Historical Archeology Papers: Method and Theory

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HISTORICAL ARCHEOLOGY PAPERS:
METHOD AND THEORY

by

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Prepared by the
INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY
UNIVERSITY OF SOUTH CAROLINA
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THE FUNCTION OF OBSERVATION IN THE ARCHEOLOGICAL PROCESS
The report emerging from any archeological excavation will reflect the theoretical base upon which the archeologist based his research design, and therefore a discussion of archeological reports necessarily involves a consideration of the theoretical base underlying the research. Archeology is increasingly being called on to provide basic data for the interpretation and development of sites considered important enough to warrant scientific investigation. The sponsors of such projects have a right to expect that the result of archeological work will have at least some relation to the questions for which they need some answers. Thus archeologists have two masters, so to speak, the sponsor of their research, and their scientific responsibility to their profession. The fact that the sponsor may require architectural data for the purpose of reconstruction goals for public interpretation, or that his primary concern is with the temporal period represented by an archeological site for purpose of authentication, need not bind the archeologist and prevent him from formulating a valid set of problem oriented research goals of his own relative to the data that might emerge from the site. He does, however, have an obligation to achieve his own scientific as well as his sponsor's developmental goals, and hopefully produce a report that will be of use to archeologists as well as to his sponsor.

Archeologists should clearly spell out to their sponsors in their research proposals what type of information might be expected to emerge from an excavation of an archeological site. Frequently sponsors are expecting from archeology answers that are not going to result from excavation, and it is the archeologist's responsibility to explain where
archeology can contribute to our knowledge of the site and those areas where it is likely to produce little. Often the sponsor is looking for some direct parallel between the historical documentation and the archeological record, and such an expectation is highly unrealistic in many cases.

Because the archeologist must satisfy the demands of his sponsor and his professional responsibility he should not neglect either in his report. This being the case the report should clearly and fully outline the research goals of both the sponsor and the archeologist. This should be followed by a statement of the theoretical base from which the search for these goals will be launched. It should then proceed to explain how these goals were sought through the archeological process, with a synthesis of the nature of the observations made being presented. The data recovered should be presented in the form of a synthesis of the various analyses that were conducted on features, distributions, relationships, artifacts, etc. The cultural-historical integration and interpretation emerging from the synthesis should follow, with any resulting processual explanation in terms of hypothesis and theory being presented in synthesis form. Specific suggestions for further work should be made, as well as recommendations for historic site development if such is planned. In other words, the basic scientific procedure should be followed in report writing of goal and hypothesis formation, observation and data collection, analysis, interpretation, and synthesis and explanation of the results, with suggestions for new hypothesis formation, future research needs, and recommendations for the stabilization and interpretation of the archeological remains. With this format the goals of the sponsor of archeological projects, and those demanded of the archeologist by his role as a
scientist can be met. This basic outline is summarized as follows:

1. outline of research goals and hypotheses
2. theoretical base from which the archeologist is proceeding
3. outline of the archeological process used to attempt to achieve these goals
4. synthesis of the analyses conducted on the various classes of data
5. cultural-historical integration of the data
6. processual explanation in terms of hypothesis and theory
7. suggestions for further archeological research
8. recommendations for stabilization and interpretative development of the archeological remains

When a sponsor of a project wishes to evaluate an archeological report he can refer to this basic outline and see whether or not the report he has in hand meets these basic minimum requirements. If what he has been presented is primarily a description of postholes, pits and potsherds, then he has good reason to complain that he has been had. The comments to follow will focus on a plea for a new direction on the part of historical archeologists to orient their efforts toward the scientific, synthesizing format reflected in the above outline.

The historical archeologist has an increasingly expanding responsibility to inquire beyond the mere validation of a historic site through correlation with documentary evidence; beyond merely listing the presence or absence of artifact types for establishing the temporal position of the site; beyond the revealing of architectural features for the purpose of reconstruction and restoration; beyond exposing ruins for the entertainment of the visiting public to historic sites; and beyond the process of recovery and preservation of relics from the past hoarded into repositories and museums! His view must be as broad as the questions being asked by archeologists, sociologists, anthropologists, ecologists, biologists, archaeo-parasitologists and other scientists who are increasingly turning to historical archeology to reflect some light on their special problems and spheres of interest. However, although archeology is broadening its scope, the primary emphasis will continue to be in the area of material culture where so much must still be explored... (South 1968;1970:54)

The demonstration of patterning of the material remains from archeological sites, and the integrative synthesis of these data in terms of the explanation of progenital cultural patterns, is the direction historical archeology must take to emerge from the sterility of purely
descriptive reporting, and take its place among behavioral disciplines. In historical archeology there is a present emphasis on goals aimed at greater accuracy, authenticity, validity, correlation, personalization, and public interpretation of "historical reality". This emphasis places the focus on history, with archeology acting as a literal handmaiden to the written record. This situation stems from the fact that historical archeology is stimulated and supported by our national historic site preservation-restoration-reconstruction-nostalgia phenomenon. Archeology does make a contribution toward goals dictated by this phenomenon, but these goals are secondary by-products of its primary function, the integrative explication of patterned material remains of culture stemming from human occupation.

The usual emphasis of historical archeology site reports is one of the following:

1. Archeology is used to "fill in" historical documentation.
2. Archeology is used to locate architectural features.
3. Archeology is used to recover artifacts which are then described in great detail, often to no apparent end (psuedo-analysis).
4. Archeology is "correlated" with historical documentation.

Historical archeology site reports seldom rise above one of these levels of presentation, and the reason lies, in this writer's opinion, in the absence of a concentration on the discovery and synthesis of patterned material remains of culture stemming from human occupation. With such a guideline the emphasis must be on synthesis based on detailed analysis. Site reports must be firmly anchored in archeological data, with emphasis on integrative synthesis rather than on the analytical description of data, unless such analysis makes a useful contribution to our knowledge!

Therefore, to conduct an analysis of six gunflints or six projectile points from an archeological site, or an analysis of anything, requires
a research hypothesis under which certain attributes are called for in relation to the design. The recording of no more involved an attribute than "feather-edging" on creamware is on the same level as the multi-attribute recording of a complex set of data for the purpose of determining pattern through sophisticated statistical analysis, provided both statements are made within the framework of the postulates and hypotheses of a research design. The meticulous recording of attributes as an exercise contributes nothing new to our knowledge without the explanation for such data-recording within our research design. Thus the illustration of artifacts simply as a matter of record is a useless procedure if better illustrations of the objects have been published elsewhere, since such illustration does not add to our accumulation of knowledge.

In 1955, J. C. Harrington recognized that historic site archeologists had a compulsion to illustrate every object recovered from a site, and unfortunately such is still often the case:

Unfamiliar as he is with the cultural material encountered, the reporter on historic site excavations feels that he must describe and illustrate every object. This procedure was often necessary with his Indian materials, for he had not been privileged to work with ceramic types which could be neatly characterized by such simple phrases as, for example "Wedgwood creamware" or "Lambeth delftware". He is inclined, therefore, to devote unnecessary space in his report to lengthy objective descriptions when a single word or phrase would suffice. In some cases, however, careful descriptions are needed, as of, for example, the products of local craftsmen. Here, as in field methods, the necessary judgment and selectivity can be acquired only from training and experience (Harrington 1955:1127).

Harrington's statement about "training and experience" might lead one to infer that only through experience could you acquire a sufficient grasp of the historic site materials to successfully avoid the description and illustration of masses of artifact data, but this is just not so for the scientific archeologist. With the numerous sources available for
research of historic site materials; with illustrated examples of ceramics, glassware, etc., often in color plates, an archeologist with a scientific frame of reference can, through a careful study of attributes, etc., write a cogent synthesis of his data at least as good as the usual descriptive reports, and considerably more useful.

Ivor Noël Hume has recently emphasized the need for archeologists to rid their reports of unnecessary descriptive weight:

...the illustration of a few rim sherds of common 18th-century ceramic forms that are already on record as having been found from southern Australia to northern Canada, contributes virtually nothing—unless they happen to be incorrectly described, and so warn the reader to beware of the whole report. I am not saying that this material should not be recorded or that any detail should be omitted from the final manuscript. But I am saying that a small number of copies of that report, cheaply duplicated, and housed in safe, known repositories, is all that is needed. Much more valuable to fellow archeologists, curators, and social historians, are research studies on specific topics, stemming from excavations and which have something new and useful to say. When money and publishing outlets are scarce, it is these studies that will be of the greatest practical value. (Noel Hume 1973:7)

The phrase "research studies...which have something new and useful to say" is the critical one for reflecting the attitude that can be used as the basic yardstick for evaluating the contribution made by an archeological report.

In 1955 the field of historical archeology was not ready for Harrington's advice. Only Harrington and a handful of colleagues were around to listen, and fewer still have heeded his remarks, as emphasized by Noël Hume's recent reiteration of the same point. However, within a decade, historical archeology will be flooded with young minds bringing to the field the best of theory, statistics, and a scientific base of operation. Hopefully their reports will not be merely descriptions of artifact attributes, but will be within a framework of a research design anchored in a
firm theoretical base of scientific analysis and synthesis.

As archeologists we must depend on our archeological tools for our interpretive statements of archeological data, and not resort to the easy expedient of superimposing our historical data onto the archeological record. In our final interpretive statements we do, of course, use both the archeological and the historical data, but we should not use the documented history of the site as an interpretive crutch to prop up our statements purporting to be archeological in nature. If we develop such habits, and then find ourselves in a situation where there is no documentation to lean on, we may well find that our archeological tool kit is empty, or that we do not know how to use the tools we have available with which to make interpretive statements of archeological data. Such a leaning-on-the-arms-of-history approach to historical archeology is rendering a disservice to archeology by not utilizing to the fullest the patterned data it is capable of producing.

There is apparently an assumption in historic site archeology that archeological data must have a direct historical counterpart. There is, of course, nothing wrong with archeological-historical connections, but this is certainly not the primary archeological goal for the historic site archeologist. As archeologists we are dealing primarily with material culture, the patterning in the archeological record reflecting the cultural patterning responsible for that record, with the forces creating that patterning very likely not recognized at all by the individuals or the society from which the patterns emerged. Therefore, archeologists should focus their efforts toward the discovery and explication of patterns of material culture (See Harris 1968:359, for a statement of this position). The patterning he discovers may well have absolutely no historical counterpart, and indeed mutually exclusive data sets between the
historical and archeological documents almost appear to be the rule rather than the exception.

Our appeal here has been to urge historic site archeologists to become more selective in their presentation of their data. This admonition is aimed at the goal of making archeological data from historic sites more useable not only by the sponsors of the excavations, but by historic site archeologists themselves. The presentation of data is always a selective process. We cannot possibly list all the attributes conceivably of use to someone someday, and attempts at this have often led to heights of absurdity that would be laughable if they were not so tragic. This is admirably exemplified by one writer by the measuring in millimeters of the size and thickness of the broken sherds of English ceramics! (Krause 1972:82).

In our efforts at interpreting patterns of culture let us not engage in pseudo-science mis-directed toward meaninglessly translating a potsherd into a series of mathematically expressed numbers; or pseudo-history attempting to discover archeological equivalents to historical events; or pseudo-archeology involving endless descriptions of artifacts and features to no apparent end. Rather, let us systematize our selectivity, and direct our efforts toward synthesizing patterns of material culture from our archeological data, and in so doing reveal the patterns resulting from cultural activity. Such patterning may well allow us to gain insight into the behavior patterns of the people responsible for the archeological record, and allow us to make explanatory interpretations relating to culture process.

Columbia, South Carolina
July 4, 1974
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NOËL HUME, IVOR

SOUTH, STANLEY
Any analysis of archeological materials must be oriented to a statement clearly defining the provenience of the data. Analysis of data from the plowed soil zone representing perhaps hundreds of years of occupation has a different analytical weight than data from a pit representing one moment of time.

If we have an archeological site known from documents to have been occupied from 1720 to 1730, then our chronological period is established by documentation until archeology is able to confirm, deny, or elaborate on this document. When we excavate the site and find that none of the artifact classes about which we have chronological information indicate that the site was occupied at a time other than the decade indicated by the documents, then we have confirmed the historical documentation. The entire group of associated artifacts then have a feedback value into our data bank of knowledge. Thus we use our knowledge of certain classes of artifacts, such as ceramics, pipe stems, and wine bottles as a check against the known temporal period, and if this is found to agree, then we have reason to assign the same temporal bracket to the entire group of artifact classes recovered from this provenience.

The same situation prevails when we have the same documentary control data, but upon excavation we find from the artifact analysis that there is obviously an occupation at a later time than indicated by the documents. Since we have tight stratigraphic and/or feature provenience control we are able to separate an earlier component from a later component,
and we find that the earlier archeologically separated component has no
class of artifacts dating later than our documented period of occupation.
We then have reason to relate this group of archeologically associated
artifact classes with our documented time bracket. The other, later
artifact classes are then assigned a later chronological position both
by virtue of their higher stratigraphic or provenience separation and
by what knowledge we have in our data bank regarding the temporal
position of these artifacts.

If, however, our excavation reveals a mixed deposit with no signifi-
cant separation of materials by provenience, and artifacts are present
from a period later than the documented time period, then we are forced
by the archeological data to deal, in our analysis, with the entire
temporal range represented by the artifact classes.

This basic conceptual premise can be illustrated in a "Data Flow
Diagram for Evaluation of Analysis Situations Relative to the Data Bank
of Archeological Knowledge" (See Figure). The short time span represented
by data from a narrow documented occupation period and/or a tightly
provenienced archeological data results in a flow of associated data as
a contextual unit toward the data bank of archeological knowledge. This
data bank can be seen as a piggy bank into which information coins are
placed, such as: 1) the chronological association of artifact classes
as a time capsule, 2) the associative-functional, artifact-feature
relationships, 3) the spatial associations, 4) meaningfully provenienced
horizontal and stratigraphic data in association with site features,
architecture, etc., 5) historical documentation, and 6) the associated
data reflecting cultural patterning and process as a contextual unit.
Such analysis situations produce more data than required from the data
bank, and therefore have **Primary Research Priority**.

When the analysis unit represents a long occupation period and/or no provenience control, the result is that there is a data flow of information coins from the data bank toward the archeological components being analyzed. Since there is a long occupation period involved and no provenience control, virtually all information such as function, comparative data, chronology, spatial relationships, associations, documentation, typology and cultural patterning and process must come from our data bank of knowledge toward the analysis and interpretation of the analysis unit. Because of this requirement for more data than it produces for the data bank, this analysis situation has a **Secondary Research Priority**.

There is one situation where two occupations can be suggested for an analysis situation representing a long time period, and this is when the sequence of artifact types is broken by the absence of a type or types that should be present if the occupation had been a continuous one. Such a situation still requires more data than it produces for the data bank, and is still a secondary research priority situation, but it does have a limited feed-back value into the data bank somewhat higher than when negative data is not present.

An example of the time when we can validly split a long time span ceramic collection is seen where white salt-glazed stoneware and other mid-eighteenth century ceramic types are present, as well as pearlware of the 1780's and 1790's, but creamware characteristic of the 1770's is virtually absent. In the face of such negative data, and in the absence of other data to the contrary, we might validly suggest two occupation periods represented by the ceramic collection, separated by
a period of non-occupation in the 1770's. This does not allow us, however, to suggest that the bone or any other classes of artifacts can be similarly divided into groups reflective of two occupation periods.

From this evaluation of analysis situations it can be seen as axiomatic that the value of an archeological analysis unit is in direct proportion to the degree to which there is a data flow from the analysis unit to the data bank for use in interpreting the archeological record. A corollary to this is that in a primary or a secondary research situation the value of the data to future research is in direct relation to the competence of the archeologist in obtaining significant provenience, analysis, interpretation, and explanation of the data in relation to the hypotheses being examined in the research design.

In view of the above it becomes apparent for the purpose of defining the occupation period represented by the artifact classes in an analysis unit, we cannot validly select the artifact types belonging to the documented time period as indicated by the records, and ignore or separate those that date later. In such an instance, the archeological record has demonstrated the incompleteness of the written record, and we should then deal with that occupation record. If we concern ourselves with listing artifacts used at particular time periods, and divide our collection on this basis, we need not have done archeology to carry out what is primarily an exercise in the temporal arrangement of artifact types!

The archeologist faced with the analysis of a poorly provenienced and/or long-time-span group of artifact classes is sometimes seen to resort to what he may term "functional analysis" to avoid the mere exercise of temporal arrangement of artifact types. Limited information can be extracted from such analysis, such as the conclusion that plates
were used to eat from, mugs to drink from, jars to store liquids, nails to hold wooden members together, shovels to dig with, lamps to provide light, drawer-pulls to open drawers in furniture, and other equally interesting conclusions. There is certainly nothing wrong with functional analysis, but again it is evident that the most data will emerge from our analysis situations when there is a narrow documented occupation period and/or tightly provenienced archeological data. In such primary research priority analysis situations there is more data flow toward the data bank than from it, for functional or other analysis.

If the archeologist finds himself involved with a secondary priority analysis situation where his level of operation is on that of the collector of relics or an antique dealer, then he may well ask whether his time might not be better spent in other pursuits. If in arriving at functional, socio-economic, status, and other cultural interpretations from archeological data the archeologist finds himself leaning on the documents as a crutch, and using archeological data primarily as padding to the historical record, then he is bastardizing the archeological profession. He should use documentary data, but the foundation of his interpretation should be archeological when his historical-temporal, historical-social, historical-status, historical-function explications emerge from the archeological process. There should be a direct and positive nexus between the archeology and the documents in interpreting the cultural process represented by the patterning seen in the archeological record. If there is not this connection, then we are frosting history or writing fiction as a veneer over the data with which we began.

The archeological process requires a systematic, scientific, carefully
cited presentation where any conclusion follows from documented, demonstrated patterning of data. An alternative approach is characterized by terms such as "we might expect", or "it can be assumed", or "it stands to reason" that many wine bottles equal a tavern; porcelain equals a rich man; coarse earthenware equals a poor man; and from this "data" we leap to describing the life style of the colonial period in our "cultural explanation". Such an approach does not produce coins of information for depositing in our data bank of knowledge for use in the analysis and interpretation of archeological data.

Our comments here have been designed to emphasize the importance of data flow from archeological sites to the data bank of our knowledge. If our research designs are such that the questions we are asking of our sites can be answered primarily through a data flow from our existing knowledge to the sites we are excavating, then perhaps we should re-examine our questions and our research designs. If we find that we are excavating site, after site, after site with our reports reflecting merely a descriptive statement of the architecture, the profiles, the features, and the artifacts as interpreted through existing data bank knowledge, then perhaps we should begin to turn our attention to those research situations having primary research priority. Kiln sites, stratified sites, short time span sites, specialized use sites, such as those used by silversmiths, blacksmiths, goldsmiths, and other craftsmen as well as sites representative of those areas where architectural or artifact chronology data is lacking are primary research priority sites. This is a direction easier pointed out than carried out since our archeological financing is
most often not based on these research considerations. However, by constructing our research designs and our methods around an emphasis on data flow from research situations to data bank, we hopefully can increase the amount of usable archeological data emerging from our excavations.
METHODOLOGICAL PHASES IN THE ARCHEOLOGICAL PROCESS

by

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Prepared by the
INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY
UNIVERSITY OF SOUTH CAROLINA
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The archeological process can be viewed as eight phases, four of which relate to the collection of data in the field, the excavation phases, and four phases concerned with explication:

**EXCAVATION PHASES**

In this paper.
1. Site Survey
2. Exploratory Excavation
3. Detailed Excavation
4. Excavation of the One Hundred Yard Square

**EXPLICATION PHASES**

Not in this paper.
5. Analysis
6. Synthesis and Interpretation
7. Explanation of the Culture Process Reflected by the Data
8. Explanatory Exhibits on the Site

**PHASE 1**

The first phase in the examination of an archeological site is the location of sites through surface survey, study of maps and aerial photographs to locate potential sites, and historical documentation.

**PHASE 2**

The sites located in phase 1 are examined by sinking exploratory squares and trenches to obtain data regarding stratigraphy and superposition, and to locate areas of major concentration of cultural data, postholes, pits, artifacts, etc.

**PHASE 3**

Once the concentration of cultural material is determined, the spot is chosen for opening a larger exploratory area for more concentrated excavation of a more detailed nature. This area is usually some fifty feet square, or a long trench twenty or thirty feet wide and perhaps a hundred feet long. The approach to excavating this area in more detail is determined to a great extent by the data revealed in the second phase of the project.
The third phase is used particularly where an individual house, camp site, chipping station, mound or ruin requires a more detailed stratigraphic or tightly controlled horizontal recovery of data, such as scatter pattern data, or lenses representing occupation levels. The decision as to what type of data recovery method is used is made by the archeologist based on his evaluation of the data revealed in Phase 1 and Phase 2 of the project. This is a major role of the archeologist, the application of judgment in the choice of methods he uses to extract the most data from the site in the quickest amount of time at a resulting maximum data - minimum cost ratio. Thus Phase 1 and Phase 2 predicate the research design of Phase 3 and the phases to follow in keeping with the overall research design.

Phase 3 is applied where Phase 2 tests revealed stratigraphic zones of cultural material and/or humus zones representing old ground surfaces or stabilized zones and/or occupation zones. If these occupation zones are deep beneath an overlying mantle of soil, it is necessary to remove the overlying soil by machine to make the best use of time and money in obtaining the data these deep deposits have to reveal. In so doing the data from the top occupation zone may be destroyed, but again the archeologist must evaluate the situation and make a judgment as to which data is most valuable. In any case the top cultural zones should never be destroyed by machine until adequate sampling of these zones is carried out under Phase 2 procedures.

Once the overlying mantle of soil is removed to within a few inches of the deeply lying cultural deposits the machine should be removed from the area and the zone approached by use of carefully controlled hand labor. The depth of the machine cut should always be controlled by constant supervision by the archeologist, using the deep trenches cut during Phase 2 as a guiding control.

If the site has several cultural components that are located in the upper soil zone of the site, and if this soil zone is a foot to several feet in depth, with no visible stratigraphy, then the dissection of the deposit by arbitrary levels may be called for until enough data is collected to determine the superposition that may be present. This is a primary purpose of Phase 2, and if answered by the data recovered in Phase 2, the approach to the site in Phase 3 may be entirely different.

If the top soil zone contains virtually a single component, then it hardly makes for the best utilization of resources, human, temporal, financial, and logistic; etc., to utilize a technique designed to reveal stratigraphic separation through superposition analysis. Such an unnecessarily precise and time consuming process sacrifices data such as features in quantity, house patterns, village patterns and relationships obtaining between them that can be acquired by using the procedures outlined in Phase 4. Phase 3 can well be carried out on a site at the same time that Phase 4 techniques are being applied nearby. Phase 3 is the traditional detailed excavation approach to layers, levels and features, and is always used once the features are located through Phase 4 methods of stripping of one-hundred-yard squares to reveal the features.
PHASE 4

If the site is a single component site as revealed by the cultural material recovered in Phase 1 and Phase 2, and this component is located primarily in the plowed soil zone, with features extending into the subsoil zone below, then an ideal situation exists for application of Phase 4. A front loader or belly-loading traxcavator can be brought to the site to strip the overlying mantle of soil from the level at which the archeologist wishes to obtain a broad look at all features.

The machine should be carefully supervised by the archeologist, with an effort being made to leave a slight layer of buffer soil above the level of the subsoil surface. The surface of the subsoil or level to be examined is then schnitted (shovel-cut) using a gang-schnitt technique, with the entire crew lined up in formation, with careful supervision throughout the slicing process to insure a uniform cut of the soil level being examined. The features so revealed by this slicing method are then plotted with transit or alidade, followed by Phase 3 detailed excavation of the features themselves. To insure the most consistent reading of the soil document the schnitted surface should be kept damp by means of mist spray.

Features revealed by this method can be excavated and their contents analyzed, producing more data than would be possible in the same amount of time if the topsoil zone were removed and sifted by hand labor. Artifacts from features have a much greater time-capsule and cultural-context character, and are conducive to a far higher data producing analysis than the analysis of potsherds from the plowed soil zone, regardless of how meticulously that plowed soil zone is excavated. The plowed soil zone has been subjected to a mix-master process of the plow for a hundred years or more on many Southeastern sites, not eliminating the usefulness of the sherds there, but certainly contributing to a characteristically small size in most instances.

Needless to say the approach of Phase 4 would not be used on sites where no plowing has been carried out, and the objects lying in the topsoil zone are virtually in-situ as left by the occupants of the site. Most of our Southeastern bottomlands have been subjected to extensive plowing, and are therefore characterized by the "plowed soil zone".

If a research design is outlined wherein horizontal distribution of plowed soil zone materials is desired to produce data for comparison with underlying features, then of course, no machine stripping such as outlined in Phase 4 should be undertaken. An important point emphasized here is the fact that the nature of the site should be used along with the questions being asked in the basic research design, to determine the method the archeologist will use in examining his site.

If settlement patterns are a vital question of concern to the archeologist and constitute a major element in his research design, then excavation of five foot squares and trenches such as outlined in Phase 2 and Phase 3 will not reveal this data. If more data as to an Indian village is desired then the "possible" edge of a house
and a few associated pits in a 20 by 100 foot long trench excavated in the manner characterized by Phase 3, then archeologists are going to have to begin to carry their excavations beyond the first three phases of the archeological process outlined here.

If the revealing of five Indian houses through their posthole patterns can be achieved through the use of machinery to strip the overlying soil mantles from a level where these house patterns can be observed as described in Phase 4, can we continue to justify the expenditure of the same amount of money to recover a couple of pits and a few postholes of a "possible" house through concentration on the methods of Phase 3 only?

Even when the overlying deposit of soil may have stratigraphic, or superimposed cultural material in a black soil zone two feet thick, are we going to always concentrate on obtaining this stratigraphic data at the expense of the settlement pattern data, the feature data that can be obtained through the procedure of Phase 4? Are there not some instances where we can now say that from the presence of X,Y, and Z types of pottery that we can assign a stratigraphic relationship of 1,2, and 3, with a temporal range of 1200 to 1500 A.D., and then proceed to answer other questions? If we cannot, and must forever examine each site as though it were the first of this type ever seen by the eye of man, and therefore has to be dissected in all meticulous detail, then we haven't learned much from the last half century of archeology! If our traditional techniques of Phase 1-3 have not produced enough data in certain areas so that sometimes at least we might not examine a site as though ceramic chronology were the only question being asked, then it is indeed time we turn to new methods to recover our data for us. Here we are not suggesting abandoning Phases 1-3, but urging that when the situation calls for the use of Phase 4, that we not hesitate to apply it.

We are beginning to ask broad questions of our archeological data, and these cannot be answered if we do not move into the twentieth century with our methods and begin adapting our approach to our research designs predicated by the questions we are asking. We are no longer justified in excavating two seasons on an exploratory effort using Phase 3 procedures designed strictly around chronology when the data revealed in Phase 2 has already shown that the major soil zone is characterized by the presence of a single component! Such an excavation may well emerge at the end of a second or third season and not yet have the first indication of an architectural feature, or relationships that obtain beyond the microscopic area examined in the Phase 3 project. Under such a research paradigm even the perimeter of the occupation area is often a mystery after excavation is complete. If we insist on stopping at Phase 3 we should not ask questions that can best be answered through the application of Phase 4 methods.

When Phase 2 has sampled adequately the various areas of the site and determined the relationships that obtain between the various ceramic levels and pre-ceramic components, as well as the relative concentration of
cultural material in various areas of the site, the archeologist must ask himself the question as to whether a repetition of this data through a Phase 3 project from the surface down is more valuable, or whether gathering data from a broad area of the site at a particular level would be the most productive of data recovery, through Phase 4 methods.

After adequate sampling of Phase 2 has been carried out the archeologist may well make the decision to remove the upper, later components in order to reveal what is, in his judgement, a more important body of data in the deeper-lying strata of the site. It is emphasized that this move must be predicted on the completion of Phase 2 with its recovery of control data on upper occupation zones before machine removal of these zones to get at the lower "more important" zones is undertaken. If, however, the upper zones contain relatively rare data in themselves, Phase 3 methods should be used throughout the depth of the stratigraphic cut, regardless of the time required to acquire such data. Destroying valuable data for "more important" data is not justified, and it is only when more data of value will be gained than lost that upper levels can be judged as "expendable". If the most data can be obtained by spending three seasons on a single house site, then this Phase 3 type procedure should be executed, by all means. This decision making process is a role that the archeologist must play if he is to recover the most data. The point emphasized here is that too often we find a slavish allegiance to methods long outmoded for answering the questions we are asking of our archeological data. Hopefully we can begin to design our methods to fit our questions.

The following is a statement made some years ago that contrasts the archeological project that utilizes only Phase 2 and Phase 3, with one that launches into the methods of Phase 4, which:

...method provides for maximum speed, efficiency, and flexibility ...to recover data from sites such as towns, cities, and forts whose features sprawl over many acres through woods and fields, valleys and hills. It is time to look beyond the womb-like comfort of the involvement with dissecting burials, cellar holes and five foot squares if we are to meet the interpretive challenge presented by villages, ceremonial centers, towns, cities and fortified areas.

Too long have we practiced the ritual of the cult of the square, impotently arriving at feeble interpretations of complex cultures in extensive settlements from the meager evidence presented by a few postholes and a stratigraphic sample from a five foot square. We have often failed to adapt out tools to the scope of the project. We have used a spoon on villages and towns as well as burials. We have looked at cultures through keyholes when we should have been opening doors. This does not suggest the abandonment of the five foot square, but it does emphasize that there are times when
it is a totally inadequate tool, like excavating a village with a spoon. Through exploratory trenching to determine the nature and scope of the features, then totally removing large blankets of topsoil from extensive areas of the site, stripping football field size "squares" instead of minuscule five foot areas, we can begin to open a few doors. Once the archeologist is rewarded by the view of the culture revealed through such doors he is thereafter highly unsatisfied by peeping through keyholes (South 1971:48).

SUMMARY

The archeologist should go into the field with a theoretical research design relating to questions he is asking regarding the examination of data relating to past cultures, the remains of which he expects to examine. However, he should be prepared to fit his research design to the dictates of the site as the data the site produces is revealed through archeology.

The phases outlined here are the means whereby this accommodation of theoretical research design to the archeological realities of the site is achieved.

EXCAVATION PHASES

Phase 1 The sites cannot be studied until they are located. This is the goal of Phase 1, Site Survey.

Phase 2 The nature of the sites as to their underlying potential, stratigraphically and horizontally, cannot be known until exploratory testing is carried out in Phase 2, Exploratory Excavation.

Phase 3 Detailed dissection of important areas of the site for stratigraphic control and horizontal patterning cannot be accomplished without the microscopic approach of Phase 3, Detailed Excavation.

Phase 4 Questions as to settlement patterns, relationships between structures, types of structures, use areas of sites such as ball grounds, burial areas, dwelling areas, ceremonial areas, relationships between classes of features, etc., can best be answered by the methods outlined as Phase 4. If we know that a village site was spread out along a bottomland for a mile, would not the 100 yard square
approach of Phase 4 be a better sampling method for studying the village than the microscopic view afforded by Phases 2 and 3, the traditional approach to the problem?

Phases 5 through 8 are not discussed in this report, constituting as they do, the laboratory analysis, synthesis, writing of the report, and the explanatory exhibits developed on some sites. These four phases are as followed:

**EXPLICATION PHASES**

5. Analysis of the Archeological Data
6. Synthesis and Interpretation of the Data
7. Explanation of the Cultural Process Reflected by the Data
8. Development of Explanatory Exhibits on the Archeological Site

The extent to which the archeological analysis can reveal the patterns of culture represented by the archeological data; the extent to which the analysis results in cultural synthesis and interpretation; and the extent to which explanation of cultural process represented by the data can be undertaken all depends on the approach of the archeologist in the field. If he stops his examination at the end of Phase 1, the amount of data is limited to surface finds, and his conclusions must be blanketed with speculation. If he stops his excavation at the end of Phase 2, his results can provide statements as to chronology and aerial distribution, but he can say little beyond. If he stops his examination at the level of Phase 3 he may be able to make a tentative statement about one house or structure, or part of a house or structure, and he may be able to make a more detailed statement as to chronology and stratigraphy, and on deep deposited Archaic Period sites dissection of the most microscopic type reveals abundant data on occasion, as well as detailed dissection of individual houses, mounds, etc., but such excavations do not usually provide broad, horizontally distributed data on settlement patterns, groups of structures, and other data depending on a broad scope view for the most effective interpretation. It is in this instance that Phase 4 is most effective and productive of abundant data.

There are sites that cannot benefit from the use of Phase 4 methods, such as sites relatively undisturbed, and masonry sites, where machines would do severe damage to the archeological ruins. Again, the judgment of the archeologist must be brought to play to keep machines away from such sites.

Phase 8 brings a whole new concept into the discussion, with the use of explanatory exhibits on the site, such as palisades placed in the original ditches discovered by the archeologist, stabilization of ruins so that they can be exhibited and yet can withstand the rigors of being exposed to the elements, rebuilding of parapets of earth beside the fortification ditches discovered by the archeologist, are all examples of such
explanatory exhibits. Sites such as Ocmulgee National Monument in Georgia, Town Creek Indian Mound, and Brunswick Town State Historic Site in North Carolina, and Jamestown in Virginia, are examples of on-site explanatory exhibits of archeologically revealed features, but this phase of the archeological process is not discussed in this paper.

This paper has concentrated on the first four phases in the archeological process, with emphasis on Phase 4, Excavation of the One-Hundred-Yard Square. It has urged archeologists to add to the traditional three phases, this most important fourth phase, with the hope that it can be employed more frequently in the recovery of archeological data, with the view to bringing our methods in closer harmony with the questions we are asking in our research designs.

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METHODOLOGICAL PHASES IN THE ARCHEOLOGICAL PROCESS

Stanley South

The archeological process can be viewed as eight phases, four of which relate to the collection of data in the field, THE EXCAVATION PHASES, and four phases concerned with EXPLICATION. The archeologist goes into the field with a theoretical research design relating to questions he is asking regarding the examination of data reflecting past cultures, the remains of which he expects to examine. However, he should be prepared to fit his research design to the dictates of the site as the data is revealed through archeology. There exists an interdependent, symbiotic type relationship between the excavation and the explication phases in the archeological process. If there is an emphasis on one of the excavation phases, there will be a parallel effect on the explication phases. Similarly if an explication phase is emphasized or omitted in the research design there will be a concomitant effect on the excavation phases.

EXCAVATION PHASES

Phase 1 The sites cannot be studied until they are located. This is the goal of Site Survey.

Phase 2 The nature of the sites as to their underlying potential, stratigraphically and horizontally, cannot be known until exploratory testing is carried out in Phase 2, Exploratory Excavation.

Phase 3 Detailed dissection of important areas of the site for stratigraphic control and horizontal patterning cannot be accomplished without the microscopic approach of Phase 3, Detailed Excavation.

Phase 4 Questions as to settlement patterns, relationships between structures, types of structures, use areas of sites, such as ball grounds, burial areas, dwelling areas, ceremonial areas, relationships between classes of features, etc., can best be answered by the methods outlined as Phase 4. If we know that a village site was spread out along a bottomland for a mile, or that a town covered an area of ten acres, The One-Hundred-Yard Square approach of Phase 4 is a better method for studying the village than the microscopic view afforded by the traditional use of phases 1 through 3 only.
EXPLICATION PHASES

Phase 5  Analysis of the Archeological Data
Phase 6  Synthesis and Interpretation of the Data
Phase 7  Explanation of the Culture Process Reflected by the Data
Phase 8  Development of Explanatory Exhibits on the Archeological Site

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THE FUNCTION OF OBSERVATION IN THE ARCHEOLOGICAL PROCESS

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Archeological sites are located through surface survey, aerial photography, resistivity and magnetometer survey, topographic mapping and historical documentation, as well as other survey techniques. Such activity can become so involved that a specialty in such techniques can be developed. However, once the archeologist begins excavation of a site the process of field observation and recording of data is of primary concern. The quality of the observation and recording process has a direct relationship to the problems the archeologist is attempting to solve, in that the sophistication of the hypothesis depends on equally sophisticated field observation for meaningful explanation to emerge.

Traditionally archeologists have dealt with features, postholes and burials, under an implied assumption that "a posthole is a posthole", when careful observation reveals a wide variety of attributes of value in recording and interpreting features for componential analysis. The more distinctions the archeologist draws between features at the observational level, the more sophisticated his hypotheses can become. The Accokeek Creek Site is an excellent example of posthole recording resulting in very limited interpretive data as a result of the lack of distinctions drawn between the various postholes (Stephenson-Ferguson 1963: Fig. 6) Here thousands upon thousands of postholes were recorded by Mrs. Ferguson, but no structures other than a series of palisades could be identified by Robert Stephenson who analyzed the data. If a variety of attributes had been used to draw distinctions between the postholes as they were observed during excavation a number of architectural structures may well have been identified and various components isolated. Many other reports could be cited revealing similar lack of posthole and feature recording based on a wide range of attributes observable in plan at the excavated level of the site. The features illustrated in the chart in Figure I reveal various attributes observable in the field that allow for separation of features into classes useful in architectural, componential, functional and cultural identification.

In observing features for multi-attribute recording a consistent recording technique must be utilized, which means that one group of postholes and features is not recorded in plan in one area when the ground is powder dry, and other features recorded when the ground is moist from a recent rain. In order to consistently observe features for recording the excavated level must be kept moist enough to allow for maximum observation. This means an ample source of water for wetting down areas to be observed must be at hand. Fire engines, water wagons, pumps and fire hoses have been used to dump thousands of gallons of water a day on sites I have excavated in order to insure this consistency of observation and recording of the data. The archeologist cannot hope to consistently record the archeological record if he cannot observe it, and yet sites are frequently examined under such dry, baked
conditions that thorough or consistent data cannot possibly be recovered. Under such conditions the archeologist may well find that his data consists primarily of masonry ruins and other obviously observable features, and he may come to believe that because of this no postholes and other features requiring more sensitive observation are present. Under dry conditions delicate soil distinctions are always lost, and even features that show up dramatically under moist soil conditions will totally disappear when the sand or clay surface is allowed to dry out. Occasionally drying may reveal features through more rapid evaporation of moisture from disturbed areas, and some archeologists are coming to rely on this technique in lieu of moist earth observation. However, relying on this technique in lieu of moist earth observation is like preferring braille over visual observation. It can be used, but is definitely secondary to primary observation of features in moist soil. Certain areas, because of their unique soil conditions, may not lend themselves to moist soil observation, but I believe these would be more the exception than the rule.

Once the features are revealed through removal of the plowed soil zone or other overlying soil layer, the surface must be schnitted (cut clean) using trowels or shovels. Scraping or brushing of moist soil only obliterates the data to be observed. When this process of schnittting is completed over an area as large as possible, recording of each posthole and feature should be undertaken immediately by the data recording crew. Photographs, elevations, horizontal position, width and shape of feature outlines, and the attributes observable in the fill are recorded, with care being taken by them not to add confusion to the scene by footprints and disturbance of this cleaned level. While the recording process is under way it is often necessary to have men with spray cans of water going over the area constantly spraying a mist of water to keep the soil in good condition for observation and recording of the attributes of the features at this level. On the chart in Figure 1 it can be seen that of the 44 types of features listed, 35 can be observed and recorded before any excavation into the features themselves is undertaken, emphasizing the need for thorough observation and recording at this stage in the archeological process for maximum recovery of data.

A typical posthole visible at the subsoil level is a dark humus filled area from four to eight inches in diameter, with the edge of the original hole no longer a sharp line, but blended by the action of worms (Fig. 1: 1). This action of worms is often so extensive that it is difficult to observe just where the original edge of the posthole was located. Unfortunately archeological reports reveal that this type posthole is most often the only designation assigned, i.e. "humus filled posthole". However, some postholes can be seen to have a higher relationship of sandy fill than others, some have a high percentage of charcoal flecks in the fill than others, and some may contain fragments of daub visible at the excavated level, or perhaps red clay from a collapsed daub-plastered palisade (Fig. 1: 2-4). At the Indian ceremonial center at Charles Towne, South Carolina the subsoil matrix was
sandy loam, and a clear contrast could be seen between those humus filled postholes and those containing flecks of red clay (interpreted as coming from a clay-plastered palisade). By recording this observable attribute it was possible to locate ceremonial sheds, and to separate one of the palisades from the other two (Fig. 2). Similar posthole attributes and feature attributes can be separated on almost any site on the basis of the relationship of the color and/or texture of the various soils comprising the fill. Another means of observation and recording of postholes for separating various components is to record the presence of an especially dark humus area within the posthole representing the post itself. Postmolds and burned posts are dramatic attributes for revealing architectural features distinguished from other posthole data (Fig. 1: 11-12). Posthole and feature shape, whether oval, round or irregular is important in determination of associated postholes or pit features.

Because of the recent age of historic postholes there are fewer worm holes to blend the edge of the feature with the subsoil matrix, and consequently the edges of more recent features are still relatively sharply defined. These features are also easily separated into groups based on the presence of postmolds or surviving posts in the hole (Fig. 1: 7-10). The observation that historic period features have less worm hole blending might be used to form an hypothesis regarding the use of worm hole concentration as a temporal index, similar to taking a blood count. The methodology might involve the use of a small grid for counting the worm holes, and from this a series of indices created for use in comparison with features for which radio-carbon or other dates were known. The technique might have only single site or area usefulness, but illustrates the fact that theory is born of observation.

Another attribute of the historic period features is the presence of square or rectangular postholes, footing holes and features (Fig. 1: 9-10, 13). Such features cannot simply be plotted by a central point with the diameter recorded, as one might do with circular features; rather, three points at least must be recorded to obtain the proper orientation of such angular features. This must be done even if (particularly if) the feature is a small one such as a square posthole only six inches on the side. The feature in Figure 1: 10, for instance, requires no less than six measured points for accurate recording. In recording such features for meaningful interpretation a roughly triangulated plotting from grid stakes is not sufficiently precise, and transit and tape, or alidade and tape recording of the most exacting nature should be employed. This caution would seem to be an obvious standard procedure, but careless horizontal plotting of features is often the rule rather than an exception. This is illustrated by the fact that an historic brick ruin measuring 40 by 87 feet on a side cannot be plotted to reveal a measurement of 40.1 by 86.9, and roughly triangulated points from grid stakes do not normally yield this accuracy unless the most exacting care is utilized in controlling the reference points and recording procedures.
Using the square posthole attribute, and the sharply defined, non-worm-blended edge of the features at the site of the Charles Towne Indian ceremonial complex and associated fence lines through differential plotting of this type feature in plan (Fig. 2), thus isolating these features as a separate component from the Indian occupation of the site.

Archeology of the historic period also reveals characteristic features of masonry, such as wells, footings and foundation walls. These are accompanied by their construction ditches which must also be plotted and carefully excavated, though many historical archeology reports fail to mention these important features associated with the obvious masonry (Fig. 1: 14). Prehistoric masonry structures are also often characterized by an emphasis on the masonry, such as kivas where excavation is not carried beyond a foot beyond the masonry wall, thus successfully eliminating any chance of discovery of any associated features. Masonry features are accompanied by their construction ditches which must also be carefully recorded and excavated, though again many archeology reports fail to even mention these important features associated with the obvious masonry (Fig. 1: 14).

Sometimes the geology of a site is an aid to the classification of certain features, when the geology is known from previous excavation. For instance, at Town Creek Indian Mound in North Carolina there is an orange clay subsoil clay underlying by several feet the red clay subsoil just beneath the plowed soil zone. As a result of this phenomenon those pits that were excavated into this orange subsoil zone and then back-filled almost immediately (such as burials), contain flecks of orange clay in the fill (Fig. 1: 15). These pits are easily distinguished from those dug into the orange subsoil zone and allowed to fill up with an accumulation of midden, by the absence of the orange clay flecks. At Town Creek then, burials can be tentatively identified on the basis of flecks of orange clay in the fill of pits before excavation into the feature is carried out.

Another type of feature that can often be identified before excavation is begun into the contents is the shaft and chamber burial with collapsed chamber (Fig. 1: 16). The collapse of the chamber produces a fault-line when the chamber drops, allowing the soil above it to sag into the depression. This produces what appears to be a later intrusive pit into an older pit, since the same type of soil is sometimes seen in the collapsed chamber area that appears in the plowed soil zone. However, this can be distinguished from an intrusive pit by the indistinct edge caused by the fault as opposed to an edge caused by digging the burial shaft. Once this type feature is observed it can be correctly interpreted in most cases before excavation is begun on the shaft and chamber. A non-collapsed shaft and chamber burial cannot be so easily identified, appearing as an oval or round pit, but its depth can sometimes be interpreted from the presence of deeply lying subsoil flecks, and thus its interpretation as likely a burial, prior to beginning of removal of the contents of the feature.
Linear features, such as lines of palisade posts, palisade trenches with or without the postmolds, and fortification ditches are particularly interesting in that they provide linearity and architectural identity, drawing a distinction between areas of the site (Fig. 1: 17-19). The width of from two to fifteen feet for fortification ditches clearly distinguishes them from palisade trenches, that may be from eight to eighteen inches in width. Fortification ditches when excavated reveal in profile, and often in plan before excavation, the evidence needed to determine on which side of the ditch the accompanying parapet was located by the position of the subsoil-like fill (on the parapet side) in contrast with the darker humus fill (on the side opposite the parapet). This is a characteristic of most fortification ditches, though particular cases may reveal exceptions to this pattern.

Another class of postholes are those with tapering ramp trenches leading toward the bottom of the hole, resulting from installation of the post. These are usually major posts such as the ball ground poles excavated at Town Creek Indian Mound. These often have stones placed against the post when it was slid into the hole and raised upright to hold it in position (Fig. 1: 20). One of these at Town Creek had no stone wedges, but instead was furnished with a trench at right angle alignment to the installation trench, which I interpreted as representing a seat for a log wedge to support the pole once it was raised into position. This proved to be a functionally valid interpretation in that the same technique was used to advantage when a 45 foot pole was replaced in the original five and one-half foot deep hole (Fig. 1: 21).

An interesting variation of the posthole with an installation trench was found by Leland Ferguson at Earth Lodge No. 2 at the Garden Creek Site in Haywood County, North Carolina (Dickens 1970: Fig. 20). Wall posts for the earth lodge had tapering trenches toward the inside of the lodge, and Ferguson has interpreted these as having been the result of replacing wall posts while the structure was still standing (Fig. 1: 22). If wall posts needed to be replaced in an earth lodge a trench would have to be dug to remove the old post or to insert a new post beneath the wall plate. When similar postholes are seen in excavations of other structures, the likely function can be interpreted before excavation of the postholes themselves is undertaken. Such postholes are also valuable in defining the structure through drawing a distinction with other postholes not a part of the structure.

There are times when a visual examination of the subsoil level of excavation reveals no features, but when the same area is photographed using infrared photography, disturbed humus-bearing features can be observed (Fig. 1: 23). Other features can be located on occasion by using the texture of the soil as a clue for separating disturbed from subsoil areas. The moisture content variation, as has been mentioned, is another clue to observation of disturbances in the subsoil matrix when the direct visual observation is not sufficient. Chemical treatment of the surface of an excavated level is being used to react with
At the Dodd Site is South Dakota, Donald Lehmer (1954) was aided in his interpretation of the components by the fact that rectangular houses were intruded on by later round houses, and though his house floors were stratigraphically one above the other, he could still have isolated the components on the basis of structural classification had the features been on the same level (Fig. 1: 27).

Humus or residual chemicals in wood or bone to reveal features and burials. This method is also being used to identify rodent holes (Van Der Merwe and Stein 1972: 245). Enriched vegetation over wells and midden deposits is also being used as a survey technique in locating sub-surface features. Any of these, or other methods of observation of attributes can be used to draw a distinction between groups of features for componential analysis (Fig. 1: 24).

Some features through their association are immediately identified as a single component representing a single moment in time. Such features are postholes from non-intruded architectural features representing a single structure (Fig. 1: 25). Seldom is the archeologist presented with such clear, straight-forward situations to interpret. A classic means of separating components on a site is through intrusion of one feature on another, with the intrusive feature being later (Fig. 1: 26).

At the Dodd Site is South Dakota, Donald Lehmer (1954) was aided in his interpretation of the components by the fact that rectangular houses were intruded on by later round houses, and though his house floors were stratigraphically one above the other, he could still have isolated the components on the basis of structural classification had the features been on the same level (Fig. 1: 27).

Spatial separation of features, along with similar diameters often allow a number of features to be associated as elements of a single structure (Fig. 1: 28). Geometric alignment is a frequently used means for separating architectural components related in time and space. A palisade is a primary example of a geometric alignment of postholes that even the most cavalier observer can recognize immediately. Other more widely spaced postholes are not so easily distinguished and associated.

During the historic period square footings, fence postholes and even landscaping bushes are, through their alignment, associated with property lines and other features of similar period (Fig. 1: 29-30, 34).

Linear features such as fortification ditches, palisade trenches and geometrically aligned footings and fence postholes provide excellent componential separation through sequential intrusion (Fig. 1: 30). The site of William son's Fort, Holmes' Fort and the town of Cambridge at the Ninety Six Site in South Carolina, is a classic illustration of this type of componential separation (Figs. 3-6). Williamson's Fort was the site of a three day engagement in 1775 between Whigs and Tories, with the fort being thrown up quickly around John Savage's barns. It was said to have been made of "beev's hides", straw and fence rails. It wasn't until excavation was carried out that it was known that the rails had been placed in a palisade trench connecting the several barns, the footings of which were also found (Fig. 4). This 1775 component was intruded on by the construction of Holmes' Fort in 1780, and again through archeology it was found that Savage's barns were again used as blockhouses within a hornwork shaped fortification thrown up around
them. A burned retaining wall ditch with small postmolds was found to parallel this major fortification ditch, thus associating the features geometrically, and temporally (Fig. 5).

Intruding on the 1780 Holmes' Fort features were footings from the town of Cambridge which was begun in 1783 and continued until the 1850's (Fig. 6). By geometric alignment these Cambridge postholes, footings and cellars were associated and separated from the earlier components. The entire group of features revealed at the level just below the plow zone can be seen in Figure 3, with each component being separated through sequential intrusion and illustrated in the Figures 4 through 6. In this instance these components were separated by only a few years in time, from 1775, 1780, and 1783 and later. Similar separation can be accomplished on the basis of observation of features at the excavated level, before the removal of the contents of the features themselves is undertaken with any site where features are carefully observed and recorded according to their distinguishing attributes, then plotted on plan on this basis. If, however, features are recorded only as "postholes, pits and burials", we can hardly hope for more than a limited separation of components for analysis and interpretation.

Analysis of features on the basis of magnetic-astronomical orientation was reported by Binford at the Hatchery West Site (1970), producing some impressive cultural interpretation (Fig. 1: 31). Trees, bushes, plow scars and rodent holes are all features on a site with which the archeologist must deal and interpret (Fig. 1: 32-35). These features can be non-cultural or they can act as recipients of artifacts that may have fallen into them when they were open. Plow scars reveal clues to the erosional history of the site, and the direction of plowing, often providing for clarification of features disturbed by plowing. Some bushes and trees, particularly on historic sites, are cultural in that they were part of a landscaping plan, and for these reasons they are observed and recorded and interpreted along with other observable data on the site. Non-cultural features such as geological changes in subsoil characteristics, and veining, often appear as misleading pseudo-features that must also be interpreted by the archeologist, if for no other reason than to be able to recognize their non-cultural aspect.

So far we have discussed the attributes observable in features in plan at the excavated level. Additional feature attributes can be determined from the excavated features that can be used to classify and associate certain features. At Town Creek Indian Mound Joffre Coe has used the aerial mosaic technique in recording each ten foot square photographically and joining these to make a master mosaic of every feature on the site. From this exacting record, plus the square sheet data from the square ground area in front of the mound no structures could be interpreted from the galaxy of postholes in the square ground area. However, in 1956, I used the depth of each excavated posthole as an attribute for recording with a color-code the various postholes and features, and was able to isolate a rectangular square ground shed
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From the mass of postholes in one area of the square ground (Fig. 1: 36).

Bennie Keel (1972: 120-122) used another attribute to accomplish a similar result at the Garden Creek Mound No. 2, in Haywood County, North Carolina. He noticed that some of the excavated postholes contained a sandy fill near the bottom, and by plotting these in plan with a different key than other postholes he was able to define a house (Fig. 1: 37).

Stratified structures represented by postholes at different elevations can be separated on the basis of the top of the postholes, a classic means of temporal separation of components (Fig. 1: 38). Excavated postholes can also be classified on the basis of the angle of the postmold or posthole (Fig. 1: 39), such as the leaner wall posts forming the outer ring of an earthlodge (Stephenson 1971: 29). From the angle of the leaner postmold in relation to the position of the main wall postholes, the height of the main wall can also be determined. Posthole and postmold shape can be used to classify posthole features, with the straight-cut farmer's post contrasting markedly with the more tapered Indian postmold impressions in profile. Also, a posthole digger dug hole is recognized in some cases by its higher center (Fig. 1: 43).

After considering these forty observable feature attributes, plus any other known to the archeologist, he can then turn his attention to classification of features distinguished on the basis of artifact association with features (Fig. 1: 40-42). Unfortunately, the tendency has been, and still remains in many instances, to view features primarily as recipients of artifacts from which data can be recovered. As the chart in Figure 1 indicates there are a multitude of attributes constituting data that must be recorded before the cultural items are recovered and analyzed. Postholes, pits, burials, ditches, trenches and construction ditches for foundation walls are all valuable recipients of cultural items from which analyses and interpretations are made. A series of postholes can be classified into different cultural components on the basis of the artifacts recovered from them. The basic principle of terminus post quem is used to determine temporal periods represented by the artifacts recovered from these features (Fig. 1: 40). Sometimes the presence or absence of particular items can be used as a classificatory device, such as the use of bone or stone wedges in postholes. A series of postholes with bone wedges might well form an architectural pattern allowing for the isolation of a house, or temporal, or cultural interpretations might be demonstrated (Fig. 1: 41).

Cross-mending of artifacts is an important means of associating features at one moment in time, such as the recovery of fragments of a white salt-glazed stoneware teapot from a number of features. The glueing of these fragments together joins the features as well, an observation adding valuable information for the interpretation of the features. The same applies to cross-mending of fragments from various stratigraphic layers which bonds the stratigraphy into a single temporal unit (Fig. 1: 42).
The classification of features on the basis of functional interpretation and designation by culturally functional oriented nomenclature is based on a group of attributes characteristic of particular features. Earth ovens, smudge pits, burials, cooking pits, storage pits, rock hearths, house floors, living floors, and use areas are observable data assigned cultural designations for analysis and interpretation (Fig. 1: 44). Binford at the Hatchery West Site conducted an analysis of rock hearths, earth ovens, pits, houses, and burials through cluster and attribute analysis in order to define the cultural components represented by these features (Binford 1970). This type of multi-attribute feature analysis combining a galaxy of attributes; width, depth, shape, texture, color, associated artifacts, orientation, ethno-botanical objects, and use area debris results in a most sophisticated componential and cultural analysis.

The purpose of this paper has been to point out some of the observations of feature attributes made by the archeologist allowing for making distinctions between features for componential and cultural analysis. To some archeologists this presentation has only stated the obvious, a standard archeological procedure used for decades. However, archeological reports still appear with the classic "pits, postholes, foundations, and profiles" level of observation and recording, suggesting a definite need for more rigorous observation and recording of data. For instance, there are many historical archeology reports revealing structural foundations, and large expanses of supposedly observed and recorded excavated areas adjacent, but no sign of a posthole is seen. Scaffolding holes, postholes, and other subsoil disturbances almost always accompany historic structures, so a drawing showing only foundations is a highly selective type of data recording.

Other indications that a more rigorous observation and recording of feature data is needed are seen in the following: postholes recorded as stylized symbols instead of as they actually are observed in the field; straight interpolated lines for fortification ditch edges instead of actually plotted edges as observed in the ground, making for a neater drawing, but hardly accurate; failure to record trees and bush features; failure to record postmold as well as the posthole, the hole being a general representation of the position of a structure, with the postmold representing an exact position; inconsistent recording of posthole and feature data, postholes being recorded only as incidental to some other problem of interest, or as they fortuitously are seen on wet days, with little effort being made to systematically record every posthole on the site; palisades shown as stylized, schematic representations with no details and specific post positions shown; entire site reports presented primarily through profiles, with little recording of plan data; disregarding stratified data in features, and emphasizing primarily the artifacts recovered from the feature, thus missing possible data of value in the interpretation of seasonal activity, or temporal-functional relationships within the feature; entire site reports presented on the basis of a series of five-foot squares, with emphasis on stratigraphic data at the expense of features in plan, resulting in a lacunae in our
knowledge of structures and settlement patterns compared with our problem oriented studies emphasizing temporal sequences. Problems such as these can be overcome through more careful observation and recording of features and other data on a broader base, emphasizing a multi-attribute approach in drawing distinctions between archeological features.

Besides emphasizing the need for more rigorous field observation, the purpose of this paper has also been to emphasize the function of observation in the archeological process. The primary, basic and central function of observation is seen illustrated in the paradigm in the chart in Figure 1. Theory with hypothesis makes fertile-the observation of the data. When the archeological process of observation and analysis is sufficiently developed an explanation emerges to account for the culture process responsible for the observed patterned phenomena. The explanation is a genetic offspring of the parent theory and hypothesis, but was gestated in the fertile environment of field observation! This descendent tests the parent concepts and is the source for new hypothesis and theory, leading to more refined field observation. This paradigm of the archeological process clearly reveals the central function of observation, and is followed by several corollaries. Theory and hypothesis do not produce explanation without observation. Thorough observation allows for more sophisticated analysis and problem solving, resulting in new and refined theory. Inadequate, inconsistent, incomplete and careless observation will not develop into a reliable interpretation or explanation regardless of the sophistication of the theory and hypothesis. Observation, regardless of how sophisticated, without the parent theory is sterile, and will not produce explanation. Theory is born of observation, thus observation is basic in the archeological process.

An important by-product of this archeological process is the preservation and interpretive explanation of the archeological document through exhibits of ruins, fortification ditches, parapets, burial houses, reconstructed earth lodges, structures and palisades. It is emphasized, however, that this by-product is not the goal of the archeological process, merely a shell produced from the gestation of cultural-historical interpretation and processual explanation. This paradigm is visually illustrated in Figure 1.

The archeologist should guard against allowing the problems dictated by sponsors interested in structural detail for purposes of reconstruction for public interpretation to become his archeological goal at the expense of integrative analysis and cultural interpretation based on broad and in-depth observation. However, if the archeologist accepts the responsibility of executing the archeological process to achieve his own scientific as well as his sponsor's developmental goals, he also has a responsibility to produce a product of some real use to the sponsor. An archeological report strictly limited to explanation of the archeologist's goals might still leave the sponsor wondering what to do next toward development of the historic site. Therefore, the archeologist should provide some suggestions toward a master plan for the preservation of the archeological document, and toward the development of the site within the framework of
the archeological data. The stabilization map in Figure 7 is an example of the type of assistance the archeologist can offer to the sponsor and the contractor whose responsibility it is to actually execute the work of transforming the archeological data into an explanatory, interpretive exhibit on the site. Without such help in the form of plan and profile drawings and suggestions in a report to the sponsor, the archeologist has no reason to complain when the explanatory exhibits in the form of exposed ruins, rebuilt parapets and palisades do not conform to the archeological evidence. He does have a responsibility toward insuring that the explanatory exhibits do not violate the archeological document.

Historical archeology is particularly encumbered with problem oriented studies of narrow scope, wherein the problem consists of locating the foundation of a structure, or a fort site. Indian site archeologists also have their albatrosses in problem oriented studies centered on a narrow goal; the skeletal material from a site, sometimes recovered at the neglect of other types of data; the number of structures to be found in a stratigraphic cut of a temple mound, with no data recovered as to what the floor plan looked like; or the temporal sequence represented by the ceramics from a site through five-foot test squares, with no information as to structural form or village plan that could emerge if the paradigm only called for the one-hundred-yard square instead of the traditional five-foot or one-meter albatross. Our problem in such cases has been not so much a lack of problem, but a concentrated focusing of our observation on specific problems rather than detailed observation of attributes of value for studies of broader scope. Some advocates of the "New Archeology", in their enthusiasm for specific, problem oriented studies, are encumbered with this same albatross in that their explanations cannot scientifically be broader than the scope of observed data on which they are constructed.

Another basic traditional approach to the archeological process has emphasized the responsibility of the archeologist to observe intensively and carefully as many attributes of the data as possible so that a broad base for interpretation can emerge from the observation and recording process. This basic attitude has come under criticism for its frequent "lack" of problem orientation, and its sometimes apparent concern with observation and recording of data as an end in itself, resulting in challenges arising as to the value of site reports (Zubrow 1971: 482). It is obvious that no archeologist can possibly observe and record all the data that might be needed to answer all problems, but it does not follow that problem oriented studies in the new idiom are the only type problems justified (as pointed out above the difficulty has often been a too refined and narrow problem rather that a question of no problem at all). There is a basic corpus of data that must be observed and recorded in addition to any unique data requirements for specific problem solving, and it appears patently obvious that what we need is not more narrowly focused observation for specific problem solving, but a broader base of exacting multi-attribute data recording from which our hypotheses relating to culture process can be formulated. It is also apparent that with a greater concentration on observation and data recording that the
scientific archeologist has an obligation to abstract pattern and offer explanation in terms of hypothesis and theory in the evolutionary framework basic to the archeological process (South 1955).

Our problem solving is limited by our observation, and our questions can only be as sophisticated as our field observation and data recovery methods. The trend now is to construct specific problems and collect specific data to provide the answers, in spite of the fact that an anthropologically or historically based discipline would imply a broader focal angle. Students of the "New Archeology" emphasize theory and problem, science and processual explanation, but some are remarkably naive when it comes to relating observation of archeological data to anthropological theory, to the explanation of culture process, or to the recording of data other than that specifically applying to their problem. They appear to be "New" in the sense of a new puppy, unfamiliar with the fundamental, competent, data recording methods dictated by the traditional "Old Archeology". Not having mastered the techniques of observation and data recording, they are often seen to be caught with their methods down, an awkward position from which to explain why their nomothetic paradigms were not adequately supported.

I see the archeological process diagramed as a pyramid with a broad data base of competent observation and data recovery, leading through evolutionary theory to explanation of the culture process, represented in the diagram by the capstone tip of the pyramid. From some of the misguided "New Archeologists", however, I get the impression of an up-side down pyramid, poised precariously on its narrow point of selective data observation, on which unsure base a mass of nomothetic paradigms are uncertainly balanced, enveloped in a camouflaging cloud of verbosity promenading as processual explanation. This is certainly not the scientific archeology Binford has urged us to undertake, yet "New Archeology" is burdened by misguided disciples whose approach is likened unto a pyramid with its point buried in loose sand.

The following questions have emerged from having watched the misguided efforts by disciples attempting to "do New Archeology". The same disciples vociferously in concord, frequently criticized the "Old Archeology" as an ever-present whipping boy in contrast to their "New" approach. Are we justified in throwing Archaic Period hearths out in our back dirt because our paradigm calls for plotting profile information relating to the pottery making period of occupation on the site? Are we really being scientific when we record postholes according to only three attributes, width, depth, and horizontal location, and then run this through a computer to determine the relationships that might be obtained in a sample of fifty postholes? Are we "doing science" when our problem calls for plotting each sherd, chip, bone, and shell fragment, in an effort to determine clustering or scatter pattern, when the thirty foot square excavated area being so treated is an occupation surface of a Mississippian midden? What possible valid postulates could support an hypothesis justifying this examination of a mixed village midden deposit surface in such a restricted area? When the primary data we have on shell rings are profile sections, with no architecturally related features in plan, how can we justify a research design centered around obtaining another profile section to add to the collection? The error here
is in microscopic vision of data, at the expense of the broader view, which view is seen as the antiquated pursuit of the "Old Archeology". The depth of scientific archeology demands rigorous, controlled, consistent observation, with a broad base to support specific research designs. Theoretically-weighty research designs and microscopic observation of data at the expense of the broad archeological record, are not compatible within the paradigm of scientific archeology.

In conclusion I would like to emphasize two points, the first being that observation and competent data recovery is prelude to any theory, and forms the body from which analysis proceeds and new hypotheses and theory are created. The second point is that I, along with a number of my colleagues, are committed to the development of archeological science, and are disturbed by those who parade under the banner of the "New Archeology" but besmirth that brave standard through narrowly focused pseudo-science or sweeping generalizations and nomothetic paradigms based on a minuscule quantity of selected data. Such an approach demonstrates a lack of concern for the basic element in the traditional as well as the scientific archeology paradigm: competent observation and data recovery.

I would like to thank Dr. Robert L. Stephenson, Dr. Leland Ferguson, Mr. John Combes, and Richard Polhemus for discussing this paper with me and offering their comments and suggestions.
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The Function of Observation in the Archeological Process

**FIELD OBSERVATION**

**THEORY**

**HYPOTHESIS**

**FIELD OBSERVATION**

**Recording and Interpretation of Features for Component Analysis**

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**SURVEY DATA**

- **A** Surface Survey
- **B** Topographic Survey
- **C** Resistivity Survey
- **D** Magnetometer Survey
- **E** Isolated Architectural

**FEATURES IN PLAN AT THE EXCAVATED LEVEL OF OBSERVATION**

- Posthole with Humus Fill
- Posthole with Sandy Fill
- Posthole with Charcoal
- Posthole with Red Clay Fill
- Posthole with Postmold
- Posthole with Burned Post
- Historic Posthole
- Historic Posthole with Postmold
- Historic Hole
- Historic Hole with Post
- Oval Feature
- Dark Hidden Feature
- Extended Burial
- Masonry Features
- Deep Feature Revealed by Known Subsoil Matrix Characteristic
- Shaft and Chamber Burial with Collapsed Chamber
- Palisade
- Palisade Trench
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- Major Posthole with Sloping Installation Trench and Stone Wedges
- Major Posthole with Sloping Installation Trench with Locking Pole Trench in Lie of Stone Wedges
- Log Wedge to Trench
- Posthole with Sloping Installation Trench Used to Replace Post in Standing Structure
- Visual Features
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- Architectural Feature Located by Elevation of Bottom of Postholes
- Features Isolated on the Basis of the Nature of the Fill
- Stratified Features determined on the basis of the elevation of the top of the feature
- Postholes Classified by the Angle of the Post and/or Posthole

**EXCAVATED DATA**

- Simple Stamped Pottery
- Cordmarked Pottery
- Features Classified
In Terms of the Hypothesis and Theory

Paradigm

Theory with Hypothesis makes fertile the observation of the data. When the archeological process of Observation and Analysis is sufficiently developed an Explanation emerges to account for the culture process responsible for the observed patterned phenomena. The Explanation is a genetic offspring of the parent Theory and Hypothesis, but was gestated in the fertile environment of Field Observation. This descendant tests the parent concepts and is the source for new Hypothesis and Theory, leading to more refined Field Observation.

An important by-product of this archeological process is the preservation and interpretive explanation of the archeological document through exhibits of ruins, fortification ditches, parapets, burial houses, reconstructed earthlodges, structures, and palisades.

Corollaries

1. Theory and Hypothesis do not produce Explanation without Observation.
2. Thorough Observation allows for more sophisticated analysis and problem solving, resulting in new and refined Theory.
3. Inadequate, inconsistent, incomplete, and careless Observation will not develop into a reliable Interpretation or Explanation regardless of the sophistication of the Theory and Hypothesis.
4. Observation, regardless of how sophisticated, without the parent Theory is sterile, and will not produce Explanation.
5. Theory is born of Observation, thus Observation is basic in the archeological process; therefore the egg comes first.