NINTH ANNUAL MIDDLE ATLANTIC ARCHAEOLOGY CONFERENCE

Rehoboth Beach, Delaware

Program Chairperson: Cara L. Wise
Delaware Bureau of Archaeology & Historic Preservation

Doc. # 20-06/79/03/17

NINTH ANNUAL
MIDDLE ATLANTIC ARCHAEOLOGY CONFERENCE
March 30, 31, and April 1, 1979
REHOBOTH, DELAWARE

Program Chairperson: Cara L. Wise
Delaware Bureau of Archaeology & Historic Preservation

FRIDAY AFTERNOON

SETTLEMENT PATTERN STUDIES

Chairperson: Burton L. Purrington, Appalachian State University

1:30 - 1:55 "Changing subsistence and settlement patterns in a Southern Appalachian locality"--Burton L. Purrington, Appalachian State University

Correlations of prehistoric archeological components and environmental variables including landform, elevation, stream order, and soil capability have been made for nearly 300 sites from the upper Watauga Valley (Tennessee River drainage) of Appalachian North Carolina. Little change is evident in the broad spectrum patterns of utilization of a variety of upland and lowland habitats up to late prehistoric times with the possible exception of increased utilization of lowland habitats after the Early Archaic and increased use of rockshelters during Woodland times. However, in late prehistoric times nearly all villages of Pisgah phase horticulturalists were located on bottomland soils of the highest agricultural capability while limited activity Pisgah sites are found in a variety of habitats comparable to earlier cultures. The locality appears to have been abandoned by permanent protohistoric Cherokee (Qualla phase) populations although their limited activity sites are relatively common along the major streams.

1:55 - 2:20 "Settlement-subsistence systems in the Blue Ridge and Great Valley sections of Virginia: a comparison"--Jay Custer, Catholic University

Settlement patterns discovered during the New River Archeological Survey, Grayson County, Virginia, and the Verona Lake Archeological Survey, Augusta County, Virginia, are compared using a cultural ecological theoretical base. The basic edaphic and paleo-climatic factors correlating with aboriginal traces of settlement location are similar for both areas: geomorphological setting, surface water setting, and soil association. However, the specific micro-environments favored for settlements that are described by combinations of these factors vary between areas.

2:20 - 2:45 "Prehistoric Settlement activities at the headwaters of the James River"--Clarence R. Geier, James Madison University

During the period from the Fall of 1976 through the Fall of 1978, archaeologists from James Madison University conducted extensive survey and excavation activities in two remote high-altitude mountain valleys of western Virginia. The purpose of this report is to review some of the preliminary results of this work and to make some statements concerning aboriginal settlement of sections of the headwaters of the James River in that area.

2:45 - 3:10 "'. . .with fruitful and delightsome land': regional ecology and settlement near the Falls of the James River"--L. Daniel Mouer, Virginia Commonwealth University

Studies of settlement in the James River Fall Zone area have led to models of relationship between settlement and land use, on the one hand, and the structure of the social and natural environment on the other. A regional survey has been implemented using both traditional and probabilistic methods. The survey is designed to allow analysis of variance of land use type and intensity, and regional economy as dependent variables; with productivity, diversity, transportation and density dependence as independent variables. Data include historic and archival sources, site location and and site structure/function as determined through controlled surface collections. It is held that cultural variation and regionalization are best explained by systematic properties of human ecology, rather than by particularistic, functional considerations.

3:10 - 3:25 COFFEE BREAK

3:25 - 3:50 "A predictive settlement model for Henrico County, Virginia: 1611 - 1900"--Laurence Lindberg and L. Daniel Mouer, Virginia Commonwealth University

Henrico County, Virginia has been settled since the early years of the Jamestown Colony. Through this time, it has undergone extensive change in land use and settlement. The need for a regional preservation plan and the specific goals of an impact assessment for a county-wide wastewater transport system lend an opportunity to model these changes in the light of archeological and geographic theory. Land use and regionalization are viewed in light of environmental structure, transportation and changing central places.

3:50 - 4:15 "Intra-site variability during the Dan River phase"--Wayne E. Clark, Maryland Historic Trust

The results of controlled surface collecting, soil sampling, and extensive excavations of the Dan River phase Buzzard Rock site in Roanoke, Virginia are presented. Charcoal from the Dan River phase pits of this hamlet type occupation are radio-carbon dated to 1010±135, 1030±75, and 1110±75 A.D. (UGA-1926-1928). The circular and long house pattern of post molds uncovered are described and compared to the distribution of artifacts, phosphorous, and pH readings in the plow zone. These comparisons will demonstrate a direct correlation between the location of various classes of data and the location of house patterns. Settlement pattern data from other Dan River phase sites supplements the discussion.

4:15 - 4:40 "Regional predictive models for the New Jersey coastal plain"--John A. Cavallo, Monmouth College

Recent data from New Jersey's coastal plain suggests that the paucity of archaeological sites in this region is a reflection of sampling bias and not a function of past settlement pattern as had been previously suggested. A predictive model is presented as an economical means of assessing and managing these resources. Certain theoretical considerations suggest that the distribution of prehistoric sites was significantly structured by environmental variables. Combinations of these variables will be used to predict the presence or absence of sites within given spatial units of the coastal plain physiographic province.

An interdisciplinary approach will be utilized as a means of continually measuring and evaluating the effectiveness of predictor variables, thereby further refining the model. The resulting product of this research will provide a valuable mechanism for future cultural resources planning strategies in areas beyond those in which the model was originally developed and tested.

have pdf of this

SATURDAY MORNING

HISTORICAL ARCHAEOLOGY

Chairperson: Cara L. Wise, Delaware Bureau of Archaeology and Historic Preservation

9:00 - 9:30 "Changing subsistence patterns on the 17th century Chesapeake frontier"--Henry M. Miller, St. Mary's City Commission

The subsistence changes associated with the process of colonization are poorly known. In this paper, the patterns of dietary change in the Chesapeake Bay colonies will be explored. Using faunal material from seven sites dating from c. 1630 to c. 1770, a tentative outline of the changes in the meat diet, cooking methods, and husbandry practices will be presented.

9:30 - 10:00 "St. John's: a study of the evolution of spatial patterning in the 17th century Chesapeake"--Alexander H. Morrison, II, St. Mary's City Commission

The homelat, one aspect of settlement pattern in the Chesapeake tidewater, underwent significant changes during the 17th century. This group of yards, fences, and outbuildings was an important element in the material culture of the early Chesapeake colonists. This paper examines the changes which took place in the organization and use of space at St. John's, a seventeenth-century plantation in St. Mary's City, Maryland.

10:00 - 10:15 COFFEE BREAK

10:15 - 11:30 MINI-SYMPOSIUM: Archaeology in an Urban Setting: Alecandria, Virginia.

"The Archaeology of an evolving city site: studying urban process in Alexandria, Virginia"--Pamela J. Cressey, Alexandria Archaeology Research Center.

In North American archaeology there have been few attempts to study the city as part of larger society or as a highly complex, socially stratified, and functionally differentiated site in itself. With the use of theoretical constructs from political science, geography, history, and anthropology the Alexandria Urban Archaeology Project has been developed to seek explanations of urban evolution and behavior which have cross-cultural applicability. The first phase of the project consists of hypothesis formulation; excavation of a "test square" for the city site; methodology development for collecting archaeological, architectural, and ethnohistorical survey datain an evolving site; and the creation of public programs which incorporate the site's contemporary inhabitants into planning, research, and preservation.

"Integrating research and preservation needs through an urban archaeological survey: Alecandria, Virginia"--Terry H. Klein, Alexandria Archaeology Research Center

An urban archaeological survey will produce two data sets which will aid in the integration of research and preservation needs for an urban environment. These data sets are (a) frequency of cultural material within predictive strata, and (b) patterning of sites to define homogeneous areas for future research. The former data set will result in a conservation and management strategy, the latter in a research design for behavioral processes in an urban environment. By using both the site inventory and research design jointly, decisions can be made on the interpretation of site significance and on how to mitigate an impact upon a site. Using Alexandria as a model, this paper discusses how these data sets may be developed and how they can be integrated into a citywide archaeological preservation plan.

"The 500-block King Street excavation: Alexandria Archaeology's first 'test square'"--D. Katharine Beidleman, Alexandria Archaeology Research Center

In the context of the City of Alexandria, Virginia, as a site, the excavation of the 500-block of King Street may be considered the first "test square" in a developing research project. Initially, the 500-block served as a testing ground for the refinement of field methodology and collection techniques suited to the changing urban environment. In addition, the material collected from the 500-block is being used to establish a base-line artifact chronology for the city, as well as to develop hypotheses and designs for future research in the city.

"Volunteerism and community outreach plans in an urban archaeology program"--Paul A. Davidson, Alexandria Archaeology Research Center

In developing an urban archaeology program a strong concern must be given to disseminating information to the public in a viable manner. A certification program through volunteerism, internships, and courses instructed by the program's staff should be effectively incorporated into the Project's planning and implementation to gain well-trained researchers and to increase community awareness. This paper discusses a series of outreach programs which involve citizen participation to meet the project's goals and educational needs.

11:30 - 12:00 "Historic settlement patterns in the Shenandoah Valley"--William M. Gardner, Catholic University of America

No abstract received.

SATURDAY AFTERNOON

PLANNING AND RESEARCH DESIGN

Chairpersons: William M. Gardner, Jay F. Custer, Catholic University of America

Regional Planning in the Middle Atlantic

1:00 - 1:20 "Introduction and Overview"--William M. Gardner, Catholic University of America

1:20 - 1:40 "The Middle Atlantic as a region: a historical perspective"--Cara L. Wise, Delaware Bureau of Archaeology and Historic Preservation

The definition of what constitutes the "Middle Atlantic" has been a recurring concern since the inception of the Middle Atlantic Archeology Conference. The viability of a "Middle Atlantic Culture Province" as a construct for dealing with prehistoric archaeological remains is evidenced by its continued use beginning with the work of W. H. Holmes in the late-19th century. The boundaries of this province, however, have been, at times, hotly debated, and its relevance to the historic period has been little considered.

1:40 - 2:00 "The role of the Office of Archaeology and Historic Preservation in regional planning"--Mark Barnes, Heritage Conservation and Recreation Service

Regional historic preservation planning has been recently developing among various states as a means to ascertain the level of current research within common geographical and cultural areas. These regional programs are being looked upon as a means of developing standardized compliance procedures, survey methodology, research, and site preservation programs. The speaker will address himself to current and future work funded by the Office of Archeology and Historic Preservation (OAHP) in developing regional plans.

2:00 - 2:15 "Regional studies, research designs, and state plans"--Jay F. Custer, Catholic University of America

The best way for the Middle Atlantic Archaeology Conference to assume a leadership role in regional archaeology is to attempt to integrate the concerns of those people interested primarily in contract archaeology and the concerns of those people interested primarily in non-contract archaeology. Focusing on the data and analysis requirements

of regional research designs as specified by Lewis R. Binford and cultural geographers reveals integrating themes which can form a common ground for these varied interests. Specific goals and tasks which the MAAC can accomplish include integration of state plans, assistance in the preparation of scopes-of-work and requests-for-proposals, facilitation of a more representative and comprehensive peer review process, and dissemination and publication of project results.

State Reports

2:15 - 2:30	Virginia--William P. Boyer, Virginia Research Center for Archaeology
2:30 - 2:45	North Carolina--Mark A. Mathis, North Carolina Archeology and Historic Preservation Section
2:45 - 3:00	West Virginia--Jeff R. Graybill, West Virginia Geological Survey
3:00 - 3:15	Maryland--Wayne Clark, Maryland Historic Trust
3:15 - 3:30	Delaware--Daniel R. Griffith, Bureau of Archaeology and Historic Preservation
3:30 - 3:45	Pennsylvania--Barry Kent, Pennsylvania Historical and Museum Commission
3:45 - 4:00	New Jersey--Olga Chesler, New Jersey Office of Environmental Review
4:00 - 4:15	New York--Bruce Fullem, New York Division of Historic Preservation
4:15 - 4:45	COFFEE BREAK

Regional Plans - Case Studies

4:30 - 4:45 "The Hagerstown, Maryland, Project"--R. Michael Stewart, Catholic University of America

A currently ongoing Phase I archeological survey of a distinct physiographic province in western Maryland is used as an example of how regional research designs may be developed for use in state planning programs while still addressing research problems relevant to the archeological community. It is suggested how collation and continued collection of relevant environmental data used in association

with a transect area survey strategy designed to sample the range of environmental variation within a geographic region, may be used to heighten the interpretive value of archeological data generally recovered during Phase I operations. The testing of predictive site location models in conjunction with settlement pattern studies that demonstrate diachronic man/environment correlations and provide a basis to attempt explanation of site distribution in terms of more abstract cultural processes is stressed. Finally, some cautionary remarks on the quantification of ecological models are offered.

4:45 - 5:00 "The Thunderbird Regional Research Center"--Joan Walker, Thunderbird Research, Inc.

No abstract received

5:00 - 5:15 "Regional planning and research designs in North Carolina: an overview of a complex problem"--Mark A. Mathis, North Carolina Archeology and Historic Preservation Section

The development and implementation of regional planning and research designs is one of the primary objectives of the North Carolina State Historic Preservation Plan. Efforts towards realizing that objective (e.g., through the Survey and Planning Grants Program) and some of the more pressing problems encountered (e.g., insufficient labor force) are discussed. Particular attention is paid to approaches which may be effective in other states, such as involvement in Water Resources Council "Level B" studies and Soil Conservation Service "Type 4" basin studies.

5:15 - "Conclusion and Overview"--William M. Gardner, Catholic University of America

8:00 - BUSINESS MEETING

The business meeting, as always, is one of the most important sessions of the Conference. It is here that the direction of the Conference for the coming year is decided.

SUNDAY MORNING

GENERAL INFORMATION SESSION

Chairperson: W. Fred Kinsey, Franklin & Marshall College

9:30 - 10:00 "An Archaic tool: the shaftsmoother"--Richard A. Regensburg,

The Savich Farm site, Marlton, New Jersey, has thus far yielded a collection of over 200 of these tools from the surface along with over 200 from the excavations. With archaeological context, the morphological attributes of these artifacts have been quantitatively analyzed. This morphological data, along with some experimental archaeology, has led to a closer understanding as to their probable function.

10:00 - 10:30 "The Requa House site: a beginning"--Louis Brennan

The Requa Farmstead was a 296 acre tenant holding of colonial Philipsburg Manor on the east bank of the Tappan Zee stretch of the Lower Hudson. Although the Upper Mills, economic and administrative hub of the manor, has been restored by the Rockefellers and is now on the National Register, and though the farm adjacent to the Requa place on the south, which Washington Irving remodelled into his "Sunnyside", has likewise been restored by the Rockefellers and is on the National Register, and though the southern half of the Requa Farm is "Lyndhurst", the former Jay Gould estate, both on the National Register and maintained by the National Trust, no colonial Philipsburg property or structure has ever been dug with pure archaeological intent. Our excavation is providing an inventory of the material culture of a Philipsburg tenant farm and is dispelling any notion that being a Philipsburg tenant farmer spelled a degree of poverty.

10:30 - 10:45 COFFEE BREAK

10:45 - 11:15 "Early historic settlement in Delaware revisited: the St. Jones Neck archaeological survey"--Cara L. Wise, Delaware Bureau of Archaeology and Historic Preservation

A comprehensive survey conducted by the Kent County Archeological Society under a Survey and Planning grant from the Delaware Bureau of Archaeology and Historic Preservation has provided information for testing the model of early historic settlement derived from a similar survey of part of the Atlantic coastal area of Sussex County, Delaware. This model stated that early historic settlements

in Delaware would be found on well-drained soils within 300 ft. of the bank of the drainage. The KCAS survey, which covered roughly the area on the north side of the St. Jones River south of Lewis Ditch and east of the Dover Air Force Base, identified twenty early historic sites dating before about 1750, based on the absence of creamware and related ceramic types. All of these sites were found within the zone predicted by the model. A study of the locations of standing 18th-century rural residences indicates that a shift in rural settlement pattern took place after about 1720 and was complete by about 1750. This settlement shift appears to be related to a change from an agricultural economy based on subsistence agriculture with tobacco grown as a cash crop to a market economy based on wheat production.

11:15 - 11:45 "The anthropology of 'colonial' villages: Congregational churches as artifacts"--Russell G. Handsman, American Indian Archaeological Institute

In the late 1790's, the Reverend Timothy Dwight of New Haven wrote a series of ethnographic accounts of New York and New England. Much of his four volume monograph, Travels in New England and New York, consists of descriptions of extant lifeways including educational practices, socio-religious activities, moral behavior, and local economic conditions.

Dwight's monograph is also significant for its interpretive model of historical processes in New England. Like much of contemporary archaeology, Dwight's interpretation is based upon a denial of sociocultural variability, flux, and change. In its place, Dwight substituted a theory of history which was timeless. The most interesting facet of this theory is that it is duplicated in modern America by historic preservationists, historic sites archaeologists, and tourists. Each of these groups studies and interprets the past as Dwight did. By focusing on Congregational churches in western Connecticut and studying these "sacred cows" as artifacts, it becomes possible to isolate several cultural components of meaning which are both modern and historical. In so doing, one can begin to see how crucial the concepts of variability, context, and meaning are, or should be, to historical archaeologists. Concurrently, this study also reflects upon the implicit theory of historic preservation.

R M Stewart

Euroamerican Settlement Pattern in the Shenandoah Valley

by

William M. Gardner
Department of Anthropology
Catholic University of America
Washington, D.C. 20064

presented at

1979 Middle Atlantic Archaeological Conference
Rehoboth Beach, Delaware
March 30, 31, April 1, 1979

ABSTRACT

An attempt is made to integrate the work of a cultural geographer with archeological observations and impressions to generate a tentative settlement pattern model for the Shenandoah Valley during the Pioneer and Post Pioneer periods, or from circa 1725 to the late 1700's. Both environmental and cultural factors are seen as important. Expectations concerning site distribution, types of sites, and artifacts are provided against a background of changing economic practices, external relationships, and landholding patterns.

Introduction

The purpose of this paper is to discuss the early Euroamerican settlement pattern of the Shenandoah Valley, outline some of the salient factors pertinent to the settlement distribution and choice, and to generate some expectations concerning settlement pattern during the 18th century. An attempt will be made to integrate historical geography and archeology. This paper must be considered preliminary, because it is based primarily on impressions gained from unsystematic observations. The model presented in this paper, however, will form the basis for future research into the Euroamerican pattern in the Shenandoah Valley, Such work will ultimately result in the formation of new and revised models which, in turn, will form the nucleus of planning and research strategy into the early historic archeology of the area under concern.

For all practical purposes, anthropologically oriented archeological research into any aspects of the historic period in the Shenandoah Valley is nonexistent. Exceptions to this include site specific work by John McDaniel of Washington and Lee University of Lexington on Liberty Hall and his recent expansion of research interests to the whole of Rockbridge County; contract specific work by Thunderbird Research Corporation and Catholic University archeologists (Gardner and Boyer 1978); papers associated with courses in ethnohistory (Stewart 1978 and Taylor ms.); and a library thesis related to Zane's Iron Works near Winchester, Virginia (Kilcullen 1977). Research by cultural geographers, especially Mitchell (1972,1974), has been much more extensive. The statements made in this presentation will draw heavily on Mitchell's 1974 article and on my own observations and impressions since our work in the Shenandoah Valley began in 1971.

Background - Historic

The initial efforts by Europeans to settle the Shenandoah Valley were associated with attempts to establish Swiss and German colonies in the period between 1706-1709. This, however, never came about. The only result of such attempts was an exploration by an agent of the Baron de Graffenreid, who made it as far as Front Royal in 1706. The legacy handed down by him of an absence of Indians in the Shenandoah Valley was substantiated by General (later Governor) Spotswood, who entered the Valley somewhat further south in 1710. For prehistoric purposes, this means that we have to account for the disappearance of the prehistoric populations between the time of Late Woodland stockaded villages, circa 1300-1400 A.D. and the beginning of the 18th century. To date, a single incidence of a contact Indian site has been discovered. This was a large hearth associated with shell tempered pottery, projectile points, broken wild and domestic animal bones, and Euroamerican goods dating to the 1750's and later. This site, Conrad Cemetary, is located on the Shenandoah River, near Route 50, and was one of the major early routes linking the Valley with the Tidewater area during the historic period. The available evidence suggests that this represents a temporary

encampment of a raiding party during the French and Indian War.

The first permanent Euroamerican settlements do not begin until the 1720's. From that point on, the record is one of continuous population expansion. Mitchell's chronology of the Euroamerican period is as follows:

Pioneer Period	1720's - 1760
Post-Pioneer Period	1760 - 1770's
Revolutionary War Period	1770's - 1780's

Using economic factors, Mitchell also proposes a three-level development scheme which roughly corresponds to his chronology.

Level 3	Agricultural Regionalization		Intensification of External Contacts
		Centralization of Local Manufacturing and Services	
Level 2	Agricultural Specialization	and	Economic Diversification (Expansion of Trade and Manufacturing)
	Increasing Commercialization	and	Low-Order Urbanization
Level 1		Unspecialized Farming and Local Commercialism	

Mitchell presents information that has important ramifications, not only for the distribution of sites, but also for the types of sites that can be expected, their size, and the general, if not specific nature of the artifacts and features. His work will only be summarized here. Hopefully, this summary along with my own additions, will not do an injustice to his important work, and any errors or misrepresentations are mine and not his. This summary will be provided under headings which generally follow his approach.

Environmental Factors

The Shenandoah Valley is a part of the Great Valley and a segment of the Valley of Virginia. It lies in the ridge and valley physiographic province. For purposes of this paper, the counties involved include, from north to south, Berkeley (now in West Virginia), Frederick, Warren, Page, Shenandoah, Rockingham, Augusta, and Rockbridge. The eastern boundary of the area is the Blue Ridge system. The Blue Ridge represents an important

natural and cultural boundary, which is true prehistorically, historically, and currently. In the northern half of the area, the Blue Ridge is lower in elevation, less rugged, and broken by numerous gaps. The opposite is the case in the southern half where the gaps are less frequent, the topography more rugged, and the elevations higher. These differences are fundamental in understanding not only interactions between the Shenandoah and the Tidewater, but also in any analysis of land use and settlement within the Blue Ridge itself. From a physiographic point of view, the western boundary of the Ridge and Valley is the Allegheny Front. It is important to note, however, that North Mountain represents an important break in the topography and could be considered the edge of the Great Valley proper. West of North Mountain, the valleys become much more narrow as the ridges become more frequent. Within what I am calling the Shenandoah Valley proper in this p aper, the only ridge is Massanutten Mountain, a 50 mile long ridge composed of quartzite and sandstone. Environmentally, the importance of Massanutten Mountain is that it interrupts the Shenandoah Valley, divides the Shenandoah River into two branches, the North and South Forks, and, like the Blue Ridge, represents a significantt barrier. Massanutten Mountain is quite rugged throughout its length, and lacks the low relief, upland meadows of the northern part of the Blue Ridge. In the northern half, it is interrupted by a north/south trough called Fort Valley. This is the only area within the system which had anything other than highly specialized and limited use throughout the historic period. It might also be noted, the same conditions are operative within the Blue Ridge, although to a lesser degree. This is important because it is the difference which is made up by the meadow areas that makes the land use of the Blue Ridge, at least in certain segments, somewhat different from the Massanutten system. As a final comment on this aspect of the environmental setting, it s should be noted that the Blue Ridge and Massanutten (as well as the other more westerly ridges and mountains such as North Mountain) contained the bulk of the timber in the area at historic times. It is also important to realize that the Blue Ridge and Massanutten are the loci of the most important mineral resources in the Shenandoah Valley. The Blue Ridge contains both copper and magmatic iron ore. Massanutten, as well as other sandstone ridges, contains iron ore of a sedimentary origin. Iron was the foundation of one of the early industries to develop in the area.

The Shenandoah Valley proper is a northeast/southwest trending, low relief area that has weathered and eroded more rapidly than the rest of the Ridge and Valley province. As such, it represents a natural corridor in an area which is otherwise surrounded by rugged terrain. The only east/west entrances into the Valley are through gaps in the mountains. The Shenandoah Valley, as noted, is but a continuation of a similarly eroded area known as the Great Valley. The importance of this particular feature relates directly to the route of immigration and origins of the Valley's historic population. (Map 1) This ease of movement may have also had something to do with the late prehistoric depopulation of the Valley, if the concept of "Great Warrior's Path" has any validity. As Map 1 indicates, the east/west gaps were also important for population movements. Their greatest importance, however, are for subsequent trade and economic interaction.

The lithology of the valley floor consists of limestone and shale.

The limestone soils are generally recognized as the most fertile. Shale derived soils, however, cannot be dismissed lightly, since much of the shale is calcareous and the derived soils are quite fertile. Currently, bedrock outcrops at or near the surface in many areas of the valley. There are extensive areas with limitedsoil development, and in many cases the soils are contained between seams of limestone. Soils in the shale areas are even more limited. Much of the land of this type today is devoted almost exclusively to cattle raising or no-till types of agriculture. A part of this must certainly be a recent phenomenon and attributable to 250 years of poor soil conservation techniques. Even so, it appears likely that extensive areas of the Valley even in the Pioneer period were suitable only for livestock raising and orchards. The topographic relief of the valley floor varies considerably between shale and limestone bedrock zones. In general, the limestone zones have a more rolling topography while the shale areas are much more heavily dissected and consequently more rugged. In areas bordering the rivers and streams, the shale areas tend to be heavily eroded by feeder streams and are marked by many narrow projecting headlands bordered by narrow V-shaped valleys. Shale floodplains are marked by more extensive development of alluvial fans, which serve as higher, well-drained and relatively floodfree topographic highs at the extreme edges of the floodplains. The larger of these fans are often marked by either early farmsteads or cemetaries. Streams are larger and much more frequent in limestone regions and these springs are quite often the loci of early house locations.

The most fertile soil is in the floodplains. Floodplains are widest and most extensive along the higher order streams in areas with limestone bedrock. Even in areas of only low order streams, the valleys are broad U's and floodplain development can be quite extensive. Shale areas on higher order streams can also have rather extensive floodplains. Often these floodplains are poorly drained, and require drain tiles and constant upkeep of these tiles to make the land productive.

The vegetation of the Valley floor has long been the subject of controversy. Almost everyone agrees there were extensive areas of grassland. Historical geographers and phytogoegraphers have fallen for the early historian's attribution of this grassland to the Indian practice of burning areas to create edge environments for increased productivity in hunting. While such practices may have occurred, it is highly unlikely that such extensive grassland areas as are noted for the Shenandoah Valley could have been created by this type of activity. This is further supported by the fact that the Indians had abandonned the Valley well before the entry of the Europeans, unless we are willing to accept the idea of Indians entering the area from the side and controlling grassland extent by building periodic fires. Demographic pressures were not such that such practices resulted of necessity. It is more likely that the grassland extent was a result of edaphic factors. This also more readily accounts for the spread of bison east of the Mississippi and the presence in our area at historic times.

The contact period vegetation is then more likely to have been a mosaic on the Valley floor and a zonal pattern in the mountains. Following this, we could expect that there were patches of forest in the grasslands.But,the most extensive areas of forest growth would have

been along the streams. river edges, floodplains, and bluffs bordering them. Such a mosaic with extensive edge areas would have favored a high population of deer and elk. Hunting of these animals was a very important element in the economy and diet of the Pioneer period populations. The concentration of needed wood along the river and stream edges was also a plus in terms of locating settlements in these zones.

The major river systems in the Shenandoah Valley are the Shanandoah River and the James River. The James drains the southern one-third of the area and is the only watercourse which cuts through the Blue Ridge in our area. Somewhat further to the south, the Roanoke River also passes through the Blue Ridge. The North and South Forks join near Front Royal to form the Shenandoah, which in turn connects with the Potomac at Harpers Ferry. The South Fork Valley, positioned between the Massanutten and the Blue Ridge is rather narrow. It broadens considerably near the middle in Page Valley and then again, but less so, near Elkton. The James; the Shenandoah, and both its forks; and the headwaters of both systems are quite shallow and flow through much of their courses on bedrock.

Population Factors

The initial wave of settlers came into the area principally from the Northeast through the corridor of the Great Valley. (Map 1) In general, they were farmers who had been in the colonies for y a few years. Others, however, came to the Shenandoah directly after landing at Philadelphia. The dominant ethnic mekeup was German or Scotch-Irish. English and Welsh were represented in fewer numbers. Movements of populations from Tidewater Virginia were less frequent, but were still important for bringing in the plantation economy. Such movements traversed the gaps in the Blue Ridge, and focused primarily on the Winchester and northern Valley areas, and the Staunton or southern Valley. By 1745, there were approximately 10,000 people in the Valley, and were equally divided between the northern and southern sections. (Map 2, Left) By 1760, the population had reached 16,000, jumped to 35,000 by 1775, and 50,000by 1790. During this 30 year period, there was a shift in distribution, with over two-thirds of the people being centered in the northern valley, particularly around Winchester and Berkeley County. In part, this relates to the ascendancy of Winchester, but it also relates to considerable out-migration in the direction of southern Virginia and Western North Carolina Piedmont. Such movements resulted from predatory raids and fears of such raids during the French and Indian Wars. Out-migration of early "pioneer types" was common in the region after a ten to twenty year interim period. Map 3 shows the general concentration of ethnic groups. The English tended to dominate in the Winchester area. Germans were also more common in the northern half of the valley, particularly in Berkeley, Shenandoah, and Rockingham Counties. Black Americans were extremely few in number, probably less than 800 in number. Of these, almost 700 were located in the northern part of the area, where the plantation economy was strongest. By 1790, the slave population had jumped to almost 11,000 with in excess of 70% being

in the northern valley area. The maintenance of ethnic boundaries appears to have been strongest amongst the Germans, where the language was maintained well into the first third of the 19th century.

Landholding Factors

It would appear that the first migrants into the area chose the best farmland regardless of their ethnic origins. These choices were the limestone and calcareous derived shale soils. Cross-cutting this was a focus on the major rivers and stream systems. Although Mitchell does not mention springs, it can be predicted that large, dependable springs were also a factor in site choice. Additionally, wood was important. Initial locations of farmsteads were probably on well-drained, upland areas, near springheads, and as close as possible to extensive floodplains or other areas where broad areas of uninterrupted soil were available.

The migrants came in two general types of groups - individual families or larger, multi-family groups. The latter could either be integrated by religious factors, or economic incentive. Land grant policies during the pioneer period had a strong effect on landholding sizes. The Virginia policy was to require all large landholders to settle in a manner such that the resultant density was one family per 1,000acres. By 1740, over 1,000,000 acres had been granted on such a family basis. Tax burdens and land speculation, in reality, brought about considerably smaller holdings and land was often sold in 100 acre tracts. The economic practices and situation during the pioneer period also resulted in at least two broadly different landholding packages; subsistence farms and plantations.

With the various changes beginning in the 1760's, landholding patterns were altered considerably. "By the mid-1760's the great majority of settlers in the Shenandoah Valley owned between 100 and 400 acres of land. The largest landholdings were concentrated in the northern valley..." (Mitchell 1972). During the latter part of the 18th century, the average size of the landholdings decreased and inequalities in size of holdings were reduced in the southern valley. The opposite occurred in the northern valley, where concentration of landholdings in the hands of absentee landlords increased. Overall, the proportion of settlers without land increased in the lower valley. This reached 50% by 1800, and 65% in the upper valley by the same period. Tenancy, however, increased. As Mitchell notes, "This trend was intimately connected with the changing economic geography of the region."

Economic Factors

Mitchell notes that economic change during the 18th century has to be viewed as a movement from initial subsistence with limited commercialization

to progressively increasing commercialization, agricultural specialization, and agricultural regionalization (see chart, page 2). The basic pattern during the Pioneer period, however, is that of mixed, unspecialized, subsistence based agriculture consisting of "maize, wheat and rye as primary grains; cattle, horses and swine as the major livestock; flax as the principal fiber; and a small number of deciduous fruits and vegetables"(Mitchell 1972). Mitchell notes that "farms seem to have had no more than 10-12 acres of cleared ground during the first generation of settlement", with crop yields being "ten to twelve bushels per acre for hwheat and rye and fifteen to seventeen for maize." Added to this was the pasture land on which livestock were grazed and from which hay was cut. Mitchell cites figures from comparable areas which state that small size families could be supported comfortably on between 45 and 70 acres; farms with more than 75 acres under cultivation had surpluses. He further states that "before the late 1750's probably ninety percent of all farm products were used for subsistence, and the rest were sold locally to new settlers, through-migrants, or local militia.

Mitchell notes that the early settlers depended on outside sources for such items as salt, sugar, iron, nails, and a variety of clothes. Exports consisted mainly of livestock raising and hunting products. Local artisans and craftsmen probably supplied many of the needs. Much of the early Pioneer stage material culture was probably brought with them. Some material was gained through itinerant salesmen. In general, however, a high degree of local self-sufficiency can be expected. As the road situation improved and as external contacts developed through the mountain gaps with the eastern Tidewater markets, a growth of Winchester and Staunton as central places in the redistribution network of imported goods may be observed. The major interaction areas were between Winchester and Alexandria; Dumfries and Falmouth; and between Staunton and Falmouth, Fredericksburg, and Richmond.

Developments during the early 1760's were characterized by "1), more distinct agricultural specialization, especially in crops; 2) increasing diversification in manufacturing and service functions; 3) elaboration of low order, central-place functions; and 4)more frequent and sustained commercial interactions with eastern market centers." As agricultural specialization took place, individual landowners shifted more to a dependence on imported goods. This was complemented by the growth of local manufacturing, but still dependence was on imported goods. Three ironworks had been developed in Frederick County by 1760 and one in Augusta County. By 1775, a hierarchy of small towns had developed in the northern part of the area and had spread throughout by 1790. The central places were still Winchester and Staunton. Shepardstown, Stephensburg, Strasburg and Woodstock, all founded before 1775, were second order centers below Winchester. Staunton was the only town in the southern valley. The establishment of new counties and the location of county seats in Harrisonburg and Lexington soon transformed these two towns into second order centers. (Note that the 1790 population of Winchester was 1,650, while Staunton was 800. Population densities around these areas added somewhat to the overall concentration.)

Settlement Model

The preceding discussion has only briefly touched on the wealth of information that is available in Mitchell's article and my own knowledge of the specifics of the environment. As with any synthesis, information reduction leads to possible misinterpretations and perhaps misleading structuring of the data. There is a wealth of hypotheses which could be developed and put in model form and tested archeologically. What will be presented in the remainder of this paper must be viewed as information poor (e.g. a reduction in the noise) and will be directed toward certain highlights.

With this in mind, the following can be offered. The earliest settlements during the Pioneer period can be expected to be of two kinds: individual, rather widely dispersed, family farmsteads; or isolated, rather compact clusters of agriculturally based households. The latter would represent group migrations, generally based in religion, which settled in the area and attempted to maintain the cohesion they brought into the valley. The distance between individual households in this case can be expected to vary with several factors, e.g. the size of the group, the productivity of the land, its topography, the nature of the religious system, etc. But, in general, it can be expected to conform to a land use pattern of something less than 100 acres. According to Mitchell's figures, this would be more than sufficient to support a family and to redistribute, if redistribution was part of the ideology, to others within the group. Most such groups in the Valley tend to be Germanic in origin , and , accordingly, a greater degree of isolation, ethnicity maintenance, and a longer duration of self-sufficiency can be expected. Distances between the initial isolated settlements can be expected to consist of an area encompassed by up to 1,000 acre tracts. Actual distances would be predicted on how the tracts were plotted.

In the individual family farmsteads, artifacts and features or ancillary structures should be expected to concentrate in and around the main structure. The main structure should be expected to occur fairly close to large springs, not only for the purpose of water use, but, for proximity to spring houses. Similar clusterings should be expected for the nucleated religious based settlements. There may be less varied artifact classes in and around the households in these nucleated settlements since specialized craftsmen and artisans are more likely to be expected. The earliest artifacts are likely to be heavily skewed in two directions: toward what they brought with them from Pennsylvania, and toward their own products. This latter should be expected to rise as use and loss reduces their original possessions. A wide range of artifacts are likely to be made of wood and, it is equally likely, that much of this will not be preserved, thus introducing another skewing factor.

Site locations can be expected to occur in the most agriculturally locations, e.g. the limestone or calcareous shale derived soil zones. Individual farmsteads are most likely to occur along or near rivers or higher order streams where there is extensive floodplain land. Exceptions to this can be expected near large springs with nearby areas

of extensive soil which is uninterrupted by bedrock outcrops. The houses will be located on well drained land near the springs in the floodplain setting, as close to the bluffs or floodfree fans as is possible and still have easy access to the springs. The nucleated settlements are not likely to occur on or near the rivers and the higher order streams, but near areas with numerous springs and broad expanses of uninterrupted, deep soils. The earliest settlement in the South Fork Valley, the religious based Massanutten settlement is in just such an area. A similar setting is seen for a nucleated settlement in Berkeley County.

A cautionary note must be added to the expectations of the riverside settlements. Per se, the rivers in the valley do not play an important role in settlement, except as they provide the loci of fertile, floodplain soils, wood and game. These factors are enough to be considered as important settlement draws. On the other hand, they were rarely used as transportation. Crossings of the river could be accomplished at fords and they are more frequent than ferries. Towns are not riverine focused. A pertinent example of this is Front Royal. Hardly more than a small clustering of farms during the period of concern of this paper, Front Royal is ideally situated at the junction of the South and North Forks, but at no time has Front Royal ever been more than a low order central place, and at no time has it ever been riverine oriented. Instead of rivers, towns grew up along the major transportation corridor - along the roads in the widest portion of the valley, west of Massanutten Mountain, and at its north and south terminii. Gaps were also important in the development of towns. Luray and Elkton, low order central places in the South Fork Valley are both near gaps, the latter at the base of a gap in the Blue Ridge; the former along the north/south route through the South Fork Valley and near gaps in both the Blue Ridge and Massanutten. It is thus to be expected that isolated settlements, especially, will be fairly common in the widest portions of the Valley, at least during the later portions of the Pioneer period.

As migration increased into the Shenandoah Valley during the late Pioneer and early Post-Pioneer period, several new elements can be expected. The individual farmsteads undoubtedly increase in number. Although controlling for out-migration and birth and death rates is difficult, it is apparent from Mitchell's maps (Map 2) and census figures that the overall population increases. Since there is also an out-migration, it can be assumed that some of the original farmsteads were sold and continued to function. Some of these structures are of considerable size and indicate expenditures of funds and energy (this is in consideration of rebuilding and additions). It is likely that such structures continued to be held in the same families even with profit taking and wanderlust of the pioneer taken into account. More temporary structures might have been sold along with tracts of land and used by new owners. Since the new wave of migrants tended to be more permanent, it is likely that they often built their own, more permanent and elaborate structures. Some of the earlier of their structures may only be recoverable through archeological excavations. A number of structures

during the mid 18th century were built with Indian predation in mind, and because of this are constructed of brick and/or natural stone, and a higher incidence of these have survived to the present time.

With the increased population, new areas of the valley were settled. Because of the extensive areas of good farmland in the valley, initial expansion can be expected to have followed the previously discussed pattern. In the dispersed family farmsteads, a tendency toward reduced distance between households can be expected. This is probably the result of the general reduction in landholding size as a response to taxation. Also to be considered is the division of land among descendants. Generally, this appears to have followed patrilineal inheritance, as attested to by a number of family plot gravestones, all bearing the same name. This pattern was not always followed and gravestones indicate a breakdown in this toward the 19th century. Reduced landholding probably also led to an initial extensification and then intensification of agricultural practices. Increased movement in the direction of agricultural specialization and a market economy was most likely the catalyst behind the intensification. It can thus be expected that, except perhaps briefly, the main dependencies and activities still centered around the household structure. Springs were probably still sought as water sources, and certainly for spring houses and livestock watering. Increased use of cisterns can be expected, however, as people move into less well watered zones. Concomitant with the entrance into agricultural specialization, a reduced self-sufficiency occurred and greater numbers of manufactured goods can be expected. The origins of these can be expected to be both from local artisans and craftsmen as well as from the Tidewater region as relations with this are intensified. The increased extension of trade networks and the betterment of road systems result in the springing up of towns and, with the exception of Winchester and Staunton, most of the towns will date from sometime in the Post-Pioneer period. It would appear that these towns grew up around stores, mill complexes, taverns, and in some areas around clusterings of farmsteads located near "forts". Taverns became increasingly common along road networks. Most of these taverns are now incorporated or buried beneath later developments. Some isolated taverns, now in the form of archeological sites, may be predicted. Iron works which developed during this period often became quite extensive. Zane's, or the Marlborough Iron Works, was a rather large complex that included grist mills, a fort, and furnances and other dependencies. The largest of these complexes generally grew up near the important market and population centers such as Winchester and Staunton and along the roads leading into these centers. Later, smaller ironworks, are much nearer the sources of iron and the rapidly depleting but all important wood supplies, e.g. in the small valleys and coves within sandstone ridges or their foothills. Grist mills have a close correlatiion with higher elevations and permanent water courses with steep gradients.

The plantation economy is introduced on a larger scale during the late Pioneer and Post Pioneer periods. These plantations are concentrated in the northern and southern ends of the valley. The features, dependencies, and associated artifacts can be expected to be scattered over a larger area than in the smaller farmsteads, and can also be expected to be more diverse. A

difference in numbers and types of "status" artifacts can also be predicted. Following a lead by Cara Wise, wealth differentiation can also be expected among the outlying farmsteads as they begin to stratify. A lag in the flow of status artifacts can be predicted for much of the valley.

Competition and reduction in landholdings, population expansion, continued redivision of original tracts through inheritance, and the growth of agricultural regionalization and further local specialization, should lead to settlement in the less desirable lands in the growth of towns. Areas of shale derived soils, some of which had probably already been settled as a consequence of earlier specialization of agriculture; meadow areas in the Blue Ridge, areas with marked topographic relief and poor soils such as the quartizte and sandstone foothills and their associated coves and hollows, can be expected to have been settled during the Revolutionary and post-Revolutionary War periods. As an example, by 1795 thirty three families claiming tracts of land from 22 to 1500 acres are noted for the Big Meadows area of the Blue Ridge (Randolph K. Taylor, personal communication, 1979). The continuation of this pattern leads to great disparities in wealth and social position. In the less desirable areas, smaller, less permanent structures can be expected. The artifacts and anciallary features in these zones are likely to reflect this impoverishment. Specialized settlements such as spas, e.g. Berkeley Springs, Warm Springs, become common during the latter part of the 18th cnetury. Service towns spring up around these resorts which served the wealthy planters of the valley and Piedmont. The artifacts from these areas can be expected to be both wealth and status oriented. Clusterings of Black Americans that can be noted at present in various scattered locations in the northern and southern portions of the valley and western Piedmont seem in part to be a reflection of original slave clusterings and/or freed person settlements. It should be expected that many of these will provide long continuity and that the material culture will reflect trends not necessarily manifested in other sectors of the society.

Summary

The above discussion has been basically a shotgun approachand has attempted in narrative form to integrate some of the basic environmental, cultural and economic variables with archaeological expectations. In dealing with prehistoric site distribution models, myself and my colleagues (Gardner, 1978; Gardner add Boyer, 1978; Gardner and Custer, 1978; Walker and Gardner, 1979) have stressed the importance several variables including the following:

Distribution of rawmaterial
Distribution of areas of low relief
Distribution of well drained areas
Distribution of surface water
Distribution of food resources
Distribution of varying order streams
Distances away from major rivers
Distribution of fertile, easily tilled land
Distributions of stream junctions
Distribution of soil types
Variations in zonation
Distribution of mountain gaps

Some of these variables appear to be important for the early Euroamerican settlement pattern of the Pioneer and Post Pioneer periods. There are other factors, however, which enter in that prevents us from limiting ourselves to strict environmental considerations. Indeed, as with the prehistoric period, I have tried to address culturally important variables. Following my general approach to prehistoric concerns, I will attempt to summarize what I see as the most important variables. As always, it must be remembered that we are dealing with a system that was undergoing change and it is the interrelation of the variables that is as important as the variables themselves.

The listing below is presented under headings similar to but not identical with those used by Mitchell. Within the subheadings an attempt is made to rank these in importance from earliest to latest.

- Environmental Factors
  - Lithology
    - Limestone areas
    - Calcerous shale areas
    - Shale areas
    - Metavolcanic areas (Blue Ridge)
    - Sandstones-quartzites (Massanutten and Blue Ridge)
  - Topography
    - Floodplain-bluff associations
    - Low relief zones
    - Medium relief zones
    - High relief zones
  - Soils
    - Floodplain soils
    - Limestone soils with limited bedrock protrusions
    - Calcareous shales
    - Limestone soils with bedrock protrusions
    - Shale soils
    - Other soil types
  - Hydrology
    - Rivers and higher order streams/large spring areas/multiple spring areas
    - Lower order streams
    - Intermittent stream areas
    - Areas where cisterns and/or wells are necessary
  - Other Factors
    - Wooded areas near water sources
    - Broad grassland areas
    - Water power
    - Iron ore locations (also limestone for flux)
    - Mountain forests
  - Cultural Factors

- Cultural Factors
  - Economic
    - Subsistence Farming
    - Specialized farming
    - Regionalization of agriculture

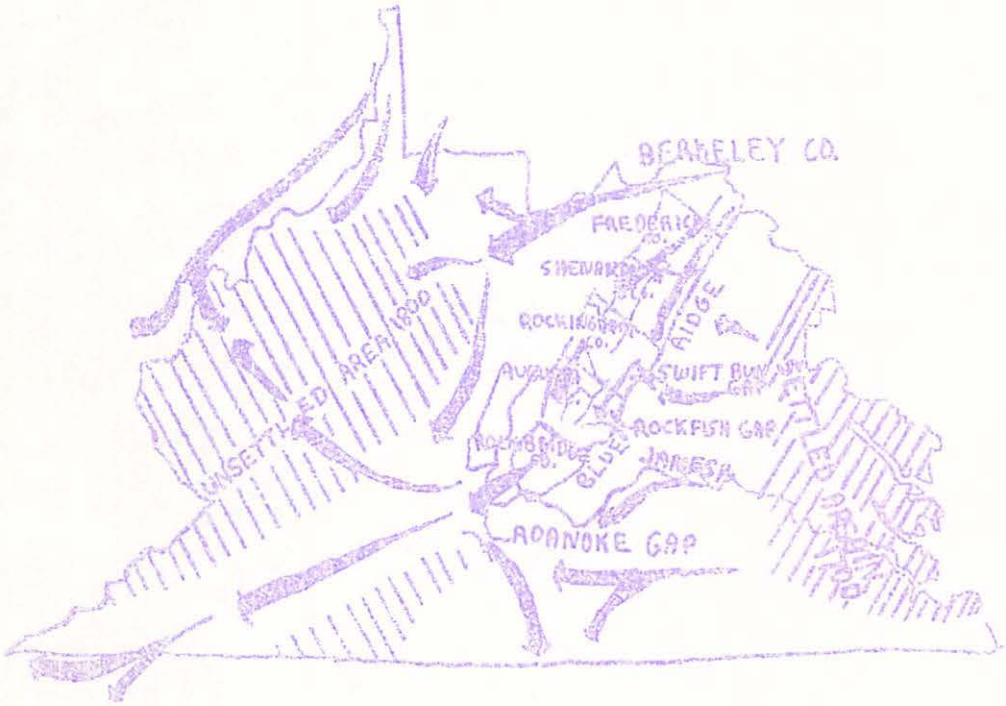
Technologic
- Home industries
- Artisans/craftsmen
- Limited Commercialism
- Increased commercialism/limited manufacturing

Trade
- Itinerant salesmen
- Increased Tidewater imports

Types of Sites
- Widely separated farmsteads/ nucleated settlements
- Reduction of separation between farmsteads
- Limited town growth
- Increasingly larger landholdings
- Growth of lower order central places
- Small farmsteads

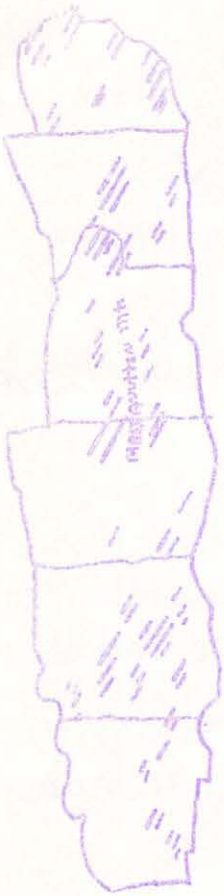
Artifacts
- Home derivation/Pennsylvania origin
- Increased dependence on Tidewater resources
- Increased status/wealth differences
- Increased locally manufactured materials

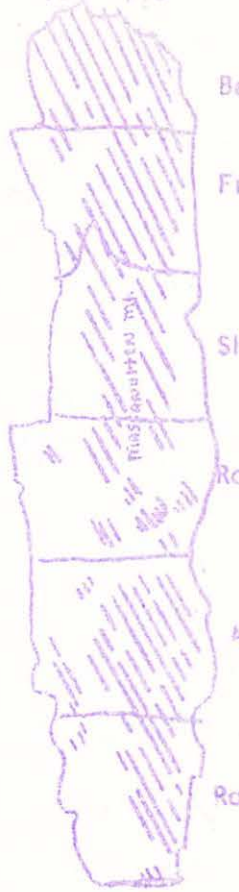
Migration Routes In Eighteenth Century Virginia



Map I (Mitchell, 1972)

1725-1750 Settlement of Shenandoah Valley 1750-1775





Map 2 (Mitchell, 1972)

Distribution of National Groups
Shenandoah Valley, 1775

English

German/Scotch Irish

Map 3 (Mitchell, 1972)

References Cited

Gardner, William M.
1978 Comparison of Ridge and Valley, Blue Ridge, Piedmont, and Coastal Plain Archaic Period Site Distribution: An Idealized Transect (Preliminary Model). Paper presented at the 1978 Middle Atlantic Archaeological Conference, Rehoboth Beach, Del.

Gardner, William M. and Willian P. Boyer
1978 A Cultural Resources Reconnaissance of Portions of the Northern Segment of Massanutten Mountain in the George Washington National Forest, Page, Warren and Shenandoah Counties, Va. Report presented to U.S. Forest Service. Ms on file Thunderbird Research Corporation, Front Royal, Va.

Gardner, William M. and Jay F. Custer
1978 A Preliminary Cultural Resources Reconnaissance of the Proposed Verona Lake Site No. 2. Report submitted to the U. S. Army Corps of Engineers, Baltimore District. Ms on file, Thunderbird Research Corporation, Front Royal, Va.

Kilcullen, Kevin E.
1977 The Marlborough Iron Works: Its Role in the 18th Century Shenandoah Valley Economic Setting. MA Thesis, Catholic University of America, Washington, D.C.

Mitchell, Robert
1972 The Shenandoah Valley Frontier. Annals of the Association of American Geographers, Vol. 62.

1974 Content and Context: Tidewater Characteristics in the Early ShenandoahValley. The Maryland Historian, Vol. V.

Stewart, R. Michael
1978 Fort Valley, Virginia: Documents versus Local History Appendix 1 in Gardner and Boyer, A Cultural Resources Reconnaissance of Portions of the Northern Segment of Massanutten Mountain in the George Washington National Forest, Page, Warren and Shenandoah Counties, Va. Ms on file Thunderbird Research Corporation, Front Royal, Va.

Walker, Joan M. and William M. Gardner
1979 The Thunderbird Regional Preservation Office Regional Research Design. Paper presented at the 1979 Middle Atlantic Archaeological Conference, Rehoboth Beach, Del.

THE HAGERSTOWN VALLEY, MARYLAND, PROJECT

Developing Large Area and Regional Research Designs

by R. Michael Stewart
Archaeology Lab
Anthropology Department
Catholic Univ. of America
Washington, D.C.

paper presented at the
9th annual Middle Atlantic
Archaeology Conference
Rehoboth Beach, Delaware
March 30,31 and April 1, 1979

ABSTRACT

A currently ongoing phase I archaeological survey of a distinct physiographic province in western Maryland is used as an example of how regional research designs may be developed for state planning programs while still addressing research problems relevant to the archaeological community. It is suggested how the collation and continued collection of pertinent environmental data used in association with a transect area survey strategy designed to sample the range of environmental variation within a geographic region, may be used to heighten the interpretive potential of information generally recovered during a phase I operation. The testing of predictive site location models in conjunction with settlement pattern studies that demonstrate diachronic man/environment correlations and provide a basis to attempt explanation of observed site distributions in terms of more abstract cultural processes is stressed.

INTRODUCTION AND BACKGROUND

In recent years the market for arcgaeologists and archaeological services has drastically increased along with sources of state, federal, and private funding. This change has been largely stimulated by the growing public concern with the environment and historic preservation and has been reinforced to various degrees by legislation on all levels of goverment. These new opportunities, however, go hand in hand with an ever increasing rate of consumption of archaeological and cultural resources in terms of the impact of urban, suburban, and rural development. As a result, today's archaeologist is responsible, in both an ethical and practical sense, for addressing not only the needs and problems of the immediate archaeological community but those of state and federal planners who must mitigate the effects of "progress" on our nations cultural resources.

It is the purpose of this paper to outline a broad research design and its theoretical base that can be used on a regional geographic level and that applies to research oriented and management needs. Because of the basic nature of the archaeological record (discussed below) a cultural-ecological focus is taken that stresses the collection and collation of environmental data and the sampling of environmental variation in a given area as a means of testing predictive site location models and the critical variables that effect man/land relationships through time. The research design presented in this discussion is currently in use as part of archaeological investigations in the Hagerstown Valley of Washington County, Maryland. The project is being funded by a matching GRANT-IN-AID from the Maryland Historical Trust to the Thunderbird Research Corporation under the direction of Dr. William Gardner of the Anthropology Department, Catholic University of America.

Management Needs

Abstracting from the results of the recent Conference for Archaeological Planning held at Harpers Ferry, West Virginia (1978) the purpose behind cultural resource management and planning is the conservation of archaeological resources or their orderly consumption in the pursuit of neede scientific information. The basic needs of those in the position of implementing and overseeing policies related to this goal are viewed as being three in number: 1) where are the resources 2) what is the quantity of resources available 3) what is the individual or collective quality or significance (nature and integrity) of the resources. Together these items represent a data base with which planners can proceed to deal with the needs of the various groups, professional and nonprofessional, that have interests in archaeological resources while the data base also aids in establishing priorities of

scientific goals and research problems to be addressed during the inevitable consumption of resources. In determining the most efficient and useful means of compiling and maintaining this data base and the context in which to evaluate resource significance, the planner must turn to the professional archaeological community for direction.

Research Design and Research Needs

Paraphrasing Goodyear et al (1978) a research design is defined as an explicit plan for solving a problem or set of problems. This plan must include theoretical goals expressed in the form of testable hypotheses. Further, the design must detail the techniques and methods that will be used in acquiring and analyzing the data to be used in problem solving. The point has long been made that one's theoretical perspective dictates both what constitutes relevant data and the means by which it is interpreted and analzed (Taylor 1948). In deciding what represents relevant data a researcher has to a great extenet put a limit on the range of interpretations that can possibly be derived from his information.

Now consider the nature of the archaeological record. It is made up of material things positioned in time and space whose specific context is the result of cultural and/or natural processes (Schiffer and Rathje 1973). Beyond the artifacts themselves, the physical context (the environmental context) or systems of contexts (Schiffer 1972) in which an artifact or assemblage occurs comprises the bulk of the remainder of the raw data that can be extracted by the archaeologist. No matter what the theoretical orientation of an investigator, in order to test any theory or hypothesis, its implications must be translated into some sort of physical patterning or relationship that can be observed in the material world of the archaeological record. If one limits the range of contexts in which relevant patterning is searched for than one subsequently limits interpretive quality and potential. Griffith (1975), Handsman (1975), and Haynes (1977) made similar points in addressing this Conference and likewise stressed the continued and upgraded collection of environmental types of data in archaeological research as a means of improving a region's interpretive context.

What is needed in Middle Atlantic archaeological research is the expansion, to at least the level of the geographic region or physiographic province, of the physical/environmental context and data base with which prehistoric remains are interpreted and evaluated. The geographic region or physiographic province is chosen as the initial unit of organization because by definition it consists of a distinct range of environmental factors-topography, soils, hydrology, etc.- that distinguishes it from other regions or provinces. As such, each province offers a unique package of resources and opportunities

potentially available to prehistoric populations and to various degrees influences settlement and subsistence patterns.

The example of the Hagerstown Valley Project outlined below demonstrates how a research design can be formulated to deal with the theoretical and practical problems that I have noted in brief above.

HAGERSTOWN VALLEY PROJECT

The Hagerstown Valley of Washington County, Maryland, comprises some 160,000 acres of the Great Valley province of Eastern North America which continues to the south as far as Alabama and to the north into New Jersey. In Maryland the Valley is bounded on the eastern margins by the Blue Ridge physiographic province and to the west by the Ridge and Valley (Cloos 1951). The Hagerstown Valley is entirely within the drainage basin of the Potomac River with major tributaries being the Conococheague, Antietam, and Beaver Creeks. Though the region is predominantly underlain by Ordivician and Cambrian limestone formations, shales, sandstones, quartzites, and metavolcanics are also found (Cloos 1951; Slaughter and Darling 1962). No systematic professional research has ever been carried out in the area though a handful of sites are recorded with the state archaeologist's office. The project is considered as a phase I operation in that it was not designed to comprehensively survey and evaluate the entire study area but rather to provide initial indications of the quantity, type, and importance of the cultural resources in the Hagerstown Valley. However, the methodology employed in deriving this initial indication is such that reasonable qualitative statements concerning the Valley as a whole can be made from the smaller areas directly studied.

Research Design-Problem Focus

The purposes of the survey are as follows:

1) test predictive site location models that detail the prehistoric diachronic correlations between specific environmental parameters and settlement/subsistence patterns.
2) more specifically test settlement pattern models regarding Paleo-Indian period sites whose nature and distribution seem to hinge on the covarying relationship between the natural locations of high quality cryptocrystalline rock and other environmental parameters such as topography, hydrology, etc.
3) begin to formulate predictive site location models dealing with historic period settlement.
4) create a cultural resources related data base which, though not immediately comprehensive, is compiled in such a

way as to allow the qualitative assessment of the cultural resources of the Hagerstown Valley as a whole based on the sample of transect areas directly studied and observed.

5) suggest how a quantitative scheme for sampling prehistoric and historic site distributions could be constructed for the entire Valley given the information derived from the initial survey.

More specific research problems regarding aspects of a certain cultural period, distinctive adaptation, or archaeological phase are easily subsumed under the testing of predictive models. The scope of this paper does not allow me to make explicit statements concerning the specifics of these models. I instead refer the reader to recent works of Dr. William Gardner and the many contract reports turned out by the Thunderbird Research Corporation and the archaeology lab at Catholic University. involving research in the Middle Atlantic Region.

Research Design-Methodology

Attempts to resolve the problems and goals that have been mentioned begin with the standard range of background and archival research dealing with previously recorded sites, collector interviews, regional and local histories and historic site surveys,and pertinent published environmental data ranging from soils and geology to hydrology, flora and fauna. Remaining operations focus on the expansion of the regional environmental data base, selection of survey transects, fieldwork, and analysis. I summarize these as follows:

1) location and assessment of cryptocrystalline sources noted in the literature and predicted, using geological models concerning the origins of jaspers and other cryptocrystalline materials, through the study of the local geologic situation.
2) location and assessment of other lithic sources commonly found expressed in prehistoric stone tool kits (quartz, rhyolite, quartzite, greenstone).
3) cataloging and inventorying of macro and micro environmental zones within the Hagerstown Valley using distinct watersheds as the unit of analysis and organization.
4) designation of transect areas to be the focus of archaeological fieldwork; transects are selected to include a representative sample of the environmental variation visible in the Hagerstown Valley as a whole; the number and size of transects tested vary according to the spatial distribution of environmenate zones and associated variables.

5) delimitation of areas within chosen transects where prehistoric sites of specific temporal and functional characteristics should be found.
6) survey of transect areas attempting 100% walkovers, examining all exposed surfaces drainage and erosion cuts; use of 2'x 2' to 5'x 5' test excavations where archival study of soils and on-site analysis of geomorphological factors indicate that sites may be buried or where inadequate ground surface is exposed for examination; mapping and recording of all discovered historic and prehistoric artifact distributions and field cataloging and inventorying of artifacts present, including preliminary functional determinations; only diagnostic artifacts or other materials likely to be removed by artifact collectors or "pot" hunters are retained during the survey.
7) examination of soil horizons in test pits and through the use of screw and bucket auger corings to allow for interpretations of landscape development through time.

Analysis will consist of determining the degree of "fit" between the observed functional nature and distribution of sites discovered during the survey, and the environmental parameters initially deemed critical to subsistence/settlement patterns and detailed within the predictive models.

CONCLUSIONS-SUMMARY

The result of this research in the Hagerstown Valley will be the refinement and/or creation of predictive site location models relating to the historic and prehistoric utilization of Valley environments and resources. Because the sampling strategy encompasses a representative range of macro and micro environmental zones, valid qualitative statements regarding the nature and distribution of cultural resources of the entire Hagerstown Valley can be made.

From the planning and management point of view sensitive known and potential resource areas can be delimited which will save time and money in dealing with future construction projects requiring environmental impact statements. This would include the designation of where intact paleo-landforms might exist and the initial establishment of "marker" soil horizons that could be correlated with specific time periods or climatic episodes and therefore efficiently guide surface and subsurface testing as part of future contract work or research, regardless of the size of the project. Because archaeological resources noted during the survey will

have been evaluated in at least a regional context the range of research goals and problems to be considered in the future will be more obvious. Again, because of the research design and sampling strategy employed, the creation of a comprehensive regional data base has been set in motion using the most efficient information per time/cost procedures (Judge et al 1975, Mueller 1975, Plog 1976). Further, the methodology used at this level of reconnaissance has not detracted from the information potential of any individual cultural resource should time and money become available for more intensive phases of study. This is contrasted withother regional approaches that have emphasized intensive surface collections using gross spatial control units that could easily mask cultural patterning of remains and severely limits subsequent phases of work designed to collect different types of data- all in the name of data comparability and time/cost efficiency (Wilke and Thompson 1978). Finally, in testing the actual relevance of the variables making up the predictive models the groundwork has been laid for constructing a long-range quantitative sampling strategy that will lend statistical rigor to ongoing interpretations and syntheses of the archaeological record.

From the anthropological perspective a step toward explaining the pattern and process of prehistoric cultures will have been taken. Though the predictive models tested deyail the covarying relationships between subsistence/settlement patterns that are cultural in nature and what are considered to be critical environmental variables, they do not totally explain in a socio-cultural sense why these relationships exist and what keeps them viable or what causes a shift to a new set of relationships. Admittedly, the models do contain portions of what could be called explanations of various patterns. But what we have essentially done is recognized correlations which must and are continually being validated or refined through ongoing predictions and subsequent testing. This provides the basis for constructing more socio-cultural oriented hypotheses regarding the nature and distribution of resources which can in turn be tested by translating their implications into physical patternings and relationships observable in the archaeological record.

Goodyear, A.C., L.M. Raab and T.C. Klinger
1978 The Status of Archaeological Research Design in Cultural Resources Management. American Antiquity, 43(2) 159-173.

Griffith, D.R.
1975 Ecological Studies of Prehistory. paper presented at the 6th Middle Atlantic Archaeology Conference held at Lancaster, Pa., March 21-22, 1975.

Handsman, R.G.
1975 Paleoecological Models: Efficient Exploration and Explanation of the Archaeological Record. paper presented at the 6th Middle Atlantic Archaeology Conference held at Lancaster, Pa., March 21-22, 1975.

Haynes, G.
1977 A Proposal for Constructing an Environmental Data Base for Middle Atlantic Archaeological Research. paper presented at the 7th Middle Atlantic Archaeology Conference held at Trenton, New Jersey, April 1-3,1977.

Judge, W.J., J.I. Elbert and R.K. Hitchcock
1975 Sampling in Regional Archaeological Survey, in Sampling in Archaeology (J.W. Mueller, ed.) 82-123.

Mueller, J.W.
1975 Sampling in Archaeology. Tuscon: Univ. of Arizona Press.

Plog, F.
1976 Relative Efficiencies of Sampling Techniques for Archaeological Surveys, in The Early Mesoamerican Village (K.V. Flannery, ed.) 136-158.

Schiffer, M.B,
1972 Archaeological Cotext and Systemic Context, American Antiquity, 37:156-165.

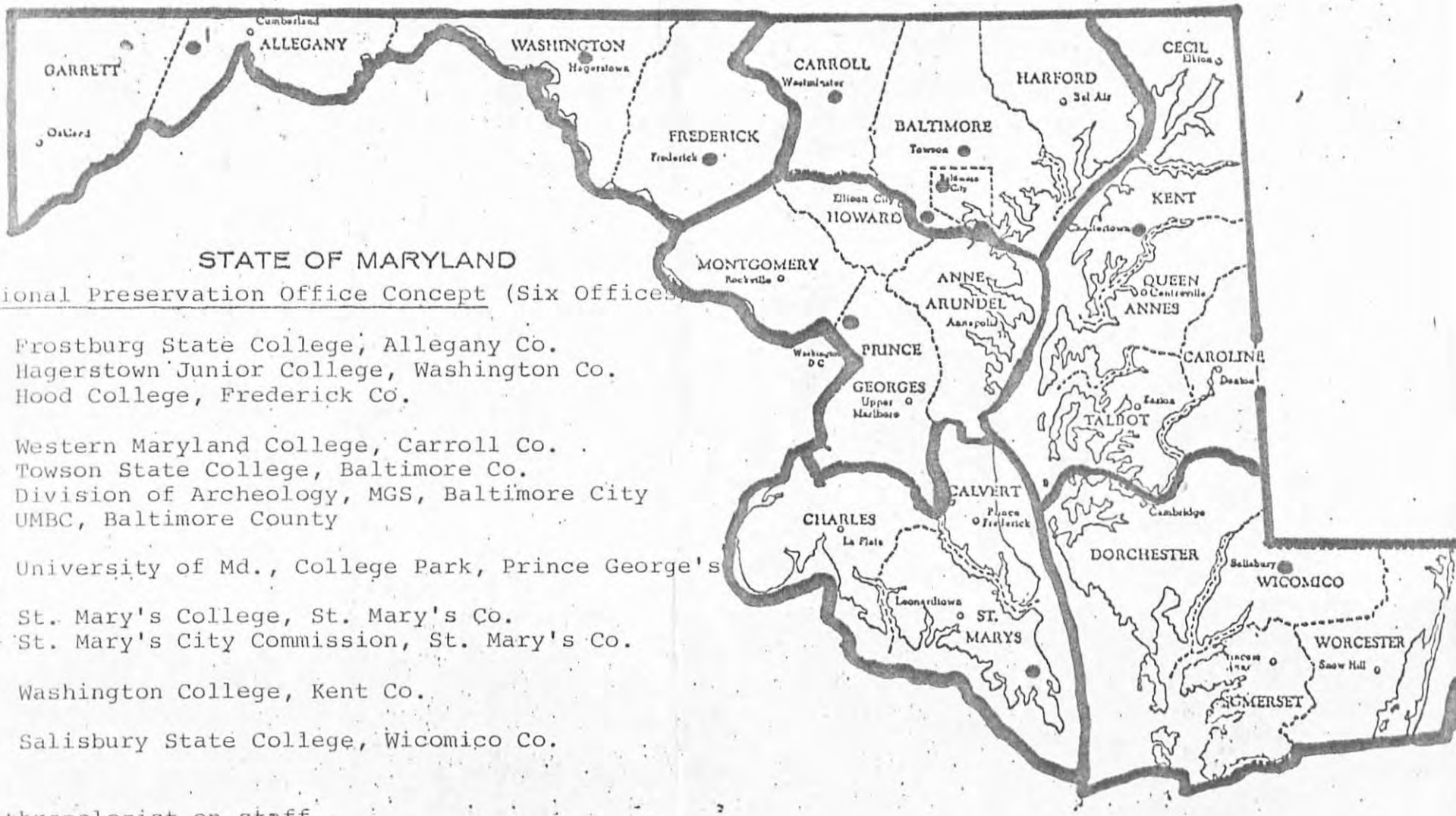
Schiffer, M.B. and W.L. Rathje
1973 Efficient Exploitation of the Archaeological Record: Penetrating Problems, in Research and Theory in Current Archaeology (C.L. Redman, ed.) 169-180.

Taylor, W.W.
1948 A Study of Archaeology. Memoir 69 of the American Anthropological Association 50(3) Part 2.

Wilke, S. and G. Thompson
1978 Cultural Resources of Kent County, Maryland. report prepared for the Maryland Historical Trust.

Additions

Gardner, W.M.
1978 Comparison of Ridge and Valley, Blue Ridge, Piedmont, and Coastal Plain archaic Site Distribution: An Idealized Transect. paper presented at the 8th Middle Atlantic Conference, Rehoboth Beach, Delaware



STATE OF MARYLAND

Regional Preservation Office Concept (Six Offices)

1* Frostburg State College, Allegany Co.
2. Hagerstown Junior College, Washington Co.
3* Hood College, Frederick Co.

4* Western Maryland College, Carroll Co.
5*+ Towson State College, Baltimore Co.
6+ Division of Archeology, MGS, Baltimore City
7*+ UMBC, Baltimore County

8*+ University of Md., College Park, Prince George's

9*+ St. Mary's College, St. Mary's Co.
+ St. Mary's City Commission, St. Mary's Co.

10. Washington College, Kent Co.

11* Salisbury State College, Wicomico Co.

*Anthropologist on staff
+Archeologist on staff

Archeological Planning

I. Planning Goals

Basic orientation - conservation of archeological resources, or orderly consumption in pursuit of needed scientific information. This requires information on:

1. Status of archeological research in planning unit.
2. Identification of sub-planning units
3. Identification of key research goals for each sub-unit
4. Archeological research and preservation priorities in each sub-unit (in ranked order?) Spell this out in more detail?

II. Identification of Groups Interested in Archeological Resources, and identification of "needs" of each of those groups.

A. The "Constituency"
   1. Archeologists
   2. Other Academics
   3. Students - "formal" education
   4. Non-structured educational opportunities for public
   5. Recreation, tourism -- economic benificiaries
   6. Social groups whose material culture is the subject of study, eg. ethnic, professional, local groups, etc.
   7. Avocational archeologists (including historic & industrial)

B. Other Interest Groups
   1. Private land owners
   2. Project-involved Federal agencies
   3. Project-involved State and Local groups
   4. Constructing entity without formal responsiblity, but "just being responsible"
   5. SHPO
   6. Federal land-management agencies
   7. Looters/vandals

III. Integration of Scientific Goals (priorities) with needs of other interest groups (or: Examination of . . . . . in light of . . . . .) This examination/integration will vary with context. Decisionmaking contexts include:

A. State or Local Historic Preservation Objectives and Priorities. (Assumption -- SHPO works within planning framework)
   1.
   2.

B. Public Land Management (Assumption -- Resource identification and evaluation will be carried out at adequate level of intensity)
   1. What kinds of survey are needed?
   2. Are the identified sites significant in context of the archeological planning unit?
   3. What is the indicated treatment of the significant resources in context of the archeological planning unit?
   (4. Less directly affected by the state plan -- What will be the allocation of dollars for full or partial implementation of indicated treatment?)

C. Utilization Assistance
   1.
   2.

D. Project Planning (Project specific)
   1. Should a survey be done?
   2. What kind of survey?
   3. Are the identified sites significant in context of the archeological planning unit?
   4. What is the indicated treatment of the significant resources, in context of the archeological planning unit?

E. Project Execution
   1. How will "discovery" (emergency) situations during construction be handled?
   2. When planning descisions included provisions for "monitoring," how will resource disposition decisions be made?

from: Conference on Archeological Planning
Harpers Ferry, W. Va.
10-13 Feb 1978

State Plan Outline (note: meant to be dynamic)

I. Objectives - Conservation-
1. Preservation(long term goal)
2. Research use
3. Interpretation

II. Subunit formulation (emphasize dynamic nature of sub units; existing information may not be sufficient for permanence)

Basis for subdivisions - examples only
natural features (drainage)
ethnographic - cultural - archeological
historic
political units, counties USFS districts etc.
stratify area in terms of impact

III. Sub units evaluation (this should be done in conjuction with the archeolgists in the state- very important)

a. complying existing information - overview
b. priorities for survey and inventory
c. priority determinations for research projects

IV. Recommendation for preservation

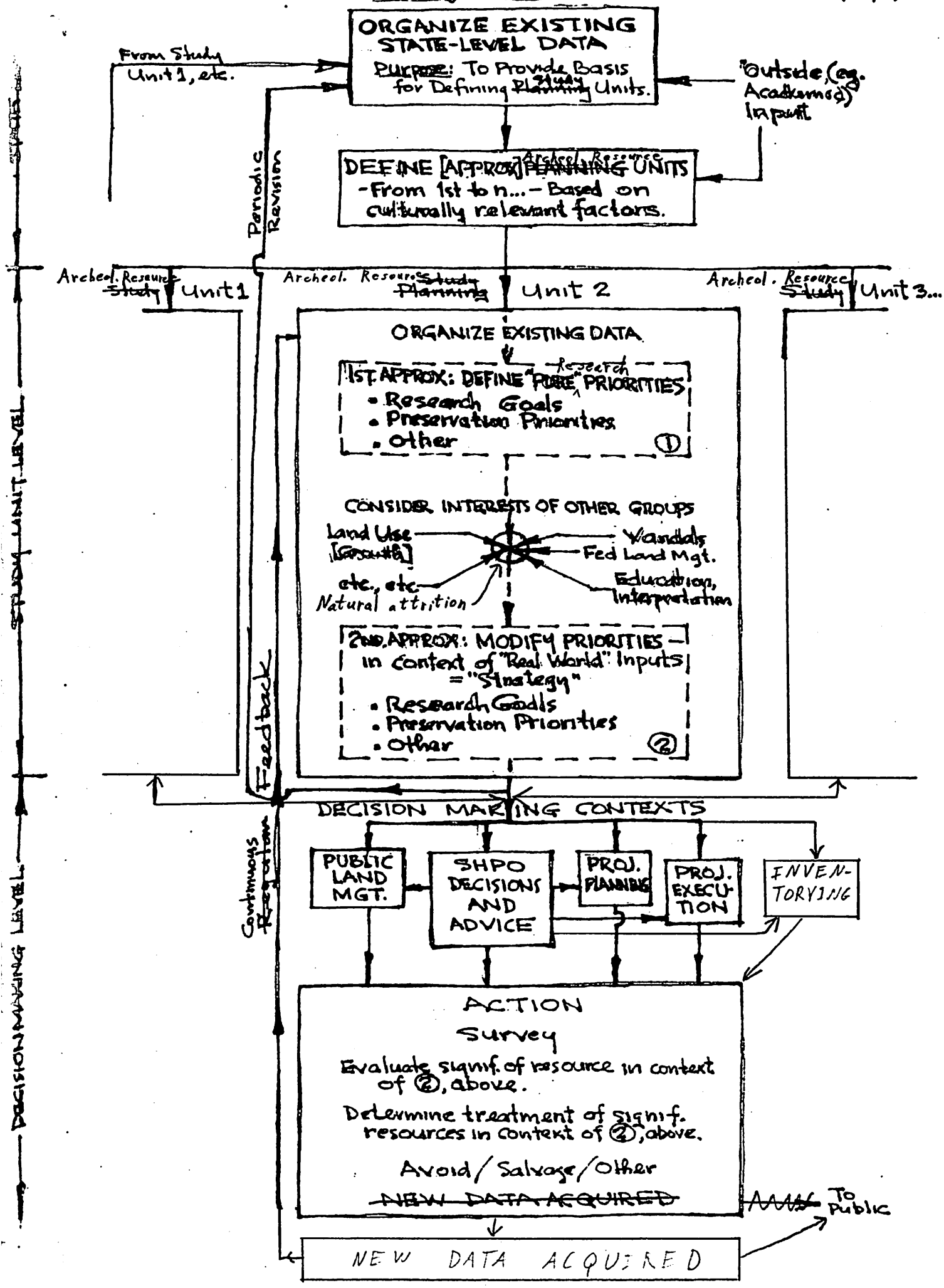
a. Preservation of elements of a total cultural system
b. preservation of sites representing different cultures within the state
c. preservation for interpretation (different areas of state)
d. preservation of sites important to particular groups (vision sites, ethnic sites)

V. Long Range Planning

Conference on Archeological Planning
Harper Ferry, W. Va.
10-13 Feb 1978

Planning Process

2/11/78



Conference on Archeological Planning, Harpers Ferry, W. Va., 10-13 Feb 1978