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EDITOR'S INTRODUCTION

The following papers have not been revised in the two years since they were presented at the 1973 conference. Discussion was taped and is presented with extensive editing. Readers are advised not to directly quote from these proceedings.

The Fourth Middle Atlantic Archaeological Conference was held on May 11 and 12, 1973 at the Holiday Inn in Penns Grove, New Jersey. The meetings were hosted by Herbert Kraft of Seton Hall University, with assistance from the editor. Following suggestions made at the preceding conference the host organized a conference around three basic themes. A general report and discussion session followed. The two day session was well attended with representatives from all parts of the Middle Atlantic Coast. Unfortunately, the registration list is not available.

The Friday morning session was organized and chaired by Dr. William Gardner of Catholic University. Dr. Gardner opened the session with a general review of the Thunderbird Site, an early man site located near Front Royal, Virginia. Numerous specialists then discussed the results and methods of their own particular studies of the Thunderbird area. A transcript of this session was not made since the tapes were either lost or the tape recorder malfunctioned.

The Friday afternoon session was devoted to a demonstration of flint knapping techniques and a discussion of a primitive living project by Dr. Erret T. Callahan of Virginia Commonwealth University. The nature of this session did not lend itself to transcription and nothing further is reported in this volume.

The Saturday morning session was chaired by Dr. Douglas Ubelaker of the Smithsonian Institute and was a continuation of the session on Mortuary Practices held at the 1972 meeting in Newark, Delaware. With minor exclusions, the transcript of this session is presented in this volume.

The Saturday afternoon session was devoted to area reports and a general discussion on the impact of new legislation on the Federal level. The meetings disbanded early with the understanding that the 1974 meetings would be held in the State of Maryland.

The transcription of this paper was completed by Margaret Ann Fendersen. It was then reviewed by Tyler Bastian and forwarded to Herbert Kraft. Kraft in turn forwarded the transcription to Ronald A. Thomas who gave it to Wendy Moore and Robert Hoffman for preparation. Final editing was done by Ronald A. Thomas and the typing by Abbey Feierstein. This paper is published by the Section of Archaeology and is available at a cost of \$1.50 from the Island Field Archaeological Museum and Research Center, R.D. # 2, Box 126, Milford, Delaware 19963.

Ronald A. Thomas
Editor

PARTICIPANTS

Bettye Broyles
West Virginia Geological Survey

Dr. Errett T. Callahan
Virginia Commonwealth University

Dr. Christian F. Feest
Smithsonian Institution

Dr. William Gardner
Catholic University

William Jack Hranicky
Popular Archaeology

Herbert Kraft
Seton Hall University

Colonel Howard A. MacCord
Archeological Society of Virginia

Dr. T.D. Stewart
Smithsonian Institution

Ronald A. Thomas
Section of Archaeology
State of Delaware

Dr. Melburn D. Thurman
University of Maryland

Dr. Douglas Ubelaker
Smithsonian Institution

Presentations and comments were made by other individuals who have not been identified within the text. Among them were:

Louis A. Brennan
Briarcliffe College

Richard A. Regensburg
University of North Carolina

Christian F. Feest

SOUTHEASTERN ALGONQUIAN BURIAL CUSTOMS: ETHNOHISTORICAL EVIDENCE

In my brief contribution to the discussion of mortuary custom investigations I shall try to point out some of the major problems encountered in reconstructing the methods of corpse disposal among the Algonquian speaking Indian groups of North Carolina, Virginia, and Maryland, and to explore both the insights archaeologists may gain from ethnohistorical data and the contributions ethnohistorians may expect from archaeological research.

Archaeologists always have made use of ethnographic evidence in their interpretations of archaeological remains. To identify certain worked pieces of stone as points, or posthole patterns as floor patterns of houses or palisades, it is - at the very least - necessary to infer a similarity of functions from a similarity of form, and to look for descriptions of living cultures to be able to make use of other than purely descriptive terms in describing archaeological finds. This is true, particularly in the study of historic and late prehistoric sites, however, archaeologists have frequently made use not only of general ethnographic knowledge, but also of written, cartographic, pictorial, and other sources (in brief, the sources commonly used by ethnohistorians) describing the culture of those ethnic groups inhabiting the area near the sites in question at a time level as close as possible to the time level assigned to the archaeological remains. This is done in an attempt to complement the always fragmentary data of archaeology and to provide some proofs for their interpretation. Only a few archaeologists fully realize the problems connected with the use of those ethnohistorical data, and - to distribute the blame evenly - few ethnohistorians draw attention to them. It may therefore be useful to give a short account of how ethnohistorical work is done, or should be done.

Ethnohistory shares with archaeology the disadvantage of having to work from incomplete data, depending on the amount of extant records or surviving material remains. But while archaeology, at least, has access to data resulting directly from the activities of a people whose culture it studies, ethnohistory works mainly with data provided by the descriptions of outside observers. Only historically collected items of material culture and, of course, those items recovered by historic archaeology furnish the ethnohistorian with information comparable to that available to the archaeologist. The study of written sources on which the ethnohistorian usually has to rely, however, pose different problems of interpretation.

The sources which have been most frequently used in ethnohistorical research are those writings which purportedly give "an account of the natives". They make good reading and readily supply the researcher with a more or less balanced and full description of native culture. It is only when inquiring into the meaning of these data in terms of modern anthropological standards that important difficulties become apparent. The reasons for this are fairly simple. Every such description is interpretative, which means that it makes selections

from the universe of possible and actual observations, and generalizes on the basis of the selections made. Modern ethnography does not basically differ in this respect, it also selects and generalizes, and this - very simply said - is what is called theory. Writers without anthropological training composed their descriptions without explicitly stating their ideas, which led them to select and generalize in a given way. They also had theories, consciously or not, but generally applied them neither systematically nor explicitly in their interpretations of cultures which were very much different from their own.

Consider, for example, the writings of Captain John Smith, which certainly are among our most important sources on the Indians of early 17th century coastal Virginia. His activities in the Chesapeake Bay area brought him in touch with many, mainly Algonquian speaking groups, in tidewater Virginia and Maryland between 1607 and 1609. His "Map and Description of Virginia" published in 1612 and his "Generall Historie of Virginia", substantially expanding his earlier book, published in 1624, contain both a recounting of his dealings with the Indians, and a general description of their culture. Since his account of his discoveries does not contain many specific ethnographic statements, it is mainly his generalizations about the Indians that have been used in reconstructing early 17th century Virginia Indian ethnography. With very few exceptions, Smith gives no information on which part of the general area he had taken the data used in his generalizations, nor is he explicit about regional differences and variations within the area covered. One could infer, of course, that there were only few variations worth mentioning, if it were not for archaeology telling us that even the fragmentary archaeological record indicates marked regional differences within the area. It is more likely to assume, that for Smith as well as for most of the other early authors on the Indians, their respective cultures looked very much the same, particularly so, if contacts with different groups were only of brief duration. Important as generalized descriptions as Smith's are because they contain much interesting data, frequently not duplicated in any other source, they nevertheless have to be used with a great deal of caution because of the problems involved in their evaluation and interpretation.

A comparison of two or more generalized descriptions covering the same area but dating from different time periods brings the same problem to light even more clearly. In cases where such descriptions differ on any subject it is impossible, without further evidence, to decide whether such differences reflect regional variation, temporal change, differences between social groups, or simply bad reporting.

Another type of written source used by ethnohistorians is a narrative which relates to specific observed events which can be pinpointed both in space and time. Sub-types of this kind of source material are, administrative records, such as county records, court records, or council journals. These sources are usually very specific and carry few inherent generalizations, but on the other hand are very selective. Especially administrative records which deal mainly with what was of relevance to non-Indian administrators, which after all is a very narrow and incomplete view of the world. In collecting this kind of information, one may arrive at a point, where it becomes possible

to do ones own selections and generalizations not affected by generalizations already contained in the sources, but it is impossible to overcome the problem of selectivity in the sources. It is at this point that archaeology comes in again. Incomplete as the archaeological record itself must be due to the perishable nature of many material items and the problems involved in recovering archaeological evidence for intangible culture traits, it can help the ethnohistorian to fill some gaps left by the selectivity of his data. On the other hand, ethnohistory, to some extent, can provide the archaeologist with information which will enable him to gain a better understanding of his incomplete data.

Turning now to the specific question of mortuary customs, I shall review the written sources on this subject as relating to the Algonquian speaking groups of North Carolina, Virginia, and Maryland, and then, discuss some of the problems of the data when compared with archaeological data, particularly in relation to ossuary burials.

A general theme in the sources throughout the area is that of a differentiation of the treatment of the dead according to social class. Southeastern Algonquian society was stratified, with a hereditary ruling class consisting of the chiefs, their families, their advisers and possibly the priests forming the upper stratum (Feest 1966).

In the case of the North Carolina Algonquians, where almost all of our sources on burial customs date from the time of the Roanoke colony in 1585/6, Thomas Hariot furnishes us with an extensive description of the burial of chiefs, which is also illustrated by one of John White's watercolors. Hariot (1590:426-7) writes in commenting on the engraving of White's drawing: "The Tombe of their Werowans or Cheiff Lordes. They builde a Scaffolde 9. or 10. foot hihe as is expressed in this figure vnder the tombs of their Weroans, or cheiff Lordes which they cover with matts, and lai the dead corpses of their weroans ther-uppon in manner followinge. First the bowells are taken forthe. Then layinge downe the skinne, they cutt all the fleshe clean from the bones, which they drye in the sonne, and well dried they inclose in Matts, and place at their feete. Then their bones (remaininge still fastened together with the ligaments whole and uncorrupted) are covered agayne with leather, and their carcasse fashioned as yf their flesh were not taken away. They lapp each corps in his owne skinne after the same is thus handled, and lay yt in his order by the corpses of the other Cheiff Lordes. By the dead bodies they sett their Idol Kiwasa, wher of we spake in the former chapter. (...) These poore soules are thus instructed by nature to reverence their princes even after their death."

John White's watercolor carries White's own account which agrees fully with what Hariot had to say: "The Tome of their Cherounes or cheiff personages, their flesh clene taken of from the bones save the skynn and heare of their heads, which flesh is dried and enfolded in matts laide at their feete. their bones also being made dry, are covered with deare skynns not altering their forme or proportion." (Hulton and Quinn 1964: vol.I, 94).

White's original picture and de Bry's engraving (probably based on another copy of White's picture) differ only in that the engraving shows the scaffold being located within a larger structure, namely the temple. This is only implied by White's watercolor (Hulton and

Quinn 1964: vol.II, plates 37, 137).

There is no indication in the descriptions, what form the primary burial took, and what time passed between primary and secondary disposal. The only possible indication comes from Ralph Lane's (1589:281) report on Indian affairs: "They of Weopomiok should be invited (by the Roanoke chief) to a certaine kind of moneths minde which they do use to solemnise in their Savage maner for any great personage dead, and should have bene for Ensenore." At this occasion neighboring tribes were also invited to attend. Ensenore, elsewhere described as "a savage father to Pemisapan (the Roanoke chief)" ("savage father" is the reading accepted by Quinn (1955:281), "savage father", however, makes more sense), had died on April 20, 1586, and the "moneths minde" was held sometimes in July of the same year (Lane 1589:275-6,280). There is no explicit suggestion that this ceremony had anything to do with a secondary burial, but since it is the only other reference to upper class mortuary customs besides burial practices among North Carolina Algonquians, it should be noted.

Hariot (1588:367,374) also twice refers in passing to graves or interments. Speaking about the use of stone by the Indians, he remarks: "neither use they any digging, but onely for graves about three foote deepe." Later he relates a story he was told by the Indians about two men who had died and had been "buried, the next day the earth of the grave being seene to move, was taken up againe." We can gather from these references that ordinary people were interred individually, but there is of course always the possibility that this was only a primary interment, to be followed by a secondary burial.

John Lawson (1709:188-189) describes burial customs of early 18th century eastern North Carolina Indians. He is not specific which tribes his descriptions cover, but Algonquian groups may well be included, particularly since the temples which served also as tombs for upper class Indians are called by the Algonquian term "Quiogozon". He mentions, never having been admitted to one of these temples (Lawson 1709:219), but is able to describe the interior in some detail. His description implies, that primary corpse disposal for chiefs was interment, with secondary and final deposition in the temple. It is also noted, that the temples contained the bodies of upper class Indians "that have died for several hundred years" and that in removing them to another place "they never fail to take all these dead Bones along with them." The uncertainty of attribution of these notes to any specific group, makes it difficult to use the data correctly.

Information on Virginia Algonquian mortuary customs is somewhat more extensive, although again it deals mainly with upper class burials. Smith in his "True Relation" (1608:22) touches briefly upon the subject: "Their Kings they burie betwixt two mattes within their houses, with all his beads, jewels, hatchets, and copper; the other in graves like ours." "In graves like ours" is of some interest, since again it implies individual interment, a point which is made less clear in his later works, where he says: "For their ordinary burials they digge a deep hole in the earth with sharpe stakes; and the corpses being lapped in skins and mats with their jewels, they lay them upon sticks in the ground, and so cover them with earth." It would appear that this description refers to primary interment, because secondary interment

being different from English usage, would probably have been specifically noted. Chief's burials are described by Smith (1612:75) as follows: "Their bodies are first bowelled, then dryed vpon hurdles till they be verie dry, and so about the most of their jointes and necke they hang bracelets or chaines of copper, pearle, and such like, as they use to weare: their inwards they stufte with copper beads and cover with a skin, hatchets, and such trash. Then lappe they them very carefully in white skins, and so rowle them in mats for their winding sheetes. And in the Tombe, which is an arch made of mats, they lay them orderly."

William Strachey (1953:94-95) who copies Smith verbatim in his description of ordinary burials, adds some details on upper class burials, such as the "scraping the flesh from off the bones" and "drying" the same upon hurdells into ashes which they put into little potts." He mentions that "the anathomy of the bones they bind together or case up in leather(..) and (..) repose the body upon a little scaffold (as upon the tomb)". For the presence of bodies of dead upper class Indians in temples we also have another specific reference concerning the Nansemond Indians in 1609 (Percy 1612:263).

As for North Carolina Algonquians we have again one reference which may give us some clue about the period of time elapsed between primary and secondary burial of chiefs. In 1621 there is mention of a ceremony referred to as "The takeing upp of Powhatans bones" which was attended by many members of neighboring tribes. Since Powhatan had died in 1618, this would give us a period of three years before the secondary disposal, if "the takeing vpp of Powhatans bones" can be understood to relate to this event. (Kingsbury 1906-1935: vol. IV, 10).

William White (1614:148) who had lived for some time among unspecified Indians in the James River area wrote before 1614 about the Huskenaw, an initiation rite of the Virginia Algonquians, during which the women brought moss, skins, mats, and dry wood, "as fitting the childrens funerall."

Another English writer who had lived among the Indians, was the boy Henry Spelman (1613:cx). Since he spent most of his time among the Indians of the Potomac tribe, his remarks about burial customs may apply to this part of Virginia: "If he dies his buriall is thus, ther is a scaffould built about 3 or 4 yards hye from the ground and the dead bodye wraped in a matt is brought to the place, wher when he is layd ther on, the kinsfolke falles a weepinge (..) if any of the kindreds bodies which have bin layd on ye scaffould should be consumed as nothing is leaft but bonns they take those bonns from ye scaffould and puttinge them into a new matt, hangs them in ther howses, where they continew while ther house falleth and then they are buried in the ruinges of the house." This is the only explicit early description of secondary burials for Virginia Algonquian commoners. Spelman (1613:cv) briefly also mentions chief's burials, mentioning only, however, temples within the domain of Chief Powhatan.

For about sixty years, there are no reports on Virginia Algonquian burial practices. William Glover (1674:633) who gives no indication which groups he is talking about (in one place he also mentions

Maryland Indians), says: "They burn the Bodies of the dead; and sow up the shaes in Matts, which they place near the Cabbins of their Relations."

An anonymous author of 1689 confirms that the distinction between ordinary and upper class burials was still being made at that date. While commoners were interred in a lying position, chiefs were first put on platforms erected on trees; after the flesh had decayed, the bones were wrapped up in mats and placed in the temples (Anonymous 1689:231-232).

The last source to be considered in connection with Virginia Algonquians is Robert Beverley (1705:214,216). He speaks only about chief's burials. In one place he comments on an illustration contained in his book which is based on the engraving based on John White's drawing. Beverley's description therefore should be viewed with some suspicion. When Beverley (1705:196), in fact, had an opportunity to secretly inspect an Indian temple, he found the remains of a human skeleton sewed up in a mat, just as described by the anonymous author referred to, and not bones encased in the original skin, as stated in his commentary on the illustration.

For Maryland Algonquians, we have only references to the tribes living on the Eastern Shore. Those dating back to a time when they were still living in Maryland, describe the upper class burials only. In 1686 the Assateagues complained to the Governor of Maryland, that an Englishman had robbed the burial of an Indian chief. It was then stated that "it is a custom among them upon the death of an Indian King to save his bones and make a case with skinns wherein they inclose the bones and fill it up with Roonoake and other their riches," and that the Englishman "hath most injuriously and feloniously stolen and taken away greate quantities of Roonoake and skinns from the tomb of some of their former Kings, which (according to their custom) they use to offer there." (Browne 1887:481,483). In 1792 it was reported that the Choptank Indians of Locust Neck had preserved the bones of their chief Wynecaco in a Quioccoson house for some 70 years (Speck 1927:41). The term Quioccoson house occurs in the whole Southeastern Algonquian region, is derived from the word for "gods", and refers to temples, in some of which the bodies of members of the ruling class were kept. Early, the word became current in colonial English, and was used also for the religious buildings of non-Algonquian tribes, such as the Nottoway in Virginia (McIlwaine and Hall 1925-1945: vol. III, 98; vol. IV, 176, 186). References to Quioccoson houses in colonial records are therefore not very conclusive in regard to the distribution of the corpses of upper class Indians.

After the Nanticoke Indians had left Maryland, John Heckewelder and David Zeisberger briefly recorded their mortuary customs. Neither one mentions differential treatment according to class, but what is being described would seem to apply to commoners.

Heckewelder (1819:75-76) wrote: "The Nanticokes had the singular custom of removing the bones of their deceased friends from the burial place to a place of deposition in the country they dwell in. In

earlier times, they were known to go from Wyoming (Pennsylvania) to Chemenk to fetch the bones of their dead from the Eastern Shore of Maryland, even when the bodies were in a putrid state, so that they had to take off the flesh and scrape the bones clean, before they could carry them along. I well remember having seen them between the years 1750 and 1760, loaded with such bones, which being fresh, caused a disagreeable stench, as they passed through the town of Bethlehem."

Zeisberger (1910:90) says: "The Nanticokes (..) have this singular custom that about three or four months after the funeral they open up the grave, take out the bones, clean them of the flesh and dry them, wrap them in new linen and inter them again. A feast is usually provided for the occasion, consisting of the best they can afford. Only the bones of the arms and legs of the corpse are thus treated. The rest are either buried or burned."

Nanticoke secondary burials for commoners apparently followed primary interment, thus differing from Spelman's account of primary exposure on a scaffold for the Potomac, and the accounts for the region to the south where no secondary burials for commoners are mentioned at all. No source at all, however, mentions ossuary burials, which is probably the oddest fact to be noted in connection with our survey of written sources. While no one mentions them in writing, archaeological evidence for their presence in the region during historic times is so strong as to leave not the least chance of doubt. They have been reported from both sides of the lower Potomac River, Rappahannock River, York River, and Chickahominy River in Virginia, and from various locations on the Eastern Shore. The absence of any written reports on ossuary burials may be due to several reasons: First, such burials were held in any one place only every few years, so that even someone who may have lived for a considerable time among the Indians, let alone a traveling observer, could easily have missed such an occasion, and second, it is not likely that the Indians would have invited the colonists to attend such a ceremony, particularly when taking into account the unfriendliness of Indian-White relations. The archaeological record therefore adds considerably to our knowledge of burial customs in historic times. Spelman's account, coming from an area in which ossuary burials up to historic times are well documented, should then be seen as a description of a two-stage preparation of corpses of commoners, prior to interment in ossuaries. Reports about primary interment of commoners in other parts of coastal Virginia and in coastal North Carolina may tie in with the relative absence of ossuaries in those parts, while Glover's account about cremation finds partial substantiation in the presence of some partially cremated skeletons in some of the ossuaries. It is impossible, however, to state the reasons why some corpses were cremated and others were not. Also it should become clear from our survey, that the placement of specially prepared corpses of upper class individuals in the Indian's temples bears no relationship at all to the practice of ossuary burials.

Bibliography

- Anonymous
1689 An Account of the Indians in Virginia, 1689. Edited by Stanley Pargellis. William and Mary Quarterly, 3rd Series, 16(2):288-243. Williamsburg 1959.
- Beverley, Robert
1705 The History and Present State of Virginia. London. (L.B. Wrights, ed., Chapel Hill 1947).
- Browne, William Hand (ed.)
1887 Proceedings of the Council of Maryland, 1667-1687/8. Archives of Maryland 5. Baltimore.
- Feest, Christian F.
1966 Powhatan: A Study in Political Organization. Winer volkerkundliche Mitteilungen 13:69-83. Wien.
- Glover, William
1674 An Account of Virginia. Philosophical Transactions of the Royal Society 11:623-636. London.
- Hariot, Thomas
1588 A Brief and True Report of the New Found Land of Virginia. In Quinn 1955:317-387.
1590 Notes on White's drawings. In Quinn 1955:413-444.
- Heckewelder, John
1819 An Account of the History, Manners, and Customs, of the Indian Nations, who once inhabited Pennsylvania and the neighboring states. Transactions of the Historical and Literary Committee of the American Philosophical Society 1. Philadelphia.
- Hulton, Paul and David B. Queen (eds.)
1964 The American Drawings of John White, 1577-1590. London and Chapel Hill.
- Kingsbury, Susan Myra (ed.)
1906-1935 The Records of the Virginia Company of London. 4 Vols. Washington.
- Lane, Ralph
1589 An Account of the Particularities of the Employment of the English Men left in Virginia. In Quinn 1955:255-294.
- Lawson, John
1709 A New Voyage to Carolina. London. (Hugh Talmage Lefler, ed., Chapel Hill 1967).
- McIlwaine, H.R. and Wilmer Hall (eds.)
1925-1945 Executive Journals of the Council of Colonial Virginia. 5 Vols. Richmond.

Percy, George

- 1612 A Trewe Relacyon of the Proceedinges and Occurentes of Momente woh have hapned in Virginia from 1609 until 1612. Tylers Quarterly Magazine 3(3):259-282. Williamsburg 1922.

Quinn, David Beers

- 1955 The Roanoke Voyages, 1584-1590. Works issued by the Hakluyt Society, 2nd series, 104-105. London.

Smith, John

- 1608 A True Relation of such occurences and accidents of noate as hath hapned in Virginia. In Edward Arber, Works of Captain John Smith, pp.1-40. Birmingham 1884.
- 1612 A Map of Virginia. With a Description of the Countrey. In Edward Arber, Works of Captain John Smith, pp.41-174. Birmingham 1884.
- 1624 The Generall Historie of Virginia, New England and the Summer Isles. In Edward Arber, Works of Captain John Smith pp.273-784. Birmingham 1884.

Spelman, Henry

- 1613 Relation of Virginea. In Edward Arber, Works of Captain John Smith, pp.ci-cxiv. Birmingham 1884.

Strachey, William

- 1953 The Historie of Travell into Virginia Britania. Works issued by the Hakluyt Society, 2nd series, 103. London. (L.B. Wrights and V. Freund, eds.)

White, William

- 1614 Fragments published in 1614. In Philip L. Barbour (ed.), The Jamestown Voyages Under the First Charter, 1606-1609. Works issued by the Hakluyt Society, 2nd series, 137-137, pp.147-150. Cambridge 1969.

Zeisberger, David

- 1910 History of the North American Indians. Ohio Archaeological and Historical Publications 19. Columbus.

Impromptu Remarks on Feest's Paper

(FEEEST) Even observers like Henry Spelman who stayed for one year among the Indian group, could possibly have missed a chance of seeing an ossuary burial at the place, much less, casual observers and travelers who probably didn't inquire too intensively into customs relating to burial. I think the Indians would probably not have willingly told of these practices in great detail to any foreigner. Also, they probably would not have invited too many Englishmen, particularly if the tribe was hostile, to attend the ossuary burials and other funerary occasions. This is a good reason why we don't have any ethnohistoric references to ossuary burials. The problem remains that we have to somehow bring the practice of ossuary burials into line with what our ethnohistoric sources have to say. Dr. Stewart has excavated the ossuaries at the village of Patawomeke so we know that in historic times these Indians used ossuary burials. Henry Spelman, in describing the burial customs, mentions secondary burials, but not ossuary burials. He finally says that after exposure on the scaffold, they put the bones in mats and hang them up in the houses. If the house breaks down, they are buried under the house, and that's the end of it. There are obviously some problems connected with trying to bring together archaeological and ethnohistorical evidence. On the other hand, it is very important and I should like to get your comments from an archaeologist's point of view on ethnohistoric sources or any questions you may have as to the validity and accuracy of these sources.

(THURMAN) There are two things I want to say. First of all in regard to the 1621 reference in Virginia, I think there are a lot of problems in interpreting this because in 1622 an attack was made against the settlers at Jamestown and there is some reason to believe that this was a nativistic revitalization movement. This chain of events was set off as a result of the murder of an Indian medicine man. One of the things about this medicine man was that he pleaded before he died, not to let the people of his tribe know that he had been killed by a bullet. Now this is another factor that really led to my conclusions. There is a possibility here of the first nativistic revitalization movement in the Eastern United States. The reason I bring this up is that there is another reference from 1622 which says that the date of the attack on Jamestown was scheduled for the day on which Powhatan's body was going to be reburied. Now, I know there are references, in 1621, I am not disputing that. I am saying that there are problems with the date of Powhatan's reinterment; there are problems with 1621 for the Powhatan date. It tells in the documentation in 1622 of the reburial of Powhatan's body, we cannot assume that this was an ordinary event. We are not sure whether Powhatan's body was being reburied several times, or being taken up, or if in fact, this particular reference is totally representative of the situation for high status burials in Virginia.

(FEEEST) I fully agree with your opinion that this is possibly the first nativistic movement on record in North America, however, I have to disagree with your interpretation of the data. The case of the Indian who was called the English Jack with the Feathers to whom you refer, there is evidence that this may really not have triggered the 1622 so-called massacre. Actually, Obachan who headed and who organized this so-called massacre told the English colonists, long before the massacre, after this Indian had been killed by a bullet,

that he was content that his throat had been cut and he was glad to have him off his hands. The question about the taking up of Powhatan's bones is, that after the massacre in 1622, it was reported by the Colonial Council back in London that the organization of the massacre took place not on the date of the massacre itself, but on the occasion of the taking up of Powhatan's bones, an occasion when many tribes of neighboring regions gathered, and so, this made easy the planning of this massacre.

(THURMAN) That is quite possible. I would be willing to say that it is at least plausible. However, I think that since there was a nativistic movement involved here, we should not assume that this particular instance is in fact representative of how long an individual of high status was buried.

(FEEST) That is the only evidence we have. We shouldn't place too much weight on it, really, but it should be pointed out that this evidence exists.

(MAC CORD) Did you find any references to their having moved their bones when they moved from one territory to another? I found a reference among the Creeks where they bundled and took the bones of the dead with them. Did they do this among the Algonquians?

(FEEST) The only reference is given by Heckewelder, who said that the Nanticokes did follow this custom.

(COMMENT) Then perhaps that could explain also why they took the bundles from one place to another. They may have interred them in a group when they arrived at their destination.

(FEEST) Possibly. The sources don't say so, but it is a distinct possibility.

(COMMENT) There are three points I want to make. One relates to the ethnohistorical data. In the Choptank village that you refer to it is also reported that the chief or the king was preserved seven years in the temple. That town was ruled by a woman, which brings up the problem of high status women's graves. How far back in the records did they go? We have ethnohistorical evidence that there were high status women. Secondly, because of the problems of ethnohistorical data, I have begun an ethnographic investigation among living Delaware's related to burial practices. In light of what Ron has already said about secondary disturbances in the graves, they are very clear on the problem of releasing the spirit of a corpse, at some time during 4 to 12 days after the burial. After the grave has been filled in, there will be a hole left from the coffin to the surface of the ground, which should show up, either in light soil discoloration or through offerings that were dropped down the hole. And yet I know of no one who has ever found such a hole in the excavation of a grave. The other thing is, the Delaware's are still very clear on the problem of status differentiation. In terms of primary burials, chiefs are always buried sitting up, commoners are always buried prone. They don't do it now, because their chiefs aren't chiefs, to their way of thinking. But they do remember that

there were these status differentiations in the burials.

(FEEST) I quite consciously stopped my survey short of Delaware because of the different problems involved. You have to take into account the possibility of change over time. So you can use your data in trying to interpret sources.

(COMMENT) Exactly. That's the reason for tying it into archaeology.

(FEEST) In connection with status differentiation, I'd like to make the point which you bring up in your paper in discussing the Slaughter Creek phase. You say there is no indication of status differentiation in the archaeological record. Of course, if we assume that high status individuals are buried in charnel houses in the temples, you probably won't find any evidence in the ground. This should be kept in mind also.

(THURMAN) You find evidence for the charnel house, however. Whether there has been a burial in it or not, you will be able to see that you've got a structure that is different from any other structures in the village. This is why, as I've said repeatedly, you've got to go after the information of the total settlement pattern. If you don't, you aren't going to know what's going on.

(FEEST) Yes, that's right.

(STEWART) One of the additional points of information we get from the ossuaries is the arrangement of the bodies. I think I would first note that we get numbers of these bodies face down. They are all articulated, except for the fact that the feet are thrown up forward, the feet are in the abdominal position, and they may have been wrapped, so they didn't know which was up or down when they were put in.

(STEWART) I could predict that Doug, when he got into the Nanjemoy ossuary, that he would find them, and he did. Another thing that I noted at Stoney Creek was that long bones occasionally had mud wasp nests in them. This could only have occurred up on a scaffold in the open. It couldn't have been after burial, of course. Occasionally, I found a skull that seemed to have sand in it rather than the clay surrounding the flesh, suggesting it had been buried elsewhere, maybe on the shore of a river and transferred to this site. So if you look for this sort of information, you can find it supplementing the known records. The other thing is we get lots of cut marks around joints, which suggests scraping and cleaning of the skeletons. Up to the time I was able to work on an ossuary. No one had dug one carefully, they were after the bones. Old Judge Graham used to get down on one side and pull the bones out with no idea of the arrangement. Mrs. Ferguson did the same thing in Accokeek. She would bring her friends in on a weekend and they would have a trench all the way around the ossuary and sit there and pull out the bones and put them in paper bags, with no idea of the arrangement. They lost immeasurable amounts of information there.

I've been on the receiving end of bones from the archaeologist, and in a sense I don't object to this, because in my

work on forensic anthropology, law enforcement people bring in skeletons to us, to identify. We don't let them tell us anything, because we don't want to be biased in our determination of sex and age or whatever we might find. I've had skeletons brought in and have noted a green stain on top of the skull, and I'd say this is likely from the Colonial Period, the winding sheet had been pulled up there and pinned. The copper in the pins left this stain. We are constantly finding things we can interpret, however, we need to know more details about how these things are recovered, because we can make certain assumptions, about the burial. I have had the law enforcement people bring in skeletons or a bag full of bones, and I would see they were discolored in a certain way. If I would lay those bones out according to the discoloration, I could reconstruct how it had been found, because the upper parts were bleached and the ones in the ground were stained. You couldn't have told from the bones whether they were articulated or not when found. There is a lot of this information. Ron has in his paper, I noticed, a sentence that intrigued me. I wish he could interpret it. "In order of relative reliability, these were the writer's excavation records and experiences, site excavation photographs, interviews with excavators, witnesses and the published literature." Now I don't know whether this is in diminishing order of importance. For Delaware, he has been using a lot of "I" information on these, and of course, being on the receiving end, I realize that what I have been able to say is simply what I can tell from the bones.

(COMMENT) With regard to the individuals you found, that were articulated except for tendons cut and the legs bent, did any of these bodies have any sort of material associated with them?

(STEWART) There was very little material of a cultural nature in the ossuaries. There are intriguing things. Doug found in the last ossuary we did, Potomac Creek ossuary, we found lots of cylindrical shell beads that seemed to have been thrown in. I remember that after we had taken most of the bones out we could find them scattered over the bottom of the pit. Now these could have filtered down from above, but the random distribution suggested that they had just been thrown in there. On the other hand, we got a lot of marginella beads for which you could establish patterns. I think they were on a robe, like Powhatan's robe. They were sewn in designs and when the robe rotted they just stayed there still in their patterns. Another thing is that in this last ossuary, there seems to have been cremated bones scattered at random in part of the ossuary. In Potomac Creek, there is a mass of cremated bones at one end, not cremated in situ, but brought there. It makes you wonder whether this was part of the ceremony, because I found that in almost every ossuary, However, this has to be observed as the bones are taken out.

(COMMENT) Were those found at the same level, those beads you said were sown across the soil?

(STEWART) We found them all through. It is so difficult in an ossuary to be sure of these things.

(COMMENT) I just wanted to make a comment on the disoriented

burials. There are two possible explanations for them. One is that the bundles were kind of spherical and they couldn't tell which end was up and they got dumped in the ground. The other is that witches are always buried disoriented from the rest of the community. The only way to tell that I know of is that a witch burial will not have grave goods.

(COMMENT) That means we have a whole ossuary of witches.

(PREVIOUS COMMENTATOR) Well, no I'm talking about individual burials.

(COMMENT) In regard to that, I seem to recall that witches, if they could not get rid of their paraphernalia, had to be buried with their jar or with their paraphernalia.

(UBELAKER) In these ossuaries, it would appear to me, at least, that what would appear to be this unusual flexing of the lower legs in this position wasn't unusual at all, to them. In this last ossuary, we found three completely articulated individuals, reflecting individuals who had died just before the burial ceremony, so their flesh didn't have time to decompose. Two of those are in that position. The other one was extended, lying on top of both piles, so that's two out of three, and I think it's the norm rather than the exception.

(THURMAN) I would like to make a comment in terms of general methodology, in regard to ethnohistory and its relationship to archaeology. Primarily it was brought to my mind by the statement on witches. I would like to call people's attention to the article James Deetz wrote some time ago in a special publication of the American Anthropological Association in which he points out something which I think is overlooked when we deal with ethnohistory or when we deal with ethnography. We put things in a context and when we deal in archaeological materials we put things in a context. Our interpretations are primarily a function of the context in which we place the interpretation. We are not testing archaeological material. We cannot test archaeological material with ethnohistorical material, or vice-versa. What we are doing is, comparing two different kinds of constructs and this is something which is overlooked. The second thing I wanted to say is that we cannot make the assumption that those processes which are observed at the present time necessarily are processes that occurred in the past. Now I am not arguing for an anti-uniformitarian method. I am saying that obviously there are processes which existed in the past for which there are no observable analogs. I think we have overstressed the ability of ethnohistory, ethnography, or history to give us real insight into the past. Certainly, to some degree it can help us, but we are going to have to devise methods and means by which we can understand things purely on an archaeological basis.

(FEEST) May I comment briefly on that? I agree fully with you that the two things are different, archaeological and ethnohistorical constructs, but if we deal with early historic times, if we have the same time period, the same place, then these two constructs should be compatible.

(THURMAN) I agree. But I think we must be aware of what we are doing. And too many people are unaware of what they are actually doing. Let's be explicit, let's understand what we are really doing, let's say what we are really doing.

(COMMENT) That's why we are here today.

(UBELAKER) Well, I think all the archaeological evidence suggests that these are one-shot affairs where the primary deposits were somewhere else. They were stored up over a period of time, probably several years, and then in a feast of the dead, they would gather together all of the decomposed or partially decomposed remains and bury them collectively in a large pit, seal that pit, and then wait several more years before they went through this thing again. Each ossuary represents a segment of the dead of that population, covering all the dead that died during a specific period of time. They weren't re-opened and added to later on, or else we would see some evidence of layering, and there is none.

We are sort of at a point where we can depart from theory and start presenting some data. Let's present some specific applications of the theoretic orientation we have been talking about and see how several of us have been trying to retrieve data in the field to solve some of these problems. Last year I recall standing before you and telling you what I had planned on doing in the analysis and excavation of an ossuary in Southern Maryland. Now I have the pleasure to tell you that I have done that and I can return and show you and tell you what I have done

(COMMENT) We might make a few comments about ossuary practice, and then I can go over the data. It appears that ossuaries do represent one-shot affairs, where some type of a primary repository existed, be it a scaffold, something above ground, a charnel house, or in the ground interments. It appears that every few years the Late Woodland inhabitants of the Mid-Atlantic area traveled to these primary repositories and gathered together remains of the dead, brought them together, conducted the ceremony and buried them collectively in these large pits. We found one of these pits in Southern Maryland containing the remains of nearly 200 people which I believe represents nearly all the people that died during that period of time with the possible absence of the leaders who, may have been deposited permanently in the death houses, or some individuals who may have not made it to the ossuary.

(COMMENT) What period of time does this represent in years?

(UBELAKER) I think it represents a 3 to 4 year period, This is sort of a departure from what I thought last year at this time, in that the same practice is well documented for the Iroquoian-speaking peoples in the Great Lakes area, as well as Algonquian groups. With the Huron, the interval is well documented at 10 years, or somewhere between 8 and 12. Jesuit missionaries wrote copious notes on this process and we have well documented sources. However, here I think the time interval is a lot shorter. First, I want to give a presentation of archaeological data and some of my interpretations of some of the things I found. particularly regarding the distribution of bones and individuals within the ossuary pit, Secondly, I will

discuss how I have utilized the skeletal material to reconstruct demographic profiles for the population, based on the idea that this does represent a relatively complete sample. I then go on from the demographic data to considerations of population size and relating those population size estimates to an interpretation of what the ossuaries represent.

(HERE FOLLOWS A SLIDE PRESENTATION OF THE EXCAVATION OF THE NANJEMOY OSSUARY)

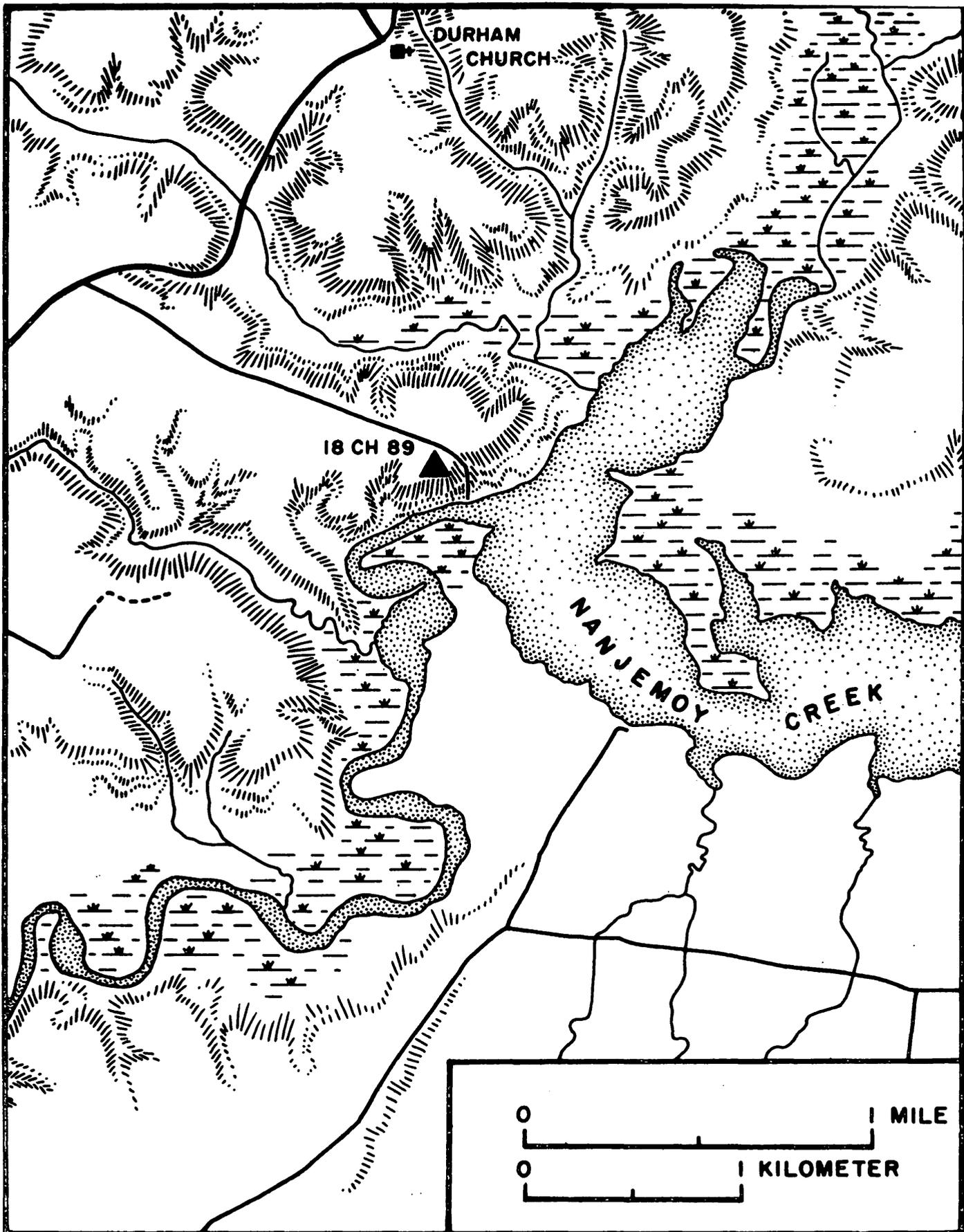
Douglas Ubelaker

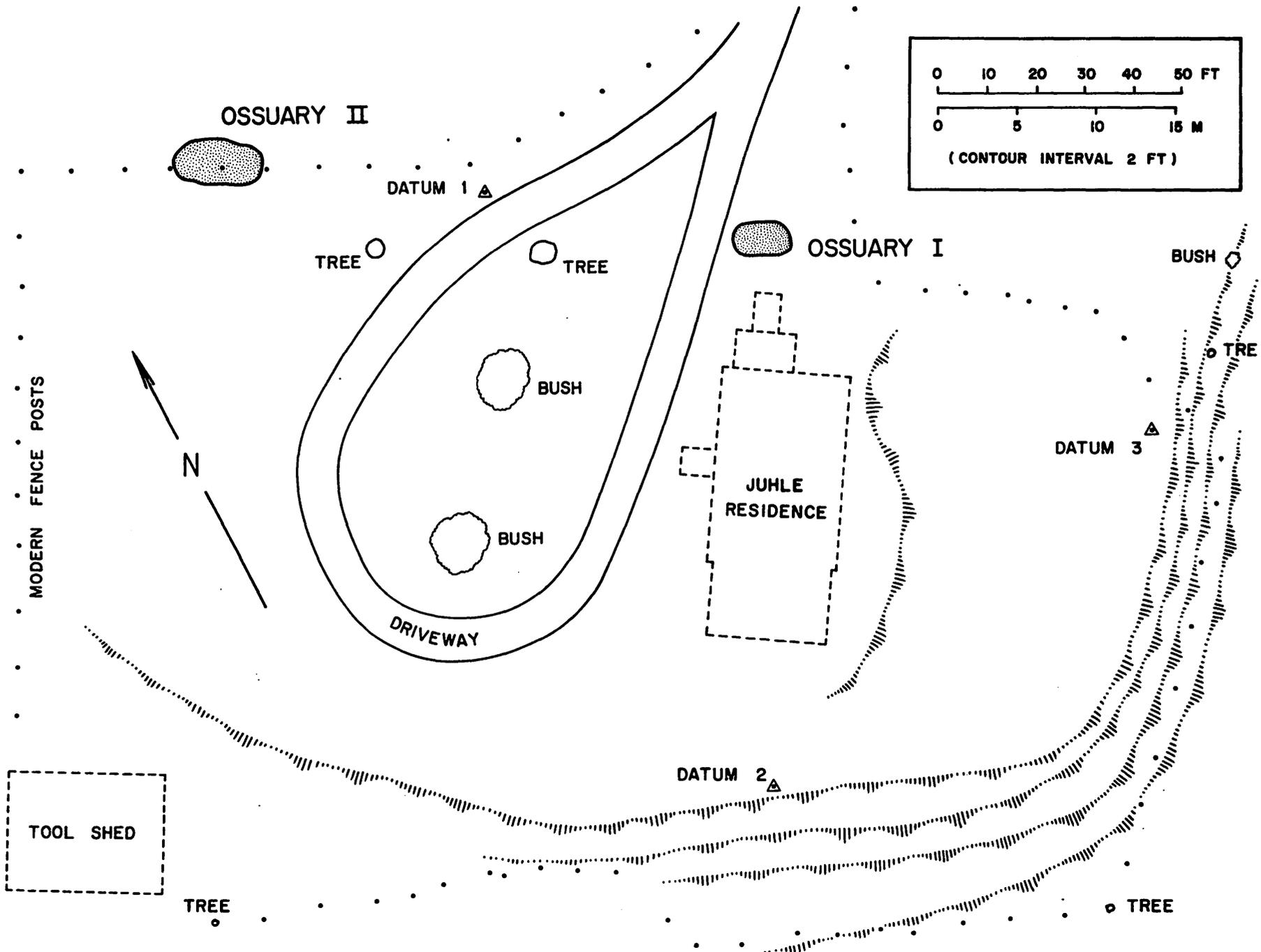
THE HURLEY OSSUARY AT NANJEMOY CREEK

The Hurley site that I am referring to is located on a 110 foot bluff overlooking Nanjemoy Creek, a small tributary of the Potomac River. I will be referring to two ossuaries excavated by Dr. Stewart in 1953 and 1955. The second one was excavated during 1971 and 1972 by Dr. Stewart and myself. Both were found by accident. The first one was found as the residents of the house were connecting a waterpipe to their house and then later as they were building a fence line they again found the bones and called the Smithsonian. So we could investigate before there was any damage to the material. Consequently, it was completely excavated and we have been able to get a lot of information.

There is a general secondary nature of this ossuary deposit. Most of the skeletons are decomposed. The bones are not in articulation. They are representing individuals who had been in the primary repository long enough so that the flesh had decomposed. When they transferred them, the bones came apart. Some of them were apparently wrapped in bundles and were placed in the ossuary deposit. Yet some of the individuals are still partially articulated, reflecting individuals who had not been lying in the original repository long enough to completely decompose. Some of the individuals were completely articulated, reflecting individuals who had just died. The recently found ossuary was approximately 100 feet northwest of the first one. A fence line happened to exactly bisect the ossuary so that it served as a sort of convenient reference point for our excavations. We began with the idea that we would expose as much as possible so we could get a feeling for the layout of the material and try to learn something about any patterning which may exist within the ossuary deposits. However, there are a lot of problems involved in excavating ossuaries. There are hazards in trying to expose too much at once, because it is so complicated. It is a pit 17 feet long by about 8 feet wide, the logistics involved are what make it difficult to excavate. If you try to expose the whole things at once, you'll find by the time you get to the end, there will be so much sun damage, so much breakage, that you will lose the data you are trying to get. With that in mind, and relying heavily upon Dr. Stewart's previous encounters with ossuaries, we decided to excavate this thing in thirds.

There is a completely articulated individual lying on top, as well as the two on the bottom. Another is on its back with the legs very tightly flexed up in the stomach area. Another apparently unusual example is one where the muscles and the tendons in the knee area have been severed and the lower legs have been brought up out of anatomical position, into the stomach area so that instead of having the legs flexed back as you normally expect to find, they are brought around so that the toes are up in the stomach. This is the unusual burial position that has been documented for other ossuaries in the area and that appears to represent somewhat of a standardized technique. The other class of individuals are individual bundles. Once the hide is decomposed and the materials begin to settle in, it all just looks like one continuous mass. You can see higher and lower points, but it is very hard to differentiate between individual bundles. Stewart's excavation in '53 showed the same kind of pattern, with





isolated bundles and some completely articulated individuals on the perimeters of the excavation. One shows an example of what I call partial articulation. Here is a group of 8 or 9 or 10 thoracic vertebrae which are articulated together, but that's all you have. They aren't articulated to anything else. We found over 150 examples of this type representing all parts of the body, throughout the ossuary. Most frequent were bones of the feet, reflecting reluctance of that musculature to decompose. In the primary repository the bones of the feet apparently lasted the longest in articulation, and it sort of worked its way up, reflecting the strength of the tendons and their resistance to decomposition. We did find cremated bones concentrated right in the center of a pit that looked like the remains of at least one adult burned to a fairly high temperature elsewhere and brought to the pit for placement in it. They weren't burned in the pit.

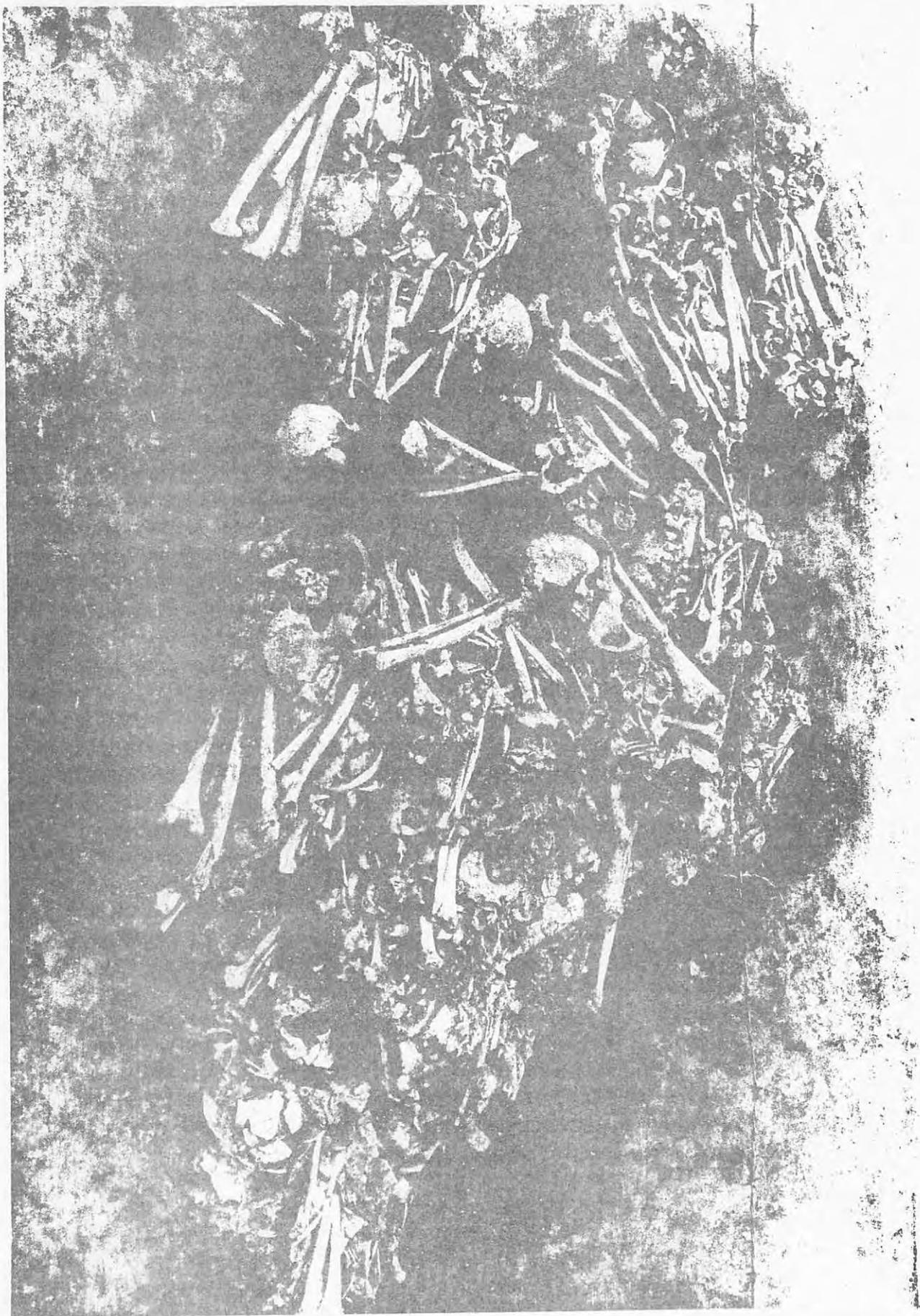
The next phase I want to talk about is distribution of bones within the pits. In the past, we have thought of these things as being random distributions of the skeleton material. Certainly as you excavate you gain the impression that the bones were apparently just arbitrarily thrown into the pit and that no apparent order can be recognized. This was my reaction as I worked in this pit and it has been the reaction of others who have worked on ossuaries. However, it occurred to us that there may be distributional features, such as distributional variation within the pit that we couldn't detect because of their complexity, because they weren't gross enough, and the only way to really find out if they existed was to use some type of a grid system and analyze the content of the grids independently to see if there is variation within the pit. We then superimposed an artificial two-foot grid square system over the bone mass and as we excavated, we removed the contents of each square separately, keeping track of what square it came from. I then analyzed each of these units independently. I studied the distributional patterns within these squares, thinking that if there was some type of separate placement of males and females, or young people and old people, it might be detected in the analysis. Well, I got results, but they weren't quite the results I expected to find. There was absolutely no difference between the distribution of males and females in this ossuary, as detected from the skulls, the femora and the innominate. You have to think in terms of individual bones, not individual people, because it is all disrupted. Within the adult group, there was no significant difference between the distributions of young people and the distributions of old people. However, when you look at the type of bones and compare young people, that is sub-adults to adults; you find a very dramatic difference. I did this using a computer, using multivariate analysis, which showed the difference. I then went back and tested each of the comparisons individually, using the univariate chi square statistic.

The results produced three distributional groups within the ossuary, which strongly overlapped, but showed very different distributional patterns when you look at the pits as a whole. One group consisted of the major bones of both the adults and the subadults. We found that by analyzing the major bones, the larger, more conspicuous looking bones, for example, the long bones and the innominates, there was no difference in the spatial distribution of these bones

between adults and subadults. However, talking just about adults, you find that there were significant differences between the major bones of the adults and the miscellaneous bones of the adults, the carpals, the tarsals, the toe bones, the foot bones the small vertebrae, etc. Similarly, there were differences between the distribution of the major bones of the subadults and the miscellaneous minor bones of the subadults. We emerged with this pattern of three groups: 1) major bones of adults and subadults, 2) the small miscellaneous bones of subadults, and 3) small miscellaneous bones of adults. And the probabilities that this could have occurred by chance are way under 1000 to 1. The only explanation that I could come up with that makes any sense at all would be, if these burials were primarily on scaffolds, and the Indians went to the primary repository to gather together the bones for communal reburial. They may have selected the larger, more conspicuous bones for communal burial. They may have gathered them all together, and placed them simultaneously, or with some type of a gesture, in this pit. It is obvious that they were placed together, in that they have the same distribution. There is no distribution difference between adults' and subadults' major bones. They may have then gone back to the original scaffold areas, or in some type of a separate movement, gathered together those small miscellaneous bones that were left behind, cleaned out these scaffolds to get ready for the next few years of deposits, and brought them into the ossuary for burial. At any rate, they were placed in separately, so they apparently do have a separate distribution within the pit. Now, the subadult-adult difference among the miscellaneous bones is pretty hard to explain, unless perhaps the original scaffolds were segregated in terms of males and females.

Now Christian Feest has called attention to this rite of (Huskenaw), which apparently occurred around the age of 15. This produces a subadult-adult dichotomy which is recognized in cultural institutions during life and there is no reason to rule out why it wouldn't be represented after death as well. It is very hypothetical. It is one way I can see of explaining the data. This is very indirect evidence, a very speculative way of getting at what these primary repositories may have been and how they may have been segregated. We can not say these things were separated prior to the time they were placed in, or what the separation represents. We can only theorize about it.

The next phase of this involves the demographic data. Largely at Dr. Stewart's suggestion, I have attempted to utilize the skeletal samples recovered from both of these ossuaries to reconstruct demographic profiles for the populations represented. Due to the ethnographic analogy with the ossuary practices among the Huron and the evidence that we have for similar types being practiced here, we can believe that most of the individuals who died in the population during that period of time represented, were deposited in these ossuaries. It probably isn't 100%, but it's certainly closer to 100% than any other sample we are going to find in North America in prehistory. Consequently, it offers a somewhat unique opportunity to get at this kind of demographic data with a bit more reliability than we have been able to get at in the past. For years people have constructed mortality curves, they constructed demographic curves but it is very hard to determine just what they mean inasmuch as in most cases you aren't sure of the sample. We are not sure if the



Indians placed all their dead in the cemetery; you aren't sure if the excavator excavated all of the cemetery; you aren't sure if the excavator excavated all of the cemetery, or if the ages were properly determined. When you add these factors up, you find that in many cases the data are really meaningless, because you can't sort out what contributing factors there were. You find demographic differences, but what were they due to? With ossuaries, because of the rather unique nature of this collective secondary interment, we have a bit of assurance that the sample is relatively complete. I think the fact that we find individuals in all states of decomposition, the fact that we find cremated remains, indicates that this was a very important cultural feature. No matter how they treated the individual, they went to great lengths to ensure that he was included in the ossuary. Although there may have been variability in the primary treatment of the corpse, the end result was the ossuary. So as far as demographic data is concerned, we can approach this with a certain amount of certainty that we can't use in many other cases. Having validated, at least to myself, the legitimacy of using this type of sample to obtain demographic data, you are still faced with the problem of age determination. This is coupled with the problem of individual bone representation in the ossuary.

We find that when we make a careful inventory of all the bones in the ossuary, not all the bones are equally represented. As you would expect, the larger and more conspicuous bones are more highly represented than the small bones, which could easily be lost. And whereas maybe 2% of the tibia are missing, 97% of the phalanges are missing. They may have been either discarded or were dropped during the process of the transfer from the original repository. So demographic data based on phalanges wouldn't mean much because 97% of the sample is missing. We have to consider, in doing this type of work, the accuracy of the aging methods plus the representation of the bones used in the process. So you have these dual factors entering in, which complicates the analysis considerably. I found for subadults the maximum counts came from the temporals, which we cannot age very accurately. But close behind were the long bones which, by measuring the length, and correlating them with published standards, you can get an estimate of the age of the individual. A little further down the line were the maxillas and mandibles which contained teeth that again we could use to very accurately age subadults, ages at death. This curve slide was constructed from considering two different criteria, 1) eruption of the teeth and calcification of the teeth, as revealed through x-rays, and 2) from different bones, the left mandible and the left maxillas of both ossuaries. You can see the difference in the profile you get. This is in effect a mortality curve for the first 18 to 19 years of life. You can see that, depending on what bone you select and depending on what aging criteria you employ, you get very contrasting results. For example, a curve based on dental eruption of the left mandible for the first ossuary would produce very different demographic conclusions from one calculated from the left maxilla. These are the kinds of things you have to be aware of. However, you can go a long way in selecting the bones that are most frequently represented. Most of the criteria that we have do not provide age estimates accurate enough for demographic analysis. Things like suture closure, dental attrition, etc. provide only very general indicators of age progression. Traditionally, we turn to such things as pubic symphysis morphology for more accurate age estimates, based on standards like the ones compiled by Dr. Stewart and Dr. McKern of the Korean

War dead. We can estimate the age relatively accurately for adults. However, we are never sure, particularly of the upper age ranges, of the accuracy of that estimate. In dealing with ossuary data, where many of the pubes are damaged or scraped off, it is again somewhat difficult to get accurate age estimates. I found when I started my analysis that in one of the ossuaries nearly 30% of the pubes were either missing or were unreadable, due to damage. I couldn't get age estimates. Rather than construct demographic data on a sample that was 30% wrong to begin with, I went to the femora, where I had nearly 100% representation. I ground thin sections out of all the right femora from both ossuaries. This involved the preparation of about 200 slides. I made cuts from the anterior quarter and ground them down to thin sections to work out the problems of determining age from that. Essentially that method involves looking at a cross-section of bone and looking at the degree to which the internal bone is remodelled. Through the work of Ellis Curly at Maryland, we know that there is a regular age progression in the formation of the structures called osteones. By calculating accurately the percentage of the bone that has been converted into osteones you can calculate the age of the individual very accurately. The age standards were published with a standard error lower than 5 years. So here we have data that give us very accurate insights into the age of adults at death whereas with the pubic symphysis method, for older people I would say the margin of error is up to about 10 years.

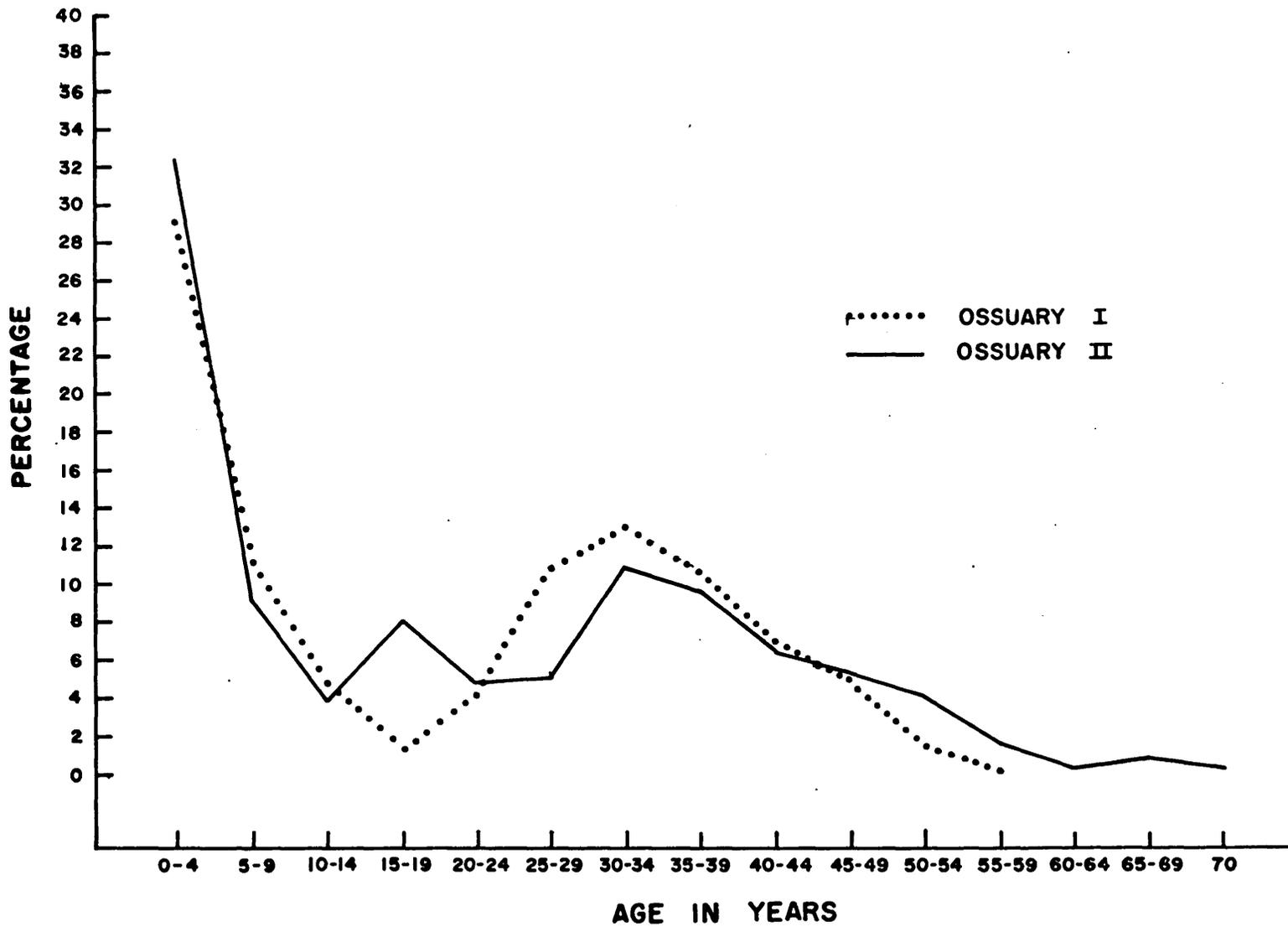
We found an indication that people were not dying as rapidly in the 30 to 34 year age range and were living a lot longer. We also determined that these Indians didn't all die of by the age of 50, but they were living on to age 70 and 80. Longevity was well marked in the population. This demonstrates the difference you can get with different criteria, and in ossuaries in arbitrarily selecting the bone to examine. This would give you very different demographic statistics. There is a difference of life expectancy at birth of about 22, compared to life expectancy at birth of 16. So it makes a difference what criteria you use.

We found a very high infant mortality rate at the Nanejemoy Site. In the first 5 years of life 32% of the population died. Most of this occurs at birth. If you break the 5 year intervals down, the mortality rate drops dramatically off during adolescence. It then increases with the maximum adult death rate occurring between ages 30 and 34. This has held true in the femoral remodeling data, as well as in the pubic symphysis data. Death rates then tapered off into old age, so that life expectancy of an individual of about 50 is approximately 6 or 7 years. Life expectancy at birth in these populations were about 21 to 22 years, with the population of ossuary #2 having a slightly longer life expectancy than population 1. This is perhaps better expressed in a survivorship curve, which plots the number of survivors coming out of each 5 years of life. In other words, starting at age 0 you have 100% of the population; by age 5 only about 65 or 70% are left. This is what happens to the population as they go through life and individuals die out. (Slide used). From this, I calculated life tables. I rebuilt life tables that insurance agents use on living populations so that theoretically I could sell insurance to the Indians if I had to. The life tables provide very important data on life expectancy at each age interval and the probability

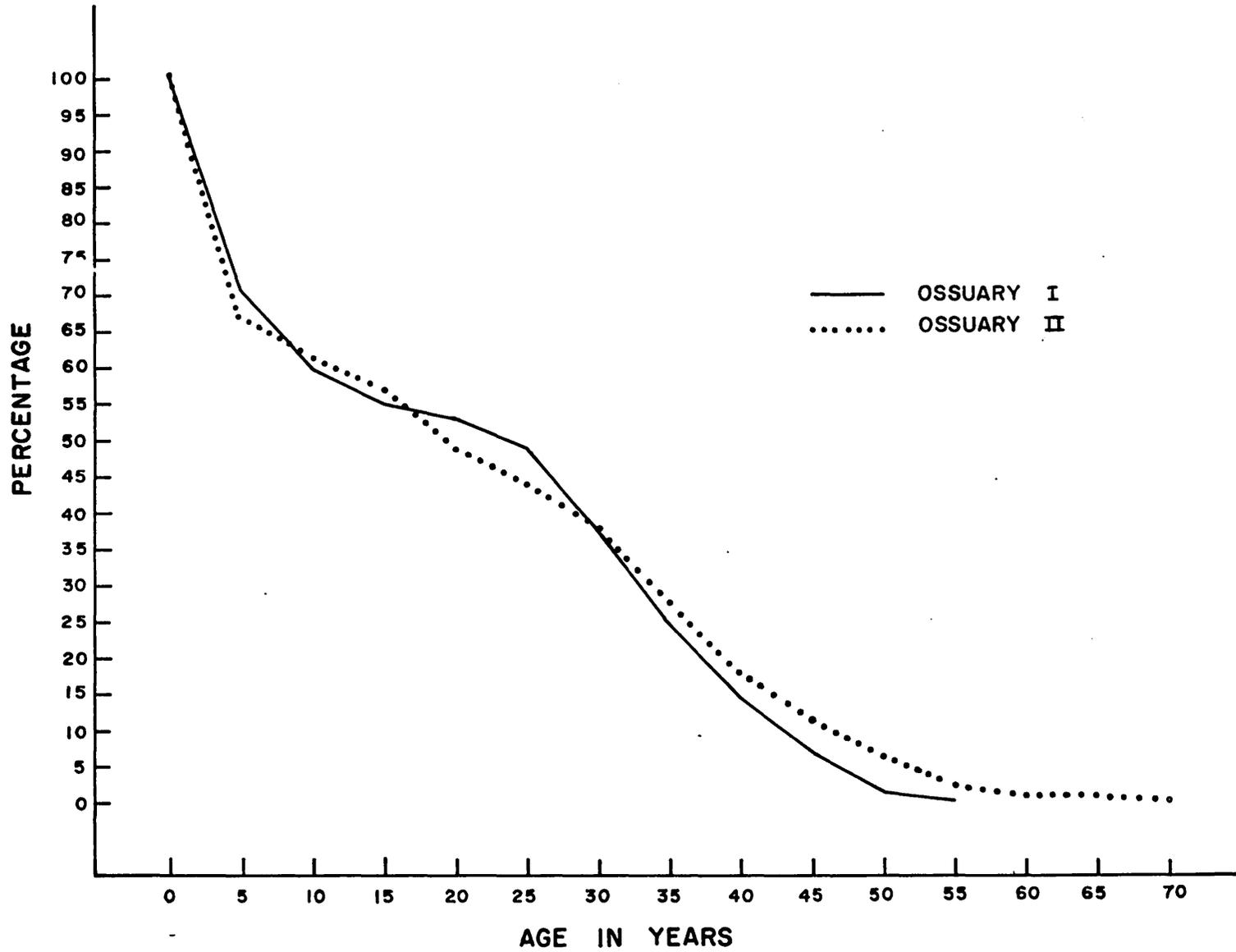
of dying at each age interval. This is physical anthropological data, however, and we won't go into it. It is important, though, in being able to compare this population with living groups, and we can see how well they were doing in relation to their environment compared to primitive groups we have data on today. They compare about the same, by the way. It is sort of the pattern you expect to find in most primitive groups prior to antibiotics and prior to sterile hospital procedures.

The most important thing that the life table produces is life expectancy data. They tell us that at birth these people could expect to live only about 21 years. If they survive the first 5 years of life, an individual could expect to live an additional 28. From then on life expectancy decreases with each age interval, reflecting the importance of those first 5 years to individuals being born into this population. If you can make it past that age bracket, then you would have a pretty good chance of living to old age. A product of life table construction is the crude mortality rate. The crude mortality rate tells you the number of people dying per thousand per year in a population and in itself is a valuable index of mortality. However, it is important in this study, in that it gives us an opportunity to get at population size. Consequently, if you know the rate at which they died, if you know the number of people dead in the ossuary, and if you know the length of time represented by a single ossuary burial, then you can calculate the number of living people alive in the population contributing to this ossuary.

All of these things have been answered thus far in the analysis except the length of time represented by a single ossuary. It dawned on me that the only key to getting at that kind of information, except through ethnographic analysis, was in the observation during the excavation of the number of individuals who were represented by these various stages of articulation of the upper parts. Assuming that death rates were constant in this population, and that the turnover rate of deaths was constant during the period that we are talking about, then you would expect a direct relationship between the proportions of individuals in these articulated states and the length of time they spent on that primary repository. If the time interval was say, a month between ossuary deposits, you would expect that almost everybody in the pit would be partially articulated. There wouldn't be enough time for their bones to decompose. If the interval was 100 years, you would expect the ratio of articulated individuals to non-articulated individuals to be very low, because most of the people would have been dead for 99 years and all the ligaments would be gone. Using that idea, I calculated the number of individuals represented by partial articulation in the ossuary. It came out to around 20%. Twenty percent of the people died soon enough before the ossuary burial that their bones were still articulated by muscle. The problem is that we don't have good data on decomposition rates in the area. We've had to rely partially on personal communication from people like Dr. Stewart and Dr. Angel, who worked on forensic cases for the F.B.I., where skeletons are exposed above ground and we have some insights into how long this process takes. However, we can get some insights by looking at some comparative statistics. One month is required for a body to decompose to the point where just the lower legs are still articulated, then the time interval represented by the



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whole ossuary is about 5 months. If it takes 2 years for a body to decompose to that point, then the length of time represented by the ossuary is the 10-year Huron interval. I think that all of us will agree that 2 years is a pretty unreasonable time. In 2 years exposed above ground, in all probability, in the Mid-Atlantic area, the flesh is not going to last. We have decided that it is probably closer to 8 or 9 months, allowing for winter burials, a period when little decomposition would occur. If the burial did occur in summer, as it probably did, that would have to be included. If you assume that it takes 7, 8 or 9 months for this to take place, then the time interval comes out somewhere between 3 and 4 years. It probably doesn't deviate very far from that. Christian Feest tells me that Algonquian-speaking groups in the Great Lakes area who also had this feast of the dead practice have a documented interval of right around 3 years. So it is consistent with that data, if you can accept the fact that they all spoke the same language, probably these two groups were related. At any rate, it seems to represent a fairly realistic figure.

Assuming that the time interval was about 3 to 4 years, as suggested by this data, the crude mortality rates coupled with the data on the number of individuals in the ossuary suggests a population size of over a thousand individuals that were alive at any one time contributing to this ossuary. A thousand people had to live somewhere, and we have to interpret just what that may represent. We calculate a population density at the village of about 1 person per square foot, if all of the people contributing to these ossuaries lived at that occupation area. I think, therefore, it is much more reasonable to assume that these ossuaries do not represent a one-to-one relationship with the villages. They do not represent all the dead from single villages. Instead, I think it is possible that several villages, perhaps within a single socio-cultural group, came together to bury their dead in these ossuaries, as is documented for the Huron in Canada and the Algonquians in that area as well. You can get further evidence for that sort of thing by looking at John Smith's map of 1612 where in the area of Southern Maryland, occupied historically by the Piscataway, and others, between the Chesapeake Bay and the Potomac River. He lists on these maps, 28 villages in that area. Of these 28, 5 or 6 are listed as being chief's houses, or as we interpret them, residences of the political rulers of those groups, implying a ratio of approximately 5 or 6 villages per chief. If that is the political unit that we are working with in these ossuaries, all of the villages governed by a single chief, or a single socio-political group came together to bury their dead in the ossuary, it would imply an average village size of about 200 to 250. That figure is more consistent with John Smith's warrior counts, where he lists the number of warriors in this area as being somewhere between 20 and 100, depending on the village. If you assume that there were approximately 4 people in the population for every warrior, as I calculated from the life table, it implies a population size of between 80 and 400, an average size of 250.

(COMMENT) Is that 5 square feet per person?

(D. UBELAKER) There was probably a variability in the size of these things, and this was one of the smaller villages. This may have been one with 20 warriors, which is very small. This is one

site and this is one ossuary, and obviously I can't conclude how many people were in all the villages in the area. I am saying that it looks like all of the dead contributing to this ossuary could not have lived at that site. It appears more probable that 5 or 6 villages were contributing to it, inasmuch as the individual population estimates are more consistent with John Smith's warrior counts. You can go one step further with that, if you want to. You can think in terms of regional population estimates. Smith's map lists 5 or 6 of these socio-political groups or 5 or 6 chiefs in that area. If you assume they were all of about equal size, and that this interpretation is correct, it would imply that the entire area was occupied by 6 or 7 thousand people. This would be a population density of about 2.1 per square kilometer, which is consistent with population density statistics offered from other sources for around the area. It is quite a bit higher than those offered by others, particularly James Mooney. However, others have shown, and I have shown in my study, that he was in error in his estimates, that he was too conservative by at least a factor of 4, and probably higher. I think that there are an awful lot of assumptions to be made in going from the number of dead in one ossuary to the number of people in a region. But it is a step and I think what this study offers is the potential which these ossuaries give us, to get at this kind of data. Now I can offer this as the conclusions of one study. They are going to be proven or disproven with the next ossuary excavated. We may find that if someone keeps track of the numbers of articulated bones in the next ossuary, the time interval will vary. It may not be the 3 or 4 year interval that it was here, but it may be 10 years somewhere else. It may turn out that these things aren't set to an interval at all. They could be triggered by an event, or something else. But we are only going to know if people go after this kind of data. Right now these speculations are extremely tenuous. I think they point out the potential that these ossuaries have, the kinds of data that we can go after in trying to make some sense out of it.

Impromptu Remarks on Ubelaker's Paper

(COMMENT) With the 4-year interval, and a static population in that one area, there have been 5 or 6 ossuaries now dug, counting the Port Tobacco. Somewhere around there are 20 or 30 ossuaries waiting to be found.

(UBELAKER) Well, that is one of the implications. And that isn't surprising. We tend to think that since we only know of about 25 of these things, it wasn't common. But how much activity has there been?

(COMMENT) How long a period of time do you think the practice of ossuaries spanned?

(UBELAKER) Most of those, that I know of, were Late Woodland.

(COMMENT) Where in the Late Woodland would you place them?

(UBELAKER) There was obviously overlapping in historic periods, but in many of the ossuaries you find a store of trade goods. My general impression is that it didn't occur much before then, that it was a fairly late manifestation of the Late Woodland. But I don't think we can prove it.

(COMMENT) Your ossuaries seem to have been entirely below ground. What guarantee do you have that the burials did not come up into the plow zone and were, in fact, not plowed out in the last few centuries?

(UBELAKER) As you may recall there was this layer between the plow zone and between the bone concentration that was filled with shell fragments and charcoal flakes, which were obviously, aboriginal and that separated the bone concentration from the disturbed earth.

(COMMENT) A sealed area, in a sense?

(UBELAKER) Yes, it was pretty well sealed over.

(COMMENT) Do you have any evidence of fire?

(UBELAKER) The only evidence of fire is the cremated bone, which wasn't found in situ.

(COMMENT) Above the bone layer?

(UBELAKER) No, except there were a few charcoal fragments, but that is not very good evidence of fire. It's the kind of thing you would expect to find in an occupation area.

(COMMENT) Was there evidence of bone scraping?

(UBELAKER) My additional analysis didn't uncover cut marks on bones, which was somewhat surprising. There was no sign of gnawing or any signs of claw marks or breakage.

(STEWART) In my earlier work on ossuaries over at Potomac Creek we had found them there in the course of doing the whole village site, in which we had a grid system in 5 foot squares. I just retained that grid system when I came to the ossuary to fit it into my ground plan, and it becomes a problem to identify the location of all these bones and the details about them. In the first ossuary at Nanjemoy, we had the accident of a pipe going across and we could divide it into the two halves, but we still had a 5-foot grid system. I was wedded to this system and I located everything in reference to the skulls. We put a number on each skull and the bones around the skull we could identify with it, but it wasn't good for analysis. And the accident of the second ossuary where a fence line divided it in half forced us to get a smaller area. Doug suggested that we use smaller 2-foot squares. We could easily control this, and in the long run, we got a lot more information by having a better control over the location of the individual bones in the ossuary. Now, if one could take even more time and do this more thoroughly, you should get these bones out if you're going to analyze them and not let them disintegrate. We got to get even better systems for getting better records.

(COMMENT TO UBELAKER) We don't know whether the platform is in the village or whether that platform is in the cemetery.

(UBELAKER) Well, the platform wouldn't be in the village.

(FEEST) Maybe some of the villages cooperated in this whole ossuary area.

(UBELAKER) Yes, but you still wouldn't have more than one platform. More than likely, each village had their own platform system. That's the way it was with the Huron, anyway. They had their own system and they just come together for this communal burial, which was a social event as well as a mortuary custom.

(COMMENT) I wonder if you could make a simple statistical test between the size of the bone and the amount of bone which you recovered.

(UBELAKER) There is obviously a direct relationship. I think you could.

(COMMENT) In other words, 1 or 2 feet equals 100% recovery and 1 inch equals 2% recovery.

(UBELAKER) That is about the way it worked out. It is almost directly related to size, although with the major bones there was some fluctuation. For example, I would have predicted that the crania, particularly the bones of the face, would be the most highly represented. The data we have on this sort of thing suggests that people are most attracted to facial features, in that they can associate these with other individuals. If they are going to bury anything, the thing would be the skull, the teeth or the bones of the face that they can identify. But, about 20% of the skulls were missing. They obviously weren't lost. They wouldn't drop a skull and not pick it up. It was obviously some type of cultural selection.

(COMMENT) I think it would be interesting to see a correlation between the bones which were lost and the bones which were saved in this ossuary. Correlating the bones which were lost, and the bones which were saved in individual reburials, at other kinds of sites, to see if there is a pattern. There probably is, because the toe bones and finger bones were relatively unimportant.

(UBELAKER) It would also be interesting to find the seaffold areas. You would expect to find the reverse. You would expect to find all these little bones.

(COMMENT) Could these skulls have been lost due to breakage?

(UBELAKER) The death curves showed that the skulls that tended to be lost were the older ones. You can compare the adult death curves and it would indicate that the older skulls logically were the ones that were more damaged because they were older and more fragile. With the skulls it is so hard to get accurate data on age because you have the suture closure and you have other criteria, but they just aren't accurate enough. So it is really hard to get accurate data.

(UBELAKER) If you compare these two ossuaries there are demographic differences which appear to be real. They would have to be interpreted. If you assume that one of these is older, you can determine that one of the ossuaries is older than the other, you can build a case for demographic changes through time. Unfortunately, the artifacts that came out are very similar. They all indicate it is prehistoric Late Woodland and that's about all. They are almost identical, as you would expect, because these were obviously very close to each other. We are dealing with 3 or 4 periods. The pottery isn't going to change that dramatically over that period of time. However, I have used the argument that both of these are prehistoric. We either have a case that prior to European contact, populations were either expanding in size with increased life expectancy or, if you assume ossuary one was older, they were decreasing in size and their life expectancy was decreasing. Now of those two interpretations, which seems the most plausible to you? Other evidence suggests that during the Late Woodland, populations were expanding. However, some people think that just prior to European contact there may have actually been a decline. If population expansion was the case, if we can talk about the magnitude of that expansion, we can say that not merely were they expanding, but they were undergoing increased longevity and decreased mortality at all ages except adolescence.

(FEEST) Two other comments, not on what you said right now, but reference to things mentioned in your paper. One is on population. 1) Just briefly, I would like to point out that his estimates of population for this area are much closer in fact to my own re-evaluation of ethnohistoric data as offered in the sources. This study is hopefully going to be published in the Quarterly Bulletin of Virginia, sometime later this year, so this is an interesting confirmation. Although I should like to point out that there is obviously some misunderstanding in your reading of Smith, because Smith's population figures not only applied to villages but to whole tribes made up of several villages each. So they are too low for tribal populations, actually. They may represent actual village populations, but not

tribal populations. 2) And the other point, which is concerned with mortuary practices. It is a question of the length of time represented by single ossuaries. You base your estimates on the opinion that this was a two-stage affair, first exposure on the scaffold, and then interment in the ossuary. When we read the best source we have, Spelman's account, along with the evidence for ossuary burials, we assume actually a three-stage affair. The first stage, exposure on scaffolds until the flesh is decayed. Next stage, would be removal from the scaffold, then sewing it up in mats and keeping it in the house until the time of ossuary burial.

(UBELAKER) That's for chiefs.

(FEEEST) No, not for chiefs. That's for common people. Spelman says that common people are buried first, are first exposed on scaffolds, and then are sewn up in mats and kept in the house until the house falls in ruins; he didn't actually observe this process but he infers it. So we should assume that people kept the bones of their deceased relatives in the houses tied up in mats or sewn up in mats, until the time of the ossuary burial. Now, if this is the case, the articulated burials which you find on top would represent corpses directly removed from the scaffolds, while the bundled burials would represent those taken from the houses already sewn up in mats. If this holds true, you will get a certain percentage of more or less completely articulated burials representing those taken directly from the scaffolds. So actually, you can calculate the percentage of scaffold burials, which would represent also the length of time in relation to the whole length of time for that single ossuary. Also, if we assume that this is a three-stage affair, there is a question about whether articulation was not rather preserved by the fact that they were later on tied up in mats and kept in the houses. So this could also show up in your data.

(UBELAKER) That is a possibility. And also, the thing of dessication. A lot of times these things might tend to dry out, not really decomposing, which I have to admit might very strongly influence the data.

(FEEEST) If you have three articulated skeletons in your sample in one ossuary and only three or four years for the whole affair, this would give you tremendously short periods for the scaffolding part.

(UBELAKER) It depends on what length of time you think is represented by the completely articulated individuals.

(FEEEST) It may be, if you have only 3 or 4 years and a small percentage of completely articulated burials. Actually this would imply a short period for scaffolding before removal.

(UBELAKER) Here you have the problem of the assumption that the decomposition rate was consistently constant. Obviously, it is not. There is the possibility that three individuals may have died within a week prior to the ceremony and they were included. When you have a larger sample and look at the categories over several months, I think these figures become a little more realistic.

(FEEST) Another possibility is that if we assume that several villages participated in one ossuary, those brought from more distant villages would probably be first cleaned and tied up in bundles for transportation. So they would not show up as articulated burials in the ossuary. Actually you would end up finally with your articulated burials as those removed from the scaffold within in the village.

(COMMENT) Do you have information about the frequency of articulated burials in the Huron ossuaries that you could use to compare?

(UBELAKER) There is no comparative data. I did talk at a meeting in Dallas to some individuals working with Huron ossuaries in Canada. I hoped they would be able to come to this conference, but they had a conflict and couldn't make it. They apparently have that kind of data in their notes and were trying to dig it out when I talked to them. It is important data. Of course, there you have the problem of a different country, or a different area, so the rates won't be exactly the same.

(FEEST) Would you agree that partly, that one reason for the differences in decomposition could be various methods, various circumstances of exposure?

(UBELAKER) They were in tightly wrapped skins. That certainly would be a factor that would tend to extend the length of time of decomposition.

(COMMENT) Just a question. Assuming the three-fold stage of burial, would it seem more likely that given a limited time for decomposition on a scaffold, and then wrapping up the bundles, there would be a greater tendency to have all the bones. Then how does this account for the tremendous loss of phalanges and all those other small bones.

(COMMENT) The bones most often missing were skulls and hands.

(UBELAKER) No, I just commented on the skulls.

(PREVIOUS COMMENTER) You said you had a lot of skull bones, and that you were missing hand bones.

(UBELAKER) No, I just put that in for reference. I have a ranking of this, if you're interested.

(PREVIOUS COMMENTER) It's just that someone mentioned the problem of individual variations in burials and from what data I know of from American Indians, if you are strongly attached to someone, your relatives, for example, you are more than likely at the time of burial to take perhaps the skull, which you then keep around.

(UBELAKER) That would be one explanation for the missing skulls.

(PREV. COMMENTER) And then apparently, they are buried at their village.

(UBELAKER) The possibility of war trophies is real, too.

(PREV. COMMENTER) Yes, but there were not cut marks or anything indicating violent death.

(UBELAKER) Well, the cut marks would have been on the cervical vertebrae and I didn't specifically look for that, but I didn't notice it either.

(THURMAN) I just want to make a comment on this type of approach to the interpretation of archaeological data. We are not concerned with the psychology of individuals, nor can we hope to explain cultural processes in terms of psychology. The feeling of love for relatives and so on is something which is falsely described. It is not something which will give us any insight at all into burial customs.

(COMMENT) I would say this. We discovered a skeleton and examined the skull of an 8 or 9 year old child which contained some scraps of other bones, scapula, etc., we determine it had obviously, been buried in a bag, because there was a dark stain around it and I like to think of it as a kind of lares penates burial, but it may be just exactly this kind of thing. Kayser, has, I think, about three of these in and around New York City, just the skull, nothing else. So somebody must have had this skull for some reason that could certainly be described as sentimental attachment or some kind of mystical belief. This certainly is emotional, if you want to call it that. I think emotions are probably as real as anything I know of.

(UBELAKER) Incidentally, we did find that many of the skulls did contain phalanges, small bones and ribs, indicating that the skulls were utilized as a sort of container during this transfer. They may have also just scooped up some of the miscellaneous bones and stuck them in.

(COMMENT) That is precisely the thing we found last year in the Delaware Valley; a seven year old child with only the skull, no jaw, no other cranial bones at all, and marvelous preservation. There were no signs of any kind of damage to it.

(COMMENT) Did you find any crushed skulls, or so-called violent death?

(UBELAKER) No.

(COMMENT) Evidence of disease?

(UBELAKER) The only evidence for disease, besides the things you would expect, was a very high incidence of lesions on the tibia. The kind of thing you see with syphilis, and other things as well. There were quite a few long bones that had these kinds of lesions in this ossuary. The only evidence for violent death is the absence of about 15% of the craniums from ossuary 2. It is interesting if you look at the cranium and estimate the section of the cranium, you find that of the skulls in the ossuary, females were more highly

represented, indicating that the missing skulls were probably male. This is assuming that there was equal male-female representation originally. So the missing male skulls sort of makes you think in terms of warrior. Christian mentioned to me once that people in this area are documented as having taken trophy skulls, not scalps, but heads, and this is one possible explanation.

(COMMENT) I've got archaeological evidence of that, too.

(The following comment is missing from the text)

(Comment, referring to missing text) I would sort of disagree with your statement. Wouldn't there be a more rapid deterioration if the bodies were not wrapped up? For example, when a bone, especially if it is put on the scaffold will dehydrate. Also, bone would definitely disintegrate slower if it were wrapped up inside something like a mat or bark which would retain moisture.

(FEEEST) Perhaps the bodies were first exposed on the scaffold, possibly not wrapped in mats, and then later on they were wrapped in mats when they were deposited in the houses and kept up to the time of the ossuary burial.

(UBELAKER) What information do you have on the rates of this by months?

(COMMENT) I haven't made a calculation. We used an ox tail as an experiment. Within a 1-week period it was dehydrated enough so that you could have preserved it another week. However, we had to keep it out of the rain.

(UBELAKER) So much of that depends on the interpretation of the primary repository, and of the thing was in the ground you get a whole different story. So, it's pretty tenuous. I think it will serve to make us start thinking in that direction, or at least trying to discover what the variables are in different areas.

Mel Thurman

A SHORT PAPER ON OSSUARIES

I have prepared a paper which is pretty brief. It is divided into three parts. First, I quickly describe what we have from our ossuary. Two, I make some comparisons with other ossuaries from the Lower Potomac area. And three, I talk a little bit about the kind of recommendations I would suggest.

Analysis of the material uncovered at the Claggett Farm ossuary in the 1970 and '71 field season has barely begun. Approximately 20% of the material has not yet been cleaned, and only crude sortings have been made. Hence, only the roughest outline can be sketched of the site and the cultural content. Counts of the various skeletal portions will ultimately be made. But we do have immediate information on the approximate number of individuals in the ossuary. As about 20% of the material is not yet cleaned, I think it is safe to say that this ossuary contained approximately 250 individuals. As the major bones at each excavation level were numbered, and all bones bagged by level, eventually it should be possible to determine the burial procedure used in the lower two-fifths or one-half of the ossuary.

There is very little information available on bone provenience in the upper three-fifths or upper half of the ossuary. Nevertheless, some gross statements can be made. The predominant burial form was reburial of defleshed bones. In general, burial procedure was to place a skull above a pile of long bones placed parallel to one another. The small bones, such as metatarsals, metacarpals, and phalanges were often placed in the skull. As there was little room between individuals, and as long bones in a single level were often oriented in similar directions, it would seem likely that the individual skeletons were not placed in bundles, but were rather lain in the pit without any sort of enclosing package. Determination of this point requires more complete analysis. One should not conclude that this ossuary is an amorphous accumulation of individual skeletons. There are reasons, other than the order of long bone levels, to argue for the existence of structure within the ossuary. In the bottom of the ossuary there were two apparently fully articulated burials. There were cremations, as well, at least one of which seemed to be within a rectangle formed of long bones. Finally, the center of the ossuary contained a dog burial. Hopefully, further analysis will permit more precise statements on the nature of the internal structure of the ossuary burials.

Now one thing I found to be very interesting, is that the majority of skulls show osteoporosis, some cases showing heavily on the brows and mandibles, as well as within the skull cases. A few potsherds of Potomac Creek cord impressed and earlier wares were found. Predominant artifact kinds were small flat shell beads, found mostly within the skulls. Three bone awls were apparently associated with one of the articulated burials. A few copper artifacts were found. Some tubular copper beads and two copper pendants; no glass beads were found.

Now I am going to talk a little but about some kinds of comparisons. These are strictly of a cultural historical kind. First I will touch briefly on other statements suggesting some internal structure within the ossuaries in the Lower Potomac. Then I will deal with the relative temporal occurrences of some of these ossuaries. Finally, I will touch on ossuary size differences. A while ago, Dr. Stewart pointed out that most of these ossuaries were not excavated in a manner which makes any sort of comparison possible. Judge Graham, for instance, was very sloppy in his excavations. However, he did note, among other things, that in a few cases at Port Tobacco there were differences in the kinds of fill that were found in skulls. In some cases, there was sand in the skulls, certainly of a different origin than the material which was part of the primary fill of the ossuary. The first reference I have to ossuaries in the area dates to 1881 by Reynolds. He noted, "An ossuary was found in which were the remains of an entire family. The irregular bones were placed in the bottom and were partially destroyed by fire. The long bones were placed in the middle stratum and the crania on top." This seems to be a fairly common observation in a number of ossuaries, in that there is some indication of this kind of placement and it invariably suggests to the people the existence of bundle burials. I am fairly certain that some of these ossuaries have bundle burials, and I am fairly certain that in others people were not bundled. In the one I am dealing with, I am fairly certain that they were not bundle burials. These were a matter of bringing them down to the ossuary for final disposal, carrying the bag, but I don't think it follows necessarily they were placing the bag containing the bones in the ossuary. Rather in this case I feel fairly certain that they were taking the bones out of the bags and they were piling them up. The primary basis, for this statement, is the nature of the orientation of the bones relative to one another. There are patterns. These are not patterns which are found in the entire level necessarily, but there are patterns of various kinds.

(COMMENT) I might add a comment that a complicating factor in this thing might be the fact that after all the bones were placed in the pit, a man came in with long poles and rearranged them. So that inasmuch as these things may have been in bundles originally, the same clusters of bundles would be disarranged.

(THURMAN) That creates a problem, but I think we are putting too much emphasis on the ethnographic analogies with the Huron. I think that the Huron material is not really a very close analogy to what is going on here.

At ossuary number 2, at Warehouse Point, Judge Graham noted, "Usually skulls seemed to surround the bones placed around the sides of the pit." At ossuary number 3, Graham noted that, "Some apparent order was exercised in placing the remains in the pit. In the east end it was observed that the long bones had been radially arranged, covering the entire end of the pit." Now, we also have at Mayoane, a number of statements which seemed to indicate, as Judge Graham argued, that most of the ossuaries represented bundle burials, and at ossuary number 1 at Mayoane, "deposits of long bones were more conspicuous in this ossuary than in the others. They were very

suggestive of big bundles that were collected and placed in the pits." At ossuary number 4 at Mayoane, "Most of the bones were at one end of the pit, with no regard to order or sequence." At some parts there were great numbers of long bones lying interlocked side by side in thick layers, suggesting that these bones had been gathered together in bundles before placing them in the pits. In places, particularly near the bottom of the pits, there were skeletons almost completely articulated, indicating that they were more or less complete by the time the ossuaries were filled.

The second portion of the comparison which I want to deal with is to place my ossuary in terms of the other ossuaries. Here we have the big problem of incomplete reports of the kinds of materials which have come from various other ossuaries. You have heard me state at other meetings in the past that Mayoane, Mrs. Ferguson's site, is not in fact the Mayoane that John Smith meant. I think that analysis of the ossuary material tends to confirm this as well. I would say that in terms of the order of the ossuaries in the Accokeek Creek area, four of them in the general area of the Mayoane site, these have been classified by Stevenson as ossuaries, and the order would be 1, 3, 2, and then 4. I agree with Stevenson's ordering of the ossuary material there at Mayoane, with the exception that I think that ossuary number four is in fact earlier than ossuary number two. These are two that are dated as being later than the other two ossuaries in the Mayoane area, because within the pits there were fragments of the latest pottery type. If we consider the few examples of things which are found in the ossuaries, like the beads, we can set up a rough seriation of materials. If you make certain kinds of assumptions, one of the assumptions being that there would have to be a similarity in decorative bead types to determine age. There are direct reasons in archaeology for not actually believing this, but in point of fact if we are going to get anywhere, we have to start somewhere and this is one assumption I am making at the present time. I do not really subscribe to it but it is an assumption that is necessary for me to make. I put the material in order and found four sizes in this manner. Ossuary #1 contains no beads. Ossuary #3 contains shell beads. Ossuary #4 also contains shell beads. Ossuary #2, which is the latest, contains copper beads and copper items, which are not trade items. This copper, on the basis of mineral content, is proven to be coming from the Great Lakes area. I am absolutely convinced that this represents an earlier horizon than most of the other ossuaries. All four of these ossuaries I have mentioned, represent an earlier time period than the ossuaries in the Port Tobacco and Piscataway areas. I would say that they should be ordered 2, 3, 1, and then 4 would be last. What we have from Port Tobacco is not very much in terms of beads in the early period. In ossuary #3 we obtained wampum, which occurred in the one burial from Port Tobacco which had the dog burial associated with it. In the next ossuary, #1, there are copper tubular beads. And finally, in ossuary #4, at Warehouse Point, Port Tobacco, there are tubular copper beads, circular gorgets and blue glass trade beads. When you look at my ossuary in terms of the content, the beads, the tubular copper beads and the dog burial, it seems to indicate to me that the ossuary fits in very closely with both ossuaries 1 and 3 from Port Tobacco and that Mrs. Ferguson's ossuary is of a period which is later. The date of my

ossuary is in fact probably later in date than ossuary #4 at Port Tobacco, because Mrs. Ferguson's site contains blue trade beads plus a number of other varieties which can be shown to be of a later date. Unfortunately I do not have access to the material from the Potomac Site of Dr. Stewart. From what I have been able to gather on the basis of the statements on trade material, I would guess that the Potomac Site of Schmidt I would fit between Port Tobacco ossuary #4 and Mrs. Ferguson's ossuary at Piscataway. If we summarize this, we will have a situation in which first of all there are no beads found in the ossuaries. Then you have a situation in which we find tubular shell beads. These persist for some time. Then we start getting Great Lakes tubular copper beads, followed by tubular copper beads without glass beads. The occurrence of tubular copper beads, without glass beads, being trade metal because the analysis from the one ossuary at Port Tobacco and the analysis from the one at Piscataway, Mrs. Ferguson's site, show conclusively that this is not Great Lakes copper. It is trade copper. So there are first of all, no beads, then, a level in which we have flat shell beads, then, a level in which we have native tubular copper beads, then, a following level of trade tubular copper beads and various kinds of glass beads.

I believe that there are lots of things, from what we know of general ethnography and ethnohistory of the Eastern United States which tell us that trade contact on the eastern coast was considerably earlier than we have any sort of supporting documentary evidence for. I don't see how we can avoid arguing the occurrence of trade materials on the Potomac River as early, as 1550, or may be even earlier. I think that the last portion of the Mayoane site probably dates from right around 1550. I am absolutely convinced that the Mayoane of Mrs. Ferguson is not the Mayoane of John Smith on the basis of publications and my own conclusions. I would also say that the Mayoane of John Smith, if it is in the general Piscataway area, is probably pretty close to the Claget Farm.

Unfortunately we do not have good information, not only on the internal structure of these ossuaries, but we do not have good information on the gross form of these ossuaries. There will be statements as to the relative lengths and relative widths, but we really don't know what they were like. I think it should be obvious that the shape of the ossuary which Doug reported on this morning is a lot different in gross shape than the kind of ossuary I have been working on. What we have got to get at is to set up some formal typologies of these ossuaries, so that we can differentiate between like and unlike until we do something more with these ossuaries. I would almost say that I think if you look at the general size of these ossuaries in terms of location and the size and numbers of individuals placed in them, there are obvious spatial differences in size and I think this is probably very important, because I think there is probably a systemic relationship between the size of these ossuaries and the structure or complexity of the different groups of Indians living in different areas in Maryland. If you look at the three ossuaries at Port Tobacco, four at Warehouse Point and one other. but only three of them have approximations of the number of individuals

coming from them. If we look at the Port Tobacco material, we find that the three ossuaries contain probably 10, 50 and approximately 100 individuals. This is considerably different from the situation which we get from the Piscataway Mayoane area. We now have a total of six ossuaries and in ossuary 1 at Mayoane there were 288 skulls. In ossuary 2, which was incompletely excavated, there were 155. And the estimate made by Stevenson was that there were probably about 250 individuals in this ossuary. At ossuary #3 at Mayoane, there were 248 skulls.

Now I think that there will probably also be a systemic relationship between the sizes of these ossuaries and the size and complexity of the particular environmental situation along the river. I am going to argue that we will probably be able to detect in terms of useful land in that area, that there is a direct correlation between the amount of useable land, the technology of these people, and the size of their ossuaries. If anyone has looked at the situation at Port Tobacco and compared it to the creek on which you are located and the Piscataway Mayoane area, there is really a considerable difference in the amount of useable land.

(BETTY BROYLES) Did you find any other artifacts besides beads?

(THURMAN) There are other artifacts, and I think the artifacts found relate very nicely to the little bit of information we have. I did not find any significant artifacts other than three awls and a couple of pendants. However, in others, such as Judge Graham's and Mrs. Ferguson's in the Piscataway area there are circular copper discs. These circular copper discs are very similar to the discs which have been reported from the Florida area and from the Carolinas, which are definitely indicative of status differentiation. We only see them on the "chiefs and head warrior" and I think a great deal of information could be obtained if we could get some of these situations where we have these kinds of artifacts. We could say a lot more about the nature of differentiation in social structure.

Only we do not know the structure of the total subsistence settlement system in any area of the Lower Potomac during the period when ossuaries were constructed. It is unlikely the towns were occupied for the entire year. We do not know to what extent satellite towns existed. We have no idea what other kinds of camps existed, if any. We have no idea of how the dead were treated in these areas. We do not know the symbolic value of the ossuaries. There is some data which seems to suggest that ossuaries were marked and the palisade lines were ordered in terms of ossuary location. I think it is very important that we get some more information on the way these ossuaries were ordered within the towns and why some of them were in towns and why some were out of towns. In Mayoane, at the Potomac site, there are two different kinds of palisades, internal palisades and external palisades. The internal palisades have something to say about the way the town is ordered in terms of this tremendously important ceremonial complex.

As you go through these different periods of ossuary use, you start getting different internal orientations within the village.

We do not know how houses or other structures were oriented in regard to ossuaries, and we should investigate this so that we may understand something about the symbolic value of the ossuaries. I would like to, then, on this basis, make a couple of comments on the things we have already said about ossuaries. First, of all, the Huron data is not as clear cut as it might be. While there are indeed cases which indicate that among the Hurons, more than one village participated in the feast of the dead. At least in the larger villages there are clear-cut indications that these ossuaries did in fact bear a one-to-one relationship of the dead in the ossuary with a particular village. I wholeheartedly agree with your statement about there being a three-fold stage in mortuary practices involved in the ossuaries. We can therefore think in terms of a longer period of time being involved in putting the dead in the ossuaries. For instance, we do not have any information in this area indicating that some sort of other treatment might have been involved, such as a possible drying of portions. We know of certain areas of the Eastern United States in which bodies were prepared by being heated. This would dry the bones for a considerable period of time and would allow full and complete articulation. I personally think that most of the incomplete articulations which are found, do represent bodies coming off the scaffold. I think that the fully articulated burials, however, represent death occurring a very short period of time before being placed in the ossuaries, in some cases almost immediately.

(COMMENT) How long do you think the partial articulations represent?

(COMMENT) I offered nine months.

(THURMAN) I wouldn't want to give an estimate. I would say that these ossuaries probably represent more on the order of a decade.

(COMMENT) That would imply that two years would elapse between the time that these bodies entered the second stage and the time that disarticulation occurred. Is that a plausible idea?

(THURMAN) As I said, I think there is more involved than just that. I don't want to argue the point in great detail, as Herb is anxious for me to quit talking, and I will only say that I think you can make other assumptions than the assumption you have made. I think that there are more compatible kinds of information. I don't think you are going to find a thousand ossuaries in the area in which we are concerned with. I agree completely that there were more people down there than a hurried reading of Smith would imply. I think, though, that if you look at the general estimates which have been made in North America, we have had cycles. If you think of various kinds of information, you will see that the estimates that Doug and Kroger used, and you can see things then, like people who have re-analyzed the roles of tribute, and these things are ten times or fifteen times more than anybody had formerly been willing to have given as an estimate. I think that we are going into a phase in which we have a tendency to overestimate the population figures in most of the Eastern United States. I can't speak with any sort of authority on the population figures in any sort of detail for this area. However, my dissertation was on the

Delaware Indians and I feel that the population estimates which have been made in the literature for Delaware Indians on the East Coast are pretty accurate. I think therefore that there were more people here than we have believed, but I don't think this is something to be increased by a factor of 2 or 3 times more than we presently believe. I think it's more on the order of something like 50%.

(COMMENT) This a whole new area that is getting more and more important as we find new sources of data and use them trying to get at population estimates. I think that what we are trying to do, is to ignore the trends and quit thinking in terms of bias, just look at the data and try to find new ways to accurately assess it. This is what needs to be done.

(THURMAN) One final statement before I finish. I brought up the point of osteoporosis. And this is important. I think that if we are going to understand population dynamics on the Lower Potomac, we have to start thinking about things in terms of various kinds of models. I don't think that it would be accurate on the basis of the things on which our information is primarily based, the interpretation of the Mayoane site. I think that one of the differences we see at Mayoane, is differences in structural orientation of buildings which does not necessarily imply something in terms of population growth. I think further that what we had was definitely a case of population increase. I think that there are ways of picking this up and I want to make an explicit statement of what I think is going to happen. I think that starting around the 1500's or so, we are going to get more and more population displacement. With population displacement, with changes in the total habitat, we are going to get a situation, I think, in which we see a lower dependence on horticulture. I think that with this lower dependence on horticulture, we are going to start picking up more and more evidence of starvation. I would argue that if we look at our bone material, we are going to find, an increase of osteoporosis but maybe not in any one particular ossuary within a sequence. This increase would be noted in terms of the various mortality rates of the population.

Impromptu Remarks on Thurman's Paper

(STEWART) I like your idea of doing something with the beads. It offers a good possibility of establishing a time sequence for these ossuaries. The one ossuary at Potomac which yields European glass, not copper, was the deepest pit of all. It went down nearly six feet and the bones were in terrible condition. I suspect that this might represent a breakdown of culture. On your statements about useable land, I don't know what you mean by that. It is very complicated. At Warehouse Point, we had a narrow strip of land lying out into the water, and there was a row of these ossuaries along there, just a few feet above water level. Nanjemoy is 100 feet above water level, clinging to the edge of the bluff. In back of it there were hundreds of acres of useable land, but why were they just clinging? I don't think that was their usual place of residence. They were down close to the water, perhaps. My statement was based primarily on an aerial survey of the land. I agree that this is a point on which a lot more work has to be done. We still do not have too accurate an understanding, really, of the precise technology of these people. We know something about their hoes and other hand tools, but more work has to be done.

(COMMENT) I have just two points. I think we ought to sacrifice some of the bones from each of the ossuaries that have been excavated to get radiocarbon dates. These may not be precise, but at least it might straighten out the time element. Secondly, only two concentrated village sites in all of the Lower Potomac have been dug, Potomac Creek and Mayoane. There aren't any more, unless someone has dug one that I don't know about. But I have pretty well covered the area, and there are no more concentrated villages. So we are not going to be able to duplicate the experiment.

(THURMAN) But can we go back to Potomac Creek? Is there any information left? Because you can recover post molds and get information on houses. If you can get information on houses at Potomac Creek it would do a lot to clarify the situation in terms of its relationship with the ossuaries and the whole structure of the society.

(COMMENT) I defy you to work out a house that was based on post moulds, just rows going every which way. We couldn't isolate them.

(THURMAN) We got houses for Mayoane and we did it on the basis of typology. I would be willing to bet that if we got them from Mayoane, we can get them from Potomac. That is why I would really like to go back there. I do not know if the site is intact or not.

(COMMENT) There are three houses built on it today, but the yards of those houses can still be dug.

(COMMENT) I was wondering why you assume that the village at Nanjemoy necessarily has anything to do with the ossuary.

(UBELAKER) Maybe it doesn't, except that since it is so close, we think that if the village was there at the same time it would certainly be involved in the ossuary.

(Comment) It's an area that I know very little about. There are collectors in the vicinity who have taken a little bit of material for their collections, but I've heard rumors of other sites around there.

(UBELAKER) Well, it is hard to imagine that other people would come so close to another village to bury their dead.

(COMMENT) Well, this kind of village may be earlier.

(UBELAKER) That's possible.

(COMMENT) The pottery that you are getting out of there, I haven't seen it, but there seems to be some controversy. There is no difference. Cliff Evans and George Stevenson looked at it and agreed that typologically, at least, in terms of tempering, it's the same as the samples we got from both ossuaries.

(COMMENT) The village could be earlier and the stuff that was in the ossuaries could be fill.

(UBELAKER) That's possible. I don't think we can prove that they are the inhabitants of the village. I am ready to talk about it by saying that they could represent just that village, if they represented it at all.

(THURMAN) I want to make one point. I don't want people to think that I am unhappy with other workers in this area because I said Doug's paper was the most stimulating. It was the only one I can remember off the top of my head which I thought would really stimulate us toward new things. What I am trying to get at is that we have not done enough in this organization. We have not put the effort into it to discuss the really important things. If we don't start doing this, we're not going to get anywhere. We are going to have the same old sort of hodgepodge that has existed around here in the past. And since there has been relatively little work in this area compared to some archaeological areas in the Eastern United States, we have a great opportunity here. We should be going out there and doing this sort of thing instead of sitting back on our rear ends and saying maybe we ought to be doing something. We've been talking about this for about three years, now that we've got to do something, let's do it.

William Jack Hranicky

What I have done is ask a simple question: What did the Indian population in Virginia look like during the woodland times? Trying to get into this kind of context creates major problems. I can draw it simply like this: You've got the Indians being buried. You've got a little bit of time going by. You've got the archaeologists digging it, and turning it over to physical anthropologists for analysis. I've climbed the Pyramids and strung a wire out here and walked on it. But what I've done is, and I've already been accused of following a Murdock-type approach is, start going for volume in skeletons. My sample of comparative data involves 4100 skeletons, and I cut it off at that so I could get it in time for this paper. Since then I've added another thousand. From Virginia, I selected fifteen sites to take a random sample to see if I could represent what the general Indian population looked like. I analyzed 314 skeletons and then compared this to some of the other sites that had been excavated in the neighboring State of Maryland. Based on that, this is a general trend, I did this in this type of block diagram simply representing burials or skeletons, so that I could get an idea to tie it back into these mortuary things, rather than a diminishing curve. What is more significant, I took my sample of 314 skeletons and decided to compare it to something. Based on the Woodland Period, I had this problem in the back of my mind and I was sort of ignoring it, I was covering a broad range of time. I'm not saying that there aren't individual differences. There are. Nationally, populations vary. But can we get some kind of material or some kind of information as a baseline of comparison to look at sites and come back and look at a state, and say it's a little bit off or it's a little bit above. It gives you a chance to look at your material and say, listen, I'm missing too many infants. The real question, when I asked about Virginia populations, I knew infant mortality was high. I had a feeling there were more females than males. I had a feeling that most of them lived over into this older age bracket. I had to use some kind of quantitative approach on it, but how much? I took my data and compared it to the Nanjemoy sites. The method used on one of these ossuaries was this internal bone structure remodeling. I feel like there is something that can be done with this. The major thing was the fact that this represented a very short period of time and it looked like it probably was a complete sample. When I compared my random sample from the 15 sites, I came out with practically a one-to-one ratio and I was real happy when my mean average at birth came out the same number that Stewart published. Statistics don't really mean anything, because as Howard said the other day, you can drown in 6 inches of statistically average water. And unfortunately, when the data is presented, too often what they say mean averages and they do not qualify what they are saying by mean averages and have a tendency to cause your thinking to fall back some. Whereas, when you start talking about the mean average of death, say at birth being 20 years, we have a tendency to start thinking in terms of the population reaching 20 years. If you say the mean average of expected deaths at 15, how long can you expect

to live? There is a tendency to start pulling your thinking back and forgetting about the older individuals in the population. But nevertheless, I will present them. The mean age at birth for the Virginia Indians is 20.9. I used the age of 15 for a cut-off. In other words, if you make it to there, you are an adult. The nice thing about that is that at 15 you start getting to a point where you can tell the sex of the skeleton relatively easily. It's not impossible in the lower ones, but I wouldn't attempt it. Anyway, this comes out with a total population of 32 years, 32.9. I further broke it down into males and females just to get an idea what the differences were. And at birth, males expected to live to 22; at the age of 15 the expected age is 35. For females at birth, it was 19, and at age 15, 30 years. Based on the sample itself, there were more females. And I came up with something like this: 960 males to every 1,000 females, a slight difference. The infant mortality rate was not calculated. I'm not qualified to put a skeleton into that tight a bracket. So I went out to the 3 year mark. I felt I could probably do that a little more reliably. So based on the 3 year mark, I came up with an infant mortality rate of 28%. I took it out one more step, just to be a little safer and see what the difference was. At 5 years, I got 31%. That seems to be a little low. There are problems with the preservation of the sample that I used. The archaeologist in one particular case, decided it was too much trouble to excavate infants, so he simply didn't do it, and he came back and estimated. Well, his estimates, based on the table, were pretty good. But how real is it? These problems are going to be there, and I sort of went through them and ignored a tremendous amount of systematic built-in biases. Not represented are absentees from the cemetery, those people who were buried while on hunting trips, uncared for infants or any of these type of things. If I wait until this type of data comes in we'll never get it, simply because we can't expect to get 100% representation out of archaeological data. That is an impossible goal. I'm not going to list all of the criteria of my sample, but I think I ought to mention just simply what criteria I used for my sample.

It was from the Woodland Period, which is really not realistic, because in Virginia we have one Archaic burial, and everything else is Woodland. So that was in the back of my mind, and I knew that I was going to run into a problem with this time element. All skeletons were anatomically complete. I did not take a skeleton that was missing any of the major bones. I used the same system for analysis, on each of them, primarily Stewart and Kern and Bass. I looked at each analysis of each skeleton that someone else had done and if it looked reasonably close, I used it, otherwise I dropped it. I first said I discarded them. Dr. Angel said you'd better not say you discarded them, say that you didn't use the data. I mention here, Howard's estimates on his burials and the material you turn in, I did use this. I admit to 700 samples now and I see no reason not to stop until I get to 1000. So then that is my basis of comparison, not only within the area, but looking at it from a distance and trying to come up with a total picture of what it looked like. I mentioned this business of using the Woodland Period. I am well aware of it, and I can't solve or argue the problem very well, but it will certainly reduce the validity of this type of study.

Impromptu Remarks on Hranicky's Paper

(COMMENT) It is not quite pertinent to this, but the change of time in mortality. I had a very good illustration of that in a recent study I made on populations dissecting. At the Smithsonian, we have two samples, one collected by Professor Huntington in New York, around the turn of the century. Then I used the Terry collection which came along from St. Louis beginning around 1914 and on. In the New York sample, the peak of deaths was in the decade of the 40's, and in the Terry collection, it was in the 60's. I assume that this is because of tuberculosis. In the later ones, tuberculosis was not so much of a factor. Just a little thing like that, the change in the incidence of a disease, would change your pattern.

(HRANICKY) I used the Terry collection to practice on. Then I went back and started looking at the Virginia skeletons and there were similarities there, I had normally been falling way short of this and I knew that.

Impromptu Remarks by Colonel Howard Mac Cord

Talking about a village site in Southwestern Virginia, the Crab Orchard site, it's in the Clinch River drainage, a village with three concentric palisades. The outer one, 310 feet in diameter, that's the only sign of growth in the village. I think this was a one-time occupation, but with an increasing population which required them to enlarge the village. Forty-percent of the village had a total mortuary yield of 124 burials, of which 114 give me useable data. The others were fragmentary or bulldozed out, so I didn't use the data. Of those burials, 56% were flexed, 21% extended, 9% bundle burials and 13% were dismembered burials, just loose bones placed in and around the base of the pit. The only thing that looked anywhere consistent was the orientation of the head. Among the flexed burials, there was 77% and among the extended burials, 72%. There was apparently some religious overtone there. None of the burials were inside a house. Most were inside the palisaded enclosure, but about 10% were outside the palisades. From the contents of the pit, they were identical culturally, in other words, those are not differences in time age. I got a radiocarbon date on the village of 1570 A.D. I think it is a reliable date.

Of the 114 burials that I used were, 15 infants, 53 young adults, 24 middle-aged adults and 6 old adults. This is my own field classification. This needs to be confirmed by Doug, I hope. The sex breakdown among the adults was: young adults, 21 males, 26 females, and 9 uncertain; middle aged, 11 males, 12 females and 2 uncertain; old adults, 3 males, 1 female and 2 uncertain. So we've got a pretty uniform spread.

These burials are scattered randomly all over the village, there's no cemetery. Apparently, they are buried near their homes, possibly in family clusters. We haven't analyzed that yet. Ornamentation on the bodies: generally, seashell beads on 28 out of 114, that's 22.6%. A couple of them had copper beads. I've had the copper

analyzed. It's native Virginia copper, not European. There are no trade goods. Other offerings other than ornamentation, include 6 clay pots, all of the Radford type, limestone tempered. These were found, two with infants, one with a child, two with middle-aged males, and one with a middle-aged female. There is no consistency there. Five stone tobacco pipes were found, all with males, two with young adults, two with middle-aged adults and one with an old adult. This is the one consistency there. A few of the burials had points, a few had bone awls, but there was a very limited amount of any goods of that sort with the dead. I had illustrations of all this to show you in the slides, but I'll save that for next year's meeting.

Ronald A. Thomas

PREHISTORIC MORTUARY COMPLEXES OF THE DELMARVA PENINSULA

Archaeological theorists have recently begun to emphasize the systematic nature of man's socio-cultural existence. Following the tenets of General Systems Theory, a systemically organized human behavioral model is postulated. This model is composed of numerous subsystems, each of which articulates with the others in determinable ways. It is argued that in order to fully understand one subsystem it is necessary to examine the manner in which it articulates with the others. Furthermore, by a detailed investigation of one subsystem much can be learned about each of the others with which it articulates.

This study will be concerned with one subsystem of prehistoric man's socio-cultural existence in the Delmarva Peninsula. It will attempt to examine mortuary practices existing in each of three cultural manifestations: the Delmarva-Adena Phase, the Webb Phase, and the Slaughter Creek Phase. Each of these cultural units has been discussed in numerous publications but none have been properly or totally described. Nevertheless, since they have been explored in some detail, and since their existence as units has not been called into question, they will be considered as valid socio-cultural systems (see Figure 2).

The major objective of the study is to present definitions of the three mortuary complexes. This data will be used to generate hypotheses about related socio-cultural subsystems. The hypotheses will then be discussed and suggestions made as to methods of testing their validity.

Data used in this study were gathered from a variety of sources. In order of relative reliability these are the writer's excavation records and experience, site excavation photographs, interviews with excavators and witnesses, and the published literature. Since there was such a multitude of recording techniques used, the writer has attempted to organize all of the data along certain guidelines. The guidelines may be viewed as somewhat interpretive and may not be applicable to the same degree with each excavated mortuary complex. Nevertheless, the following paradigms are being offered in an attempt to construct organized sets of data for hypotheses construction and testing.

Funerary Programs

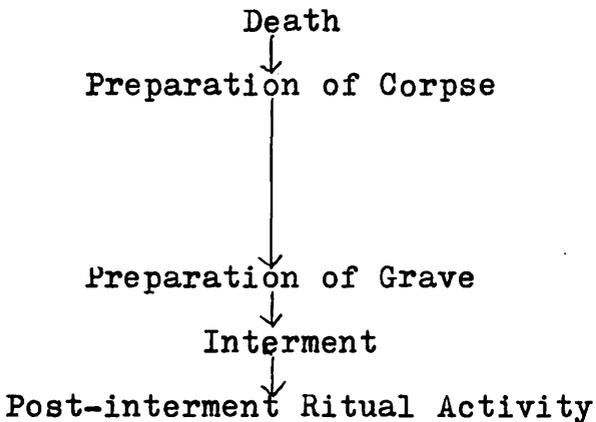
Two models have been constructed to allow all observations to fit into the organizational scheme. The models involve the concept of funerary programs; that is those scheduled behavioral patterns concerned with the proper disposal and mourning of the deceased. Each program contains patterns oriented to the preparation of the corpse, the preparation and location of the grave facility - both temporary and permanent - the actual interment(s), and post-interment activities (see figure 2)

Figure 1
DELMARVA CHRONOLOGY

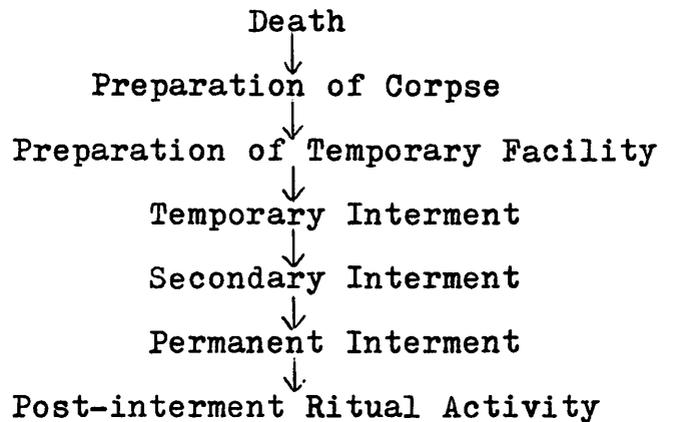
1690 A.D.	Slaughter Creek Phase	Townsend Series ceramics Triangular projectile points Shell-filled pits Fishing Horticulture Village Dwelling
900 A.D.	Webb Phase	Cross-country trade Notched, triangular and pentagonal projectile points Island Field Site
600 A.D.		Small hamlets likely
100 A.D.		Extensive cross-country trade Copper Large exotic stone knives Tubular pipes Gorgetts Mortuary sites only
600 B.C.		

Figure 2
FUNERARY PROGRAM MODELS

Program A - Single Interment



Program B- Multiple Interment



Funerary Program A

In both funerary programs, the preparation of the corpse may actually begin prior to death. Archaeological evidence, however, is usually restricted to that treatment resulting in some alteration of the deceased and its accompaniments. The mortuary procedures followed by the survivors would include the possible reposing of the corpse, the addition or arranging of dress and body ornamentation, and such skeletal alterations as bone scraping, mutilation and cremation.

Those operations involving the grave facility include the selection of a proper site for the grave and the preparation of the facility itself. Above the ground tombs would require a preparation of a far different nature than would a simple pit burial. Size, shape and orientation are just a few of the culturally determined traits of significance to an understanding of prehistoric mortuary complexes.

Interment or burial refers to the actual placing of the corpse in the grave and the covering of the body or other custodial activity practiced. The addition of grave offerings would also be included in this phase of the funerary program. The orientation of the body in relation to culturally determined points is often of great significance in prehistoric mortuary complexes.

Post-interment ritual activities at grave side can be determined at the time of the archaeological investigation of below ground burial by careful investigation of the surrounding area and of the grave fill itself. Grave side ritual may consist of the burning of a fire or the eating of a mourning feast. The placement of items in or on the grave at periodic intervals is another example of post-interment ritual activity.

Funerary Program B

Since multiple interment burials are usually only recognized in their final interment phase, it is difficult to properly reconstruct the nature of the initial preparation of the corpse. The operations involved, however, should parallel those of a single interment program.

The ethnohistorical documents of the southern part of the Middle Atlantic Coast often refer to above the ground facilities for the temporary deposition of the dead. These charnel houses were usually reserved for certain status groups, suggesting that multiple interment funerary programs were restricted to those groups. If such facilities existed in prehistoric times they may be quite difficult to identify. Evidence for below the ground temporary interment does exist, however, and this should be considered as a possibility in all funerary programs.

Temporary interment involves the placement of the body in the facility, the placing of grave offerings and the temporal period or duration of the interment. Each of these can be determined by careful investigation of both incomplete funerary programs and permanent interments. This will be discussed further in later sections.

Secondary ritual and treatment started with the removal of the body from the temporary facility. In most cases mutilation of the body in the form of dismemberment, (if natural causes had not caused complete disarticulation), bone scrapings, and/or cremation was practiced. Grave furnishings often were subjected to similar treatment prior to their being discarded, thrown into the permanent grave, or reused by the living. The treated body and any included remnants of grave furnishings were then transported to the site of the permanent grave. During this process, selected skeletal parts often were left behind or were overlooked and did not become part of the permanent interment.

Permanent interment may have been in the same facility as was the temporary deposition or in grave pits adjacent to the ritual area. Often the treated bones were placed in a grave in complete disarrangement. Bundle burials; however, were a major part of this phase of the funerary program. Occasionally, disarticulated bone would be placed in a grave in approximate anatomical arrangement.

Post-interment ritual activity, when conducted, follows the same general pattern as that followed in single interment funerary programs.

Delmarva-Adena Mortuary Complex

The term Delmarva-Adena was originated by Elmer A. Jones (personal communication) to refer to a series of burial sites excavated over the years by pothunters and non-professional archaeologists. Four of these sites on the Delmarva Peninsula and a fifth near Annapolis, Maryland, had been accidentally discovered and partially destroyed before observations could be made as to their contents. All were exclusively burial sites, although located in areas which adjoined known occupational sites of perhaps contemporaneous use. A survey of the Delmarva-Adena Phase has been made by the writer (1970) and compared to similar complexes in the eastern United States and Canada. At that time it was theorized that the sites were related to one another and to sites in other parts of the New World through actual participation in an extensive and long lasting trade network. The major center of such trade was thought to be the "Adena" manifestation of the Ohio River Valley.

The presence at each of these sites of artifacts of a spectacular nature and of exotic origin is of "great significance". These artifacts are found as grave offerings and are often identified with "ceremonial" functions in the literature. Knowledge of their discovery spreads quickly through the relic hunter community and usually leads to their complete destruction by indiscriminate digging or to hastily organized excavations by concerned non-professional persons. Observations by different participants often conflict and artifactual material is usually unassociated with specific features and/or burials. Site records are extremely rare and photographs are often of little or no use.

Most of the observations made in this paper derive from records and photographs of the Frederica site (Jones 1965) and the St. Jones site (deValinger 1970). Only eye witness accounts exist of the Sandy hill site (Jackson 1954) and the Killen's Pond site (Cubbage 1941).

The West River site, located along the western shore of the Chesapeake Bay (Ford 1958), was adequately recorded and some of the records were made available to the writer. The only extensive observations made on association of artifacts to burials and on the physical nature of the burials themselves are from the St. Jones site where exact locations can be associated with photographs (deValinger 1970) and where the bone, submitted to the Smithsonian Institution, was analyzed (Stewart 1970).

Most of the skeletal remains from the excavated Delmarva-Adena sites were cremated and/or highly fragmented or were immediately discarded by the excavators. Consequently, little is known of physical or pathological characteristics, or racial affiliation. Blocks of earth containing in situ human bone, however, were sent to the U.S. National Museum following the excavation of the St. Jones site near Dover by the Delaware State Museum. Dr. T. Dale Stewart (1970) completed a report on the specimens and his remarks indicate that the sample, in terms of racial identity, is indistinguishable from material which he examined from later prehistoric sites in lower Delaware. John Witthoft, however, after viewing the skeletal material from the Frederica, Delaware site, commented that racially the burials were "totally unlike our Eastern Seaboard physical stock and exactly like the Adena physical remains known from Kentucky" (n.d.).

Comments on the physical characteristics are just as inconclusive. Although no complete, or nearly complete, skeletons are known, Stewart (1970) suggests the presence of doliocephalic skulls and Witthoft (n.d.) comments on the massive mandibles and skull parts.

Stewart's study of the St. Jones skeletal material led him to comment that the sample was relatively free from disease. He does, however, list a number of pathological conditions including instances of disease. Stewart found two cases of possible arrested anemia, a case of slight ear exostosis, and several instances of periostitis and osteitis. In one case he mentions lateral compression of the skull and frequently noted antemortem tooth loss. More in the nature of a serious trauma was the instance of a skull lesion due to a puncture with a sharp implement. The lesion showed signs of partial healing.

No detailed information is available on the age profile and sex ratio of any of the Delmarva-Adena sites (see Table 1). The presence of both male and female burials is recorded by Stewart who states that males are most conspicuous at the St. Jones site. Stewart also mentions the presence of middle aged and older adults, a minority of subadults, and some young children with unerupted teeth. While Ford (1958) does not mention the age or sex of the burials at the West River site, Witthoft (personal communication) reports the presence of at least one child. The Killen's Pond burials were apparently adults. Nothing can be said with certainty about the Frederica burials or the Sandy Hill remains.

Funerary Programs

Both single and multiple interment funerary programs appear to have been present in the Delmarva-Adena Phase. Funerary Program A was found at the Sandy Hill site (Felton, Delaware). Funerary Program B was reported at the West River site, the Frederica (Delaware) site and the St. Jones site (Dover, Delaware). The partial contemporaneity of both programs is suggested by the presence at Sandy Hill of some multiple interment burials and at Frederica of articulated burials.

Initial body preparation in Funerary Program A, as far as can be told, consisted primarily of the reposing of the corpse in the extended position. Although items of personal adornment were found in great numbers at the Sandy Hill site none were actually placed on the body. The Killen's Pond burials, however, included at least one example of a shell bead necklace in situ around the neck of a burial.

The evidence of primary burial pits at Sandy Hill and Killen's Pond suggests that both single and multiple graves were utilized. At Sandy Hill the graves were aligned in north-south oriented rows each about two to three feet from the others (Jackson 1954). The Killen's Pond burials, however, were all in one or perhaps two mass graves which were dug to a depth of approximately six feet (Cubbage, personal communication).

Both sites shared the trait of grave accompaniments. At Sandy Hill the artifacts were placed in pillow shaped caches encased in red ochre and located above the chests of the extended individuals. The Killen's Pond artifacts were placed in actual contact with the bodies and arranged in a definite order. No mention is made of red ochre at this site. The orientation of burials at both sites was to the west.

Although post-interment ritual activity may have occurred at the two sites of Funerary Program A, nothing can be said until a cemetery has been properly excavated. The grave caches at Sandy Hill were put in place after the partial filling of the grave pit and this may possibly indicate post-interment activity. No evidence of grave side fires has been reported.

Funerary Program B burials are usually found only in later phases of completion. Consequently, any information about primary treatment and temporary deposition has to be interpreted from bits of data acquired from analyzing permanent grave contents. In his study of fifty clumps of bone imbedded in soil from the St. Jones site, T. Dale Stewart (1970) reports finding occasional sets of flexed, articulated appendages. This may suggest that primary body positioning was flexed rather than extended as it was in Funerary Program A of the Delmarva-Adena Phase. Funerary Program B allowed the utilization of personal adornment items in its temporary deposition stage. In several cases the presence of copper sulfate stains on arm bones from the St. Jones site was noted, a factor suggesting that copper bracelets were used throughout the stage of temporary deposition but removed prior to permanent interment. It has not been possible to determine if the primary treatment included any form of body mutilation such as bone scraping, smashing or cremation in the flesh.

The location of the facilities for temporary deposition cannot be identified with a high degree of certainty. However, it is possible that this facility was within the large pits used for permanent deposition of the secondary burials. It has been suggested that these large pits may have served as living quarters, i.e., that they were semi-subterranean pit houses. It is also possible, however, that they were communal facilities for temporary deposition of the dead. At the West River site (Ford 1958) the cremations, scattered artifacts and recorded fire hearths were distributed at varying depths and locations within the larger pits. At St. Jones (deValinger 1970) it could be determined that the disarticulated burials were contained in pits of similar configuration and dimensions. Witthoft (n.d.) reports articulated burials in very large pits at the Frederica site that have been almost completely weathered away.

No information is available concerning the manner in which the body was placed in the temporary grave. It is clear, however, that at the West River site a covering of strips of bark was placed over, and perhaps around the body. Around many of the secondary graves are loosely strewn artifacts, some of which had been intentionally broken or cremated. These may originally have been placed in a grave containing a temporarily deposited burial. The only deliberately cached artifacts at the St. Jones site were not accompanied by either articulated or disarticulated bone but may have accompanied a temporary burial which was later removed for further custodial care. The use of red ocher to line the temporary grave facility is suggested by the presence of red ocher specks in the grave fill and lining the floors of the disarticulated burials. The duration of temporary deposition appears to have varied from burial to burial. Stewart (1970) mentions the presence of partially articulated bone lying next to completely disarticulated material at the St. Jones site. The presence of copper stain on some of the bones indicates that the period of deposition must have been long enough for flesh to decay and copper to begin to decompose. It is suggested that the removal of temporary burials occurred at programmed intervals.

Following the removal of the dry, or partially dry, skeleton from its temporary facility several procedures were followed. A large number of cremations is recorded and although it is not possible to verify that cremation was done of the dry bone, it is likely that this was the case. In support of this interpretation it should be noted that at the West River site, fire hearths were found at varying depths within the large secondary interment pits. In the immediate vicinity were scattered human bone which has been calcinated, lumps of burned earth, charcoal, and fragmentary burned artifacts. While bone scraping has not been verified at any of the Delmarva-Adena sites, Stewart does mention finding purposely smashed bone at the St. Jones site (1970). Examination of the specimens suggests that the mutilation was done when the bone had dried. Also mutilated or "killed" were many of the artifacts found in the fill of the secondary graves.

Permanent interment of the secondarily treated remains does not seem to have been done with any special care or consideration. The osseous remains give the appearance of having been carelessly dumped

into the grave facility along with occasional artifacts, specks of red ocher, and any other objects removed from the temporary grave or crematory fire.

Although burned areas and concentrations of charcoal occur in some of the large burial pits at the West River and St. Jones sites it is not known if this indicates scheduled post-interment ritual activity.

Enrollment Factors

The degree of influence one's sexual identity may have had on enrollment in Funerary Program A of the Delmarva-Adena Phase cannot be determined at this time. Observations made during the excavation of the Killen's Pond and Sandy Hill sites were far too vague to allow any determination of sex. An analysis of the artifacts recovered from the grave caches does not clarify the situation. Funerary Program B of the Delmarva-Adena Phase appears to have been open to both males and females. Although Stewart (1970) was unable to give accurate figures for the St. Jones component he does state that males are most conspicuous.

It does not appear that many sub-adults were enrolled in the single stage funerary program of the Delmarva-Adena Phase. Funerary Program B, however, does include sub-adults. Sub-adults were reported from the following sites: West River, Frederica, St. Jones, and Rosencrans Ferry. The percentage of enrollment cannot be determined.

Since it has not been possible to associate grave offerings with specific burials at any of the Delmarva-Adena sites, very little can be said of status within either of the funerary programs. Elaborate grave goods are found with single stage graves at Sandy Hill and Killen's Pond. It appears that all enrollees were buried with these elaborate items and it may be possible that only high status individuals could qualify for this program. None of the secondary or multiple stage burials of this cultural phase had deliberately placed items buried with the dead. Most of them, however, had scattered artifacts throughout the grave fill and this suggests their use during the temporary stage of burial. Again, it may be possible that possession of material wealth was a prerequisite to enrollment in Funerary Program B.

Webb Phase Mortuary Complex

The Webb Phase (Thomas and Warren 1970) has been defined on the basis of a cemetery site located at the Island Field, near South Bowers, Delaware. This large cemetery, containing over one hundred twenty burials and almost six hundred grave offerings, was discovered in 1967 by the writer who has been involved in its excavation ever since. Although a large portion of the defined cemetery had not been uncovered, in 1970, it was decided to attempt a partial definition of the Webb Phase. More recent excavation has not decidedly altered that definition.

The Webb Phase includes a regional manifestation of a widespread mortuary "cult" spread from the Ohio Valley throughout most of the Eastern Seaboard through formalized trade relationships. This trade system may be continuous with the system noted earlier in the discussion of the Delmarva-Adena complex. Material excavated from graves at the Island Field suggests that the trade was as widespread, although perhaps not as extensive, as was the earlier Delmarva-Adena trade. A single radio-carbon date of 1210 ± 90 B.P. suggests partial contemporaneity with the Intrusive Mound "Culture" of the Ohio Valley and with the Kipp Island Hunters Home Phases of New York State. The artifactual similarities of these cultural manifestations tend to verify this supposition.

Although several other sites of the Webb Phase have been noted in the Delmarva Peninsula, only the Island Field has been excavated. The description of the Webb Phase mortuary complex, therefore, is based solely on the Island Field site excavation data.

The Webb Phase skeletal profile is based entirely on the population from the Island Field excavations. Although one hundred and twenty burials have been located and/or partially excavated, the number which has been studied is somewhat smaller. In 1969, Georg K. Neumann and a crew of four students visited the site and restored and carefully examined sixteen skulls. In a recent publication (Neumann and Murad 1970) the authors state "the population is primarily Lenid with the exception of one individual which has been classified as Ilinid". The exception was interred in a separate grave some distance from the cemetery and does not appear to relate to the Webb Phase. According to Neumann's study, therefore, the population seems to be quite similar to the prehistoric "Nanticoke" skeletal material from sites to the south in the Delmarva Peninsula rather than to known Leni Lenape populations.

Neumann and Murad (1970) also state:

Generally, the Island Field population displays a large degree of muscularity, is quite dolicocephalic or longheaded, with an average cranial index of 71.39. The average length-height index is 73.35, placing the group within the orthocranial index class. In no instance was there a case of platybasis, and the position of the basion is high. Face size is medium with a tendency toward being large. The average total facial index is 91.12, or leptopropopic in character.

The superior facial index is 76.96, or mesene. The orbits are rhomboid in 62.5% of the individuals and oblong in the remaining 37.5%. Their inclination tends to be small. The overall orbital index is 77.43 or mesoconch. The nasal bones are medium in size and the root is medium to high. Nasal bridge height is also high in 2/3 of the

individuals studied. The nasal index is 49.14 or mesorrhine in classification. The height of the palate is from high to very high while the average mandibular index is 86.42. However, the size of the mandible is from medium to large, each displaying a frequency of 50%. Chin projection is usually neutral.

Although pathologies have been noted at the cemetery a detailed report remains to be prepared. Although several cases of ante-mortem trauma occur, instances of death caused by observable trauma are non-existent. Several possible cases of periostitis and an enlarged femur head and acetabulum have been recorded. Dental pathologies are frequent and sometimes severe. No artificial deformations have been noted.

The age profile and the sex ratio for the Island Field Webb Phase population is given in Table 2. Both males and females appear to have shared in the mortuary activities although, as will be discussed below, not equally. The complex was not restricted to adults since both infants and children make up a considerable portion of the population. Calculations based upon age estimates for eighty-eight individuals whose ages could be approximately determined resulted in the following life expectancies for the population: age 0-2, life expectancy 23.92 years; age 3-16, life expectancy 25.19 years; age 17-30, life expectancy 19.38 years; age 31-45, life expectancy 12.73 years; age 46-65, life expectancy 9.5 years.

Funerary Programs

Both single interment and multiple interment funerary programs are present at the Webb Phase cemetery at the Island Field site. It is obvious that the two are least partially contemporaneous although the single interment program, Funerary Program A, seems to last somewhat later. The following interpretation of the observed data should be viewed as a hypothesis to be tested by further excavation at the Island Field and other related cemeteries.

Funerary Program A includes 61 burials of which 14 belong in a special category. Initial preparatory treatment of single interment burials was loosely structured. Flexing, in numerous forms, and extending of the corpse was practiced with the former predominant. Body part positioning varies widely and does not appear to be patterned. It is likely that the corpse was placed in the grave in the position in which it reposed at death and no special care was necessary. Extended burials may have received special custodial treatment. The use of items of personal adornment is not common. A shell bead necklace, manufactured of pierced marginella shells; a whelk columella bead choker; and another columella bead item, a bracelet, comprise the total of such artifacts.

Grave facilities varied from shallow, basin-shaped pits to large, deep, circular graves. Often, interment was in the tops of much deeper grave pits, some of which contained deeper interments also. In graves containing more than one individual, the skeletons were often in physical contact with one another and appeared to have

received simultaneous funerary programs. Orientation was not patterned (with the exception of the special category discussed below) and all directions are represented.

Grave offerings occurred only rarely in Funerary Program A with the exception of the special category. When found, they usually consist of single artifacts or scattered items which could have been part of the pit fill. Red ocher does not seem to have been used in the single interment funerary program of the Webb Phase.

Post-interment ritual activity was practiced on occasion. One flexed burial of Funerary Program A had been extensively calcinated by a small but intensive fire built immediately above the torso of the shallow interment. Several unexplained circular "post holes" were found scattered throughout the cemetery, and fire hearths which may have been contemporaneous have been recorded.

The special category mentioned earlier consists of a group of fourteen burials which were found in a primary state of burial. Each of these burials was placed in a deep grave facility and most contained grave offerings of relatively high value or significance. The skeletons of the special category were oriented to the northwest within an 81 arc ranging from 254° to 335°. The special category may be considered as burials in an incompleated stage of Funerary Program B. The basis for this possible interpretation will be discussed later.

Because of the inconclusive status of the special category burials discussed under Funerary Program A, our understanding of all steps of Funerary Program B is incomplete. A total of twenty-one burials was found in a secondary interment state.

No information about initial body preparation can be ascertained from a study of the secondary burials at the Island Field site. However, if the special category burials are considered as incomplete Funerary Program B burials, then certain statements can be made. Body positioning would then be flexed with only two examples of extending occurring. Flexing is predominately supine but both lateral (right and left) and prone flexed burials have been found. Items of personal adornment have been discussed earlier.

The facilities for temporary deposition, if the above argument is accepted, are the deep, circular pits, some of which contain primary burials and some of which are empty. No pattern to the distribution of these pits could be determined but many overlap, suggesting limited areas were available for their location.

Body placement in the temporary graves, as interpreted from the special category interments, is near the center and at the very bottom of the large pits. It was never necessary to alter the symmetry of the grave to fit the body. Orientation, as noted above, was patterned.

Grave offerings in special category graves were often quite lavish, ranging in number from one to over two hundred. In a large

grave pit containing no associated primary burial was found a large cache of artifacts. At a slightly higher level was a bundle of disarticulated bone from Funerary Program B. It is possible to suggest that this individual may have been associated with the cache during his temporary interment.

The duration of the temporary interment stage can be approximated from a study of the disarticulated bone of the permanent interment stage. All Webb Phase burials were apparently allowed to remain in the temporary grave long enough for all the bone to separate naturally; i.e. all fleshy parts had decomposed.

Secondary treatment of the Webb Phase burials, when carried out, appears to have been limited to cremation. Redeposited cremations were probably done on completely dry bone rather than in the flesh. Crematory fires or basins have not been located. Intentional mutilation or scraping of bone has not been recorded and treatment of artifacts is rare.

The permanent graves of secondarily treated human bone at the Island Field were usually quite shallow, although in several cases the same facility that may have been used for the temporary interment was utilized for a permanent repository. Many of the large circular pits contained disarticulated bone identified as Funerary Program B burials.

No evidence for post-interment ritual activity appears within the Webb Phase multiple interment program.

Enrollment Factors

Sex - Enrolled in Funerary Program A are 22 males and 18 females, a ratio corresponding to that of the total population (57%). However, the male burials make up 78% of the burials containing grave offerings. The same ratio holds for Funerary Program B burials where 55% are male. If the burials containing artifacts (special category) are considered as intermediate multiple stage burials, then the percentage of males in this category becomes 65% and that in the single stage program falls to 48%. This will be discussed further in a later section.

The factor of sexual identity may have had significance in determining specialized custodial modes within each funerary program. Burial orientation, follows the same pattern, among Funerary Program A enrollees, whether male or female. Eighty-five percent of the males are oriented either northwest or southeast while 80 per cent of the females are similarly aligned. In contrast, it appears that selection of the exact locus of interment within the cemetery for Funerary Program A does vary according to sex. The northwest section of the cemetery contains sixteen burials of which 63 per cent are female while 77 per cent of the thirteen burials in the southeast section are male. Another custodial mode in which a significant variation occurs is burial position. Of the males in Funerary Program A, 55 per cent were supine while only 33 per cent of the females lie in that position. No other modes show sexual variation.

Age - Participating in Funerary Program A at the Island Field site were six children, 13 per cent of the total population recorded. Also found at this site were eleven infants, most of whom were probably single stage burials. The multiple stage program at the Island Field was also open to sub-adults. Twenty-six per cent of the age-recorded participants were sub-adult.

Status - The status of an individual during his lifetime was a significant factor in determining his eligibility for enrollment in a particular funerary program. Status can be inferred archaeologically by considering the nature of the grave offerings placed with the burial. Since it appears to be impossible to determine the exact worth of each artifact to the people of the Webb Phase, value must be arbitrarily assigned on the basis of consistently observeable factors. For the purposes of the present study, I have selected the factors of function, craftsmanship, rarity, and origin of raw material. Based on those factors (see Figure 3) the relative status of the members of each funerary program was determined.

The value of each grave cache was determined by totaling the value points for each artifact within the lot. An examination of each artifact allowed the arbitrary assignment of a value according to the following schedule. This schedule is intended for use only in this study; no amount of argument will justify its application for any other reason other than internal consistency.

FUNCTION		CRAFTSMANSHIP		RARITY		RAW MATERIAL	
Ceremonial	3 v.p.	Excellent	3 v.p.	Rare	3 v.p.	Exotic	4 v.p.
Ornamental	2 v.p.	Average	2 v.p.	Infqt.	2 v.p.	Non-local	2 v.p.
Utilitarian	1 v.p.	Unmodified	1 v.p.	Comm.	1 v.p.	Local	1 v.p.

Figure 3: Value Point Schedule (for internal use only)

The use of this system to interpret status raises certain obvious implications. The possession of material wealth is not a prerequisite to enrollment in the regular single phase funerary program. The average value of each grave cache is 34 v.p. and the value points per burial in the total program is only 5. In contrast, the value point average of a special category burial is 90. The value point average per burial in the special category is a relatively high 84. Status calculations in Funerary Program B of the Webb Phase reveal that very little significance is placed on status. The average burial cache is 36 v.p. and the value points per Funerary Program B burial is only 3. Infant burials, unclassified as to funerary program also average 3 v.p. per burial.

In summary, the significance of status as a prerequisite for enrollment in the mortuary complex is seen only in the special category of Funerary Program A. All but one of the burials in this group contained caches, some of which totalled over 150 v.p.

Slaughter Creek Mortuary Complex

The third of the mortuary complexes to be discussed spans the

period from the beginning of the second millenium A.D. until it was terminated with the advent of the European settlement in the Delmarva Peninsula. Previously defined as the Slaughter Creek Focus (Weslager 1939:8), this cultural phase can be equated with the immediate prehistoric Nanticoke, Assateague, Pocomoke, Siconese and other groups of the lower Delmarva. More recently the term "Townsend Complex" has been used to refer to the archaeological manifestation.

The Slaughter Creek Phase has been recorded at a number of sites throughout the lower Delmarva Peninsula, each of which is characterized by the presence of large amounts of shell. It appears that this socio-cultural system had a shell fishing and horticultural base with supplemental hunting also occurring. Large villages were semi-permanent if not permanent, with little evidence of contact with other parts of the Middle Atlantic Coast. Fortifications have not been found in any of the excavated sites.

Although investigations into the ceramic technology and the population profile have been done, very little is known of community pattern, economy, and mortuary practices. Unfortunately, most of the known sites were excavated prior to the introduction of proper archaeological techniques and much of the information which they contained has been lost. The following description of the mortuary complex is based upon field notes and photographic records. Early attempts at interpreting the nature of Slaughter Creek mortuary practices were based almost exclusively upon ethnohistorical documents from surrounding areas.

The most thoroughly studied population of the Slaughter Creek Phase is that from the Townsend Site. Examined in great detail by Stewart (Stewart and Somwake 1963), this population is identified as Otamid (Neumann 1952) or Lenid (new terminology, Neumann and Murad 1970). The Lenid physical type has been described as having a wide distribution in Archaic periods but a limited refuge area distribution in Late Woodland times. The same physical type has been identified at the Slaughter Creek Site (Stewart 1958), the Ritter Site, and the Thompson's Island site, all of which are Slaughter Creek Phase sites.

Stewart describes the physical characteristics as follows:
1) cranial indices average 73.1 for males and 74.2 for females; 2) nasal indices of 48.6 for males and 51.0 for females; 3) mean height indices of 87.1 for males and 86.7 for females; 4) mean orbital indices of 84.2 for males and 86.4 for females. He describes the stature as relatively tall and the heads as high. A more detailed description of the physical characteristics is available (Stewart, in Omwake and Stewart 1963).

Pathological conditions among the Slaughter Creek Phase population at the Townsend Site are described in detail by Stewart (Omwake and Stewart 1963). The following is from the report on that site:

Pathological changes in the bones are more common than would be expected in such a youthful population. At least 10 skulls, equally divided between the sexes, show small depressed scars on the frontal bone and sometimes also on the parietals. In six of these cases there are scars or active lesions in some of the longbones, particularly the tibia and fibula.

For some reason the tibia is more prone to osteitis and periostitis than any other skeletal part. It is interesting to note, therefore, that of 37 tibiae from each side available for examination (not all males, but all adult or adolescent) 35.1% of the rights and 43.2% of the lefts show either active lesions or areas of scarring. Anthropologists usually attribute such lesions to syphilis, but it is still uncertain whether this is the only disease involved. In at least one case (U.S.N.M. no. 380, 520, a male from pit no. 77) the irregular distribution of the lesions over a large number of bones suggests osteomyelitis.

The tibiae of the children also exhibit pathological conditions. In two cases, one near 6 years, the other near 9 years, the paired tibiae are symmetrically swollen throughout their lengths. In another child, about 12 years of age, the tibiae have active lesions similar to those seen in some of the adults. It is not clear what these conditions represent.

Excessive anterior bowing of the tibiae and fibulae was noted in two adults. Further study will be needed to explain this condition. It is interesting also that one left tibia (U.S.N.M. no. 380, 494, a female from pit no. 14) exhibits a healed fracture of a somewhat uncommon type, namely, one in which the break passed through the superior articular surface, or plateau, on the lateral side.

Arthritic joint changes are restricted to the few old individuals present. In one such case (U.S.N.M. no. 380, 518, a female from pit no. 66) the normal-looking 11th and 12th thoracic vertebrae are fused

through the centra and facets.

In contrast to the bone changes associated with advancing age, are other changes, usually characterized as hyperostosis, seen only in young individuals. Although so many young individuals are represented in the sample, only three (a child near 9 years and two young adults) show these changes and then only to a minor degree.

Perhaps the strangest malady of all - a case of generalized bone atrophy - has been detected in a collection of miscellaneous bones from pit no. 80. The following bones have been identified: a pair of femora, a left tibia, a left humerus, a left ulna, a left radius, and a pair of clavicles. However, these bones are so strange looking and their shaft diameters are so reduced (ant.-post. diam. of the tibia + 1.9 cm vs. the usual ca. 3 cm) that little doubt remains as to their true association. Bone atrophy of this sort seems to indicate a long-standing paralysis.

A total of 61 burials from Slaughter Creek Phase sites have been identified as to sex (Stewart 1963, Davidson 1935 field notes) of which 38 or 62% are female. At the Townsend site, Stewart (1963) reported almost twice as many females as there were males. These figures contrast strongly with those of the Webb Phase. The youthfulness of the Slaughter Creek Phase population at the Townsend Site was also noted by Stewart as being of significance. No population profile can be accurately recorded at this time.

Funerary Programs

Both single interment and multiple interment funerary programs have been identified at Slaughter Creek Phase sites in the Delmarva Peninsula. Articulated or primary burials occur in more sites but a larger number of reported burials are secondary. Single interment burials appear to be an earlier form within the Slaughter Creek Phase and may have been completely replaced by secondary ossuary burials during late proto-historic periods.

Initial preparations in Funerary Program A included both flexing and extending of the corpse. Body appendages have been found in a variety of positions and no patterning appears to have been utilized. Ornamentation occurred in only one reported situation where a shell bead necklace was found on a primary burial from Sussex County, Delaware (Marine, Tull, Austin, Parsons, Hutchinson 1964).

Slaughter Creek Funerary Program A graves were located in areas exhibiting relatively heavy occupational activity. Two differing

grave types were used: refuse pits and intentionally excavated graves, intentionally dug graves were usually elongated and most of the extended burials were placed in this type of facility. The abandoned refuse pits usually contained flexed burials lying at a variety of depths within the pit.

The placing of grave offerings within the burial pits does not occur in Funerary Program A. The only artifacts found in close proximity to single interment burials can be interpreted as cultural debris accidentally included in the grave fill. No reports of red ochre have been made. Orientation of the body within the pit varies.

No evidence of ritual activity scheduled after interment has been noted at Slaughter Creek Phase sites.

Very little is known of the primary treatment and temporary deposition phases of Funerary Program B of the Slaughter Creek Phase. Ethnohistorical data would lead one to expect a funerary program which included the use of a charnel house following artificial disarticulation and bone scraping. No information on such practices, however, has been found. The use of abandoned refuse-filled pits as facilities for the temporary deposition of the dead can be postulated. Many archaeologically excavated refuse-filled pits are stratified with a top layer seemingly added some time after the main fill of the pit. This top fill later may have been necessitated after the removal of a temporarily deposited burial for secondary treatment and permanent burial in an ossuary or permanent grave pit. It is enticing to suggest that this procedure was due to the difficulty of burying the dead during the course of a ground-freezing winter.

If the above assumption is accepted, then it is possible to state that the body positioning of temporarily interred burials in the Slaughter Creek mortuary complex is flexed. No pattern of body appendage positioning could be inferred. None of the refuse pit burials nor the ossuary and other disarticulated burials have been examined for evidence of bone scraping.

This same lack of bone scraping evidence also limits our knowledge of the secondary treatment afforded the corpse after disinterment. Partial dismemberment of nearly fresh corpses, however, seems to be a definite practice within this funerary program. Bone mutilation and cremation are absent. During the secondary treatment or transport to the permanent grave facility many of the skeletal parts seem to have been lost or deliberately discarded and did not find their way into the permanent grave. Detailed data on this is lacking.

Very few graves were dug intentionally for single secondary burials. Although some were placed in a narrow slit trench, most were merely interred in the abandoned refuse pits. Bundled bone was usually found in pits containing other burials in various states of decomposition and disarticulation. Multiple secondary graves or ossuaries are more frequently recorded in the literature. Ossuary pits vary from oval to trench-like in form. They are usually quite shallow and only large enough to contain the bone found within. Burials vary from those only partially disarticulated to those in

which the bone is widely scattered throughout the pit. Loose artifacts are occasionally found but in most cases cannot be assigned with certainty to the funerary program.

Many of the secondary burials are overlaid by thin levels of charcoal-bearing soil. In several instances partially burned bone was attributed to a fire burned over the covered burials. It appears that post-interment ritual activity was indeed a part of the funerary program of the Slaughter Creek Phase mortuary complex.

Enrollment Factors

The largest assemblage of Slaughter Creek Phase burials was excavated at the Townsend site (Omwake and Stewart 1963). Of the five burials which could be registered with certainty in Funerary Program A, the male population constituted 60 per cent of the total. This can be compared with the 33 per cent male representation in the total burial population at this site. The enrollment in Funerary Program B of the Slaughter Creek Phase included sixteen burials which could be identified as to sex. Of these, twelve, or 75 percent, are female suggesting a selection for females in the multiple stage program.

The Townsend site component of the Slaughter Creek Phase contained no sub-adults among the six Funerary Program A burials recorded. Some have been recognized, however, at other components which can be tentatively assigned to the single stage funerary program. The multiple stage funerary program contained a 27 per cent sub-adult representation at the Townsend component.

The association of material wealth with enrollment privileges does not seem to occur in the Slaughter Creek Phase funerary programs. Artifacts in certain association have not been found in Slaughter Creek graves and other means of inferring status is at hand. Consequently, the association of status with enrollment in the funerary programs can not be made.

Discussion

The discussion of the data presented in this report must be qualified by the following statement. It is recognized that the total data about the three socio-cultural units is not available as of yet and further excavations may reveal information that will necessitate considerable alterations of the socio-cultural implications discussed here. Observations made by professional archaeologists, amateur archaeologists, and pot hunters, vary to such a degree that even the most simple statement must be viewed with caution. Nevertheless, based on the above data, there are certain socio-cultural implications which deserve comment.

Of the three socio-cultural units discussed in the report, the least is known about the Delmarva-Adena complex. If it is assumed that the observations reported represent the true picture then it is possible to make certain predictions about other segments of the socio-cultural system.

1. Due to the nature of the grave offerings present at each site (exotic origin of either raw material or manufactured item) it is suggested that Delmarva-Adena society was rigidly stratified. Only persons belonging to the "high" status group were admitted to funerary programs at the known cemeteries.

It is predicted that future excavations on Delmarva-Adena occupation or special purpose sites will result in the discovery of the burials of a lower status group.

2. Membership in status groups was an ascribed trait. Along with adult men were women and children all of who contained the same type of elaborate grave offerings.

It is predicted that excavation and analysis of occupational data will reveal the presence of a kinship oriented group system (clans) operating in Delmarva-Adena society.

The Webb Phase mortuary complex, as manifested at the Island Field site, has been thoroughly discussed in an earlier section. It appears to reflect a much more complex society than does the Delmarva-Adena mortuary complex. Implications relating to other subsystems are numerous and less speculative than were implications about the earlier unit. The following hypotheses are based on the assumption that the total Webb Phase population is represented at the Island Field cemetery.

1. The Webb Phase was a stratified society. The uneven distribution of grave offerings among the cemetery population and the variety of funerary practices suggest the presence of several status levels.
2. Status was ascribed through patrilineal descent groups. Although men, women and children, shared in the possession of status indicating grave offerings, it was the men who possessed the most valuable items. It was also the adult males who predominated in the most rigidly structured funerary program - the special category of Funerary Program A.

The discovery of kinship groups in the Webb Phase, perhaps through ceramic analyses, can be predicted.

3. The various status groups within the Webb Phase society were not endogamous and were co-residential. The Island Field cemetery contained graves of both funerary programs and all status groups. There is no evidence that spatial separation occurred.

The Slaughter Creek complex data tends to suggest a more egalitarian social structure with no evidence of stratification or even achieved leadership positions. The lack of professional excavation at large mortuary sites does not allow much speculation based on knowledge of this subsystem. Until the excavation of complete community patterns these types of interpretation can not be made.

Table 1
POPULATION PROFILE
DELMARVA-ADENA PHASE

	I	C	SA	A	MA	OA	U	T
Male							X*	
Female							X	
Unknown		X	X		X			
Totals								

*predominant

Table 2
POPULATION PROFILE
WEBB PHASE

	I	C	SA	A	MA	OA	U	T
Male			1	7	12	14		34
Female			2	10	7	4	1	24
Unknown	11	22	1	7	1	1	15	43
Totals	11	22	4	24	20	19	16	116

Table 3
POPULATION PROFILE
SLAUGHTER CREEK PHASE

	I	C	SA	A	MA	OA	U	T
Male			2	11	11		5	29
Female			3	25	7		4	39
Unknown	13	18	2	3	2		39	77
Totals	13	18	7	39	20		48	145

BIBLIOGRAPHY

Cabbage, William O.

- 1941 Killen's Mill Pond. Bulletin of the Archaeological Society of Delaware, Vol. 3-4.

Davidson, D.S.

- 1935 Burial Customs in the Delmarva Peninsula and the Question of their Chronology. American Antiquity, Vol. 1, No. 2. pp. 84-97. Menasha.

deValinger, Jr., Leon

- 1970 Report on the Excavation of the St. Jones River Site Near Lebanon, Delaware. Delaware State Museum Bulletin Series No. 3. Dover.

Ford, T. Lattimer

- 1958 Adena Traits in Maryland. Bulletin of the Eastern States Archeological Federation, No. 17, p. 10. Trenton.

Jackson, Ralph W.

- 1954 The Sandy Hill Mound Site. The Archeolog, Vol. 6, No. 3.

Jones, Elmer A., Jr.

- 1965 The Frederica Site and the Delmarva Adena Problem. Journal of the Archaeological Society of Maryland, Vol. 1, No. 1, pp. 12-15. Baltimore.

Marine, D., M. Tull, F. Austin, J. Parsons and H. Hutchinson

- 1964 Report on the Warrington Site (7S-G-14). The Archeolog, Vol. 16, No. 1.

Neumann, Georg

- 1952 Types of Artificial Cranial Deformation in the Eastern United States. American Antiquity, Vol. 7, No. 3, pp. 306-310. Menasha.

Neumann, G. and T. Murad

- 1970 Preliminary Report on the Crania from the Island Field Site, Kent County, Delaware. Proceedings of the Indiana Academy of Science for 1969, pp. 69-74.

Omwake, H.G. and T.D. Stewart

- 1963 The Townsend Site Near Lewes, Delaware. The Archeolog, Vol. 15, No. 1.

Stewart, T.D.

- 1958 A Unique Carved Bone Object From Delaware. Delaware State Museum Bulletin Series, No. 1, Dover.

- 1963 Human Skeletal Remains, In Omwake and Stewart, The Townsend Site near Lewes, Delaware. The Archeolog, Vol. 15, No. 1, pp. 44-53.

- 1970 Report on the Skeletal Remains from the St. Jones Adena Site Near Lebanon, Delaware. Delaware State Museum Bulletin Series, No. 2. Dover

Thomas, Ronald A.

- 1970 Adena Influence in the Middle Atlantic Coast. In B.K. Swartz, Jr. (ed.), Adena: The Seeking of an Identity. A Symposium held at the Kitzelman Conference Center, Ball State University, Muncie, Indiana, pp.56-87.

Thomas, Ronald A. and N. Warren

- 1970 A Middle Woodland Cemetery in Central Delaware: Excavations at the Island Field Site. Bulletin of the Archaeological Society of Delaware, No. 8, Winter, n.s.

Weslager, C.A.

- 1939 An Aboriginal Shell Heap Near Lewes, Delaware. Bulletin of the Archaeological Society of Delaware, Vol. 3, No. 2.

Witthoft, John

- n.d. An Adena Manifestation in Delaware. Ms. on file at the Delaware Archaeological Board, Dover.