidence suggests the contrary interpretation. First, we do not have evidence that the raw material was re-used to any great extent once an artifact was broken or "worn out." If this had been the case, we would expect to have a general lack of battered and "worn out" pieces and some examples of reworked pieces, whereas evidence of use is a common characteristic of recovered specimens, and to my knowledge reworked pieces are uncommon if not unknown.

Second, when found in a primary archaeological context, copper tools are almost invariably part of burial goods. If durability was the compensatory factor in the efficiency equation, certainly some social mechanism for retaining the copper tools as functioning parts of the technology would have been established. This does not appear to have been the case. Since durability can be ruled out as the compensatory factor, we must conclude that copper tools were not technologically more efficient than their functional equivalents in both stone and bone. Having reached this "conclusion," it remains to explore the problem of the initial appearance of copper tools and to examine the observation that there was a shift from the use of copper for the production of utilitarian tools to nonutilitarian items.

It is proposed that the observed shift and the initial appearance of copper tools can best be explained under the hypothesis that they did not function primarily as *technomic items*. I

suggest that in both the Old Copper and later cultural systems to the south, copper was utilized primarily for the production of *socio-technic items*.

Fried (1960) discusses certain pertinent distinctions between societies with regard to systems of status grading. Societies on a low general level of cultural complexity, measured in terms of functional specialization and structural differentiation, normally have an "egalitarian" system of status grading. The term "egalitarian" signifies that status positions are open to all persons within the limits of certain sex and age classes, who through their individual physical and mental characteristics are capable of greater achievement in coping with the environment. Among societies of greater complexity, status grading may be less egalitarian. Where ranking is the primary mechanism of status grading, status positions are closed. There are qualifications for attainment that are not simply a function of one's personal physical and mental capabilities.

A classic example of ranking is found among societies with a ramage form of social organization (Sahlins 1958: 139-180). In such societies status is determined by one's proximity in descent from a common ancestor. High status is accorded those in the direct line of descent, calculated in terms of primogeniture, while cadet lines of descent occupy positions of lower status depending on their proximity to the direct line.

Another form of internally ranked system is one in which attainment of a particular status position is closed to all except those members of a particular kin group who may occupy a differentiated status position, but open to all members of that kin group on an egalitarian basis.

Other forms of status grading are recognized, but for the purposes of this discussion the major distinction between egalitarian and ranked systems is sufficient. I propose that there is a direct relationship between the nature of the system of status grading within a society and the quantity, form, and structure of socio-technic components of its archaeological assemblage.

It is proposed that among egalitarian societies status symbols are symbolic of the technological activities for which outstanding performance is rewarded by increased status. In many cases they will be formally technomic items manufactured of "exotic" material or elaborately decor-

ated and/or painstakingly manufactured. I do not imply that the items could not or were not used technomically, simply that their presence in the assemblage is explicable only in reference to the social system.

Within such a system the structure of the socio-technic component as regards "contextual" relationships should be simple. Various status symbols will be possessed by nearly all individuals within the limits of age and sex classes, differentiation within such a class being largely quantitative and qualitative rather than by formal exclusion of particular forms to particular status grades. The degree to which socio-technic symbols of status will be utilized within an egalitarian group should largely be a function of group size and the intensity and constancy of personal acquaintance among all individuals composing the society. Where small group size and general lack of interaction with nearby groups is the normal pattern, then the abundance of status symbols should be low. Where group size is large and/or where between-group interactions are widespread, lowering the intimacy and familiarity between interacting individuals, then there should be a greater and more general use of material means of status communication.

Another characteristic of the manipulation of status symbols among societies with essentially egalitarian systems of status grading would be the destruction at death of an individual's symbols of status. Status attainment being egalitarian, status symbols would be personalities and could not be inherited as such. Inclusion as grave accompaniments or outright destruction would be the suggested mode of disposal for status items among such groups.

Among societies where status grading tends to be of a nonegalitarian type, the status symbols should be more esoteric in form. Their form would normally be dictated by the ideological symbolism which rationalizes and emphasizes the particular internal ranking system or the means of partitioning the society. The structure of the socio-technic component of the assemblage should be more complex, with the complexity increasing directly as the complexity of the internal ranking system. Possession of certain forms may become exclusively restricted to certain status positions. As the degree of complexity in ranking increases there should be a similar increase in the differentiation of contextual associations in the form of differential

treatment at death, differential access to goods and services evidenced in the formal and spatial differentiation in habitations and storage areas, etc. We would also expect to observe differentiation among the class of status symbols themselves as regards those which were utilized on a custodial basis as opposed to those that were personalities. Similarly, we would expect to see status symbols more frequently inherited at death as inheritance increases as the mechanism of status ascription.

Certainly these are suggestions which must be phrased as hypotheses and tested against ethnographic data. Nevertheless it is hoped that this discussion is sufficient to serve as a background against which an explanatory hypothesis concerning the Old Copper materials can be offered as an example of the potential utility of this type of systemic approach to archaeological data.

I suggest that the Old Copper copper tools had their primary functional context as symbols of achieved status in cultural systems with an egalitarian system of status grading. The settlement patterns and general level of cultural development suggested by the archaeological remains is commensurate with a band level of socio-cultural integration (Martin, Quimby, and Collier 1947: 299), that level within which egalitarian systems of status grading are dominant (Fried 1960). The technomic form, apparent lack of technomic efficiency, relative scarcity, and frequent occurrence in burials of copper artifacts all suggest that their primary function was as socio-technic items. Having reached this "conclusion," we are then in a position to ask, in systemic terms, questions concerning their period of appearance, disappearance, and the shift to nonutilitarian forms of copper items among later prehistoric socio-cultural systems of eastern North America.

I propose that the initial appearance of formally "utilitarian" copper tools in the Great Lakes region is explicable in terms of a major population expansion in the region following the Nipissing stage of the ancestral Great Lakes. The increase in population density was the result of increases in gross productivity following an exploitative shift to aquatic resources during the Nipissing stage. The increased populations are generally demonstrable in terms of the increased number of archaeological sites ascribable to the post-Nipissing period. The shift to

aquatic resources is demonstrable in the initial appearance of quantities of fish remains in the sites of this period and in the sites of election for occupation, adjacent to prominent loci of availability for exploiting aquatic resources. It is proposed that with the increasing population density, the selective pressures fostering the symbolic communication of status, as opposed to the dependence on personal recognition as the bases for differential role behavior, were sufficient to result in the initial appearance of a new class of socio-technic items, formally technomic status symbols.

The failure to perpetuate the practice of the manufacture of copper tools on any extensive basis in the Great Lakes region should be explicable in terms of the changing structure of the social systems in that area during Woodland times. The exact type of social structure characteristic of Early Woodland period is at present poorly understood. I would suggest that there was a major structural change between the Late Archaic and Early Woodland periods, probably in the direction of a simple clan and moiety basis for social integration with a corresponding shift in the systems of status grading and the obsolescence of the older material means of status communication.

The presence of copper tools of essentially nonutilitarian form within such complexes as Adena, Hopewell, and Mississippian are most certainly explicable in terms of their socio-technic functions within much more complex social systems. Within the latter societies status grading was not purely on an egalitarian basis, and the nonutilitarian copper forms of status symbols would be formally commensurate with the ideological rationalizations for the various ascriptive status systems.

This explanatory "theory" has the advantage of "explaining": (1) the period of appearance of copper and probably other "exotic" materials in the Late Archaic period; (2) the form of the copper items; (3) their frequently noted contextual relations, for example, placement in burials; (4) their disappearance, which would be an "enigma" if they functioned primarily as technomic items; and (5) the use of copper for the almost exclusive production of "nonutilitarian" items in later and certainly more complex cultures of the eastern United States. This explanatory theory is advanced on the basis of currently available information, and regardless

of whether or not it can stand as the correct explanation of the "Old Copper Problem" when more data are available, I suggest that only within a systemic frame of reference could such an inclusive explanation be offered. Here lies the advantage of the systemic approach.

Archaeology must accept a greater responsibility in the furtherance of the aims of anthropology. Until the tremendous quantities of data which the archaeologist controls are used in the solution of problems dealing with cultural evolution or systemic change, we are not only failing to contribute to the furtherance of the aims of anthropology but retarding the accomplishment of these aims. We as archaeologists have available a wide range of variability and a large sample of cultural systems. Ethnographers are restricted to the small and formally limited extant cultural systems.

Archaeologists should be among the best qualified to study and directly test hypotheses concerning the process of evolutionary change, particularly processes of change that are relatively slow, or hypotheses that postulate temporal-processual priorities as regards total cultural systems. The lack of theoretical concern and rather naïve attempts at explanation which archaeologists currently advance must be modified.

I have suggested certain ways that could be a beginning in this necessary transition to a systemic view of culture, and have set forth a specific argument which hopefully demonstrates the utility of such an approach. The explanatory potential which even this limited and highly specific interpretative approach holds should be clear when problems such as "the spread of an Early Woodland burial cult in the Northeast" (Ritchie 1955), the appearance of the "Buzzard cult" (Waring and Holder 1945) in the Southeast, or the "Hopewell decline" (Griffin 1960) are recalled. It is my opinion that until we as archaeologists begin thinking of our data in terms of total cultural systems, many such prehistoric "enigmas" will remain unexplained. As archaeologists, with the entire span of culture history as our "laboratory," we cannot afford to keep our theoretical heads buried in the sand. We must shoulder our full share of responsibility within anthropology. Such a change could go far in advancing the field of archaeology specifically, and would certainly advance the general field of anthropology.

BEALS, RALPH L. AND HARRY HOIJER

1953 *An Introduction to Anthropology*. The Macmillan Company, New York.

BUETTNER-JANUSCH, JOHN

1957 Boas and Mason: Particularism versus Generalization. *American Anthropologist*, Vol. 59, No. 2, pp. 318-24. Menasha.

CUSHING, F. H.

1894 Primitive Copper Working: An Experimental Study. *American Anthropologist*, Vol. 7, No. 1, pp. 93-117. Washington.

FRIED, MORTON H.

1960 On the Evolution of Social Stratification and the State. In *"Culture in History: Essays in Honor of Paul Radin"*, edited by Stanley Diamond, pp. 713-31. Columbia University Press, New York.

GRIFFIN, JAMES B.

1952 Culture Periods in Eastern United States Archaeology. In *Archaeology of Eastern United States*, edited by James B. Griffin, pp. 352-64. University of Chicago Press, Chicago.

1960 Climatic Change: A Contributory Cause of the Growth and Decline of Northern Hopewellian Culture. *Wisconsin Archeologist*, Vol. 41, No. 2, pp. 21-33. Milwaukee.

HOLMES, WILLIAM H.

1901 Aboriginal Copper Mines of Isle Royale, Lake Superior. *American Anthropologist*, Vol. 3, No. 4, pp. 684-96. New York.

KROEBER, A. L.

1953 Introduction. In: *Anthropology Today*, edited by A. L. Kroeber, pp. xiii-xv. University of Chicago Press, Chicago.

MARTIN, PAUL S., GEORGE I. QUIMBY AND DONALD COLLIER

1947 *Indians Before Columbus*. University of Chicago Press, Chicago.

RITCHIE, WILLIAM A.

1955 Recent Suggestions Suggesting an Early Woodland Burial Cult in the Northeast. *New York State Museum and Science Service, Circular No. 40*. Rochester.

SAHLINS, MARSHALL D.

1958 *Social Stratification in Polynesia*. University of Washington Press, Seattle.

SFAULDING, ALBERT C.

1946 Northeastern Archaeology and General Trends in the Northern Forest Zone. In *"Man in Northeastern North America"*, edited by Frederick Johnson. *Papers of the Robert S. Peabody Foundation for Archaeology*, Vol. 3, pp. 143-67. Phillips Academy, Andover.

STEWART, JULIAN H.

1955 *Theory of Culture Change*. University of Illinois Press, Urbana.

THOMPSON, RAYMOND H.

1958 Preface. In "Migrations in New World Culture History," edited by Raymond H. Thompson, pp. v-vii. *University of Arizona, Social Science Bulletin*, No. 27. Tucson.

WARING, ANTONIO J. AND PRESTON HOLDER

1945 A Prehistoric Ceremonial Complex in the Southeastern United States. *American Anthropologist*, Vol. 47, No. 1, pp. 1-34. Menasha.

WHITE, LESLIE A.

1959 *The Evolution of Culture*. McGraw-Hill Book Company, New York.

WILLEY, GORDON R. AND PHILIP PHILLIPS

1958 *Method and Theory in Archaeology*. University of Chicago Press, Chicago.

WITTRY, WARREN L.

1951 A Preliminary Study of the Old Copper Complex. *Wisconsin Archeologist*, Vol. 32, No. 1, pp. 1-18. Milwaukee.

WITTRY, WARREN L. AND ROBERT E. RITZENTHALER

1956 The Old Copper Complex: An Archaic Manifestation in Wisconsin. *American Antiquity*, Vol. 21, No. 3, pp. 244-54. Salt Lake City.

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