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The Conference on Historic Site Archaeology Papers 1974 - Volume 9

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The Conference on Historic Site Archaeology Papers 1974

Volume 9
THE CONFERENCE ON HISTORIC SITE ARCHAEOLOGY PAPERS
1974
Volume 9

Part 1 - PRESENTED PAPERS at the Fifteenth Annual Conference
Atlanta, Georgia

Part 2 - CONTRIBUTED PAPERS

Stanley South, Editor

Additional copies of this volume are available for $5.00 per copy.

Stanley South, Chairman
The Conference on Historic Site Archaeology
The Institute of Archeology and Anthropology
University of South Carolina
Columbia, South Carolina 29208

September, 1975
The Fifteenth Annual Conference on Historic Site Archaeology was held at the Atlanta Internationale Hotel on October 24, 1974. This Volume 9 of The Conference on Historic Site Archaeology Papers presents some of the papers from the conference as well as four "Contributed Papers."

The John M. Goggin Award for Method and Theory in Historical Archaeology was not offered this year because of the increased cost of publication of these volumes. It is hoped that financial conditions will again allow the award to be offered in future years.

The Historical Archaeology Forum section of this volume is also missing, again due to publication costs, as well as the press of other responsibilities which prevented the Chairman from soliciting papers for inclusion in the forum.

I would like to thank Robert L. Stephenson for his continued support of the Conference through his role as Director of the Institute of Archaeology and Anthropology at the University of South Carolina. I would also like to thank typists Myra Smith, Alice Boggs, and Sharon Howard for their work in putting this volume in order. Special thanks are due Maryjane Rhett, executive secretary for the Conference for her work in seeing the volume to the printer, and for handling the finances for the Conference.

Stanley South, Chairman
The Conference on Historic Site Archaeology
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PRESENTED PAPERS - INTRODUCTION

Those papers presented at the Fifteenth Annual Conference on Historic Site Archaeology and submitted to me for publication are presented in this section of this volume. Only four of the fourteen papers were prepared for publication by those presenting papers. This is the highest percentage of those not wishing their papers published that we have had. It is certainly hoped this will not reflect a trend. The emphasis of the Conference has always been on publication of papers presented, and without the cooperation of the authors of papers the volumes such as this cannot continue.

A greater flexibility is provided by the fact that "Contributed Papers" also are now being published, and this allows this volume to be of normal volume size.

Stanley South, Chairman
The Conference on Historic Site Archaeology
PRELIMINARY EXCAVATIONS AT THE
MOUNT SHEPHERD POTTERY SITE

Alain C. Outlaw

Summary

The Mount Shepherd pottery site is located at the base of Mount Shepherd, eight miles west of Asheboro, North Carolina (see figure 1). Excavations in June, 1974 revealed the plan of a five-flued circular kiln and a probable brick chimney base. A large quantity and wide variety of pottery objects were recovered, indicating stove tile, smoking pipe, utilitarian earthenware, and decorated slipware production. Little documentary evidence has been found, however, to indicate the name or cultural affiliation of the potter.

Introduction

In 1969 a surface collection from the site was shown to members of the North Carolina Historical Potters Exploration, Inc., an organization formed to gather data on the early potters of North Carolina in the historical period. Realizing the importance of their finds, the N.C.H.P.E. sought the professional guidance of Mr. J.H. Kelly and Mr. A.R. Mountford of the City of Stoke-on-Trent Museum in Staffordshire, England. The October, 1971 report on their test excavations confirmed the existence of a pottery manufacturing site and recommended that an American historical archaeologist pursue the exploration (Kelly 1971:2).

In the spring of 1974, the writer was contacted by Mr. and Mrs. Walter S. Auman of the N.C.H.P.E. concerning further work at the site. Subsequently, a plan was developed to excavate two of four visible mounds. This report concerns itself with one of the ruins, a kiln. A detailed study of the other site features and the artifacts will be prepared following excavations in the summer of 1975.

Location

The site lies on a natural ridge on the western slope of Mount Shepherd. Several nearby springs and streams provided fresh drinking water and were a sufficient water supply for a pottery industry. Outcroppings of slate on the site supplied the building materials for the kiln and probable related structures. In close proximity to the site, traces of what was probably a trading path, depicted on the John Collect map of 1770 (North Carolina Department of Archives and History), were found. This path connected early settlements in the North Carolina Piedmont.
FIGURE 1. Site location map showing its relationship to the nearest cities.
History

Although a great deal of documentary research has been done in an attempt to trace any evidence of pottery manufacture at Mount Shepherd, very little has come to light. Eighteenth century wills and inventories for the area list earthen dishes, jugs, cups, pans, crocks, and other utilitarian vessels (Randolph County Deed Book 1:22,28). Reference is made to a "Moravan (probably Moravian) ware" in a 1799 inventory (Randolph County Records, 1799 estate of John Frazier) and the 1783 inventory of Andrew Hoover lists, among other items, a stove (Randolph County Records, 1783 inventory of Andrew Hoover). There is a good possibility the latter was a tile stove and it may have been made at Mount Shepherd. Dix (Randolph County Deeds, Book 5:155) and Beard (Randolph County Deeds, Book 2:129) were the only eighteenth century potters listed in the records but no reference directly ties them to the site.

Excavation

Before excavation, two shallow pits associated with slight mounds and two obvious mounds were easily discernible at the site. The single mounds consisted of slate rock 11' to 12' in diameter and averaging 1'3" in height; the mound-pit features consisted of 8' -12' in diameter mounds no more than 6" in relief with associated 8' in diameter pits 1 1/2' deep.

The research approach was to excavate what appeared to be the most promising examples of both a mound and a mound-pit. Excavation of a 15' x 18' area encompassing one mound revealed the plan of a kiln (plate 1). This area was subdivided further into four quadrants 7 1/2' x 9' for the horizontal control of material and to provide profiles through the kiln.

Within the unit and on the south side of the kiln, the section of a large pit designated feature E was partially exposed (see figure 2). Presumably a source of potting clay, the pit was later used as a dump and was filled with potters clay and wasters. A few feet east of the pit and along the same profile (figure 2) a slate rock concentration (feature F) was found. Further excavation will be required to determine the function of this feature.

Kiln Plan

The unmortared, brick-lined flue system radiated in five directions from the center. Channels averaged 9 1/2" wide and the flues were at least four bricks or 1' in height. The channels opening to the northeast and southwest went all the way through the kiln without obstruction. The remaining channels ended at the wall of the latter channel which probably acted as a baffle to distribute the initial blast more evenly. At some time following the initial firing, the flue opening on the downslope (southwest side of the kiln was blocked with clay, perhaps to improve the heat distribution.
None of the flues had firewalls, however all were backed by small oval-shaped ash-filled pits.

The intermediate areas between the channels were filled with stones which acted as pedestals to support a perforated pot chamber floor. Ranging from 1'5" to 2'10" in thickness, the walls, were constructed of slate mortared together with waster-tempered clay, the highest existing wall being 1'5" above subsoil. The use of wasters in the construction of this kiln suggests a chronology for the site, this being a later kiln.

**Stratigraphy**

The natural stratigraphy in the kiln area consisted of four layers representing the pre-ceramic manufacturing period, the kiln construction, the ceramic production and the abandonment of the site (see figure 3). Since the site is located on a ridge, no soil deposition of any significance has occurred and the site has changed little since the time it was abandoned.

The earliest level of soil consisted of grey loam topsoil which contained many shards as a result of its being used as the working floor of the pottery. The kiln was built directly on subsoil with only the ash pits penetrating deeper. A thick black wood ash which emanates from the kiln channels and which yielded vast amounts of pottery, represents the ceramic producing period. Representing the abandonment of the complex was the loose debris of the stone superstructure along with large earthenware fragments which were probably a part of the last firing.

**Dating**

Anthropomorphic smoking pipe forms excavated at Mount Shepherd are similar to those that were found by Stanley South at Bethabara, an early Moravian settlement, in contexts of 1755-1771 (South 1966). In *A Guide to Artifacts of Colonial America*, Ivor Nöel Hume dates the same pipes to 1770-1840 (Nöel Hume 1970:303, figure 97).

A plate rim with the "Whieldon-type" manganese and copper stippling indicates a post-1773 date because it was not until after that year that the English influence of William Ellis was felt in the area (Bivins 1972:87). The presence of rose-headed nails and several fragments of a Rhenish stoneware vessel, the latter generally not imported after the American Revolution (Nöel Hume 1970:283), suggests an eighteenth century date for the operation. Neither ceramic animal shapes, known to have been made as early as 1800 at nearby Salem (Bivins 1972:188) nor fireclay, which was made at Salem after 1793 (Bivins 1972:88), appeared on the site. Thus, on the basis of the above information, an arbitrary time frame has been established for the site between 1773 and 1800, or roughly the last quarter of the eighteenth century.
FIGURE 2. Kiln plan showing the construction details, the relationship of features, and the position of sections.
KILN PLAN

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STRATIGRAPHY

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DATING

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FIGURE 3. Sections through the kiln area.
Conjectural Reconstruction

Comparative data on kiln construction is very sparse in the literature at this writing. What does exist seems to be limited primarily to the British Isles. The excavations at both Bethabara and Salem, in North Carolina, revealed the pottery buildings and waster dumps but only a suggestion of where the eighteenth century kilns once stood (South 1966).

The Mount Shepherd kiln is divided into two sections and is similar in principle to the sixteenth century kiln at Cockerton in Wiltshire, England (Brears 1971:146). The walls were somewhat angled towards the center of the kiln, indicating that they culminated in a dome rather than being open-topped. Recent experiments in England have shown that the dome superstructures were probably a permanent feature because a rebuilding after each firing would have been impractical (Brears 1971:141). The "beehive-shaped" dome of the Mount Shepherd kiln was presumably vented with a central updraft aperture. Fill inside the collapsed kiln was not plentiful enough to suggest the type of material used in it's dome.

Flues were brick-lined and were flanked by stone pedestals which probably supported a floor for the wares. Their size indicates that the flues were too narrow for use in loading material into the pot chamber. An opening in the side of the dome was probably temporarily blocked up for each firing. Although the archaeological remains do not indicate it's position, such an opening would have logically been situated on the upslope side of the kiln.

In summary, the heat was generated in the immediate area of the firepits and drawn through the flues to the holes in the pot chamber. From there the heat rose through the setting and out the central vent. Apparently, the system of heat flow was quite good because very few underfired vessels were found, a situation caused by cold spots in the kiln.

Future Research

A great deal of research has yet to be done on the Mount Shepherd material in order to gain a true picture of the full range of objects which the operation produced. Collections from nearby sites will have to be compared to the Mount Shepherd material so that the levels of influence from or into other areas can be ascertained.

More than half of the site has yet to be explored, including one possibly earlier kiln. The location of clay pits, workshops, and the potter's house remain to be found.

Significance

The Mount Shepherd site is extremely important since no substantial eighteenth century kiln remains have been unearthed at either nearby Bethabara or Salem, both Moravian pottery manufacturing centers in the second half of the 1700s. Direct influence from these pottery manufacturing centers is strongly suggested by the predominance of Moravian design elements in the ceramics.
Thus, when more fully explored, the remarkably well preserved kiln site and its related features will be of added significance in gaining a better understanding of the regional folk pottery tradition in the North Carolina Piedmont.

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NOEL HUME, I.
HISTORICAL ARCHAEOLOGY PRESENTED PAPERS - Outlaw

OUTLAW, A. C.

QUIMBY, I. M. B., ed.

RANDOLPH COUNTY DEEDS AND RECORDS

RHODES, D.

SOUTH, S.

1974 personal communication

WATKINS, C. M. and NOEL HUME, I.

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I am indebted to Mr. and Mrs. Walter S. Auman, owners of the Seagrove Pottery at Seagrove, North Carolina, who provided support and encouragement throughout the project. Their continued interest in the history of pottery-making in North Carolina brought the writer’s attention to the site and made this project possible. I wish to thank Mrs. Lewis Grigg, Mr. Reed Voss, and Mr. Edward Voncannon for their volunteered help with the excavation. Mrs. Lewis Grigg’s research into the Randolph County Records provided documentary information on the Mount Shepherd site. I thank Messrs. Jeffery and Lee Farlow, who discovered the site, for their help and interest in preserving this important site. Administrative assistance provided by Dr. Stephen J. Gluckman, North Carolina State Archaeologist, is greatly appreciated.
Spanish colonial archeology is a relatively recent field of research, within the relatively young discipline of Historical Archeology. In the southeastern U.S., this research is confined primarily to Florida, where the excavation of Spanish colonial sites has been increasing in tempo during the past several years.

Most students of Spanish colonial archeology today are eager to construct and test predictive models of the Spanish colonial cultural system in Florida, which includes such aspects as aboriginal-european interaction; trade systems; varied subsistence systems; military political activity; social status distinctions, a variety of ethnic affiliations, the persistence or alteration of traits introduced to Florida from Spain or New Spain; and frequent aboriginal population movements.

Archaeologists working in St. Augustine, Florida have approached several of these aspects of the Spanish colonial system, but have encountered certain problems:

1. The population of St. Augustine was very transitory throughout its history, both on the household and the national or ethnic level. The major population transitions were Spanish-Indian period: 1565-1763; the British Period: 1763-1781; the second Spanish period: 1781-1821; and the American Territorial period: 1821-1845. After the first two of these transitions; the population of St. Augustine was virtually completely replaced. Differences in the archeological record from these periods reflect very real differences in the cultural situation. The population replacement amounted to a form of archeological catastrophism, and this imposes very strict stratigraphic control requirements upon the archaeologist, who is usually operating in a field situation characterized by continuous and current occupation; shallow depositions of soft, dry sand, and a very high, fluctuating water table.

2. The second problem encountered by archaeologists who are attempting to test specific hypotheses about specific segments of the cultural system in colonial St. Augustine is the fugitive nature of architectural remains, which are often the key to site identification, and the dating of features. No existing foundations from before 1702 exist; and nearly all of the tabby from after this period has disintegrated.

3. The major problems, however, are the great gaps in knowledge about the material culture of the Spanish colonial period. Since it is the material culture and its associations by which hypotheses and models are tested; it is important that such information as the dates of occurrence, the function, and the origin of manufacture of artifacts be established before they are used to test hypotheses.
Pioneer work dealing with Spanish colonial material culture in the southeast has been done by John Goggin (1960, 1968), Charles Fairbanks (1966, 1973, 1974), and Hale Smith (1956, 1962, 1965, 1972); but as more research is done, it becomes increasingly apparent that the concern with the spacial and temporal distribution of artifacts should not stop here.

Currently, proveniences of Spanish colonial sites are often dated by associated British material, for which a great deal of temporal information is present, the result of many years of research. British ceramics often have a terminus post quem which can be applied to their proveniences; whereas most Spanish ceramics do not have a reliable terminus post quem.

This was frequently the case at SA-16-23 (the de la Cruz site) in St. Augustine during the excavations there in 1972 and 1973 (Deagan 1973, 1974). The 1973 excavation in particular, was oriented to the recovery of material used to test a hypothesis concerning Spanish-Indian acculturation, and women's roles in this process. The site was known through land title transfer, deed records, landholders maps, and cathedral records to have been occupied from about 1730 to 1763 by Maria de la Cruz, an Indian woman, her Spanish-soldier husband and their children. The family left St. Augustine in 1763, along with the rest of the Spanish and Indian populations, when the British gained control of the colony. The site reverted to crown land status, and was illegally occupied by the Minorcan, Bartolome Usina, who built a wooden shack at the front of the lot, and lived there from 1788 to 1793. The buildings owned by the de la Cruz household, however, were gone by 1788 (Deagan 1974).

Since the excavation was oriented toward the recovery of material applicable to the test of a hypothesis dealing with the de la Cruz occupation, it was extremely important that all of the archeological materials used in this test could be confidently attributed to the first Spanish period. For this reason, material from undisturbed features and pits which were below the base of the eighteenth century midden, in a matrix of sterile sand, was used in the analysis (all material recovered during the excavation was retained and catalogued, however). Any provenience which contained material which could not have dated from before 1762 was not used in the analysis, following from the principle of terminus post quem.

A very important role was played in this procedure by creamware. Based on currently accepted dates for creamware (Noel Hume 1970, South 1972), any provenience containing creamware had to be considered as either dating from the British or subsequent periods; or as disturbed. Since the occurrence of creamware is on the cusp of the first Spanish and British periods in St. Augustine, it has become an automatic marker for British or second Spanish period contexts. This has troubled several researchers in the area, because of the consistent association, in apparently undisturbed contexts, of creamware with large numbers of sherds of San Marcos Stamped pottery. This aboriginal ceramic type was first described by Hale Smith (1948), and it is attributed to the Guale Indians of the Georgia coast. Along the Georgia coast this ceramic type has been recovered by Milanich and others in sixteenth
FIGURE 1: Butler Map of St. Augustine lots and blocks (1930).
(Historic St. Augustine Preservation Board)

FIGURE 2: Jeffries Map of St. Augustine (1762).
(Historic St. Augustine Preservation Board)
century contexts, but the earliest San Marcos pottery recovered in St. Augustine is from mid-seventeenth century contexts; coinciding with the first appearance in St. Augustine of the Guale, who, to make a long and involved cultural process simple, migrated to the St. Augustine area around 1680 (Smith 1948, Swanton 1946).

It is also known that San Marcos ceramics were not produced after 1763, by the simple fact that there were not any Indians present in St. Augustine after this date. This is documented by Elixio de la Puente (1770) who listed all of the inhabitants of Florida who departed for Cuba in 1763, including all of the 83 Indians present in the environs of the city. Sources in the East Florida (British) Papers (P.K. Yonge Library, University of Florida, Gainesville) mention the absence of Indians in or around St. Augustine after 1763. At the de la Cruz, Acosta and Avero sites in St. Augustine, however, there were a number of stratigraphically apparent, First Spanish period proveniences which appeared in the field to be undisturbed, and which contained San Marcos ceramic and creamware (Files, Historic St. Augustine Preservation Board).

In other words, there has been a consistent association of these types, one initiating at 1762 and one not occurring after 1763. On the basis of the terminus post quem principle, the proveniences in which these occurred were all considered disturbed. In 1973 and 1974, however, excavation in St. Augustine revealed proveniences sealed by architectural features which were known to have been present in 1763; and these proveniences contained creamware in association with San Marcos ceramics.

The first of these proveniences were at the de la Cruz site, discussed earlier. Figure 1, a portion of the Butler Map of 1930, shows Lot 16, Block 23 as it is today. The earliest record of the buildings on the site are found on the Jeffries and the Clements Maps, both dated 1762 (Fig. 2, 3). On both of these maps, the area of what is now Lot 23, Block 16, contained two houses, and two outbuildings to the west of the houses. Figure 4 shows a portion of the Puente inhabitants map, made in 1765 as a record to land ownership at the time of the British takeover. This map's key identifies quadrant C, number 51 as belonging to the heirs of Maria de la Cruz; however, at this time, the outbuildings to the west are not depicted. By the time the Rocque Map of inhabitants was made in 1788, the buildings on the site were gone (Fig. 5).

The area in which the proveniences under discussion occurred was in the south outbuilding, located to the west of the house. The relationship of the archeological remains recovered on the site, to the location of the buildings depicted on the Jeffries map (pre-1762) is shown in Figure 6; and illustrates that the building excavated was indeed present prior to 1762. These were both scaled to a 1:10 inch scale, using the southwest bastion of the Castillo de San Marcos as a point of reference. The size discrepancy, incidentally, is probably
FIGURE 3: Clements Map of St. Augustine (1762)  
(Historic St. Augustine Preservation Board)

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FIGURE 4: Puente Map of St. Augustine Property and Inhabitants (1763)  
(Historic St. Augustine Preservation Board) with lot owner key  
(P. K. Yonge Library of Florida History; Gainesville, Florida)  
Quadrant C #51 - Maria de la Cruz, Quadrant E #80 - Avero
due to discrepancy in the Jeffries Map scaling. Many of the maps illustrated, have been tested in St. Augustine by reference to known archeological remains of buildings depicted on the map, and only the 1788 Roque Map has been determined reliable (R. Steinbach, personal communication, St. Augustine, Florida 1974).

Figure 6 shows the extent of the south outbuilding revealed archeologically. Three features within this outbuilding were believed to be undisturbed, and either preceding or associated with the construction of the outbuilding itself. Material within these proveniences should therefore also predate 1762.

Feature 13 was a large trash pit, dug either at the time of the building's construction or earlier, since it extends underneath the oyster shell wall footing (Fig. 8). Twelve sherds of creamware were recovered in this pit. This figure also shows the basic stratigraphic situation at the site: a modern accumulation zone, overlying a brown midden zone characterized primarily by nineteenth century material. The brown midden zone overlaid a zone of grey, shell-flecked midden, characterized primarily by eighteenth century material. It was from features below this zone, intruding into sterile sand, that the data used in the analysis of the first Spanish period occupation was recovered.

This large pit did not appear to be disturbed at the time of excavation, and was of a very dark brown soil, with a high organic composition. It yielded a great deal of animal bone, and 105 dateable sherds (including 12 creamware). The date for the pit contents, provided by South's mean ceramic date formula (1972), was 1728.34, using the currently accepted dates for creamware.

Figure 9 shows in profile the portion of the tabby floor in the north section of the building, adjoining the wall footing. A word about the nature of tabby flooring in colonial St. Augustine is perhaps appropriate here: In every excavation of a house site occupied over a period of decades in St. Augustine, it was revealed that tabby floors were not replaced, but were added, superimposed, one above the other. Admittedly, only three such excavations have been reported—the Oldest House (Gjessing et al. 1962), the Arrivas House (Smith MS), the Avero House (Deagan MS), but in each case; more than three floors were superimposed, with an average span of 15-20 years between each floor.

It would therefore be unreasonable to suggest that the portion of tabby floor at the de la Cruz Site, may have replaced an earlier floor, after the first Spanish period. The stratigraphic position of the floor also rejects this possibility. The floor is placed at the top of the footing itself; which would have been at the base of the wall. The layer of midden debris between the sterile sand and the floor, conforms to the typical tabby flooring procedure; that is, to spread a layer of soil and rubble below where the floor is to be poured, in order to provide a level surface. The material recovered from this
FIGURE 6: Relationship of Archeological Remains to Houses on Jeffries Map (1762) - de la Cruz site (Scaled to SW bastion of Castillo de San Marcos)
layer provided a date for the pouring of the floor itself. Broken parts of tabby flooring were found across the north end of the building, but this was the only intact portion.

The midden underneath the floor yielded 129 dateable sherds, including one sherd of creamware. Although the midden above and below the floor was of a similar consistency and color, that underneath the floor was carefully segregated, and is not believed to have been contaminated.

The pit in the NW corner of the outbuilding, depicted in Figure 8, initiated at the base of the eighteenth century midden, and extended underneath the wall footing. This feature yielded one creamware sherd among 90 dateable sherds. The mean ceramic date provided by South's formula for the pit contents was 1725.8.

The material from these features strongly suggested that creamware was present in the New World before 1762, possibly as early as 1750. If this were truly the case, this particular ten-year difference involved is crucial for St. Augustine archeology. Many First Spanish period artifact types and proveniences which have been assumed to date from the British period on the basis of creamware presence, would need rethinking.

The very sandy nature of sites in Florida, and the subsequent continuous occupation at the de la Cruz site, left open the possibility that the proveniences discussed for the de la Cruz site were contaminated; even though disturbance was archeologically undetected.

Excavations earlier this year, however, in a site containing contexts which could not have been disturbed, yielded creamware in a pre-1763 context.

Figure 1 shows 39 St. George Street (Lot 5, Block 7) in its present relation to the fort.

The site was depicted on the 1764 Puente Map as quadrant E number 81, belonging to Antonia de Avero and her heirs (Figure 4).

The 1762 Jeffries Map (Figure 3), also depicts a building at Block 5, Lot 7.

The archeological foundation was not scaled to the Jeffries Map, since the structure was still present in 1788, on the Rocque Map (Fig. 5).

The excavated foundations, which were the earliest ones for the building at the site, conformed exactly to the building depicted on the Rocque Map.

The excavation was carried out inside the extant building, which the excavation revealed to be constructed on the original footing at the site. Five superimposed floors were found; one of cement, one of thick mortar and three of tabby (Fig. 10).
FIGURE 7: South outbuilding area: de la Cruz site
FIGURE 8: Feature 13, de la Cruz site

A - Modern Humus
B - Midden-19th century
C - Grey Midden-18th century
D - Sterile Sand

FIGURE 9: Tabby Floor in Kitchen, de la Cruz site

A - Modern Humus
B - Midden-19th Century
C - Grey Midden-18th Century
D - Sub-floor Midden
E - Sterile Sand
In 1793, when litigations over the ownership of the house were taking place (a very common occurrence in St. Augustine after the colony had changed hands twice) it was revealed in a written statement by Antonia de Avero herself that the lot was acquired by her family in 1712, and that the present house was established and built by Antonia's first husband (Guillen) before his death in 1743 (Escribano 1963). They probably were not married before 1730, the year Antonia was 14. After his death, Antonia remarried; and in her 1793 letter she stated that her second husband, Blanco, rebuilt and refurbished the house (Ibid). After 1763, when the Avero family left St. Augustine; the ownership of the house was in dispute. This dispute lasted until 1802, during which time, the house was briefly and illegally occupied by a widow; but it gradually fell into ruin (Ibid). When it finally was recovered by the Avero heirs in 1802, it was described as "crumbling stone", and "uninhabitable" (Ibid). The house was sold again in 1815, and between this time and 1802, the house had been rebuilt and added to, as was listed in the assessment for sales (Ibid).

Figures 11 and 12 show the sequence of floors in profile, in a doorway which was filled in at about 1940. The lowest floor level was slightly above the top of the oyster shell footing, with a leveling layer of debris between the floor and sterile soil, in the manner described for the de la Cruz house. This floor is contemporary with the construction of the house itself, built by Guillen between 1730 and 1743. The terminus post quem for the material sealed by the floor is provided by a sherd of Astbury ware (1725-1750) (Noel Hume 1970:122); and the mean ceramic date for this material is 1724.09.

The next floor is believed to represent the rebuilding done by Blanco after 1743, and before 1763, when he and Antonia de Avero left the town. The material underlying this floor, which was fully intact and unbroken in all places, included 4 sherds of creamware. The mean ceramic date formula for this provenience based on 105 dateable sherds, was 1750.18.

The next floor of tabby is believed to represent the rebuilding done between 1802 and 1815, discussed above. This material underlying the floor contained a great deal of creamware, and a terminus post quem provided by two sherds of painted pearlware (1785) (Noel Hume 1970:128). The mean ceramic date for this material was 1766.

The presence of creamware in a provenience sealed by a floor which was poured before 1763, indicates again that creamware was present in St. Augustine prior to this date. This is certainly not creamware associated with Wedgewood manufacture, but it is not inconceivable that a cream-bodied, clear lead-glazed earthenware could have been produced contemporaneously with such cream-bodied types as Wheildon wares, known to have occurred as early as 1740.

The particular time segment involved in this discussion: 1762 vs. 1750; is as I mentioned earlier, crucial to Spanish colonial archeology in the southeast, in determining which cultural period artifacts and proveniences fall within. In St. Augustine, 1763 is a natural line of cultural demarcation, and behavioral events or architectural features are often designated in maps and documents as before or after this date. In the British colonies, however, this was not as culturally significant
FIGURE 10: Tabby Floor in Avero house (1750-1763 level)

FIGURE 11: Profile of Floors in Avero house
FIGURE 12: Profile of Floors in Avero house

FIGURE 13: Creamware sherds recovered from pre-1763 contexts
a date, and perhaps not a dateline of particular concern. This may have
inhibited an awareness of creamware occurring 8 or 10 years earlier than
it is commonly accepted to have occurred.

Hopefully, attention will be directed to proveniences known to have
occurred before 1763, on British colonial sites, to test the suggestion
that creamware was indeed present in the New World by the early 1750's;
and thereby aiding the establishment of chronological controls in the
study of Spanish colonial culture. It is only within a reliable chrono-
logical and contextual framework that any study of culture can progress
from description to explanation.
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SPANISH ARTIFACTS AT THE FORTRESS OF LOUISBOURG,
CAPE BRETON ISLAND

Charles H. Fairbanks

ABSTRACT

Olive jars, majolica, and silver coins of Hispanic affiliation were examined to evaluate the extent of Spanish trade or other interaction with a distant French military base. Both olive jars and majolica fall within the types defined for the Caribbean area but differ in frequency of styles. It is suggested that Spain rather than the Spanish colonies was the source of these trade wares. Spanish silver coins circulated so widely in the seventeenth and eighteenth centuries that their presence does not necessarily indicate effective trade with the Spanish colonies to the south.

John Lunn has recently pointed out the importance of the archeology at the Fortress of Louisbourg because of the special circumstances that pertained to it as a major French bastion in America (1973: 175-6). Its short active life and the virtual lack of resources, with consequent importation of almost everything used there, meant that it serves as an ideal site to display the French material culture of the mid-eighteenth century.

Louisbourg Harbor had served as a fishing base and fish-drying spot for Grand Banks fishermen for nearly two hundred years when it came into French hands. Traditionally it had been the resort of English fishermen, although those seeking cod had resorted there from all the countries of Atlantic Europe. The Spanish Basques had mostly congregated at Spanish Town, the present site of Sydney, some thirty miles north of Louisbourg. While the French had settled in the Acadian country to the west, they seem not to have been attracted to Louisbourg. Except for its fish offshore and a fair natural harbor, the Louisbourg area has little to make it attractive. The low, glacially eroded hills are covered by dense, dark forests of spruce which would provide firewood, but little else, to colonists and garrison. Coal is abundant on Cape Breton and was being used extensively by European industry in the early eighteenth century (Harris 1974). Without industry, however, it was not of great importance during the French period.

Louisbourg was nevertheless the scene of major events in the continuing struggle between Britain and France for control of the northern parts of the continent. During the War of Spanish Succession it was occupied by England but the Treaty of Utrecht at the end of the war ceded it to France. To the island were moved the French occupants of Newfoundland. Lying at the southern edge of the Gulf of St. Lawrence, Cape Breton Island could serve as a major defensive base to protect the entrance to that important channel. Louisbourg harbor was selected as the site of the major fortification and a seventy-acre fortified town was constructed with the necessary supporting batteries for denying the
entrance to the harbor and for protecting the landward approaches. Much of the strictly military construction was in stone so abundant in the area. Several half-timbered sorts of buildings were, however, used for lesser structures in the town.

In spite of its impressive aspects, the Fortress of Louisbourg was destined to be twice captured in its fifty-year history. New England troops, supported by the British fleet, took it in 1745. The Treaty of Aix-la-Chapelle restored it to France under whom it was to have a brief return to active life. During the Seven Years War, called the French and Indian War in the New World, it was again captured in 1758 by the English. They seemed not to have anticipated using it, however, and spent most of their occupation in the demolition of the fortress. At the end of the war it was ceded to England with the rest of Canada. The British garrison was transferred to Boston in 1768 and the once mighty Fortress of Louisbourg, along with much of the rest of Nova Scotia, was practically abandoned (McLennan 1957).

Thus Louisbourg represents a predominantly French settlement occupied for about fifty years from 1713 to 1763, with the British forces merely camping in the area after their successful sieges. The inhospitality of the area meant that little except the military base activities and fishing took place there. It thus represents a "clean" closed context mid-eighteenth century French site, probably the best in North America. The eighteenth century remains are not overlain and confused by any great amount of later construction and materials. In 1961 the Canadian government began a major archeological program to develop the fortress as a major National Park. These excavations have uncovered much of the major fortification elements as well as significant parts of the town. Hundreds of thousands of predominantly French artifacts have been recovered. Among them are minor amounts of Spanish objects, which are the subject of this study. Many more English materials have been recovered which seem to represent less the rubbish of the conquerors than the evidence of the eighteenth century dominance of British industry and trade. The significance of the Hispanic materials is more difficult to assess as sources of Spanish ceramics have not been as intensively investigated as have those for English materials. The question of any differences between Spanish and Portuguese materials should also be considered in view of the known presence of fishermen from the latter country on the Grand Banks from very early dates. Certainly Basque fishermen were also present from the end of the fifteenth century. The mariners came from both sides of the Franco-Hispanic border. Little seems to be available on how Basque material culture differed from that present in France or Spain. The historic separatism of the Basques suggests that their ceramics, like their language and games, might differ significantly from those of their near neighbors. Whether Spanish ceramics came to Louisbourg as part of the normal inbound trade, from casual visits of Iberian fishermen, or as an aspect of coastwide trade in the New World cannot be determined. I will try to show that it differs in some respects from that found in Spanish sites in Florida and the Caribbean.
A diligent search during late June and early July 1974 of the Louisbourg collections disclosed some small amounts of Spanish ceramics and a very few silver coins. No attempt was made to distinguish among the large collections of hardware. This was felt to be essentially unrewarding as Spanish hardware have not been studied in nearly enough detail to make identification possible. The recent study of French hardware at Louisbourg clearly defines the material present there (Dunton 1972). Only when one or more such studies have been completed for Spanish sites can we begin to make useful comparisons. It would be expected, of course, that hardware imported for governmental construction would have been manufactured in the mother country. Foodstuffs, while they are rarely preserved in archeological deposits, give us a good deal of information about trade relationships (Moore 1974).

COARSE EARTHENWARE

This class of ceramics is in many respects difficult to classify and to discuss for a variety of reasons. It has in general been little studied, lacks diagnostic modes of glaze and decoration, and seems to cross national boundaries. Often regarded as an unsophisticated peasant ware, it in some of its forms represents a basic fabric of considerable importance to the peoples involved. The French and English earthenwares are to be studied by another; I am here concerned only with those of certain or probable Hispanic derivation.

Olive Jars comprise the major visible class as they are easily recognized and have been the subject of a significant introductory study by Goggin (1960). Within the total collections at the Fortress of Louisbourg, olive jars represent only a small fraction, 275 sherd groups. They do, however, indicate a very definite presence and certainly are evidence of trade with non-French areas. Olive jars were present in collections from units 1 B, 1 L, 2 L, 3 L, 4 L, 16 L, 17 L, 34 L, 46 L, and 52 L. This distribution probably represents the areas so far excavated rather than significant distributional relationships. It has not been possible to prepare distribution maps of the Hispanic materials. This should probably be deferred until other distributional studies are completed.

The majority of olive jar lots are single sherds, although a number of reasonably whole specimens have been found. The appendix lists all the catalogue numbers that I saw in the collections. While it is usually possible to recognize even relatively small sherds as being from olive jars, body shapes and neck rings are most diagnostic. The great majority of large or cross-mended pieces were rather clearly Middle Style jars, although a number of what Goggin called Late Style Shape D were seen. These are deep olive jars with a complex, top-shaped silhouette. My identification as Middle Style for the Louisbourg materials is based largely on the distinctive neck rings, which Goggin considered a quite reliable criterion. Nearly all of the neck rings at Louisbourg are clearly of the Middle Style. The time span of Middle Style Olive Jars given by
Goggin was 1580-1780. Unfortunately the excavated materials from Florida and the Caribbean are particularly scanty in the first half of the eighteenth century, precisely the time of the Louisbourg materials. Thus we do not have good comparative materials from the southern areas. We do know that Goggin drew his time frames rather arbitrarily. It seems quite likely that the elongated, top-shaped form does in fact occur on Middle Style jars, apparently mostly in the latter part of its span, i.e., in the first half of the seventeenth century.

As a whole, these olive jars and olive jar sherds seem to fall well within the expected range with a somewhat high incidence of the elongated top-shaped form. There is no reason to suspect that they represent any special source. The only unusual feature was that at least two of them seem to show evidence of reuse as cooking vessels. One large sherd (1 B. 4G 7-205 D) and one uncataloged rather small jar of Middle Style, Form B show very definite evidence of secondary use over fires in the form of sooty deposits on the exterior. This is a secondary use not seen in the Florida-Caribbean area. In view of the extremely narrow mouths of olive jars it is difficult to see what sort of cooking could be done in them. Certainly these large sturdy jars would have been used and reused as long as they remained whole. Watkins (1973) discusses the sporadic presence of Spanish olive jars in the central Atlantic and New England areas. As useful as they may have been, they were probably not imported except as containers for various Spanish or Caribbean products. Of these olive oil was certainly the most common, although a wide variety of materials was shipped in them. Goggin has discussed these (1960) and there has recently been an olive jar recovered from a shifting sandbar in St. Augustine, Florida, which was filled with badly altered soap. It has been noticed that in remote locations in the southeastern United States there is an unusually high proportion of green glazed olive jar sherds. This is felt to reflect a selection of jars, possibly for reuse, rather than any pattern of sources or materials contained. This pattern does not seem to pertain in the Louisbourg collections.

The olive jars represented at the Fortress of Louisbourg seem to reflect only normal trade channels. It is impossible to say whether this was with Spain, Portugal, or the Caribbean area. If I am right in concluding that the original contents was olive oil, it would certainly signify Spain as the source. No direct evidence of kilns where olive jars were manufactured has been reported for the New World, and it is likely that most were made in Spain. So far no reports of materials from Portuguese sites or colonies are available for us to form any opinion as to any differences that might exist between Spanish and Portuguese materials in the class. It seems altogether likely that the Louisbourg specimens represent useful jars held over from their primary use as containers for olive oil from Spain. In view of the mercantillistic economic framework of the early eighteenth century, it is most probable that they arrived in French ships, most likely from French ports. The sporadic distribution of olive jars all along the Atlantic maritime coast, however, indicates that their presence on Cape Breton Island is not unusual.
Iberian Storage Jar

Two examples of what Ivor Noel Hume (1970: 144, fig.54) has called "Iberian Storage Jar" were seen. These are very large jars about three feet in height with flat bases, slightly rolled rims, and semi-circular arched lugs near the rim. Walls are usually on the order of 1 inch (25 mm) in thickness. One example of a rim sherd (4 L 16G 2.2) has a press-molded eagle within the arch of the lug handle. The other (1 B 5A7.567) has an illegible circular impressed stamp under the rim. The first has an interior brown lead glaze that is badly frost pitted. There are dribbles of a thin whitish slip on the exterior. The other has a thick, creamy glaze around the neck and on the interior surface. Both are quite typical of this class of materials. The origin of these jars is in continued dispute, although their use as water jars seems clear. They are pictured in a number of eighteenth century paintings of waterfront scenes and have been rather commonly found on English colonial sites of the same period. Except for sporadic occurrences in Jamaica, they have not been reported from the Caribbean. Noel Hume says, without documentation, that the only specimens with known histories come from Portugal. Specimens are known from England, where two fine specimens are embedded outside the Hollytrees Museum in Colchester. No evidence of kiln sites is available. I think that the only ascription of origin that is available is to follow Noel Hume in calling them Iberian. I definitely feel, however, that they are not Spanish. They were rather clearly used as ships' water jars, although I suspect that most ships' water was stored, and renewed, in wooden casks. The movement of one of these large, heavy jars, even empty, from the deck of a ship to land is not an operation to be undertaken lightly. That they were indeed brough ashore is indicated by their presence in a number of colonial sites. At Fort Frederica on the Georgia coast, an entire broken specimen was found on the floor of a small tabby room in the northeast bastion, where it had probably served as the water supply for the guard (Manucy 1962: 80, fig. 42).

Other Coarse Wares

A number of other sherds and collections have been placed by the Louisbourg staff in categories outside the normal French coarse earthenwares. Among these is a collection (Cabinet 162, Drawer 5) of heavy coarse earthenware with simple rims and flat bases that does not correspond to any Spanish ware in the Florida-Caribbean region. I saw nothing about the group that would allow me to make any specific identification. Another group in Cabinet 161, Drawer 15 consisted of lead-glazed and unglazed relatively thin, hard, coarse textured earthenwares, with a number of loop handles. While these clearly belong to large storage jars they do not fall into the Hispanic tradition as it is evident in Florida and the Caribbean.

Pottery discs. Eight small discs of coarse earthenware had been segregated in the catalogued process. Their numbers are given in the appendix. Ranging in size from 2" to 2-15/16" in diameter, they would fall within the same diameters as many Middle Style olive jar mouths. The upper surface is nicely finished but unpolished with a very slight
convexity. The lower surface is flat, slightly roughened, and less well-finised. The edge has a complex ogee form that appears designed to fit into a groove or perhaps to be seated into a wax embedment. While they would at first glance conform to the paste characteristics of Middle Style olive jars, there is nothing comparable in the Caribbean collections with which I am familiar. Where closures are known in this area they seem to have always been thick cork or wooden stoppers. Wax or tar has been found adhering to some olive jar necks in the southern region, but always appeared to be related to cork or wooden stoppers.

Strap handles. Several broad, arched strap handles were in the collections (16L 28A 1, 1B. 3S. 10L) on a paste within the range of Middle Style olive jars. They are, however, clearly not the narrow extruded handles of the Early Style. Some had deep slashes on the upper surface reminiscent of late medieval ceramic ewers. All probably are from Mediterranean-style amphora. These seem to come from farther east than Spain, although they represent part of the long amphora tradition in that area. One coarse redware sherd (2 L. 31F2) seems to have been part of a complex, "double" jar with a spread ring foot. It probably resembled a jar sitting on half an inverted bowl. The paste is somewhat suggestive of coarse redwares found in a quantity at the Convento de San Francisco, Dominican Republic, and thought to be of local (Indian?) manufacture. One large sherd (17 L. 21D 1) is within the range of olive jar paste but a neckless sherd form quite foreign to the olive jar tradition.

Gravel-tempered sherds. A number of coarse earthenware sherds tempered with gravel in the North Devon mode were seen (2L. 26 H2, 2L. 50G2, 2L. 14T4, 2L. 25H3, 2L 31F2, 2L. 21G5). I would classify these as North Devon Gravel-tempered ware (Watkins 1960) and find nothing in the Spanish wares with which I am familiar that is comparable.

MAJOLICA

Moderate amounts of majolica, which seems to be a variant of the types found in Florida and the Caribbean, were seen in the Louisbourg collections. The catalogue numbers are given in the appendix. For purposes of discussion the specimens were given sub-type names although this is not meant to imply that these are in any sense definite types of styles. They are simply sorting types and are used simply to facilitate discussion. In general the sherds identified as Spanish majolica are distinguished from the French faience at Louisbourg by a constellation of traits that constitute a fairly separate consistent set of differences. The most prominent of these is the heavier execution of the designs. Like so much faience, delft, and majolica, the predominant decoration is in blue on a white enamel ground. In the majolica, this blue is painted in thicker lines, less well-drawn, and generally simpler designs. In addition, the enamel ground tends to be somewhat creamy in color, thicker, and perhaps less well-fired than similar faience and delft. In the early Post-Medieval period, Spain, France, Italy, the Netherlands, and England shared a common evolutionary development of ten-enameled earthenwares. Certainly workers, techniques, kiln operations, and designs moved from one country to another. It is unfortunate that we have little material
from kiln waster dumps except in the case of British sites, with a bare beginning of such studies in the Netherlands, France, and Italy. For Spain, Portugal, Northern Africa, and the Spanish New World, I know of only one very limited study of kiln waster material. The simple fact that a particular style is found in Louisbourg, Puebla, Panama la Vieja, or the Dominican Republic does not mean that the material was made there unless we can demonstrate by kiln excavation such an origin. It is nevertheless possible to recognize the types and styles that occur most commonly in particular areas. In the case of Louisbourg, where everything but cod and wood was imported, we can be relatively sure that the bulk of ceramics was also shipped in from outside. Given the prevailing mercantilistic system of the times, it is most logical to assume that the majority of ceramics was imported from the mother country. The common archeological proposition that minority types, especially of present as dominant forms elsewhere, represent trade items seems to pertain in this case. The important question that should concern us is what light these trade types or styles will throw on mercantile relationships between Louisbourg and other areas.

Puebla Blue-on-White, three-dot-variant (plates 1-4). Some 65 sherds or sherd lots of this form were seen in the collections (catalogue numbers are in the appendix). All are wheel-thrown, the majority in the form of plates with fairly horizontal marlies. Paste is creamy white to yellowish-cream, even, with no visible temper. Most large sherds show three linear marks on the underside of the marlies which strongly resemble those made by triangular sagger-nail supports. One has a series of probably five circular trivet marks on the flat base. All are enameled with a medium to thick white enamel, sometimes somewhat pinkish. It is thicker than the bulk of French faience in the collections and tends to have occasional pin-holes, probably from lower kiln temperatures.

The design consists of a border and a central medallion. The border usually consists of two parallel lines, the outer one just on the lip or just within the somewhat curled and thickened lip. Several millimeters toward the center is another, usually lighter blue line. A closely spaced series of circular dots, arranged in pendant triangles (plates 1-3) is just within the inner line. The central medallion has two forms. One is a somewhat incoherent scene in bold brush strokes, enclosed within two or three light blue lines. The design itself is usually made up of both light and deep blue elements (plates 1 and 2). In the case of a barber bowl, the central design incorporates black outlining lines for an incomplete human figure (plate 2). The pendant triangles may be neatly arranged, or somewhat skewed. In a few cases the dots are enclosed in two series between two rim lines rather than pendant from the inner one. The floral centers are a boldly brushed spray of conventional leaves and flower in the center of the plate without framing lines. The flower is a circular unit with petalform edge which may represent either a carnation, or more likely a chrysanthemum. The form, as a whole, does have a slightly "chinoiserie" suggestion, although clearly the relationship is not close. The central floral spray seems to be more common than a scenic motif, although the sample is small.

There seems to be a related bowl form with a strong foot which lacks
Plate 1. Three-dot variant of Puebla Blue-on-White, plate with scenic center medallion. Catalogue # 1B.4147-23.
Plate 2. Three-dot variant of Puebla Blue-on-White, barber basin with scenic center medalion. Catalogue # 1B.201.6.
the three-dot rim but has a central floral spray highly similar to that found on the plates described above. One example has a "chinoiserie" mark in black within the foot ring. In one example of a form which seems to link the three-dot ring motif to the following style each of the three dots making up the marli design is surrounded by a thin black line.

The relationships of the type seem clearly to be to the type defined by Goggin as Puebla Blue-on-White (1968, 190-96). He does not illustrate this particular style but the characteristics of paste, temper, enamel, painting, colors, and layout pretty well conform to the type description. A few similar plates have been observed in collections at the University of Florida from the Convento de San Francisco excavated by Goggin. At least one small bowl from St. Augustine, Florida employs the three-dot motif where it is combined with stylized floral motifs (Fairbanks 1973: fig. 4f). Goggin believed that his type was made in and around Puebla, Mexico beginning about 1700 and continuing virtually to the present. I know of no evidence, however, of any kiln wasters from the Puebla area that would verify such an assumption. Such a widespread type was clearly part of a popular majolica tradition and was certainly made in a number of places in Spain as well as the colonies. The very strong representation of the three-dot rim treatment at Louisbourg and its scarcity in existing Florida or Caribbean collections strongly suggests that the origin of these specimens at Louisbourg is Spain rather than Puebla, Mexico. I would suggest that the three-dot motif was part of the tradition that Goggin has called Puebla Blue-on-White as part of his Puebla Tradition, derived in turn from what he termed the Chinese-Popular Tradition and the Italian Talevera Tradition. This treatment does not seem to help much in evaluation of the collection considered here. I would strongly suggest that this blue-on-white style is Spanish-made and simply shares a number of traits with the Puebla Tradition which was derived from it. There is certainly no evidence that these plates were brought from Mexico.

Dot and Arc Variant of Puebla Blue-on-White (plates 5-6). Some 29 sherds or cross-matched specimens of this style were seen in the collections. The catalogue numbers are seen in the three-dot variant. The blue pigment tends to set above the white enamel due to the thickness of the paint. There are blue flecks occasionally in the white ground and perhaps the apparent whiteness of the background enamel is due to some cobalt in the tin enamel. Some specimens showed a thinner, watery blue. In general the blue pigment was somewhat reticulated, again probably due to the thickness of the paint. In a number of cases the enamel, along with the blue design, is badly frost spalled. In one case (2L. 62Cl) the blue has a slightly greenish tinge.

The only form seen was a plate with poorly defined marli. The foot is a flat, thickened pad, without the usual ring foot of most Spanish plates. This form of foot has been seen occasionally in the Caribbean, but it is far from common. The thick pad is usually eroded from wear.

Decoration consists of a rim border and usually a central medallion. The rim design consists of two parallel lines, the outer one just inside the lip. On or touching the inner line is a series of rather roughly
Plate 5. Dot and arc variant of Puebla Blue-on-White, plate. Catalogue #. 1B.4M33.49.
applied dots. Each of these is partly encircled by an arc of blue. Next inward is an additional row of poorly painted blue dots. There seems to be a tendency for the inner series of dots to be placed between the outer row. The execution is so poor that sometimes the inner dots are opposite the crest of the arcs, sometimes opposite the troughs.

The center medallions are poorly executed, complex geometric and floral combinations. At the center is usually a poorly, heavily drawn floral element which resembles more than anything an artichoke bud with two basil leaves and scattered blue dots filling blank spaces. Around this are two, usually lighter, blue circles. Outside of this central element with its framing lines is a complex border of ovals and alternating asterisks and dots arranged in diamond sets. The whole design, rim and center, is very poorly executed. It gives the overall impression that the painters were copying a master without any understanding of the motif. It is probable, of course, that the decoration was applied by young apprentices. The impression that I get is that this is a cheap ware, perhaps designed for export at very moderate prices. The pad footstring strengthens this assumption as it was certainly more easily produced than a well-turned footstring.

Variations of the central medallion consists of a petalform ring with alternating large dots and arrows (L. 30W2) and a sunburst with encircling dots (L. 62C1). In all, the execution is heavy and poorly drawn.

In all, this variant seems clearly to belong to the Puebla Blue-on-White type. It is, however, the crudest form that I have seen. At Louisbourg it must date from the first half of the eighteenth century; yet it is as crude in form and decoration as the poorest late examples of the type from the late nineteenth and early twentieth centuries.

Puebla Blue-on-White, Floral Variant (plates 7-8). Eleven lots of this style were seen. The paste, form, and other features seem to fall within the Puebla Blue-on-White type although the particular design does not match any specimens of the type seen in the Caribbean. This is a complex scenic design paralleling the more elaborate majolica specimens seen in museum collections. The whole interior of the plate is used to depict a swamp scene with a heron-like bird standing in water at the center. The marli is cut by cord lines dividing it into six segments. Along the cords and at the angle of two cords are stylized water plants or rushes. Stems of the plant are usually light blue with darker blue flowers or foliage. All elements are rather carelessly drawn. The use of a bird is reminiscent of much of the chinoiserie tradition in British as well as Spanish tin enameled decoration. These specimens differ in depicting a heron standing in a swamp rather than the usual bird in flight. I believe these specimens are Spanish in origin on the basis of paste, enamel, and general painting style. They are limited in number and may represent parts of one set.

Ichtucknee Blue-on-White (plate 9). One plate (L. K6G 2) and two bowls (L. 21A2, L. 22C2) were all that were seen of this type. The plate would surely be classified as Ichtucknee Blue-on-White if found in
Florida. The paste is creamy white, fine, and even in texture. The chalky white enamel has a high gloss and contains minute flecks of blue pigment. The blue paint is a clear bright blue well integrated with the white ground. The well-defined marli is divided into a series, probably six, of panels by parallel blue lines with a wavy line between them. The alternate panels have stylized floral sprays and there is a central floral element on the bottom of the plate. In all, these three specimens are close to the type. Goggin (1968: 148-51) places the type early in the seventeenth century, 1615-1650. This is clearly too early for the Louisbourg specimens unless we are to regard them as heirlooms.

Aranama Polychrome (plate 10). Nine lots were classified as this type including one partly reconstructed plate (plate 10, 2L. 61E5). They represent the more elaborate polychrome tradition of Spanish Majolica, although they lack the orange framing lines that Goggin considered diagnostic of the type Aranama Polychrome (1968: 196-98). The most complete specimen is decorated in blue, green, black, yellow, and orange on a somewhat yellowish paste. There are three linear saggar nail scars on the back of the marli. The footstring is strong with the marli well defined. Inside the footstring there is an "A" executed with broad blue brush strokes, and broad blue swatches decorate the underside of the marli.

The execution of the complex design is poorly and hastily done, giving the effect of an elaborate plate, perhaps for display rather than for table use. The marli is divided into eight uneven panels by pale blue lines. Within each division is a stylized floral unit in pale green, dark blue, yellow, orange, and black. The central medallion is bordered by two pairs of double pale blue lines. Within these lines are three dark blue masses that may represent rocks or perhaps one is a cloud. Floral elements like those on the marli panels rise from two of these masses. The core unit has a straight light yellow column and a triangular cone in orange with black accent lines. In one orientation this looks like an orange and yellow mushroom, in another it resembles a volcano in eruption. It is clearly a scene but the sloppy execution makes specific identification difficult.

Goggin's definition (1968: 196-98) views Aranama Polychrome as a late eighteenth century variant of widespread Spanish polychrome styles. He felt that his style was Mexican in origin because it is most common in Mexico and the American Southwest. These Louisbourg examples clearly express that same hasty casual decoration methods as that expressed in Goggin's type. At Louisbourg they must surely fall into the French period before 1758. I doubt that they represent Mexican specimens, as such, but rather Hispanic examples of the same tradition which in Mexico is known as Aranama Polychrome. Again, I feel that the Louisbourg specimens clearly relate to the majolica from the more southern regions, although they show little evidence that they were imported from that area. This lack of precision in definition of the sources is due, in large part, to the lack of adequate archeological materials from Spain and Portugal.

Creamy White Bowls (plates 11-12). Three fragmentary plain white bowls are present (46L. 11.3, cross-mended to 46L. 182). They have the
classic shape of the Chinese footed bowl and are rather strongly potted, thin and pleasing in form. The paste is creamy white with small voids as if some organic material had been burned away. No support marks are visible and it is possible that they were fired in individual saggers. The enamel is creamy, rather dull in appearance and badly spalled, probably from frost action. Both in shape and enamel these bowls do not resemble the type Columbia Plain (Goggin 1968: 117-26). They would fall rather into the large group of plain white forms that occur at most times and most levels in the New World colonial sites. One of the bowls has a monogram in the center of the inner surface of the bowl, "SF" intertwined. The pigment is a deep brown, probably intended for black. Plain white bowls and plates, often with only touches of blue to identify them as Puebla Blue-on-White, frequently have inscriptions or initials in the center. This example, rather crudely done, would certainly fall within the range of these forms. They generally seem to refer to the owner rather than the maker of the plate.

Blue-on-White (plate 13). A partly reconstructed heavy blue-on-white pitcher bears a strong resemblance to Goggin's Santo Domingo Blue-on-White (1968: 131-34). It is catalogued 1B. 4m33.20, cross-mended to M41, M42. The paste is creamy white and the wheel thrown walls are thicker than other sherds in this collection. The shape seems to be the lower third of a small pitcher—there is a trace of the lower attachment of a handle at one side. The heavy pad-foot is not completely covered with the thick white enamel. The design in a dark cobalt blue is not complete enough to describe in any detail but seems to be a somewhat stylized floral band framed at the bottom with a horizontal line. In all particulars this item looks like a pitcher from the Convento de San Francisco, Dominican Republic, illustrated by Goggin (1968: plate 5e). Goggin, however, dates the type from 1550 to 1630. This seems altogether too early for the Louisbourg specimen unless we are to regard it as an heirloom, or to date from casual visits by Basque fishermen before the founding of the town. The distribution of the type in the New World clearly indicates an early form and Spanish origin.

Cuerda Seca Majolica. One sherd of blue-on-white cuerda seca type was seen. In this form, designs were first drawn in wax on the biscuit stage. The subsequent painting or dripping in white enamel would not adhere to this wax, leaving a characteristic appearance to the design, in this case a blue line with dots on the white ground. On the back of the sherd is an unglazed "v". The cuerda seca style occurs more frequently on tiles than on plates as in the present case. It is generally early, sixteenth or seventeenth centuries, but is a technique known to have been practiced into the twentieth century. The Louisbourg sherds are not very spectacular but probably represent a display item rather than a table plate.

Spanish Coins

There were ten Spanish coins in the collections, all of silver and of various dates from 1705 to 1743, all within the reign of Philip V (1700-1746). The earliest (4L. 12G21) is also the only "cob" in the collection. It was made by pouring out a strip of molten silver on a smooth stone slab. When cool, this was cut into segments of about the
right weight. Later, the segments or cobs were further cut or filed to reach the desired weight, in this case for four reales. The faces were struck by positioning the segment on one die, placing the other die on the top and striking with a hammer. As the segments were rarely really flat or round, and the striking blow was unevenly applied, these coins are usually only partly legible. In this case the obverse shows the Pillars of Hercules (Straits of Gibraltar) and part of the crown that surmounts the orb, "PLSVULTRA" "4" and "705" for 1705. The reverse shows only parts of the Jerusalem Cross. This type of coin was minted in large quantities in the mints of Mexico City, Lima, and Potosi. This is probably a Mexico City mint, although no mint or assayer’s marks are visible.

A two reales piece is much more regular and may actually have been struck in a press, although its date of 1717 seems very early (4L. 3C5). A very similar coin dated 1721 may also be from the Mexico City mint, although neither mint or assayer's marks are visible. A larger coin, probably four reales, dated 1723, is quite circular and may have been struck in a Spanish mint from the New World silver (IB. 5A7. 623). Another 1723 coin, perhaps of Mexico City, was originally quite carefully struck in spite of its small, only one-quarter real.

A silver coin of uncertain mint is cut to one-half of a two reales piece (1L7L. 2IF2. 2). This was a common practice to provide smaller units than full coins. Basically the eight reales piece, or piece of eight, was cut into four pieces or bits. Each piece or "two bits" would thus equal two reales and have about the weight of a current U.S. or Canadian quarter. The practice seems to have been more common in the English colonies along the Atlantic seaboard than in Spanish colonies. Perhaps penalties for defacing coinage were severely enforced at home and not in foreign areas. Probably most merchants weighed coins in accepting them and did not take coins at full value. Cut Spanish coinage is fairly common along the Atlantic coast so it is not surprising to find it at Louisbourg. A similar cut half of a two reales piece is dated (17)37 and is likewise of uncertain mint (IB. 5A4.2). Spain’s New World colonies supplied tremendous amounts of silver and gold coinage as well as ingot metals during the colonial period. This circulated very widely, beyond the immediate sphere of Spanish trade. Thus it is not surprising to find Spanish coinage in Louisbourg.

An eight reales coin, probably of Mexico City mint, is dated 1738 and is the largest coin in the collection (IB. 5A7.621). This is one of the famous pieces of eight that have figured so widely in tales of treasure trove, pirates, and the Spanish Maine. A small coin of one real is also probably of Mexico City mint dated 1740 (3L. 2Cl.1). The youngest coin is a two reales dated 1743 and probably from the Mexico City mint (16L. 2IF3. 11). The fact that no coins of Spanish origin date later than 1743 should not be taken as evidence of any diminution in trade after that date. Spanish coinage circulated not only widely but for tremendous periods of time during the colonial periods. Dated hoards often show a range of one hundred years between the mint dates of the earliest and latest coins.

A rather puzzling object resembles a large Portuguese brass coin
dated 1727 with an attached stem, slightly bulbous at the stem. As much as anything else it resembles a modern tobacco pipe tamper. It appears to be cast in one piece and not to be, in fact, a modified coin. Probably a professional numismatist should make a more detailed study of this and the Spanish coins.

CONCLUSIONS

The most obvious conclusion from the examination of these materials is that there is indeed a small quantity of Spanish artifacts at the Fortress of Louisbourg. Olive jars, majolica, and some Spanish coins form a small increment in the extensive excavated collections. I think that it is notable that these Hispanic objects do not seem to form transitional types to the recognized French artifact categories. We are not dealing with the influence, or acculturation, of one culture by another. It seems clear that trade is the source of these foreign artifacts. As I have indicated, the Spanish coins cannot be used as any indication of the trade sources or intensity. Because Spain's New World colonies contributed the great bulk of silver and gold during the eighteenth century, her silver coins were widely distributed. This movement of reales would thus not necessarily indicate direct trade with either Spain or her colonies. The situation is somewhat different when we consider the ceramics which form the bulk of the collections.

Olive jars are in more abundance than is majolica, implying that olive oil, or the other products shipped in them, was more frequently imported than were non-French table wares. The olive jars showed a higher percentage of the top-shaped form than is characteristic of Caribbean sites in the first half of the eighteenth century. This may reflect somewhat different sources of supply than for the southern Spanish colonies. As in other areas, emptied olive jars were evidently reused. The presence of two smoke-blackened examples suggests a secondary use in some form of cooking that has not been seen in the Caribbean. The puzzling discs that seem to fit the mouths of olive jars are a feature not seen so far in Spanish sites. The equivalence in size between these discs and olive jar mouths may simply be a coincidence although they do seem to be of highly similar paste characteristics. In all, the evidence from the olive jars supports the postulate of trade with some Spanish or Portuguese area, probably for olive oil. It does not particularly point to trade with any ports in New Spain, but with the mother country.

The majolica seems to support this view in that the material is clearly related to types found in the Caribbean, Florida, and New Spain. While some of the styles are those which Coggin had suggested were made in Puebla or other Mexican centers, these examples differ enough to suggest that their source is Spain, rather than the New World. The similarities would then be due to sharing, and even to parallel evolution of styles in both Spain and the New World centers. The known presence of Basque fishermen on the Grand Banks during this period would perhaps indicate a northern Spanish source, rather than the central or southern sources represented by parallel styles and types in the Caribbean colonial
areas. The majolica collection as a whole does not look like a Carib­
bean group, although the three-dot variant does occur there in very
small quantities. At Louisbourg it is the most frequent type. There
certainly seems to have been no systematic or continuous trade in
majolica. Perhaps souvenirs by soldiers are sufficient explanation
for the relatively few pieces represented. With one or two exceptions,
the majolica sherds are all of the proper period for the first French
occupation of the site.

In spite of the overt mercantilistic policy of all the colonial
countries, the eighteenth century represents at least some crossing
of national and colonial boundaries by both individuals and products.
In spite of stated policy, the world barriers were beginning to break
down.
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NOËL HUME, IVOR

WATKINS, C. MALCOLM
APPENDIX

Catalogue of Hispanic Artifacts

Olive Jar

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### Majolica

#### Three-dot Variant

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Majolica - continued

Three-dot Variant - continued

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21L1
46L. 1Z10 25C1
16L. 21 H-K-I-M

Dot and Arc Variant

1B. 4M33 1L. 4C5 17L. 22A2 46L. 126 ?
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4M7 16PPQO3 23C2 1Y2
4M33 30W2 9B2 1J1
4L9 2B1 1W3
4K20 2L. 62C1 21A2
4L17 16E5 23C1
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4M2
8E12

Floral Variant

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3B29 25N3
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2L. 5P3 18G2
16B3

Itchtucknee Blue-on-White

2L. 16G2 plate
17L. 21A2 bowl
22C2 Bowl

Aranama Polychrome

2L. 61E5 1B. 4W3 1B. 4X1 1B. 4Y1 2L. 61E5
3L. 62C2 3L. 22C3 46L. 4L2 46L. 4G2

White Bowl

1B. 4K17 1B. 4K23 46L. 1L3 (1B2)

Santo Domingo Blue-on-White 1B. 4M33.20

Cuerda Seca Blue-on-White 1L. 30CC2
The excavation of Fort St. Pierre, a French military outpost in the Lower Mississippi Valley, was conducted in close association with the Lower Mississippi Survey’s work at Haynes Bluff. The project was sponsored by the Mississippi Department of Archives and History and the staff consisted of Robert S. Neitzel and Jeffrey P. Brain, consultant archaeologists, William Wright, historian, and the author as field supervisor.

The remains of Fort St. Pierre are situated upon a bluff overlooking the Yazoo River, about ten miles northeast of Vicksburg, Mississippi (fig. 1). The fort was erected upon the order of Bienville in 1718 and was occupied until December of 1729, at which time it was destroyed by a force of Yazoo Indians. The objective for the summer was to validate the hypothesized location of the fort and to excavate, with a small crew, as much as possible within the remaining time. Our objective was satisfied by the recovery of both structural and artifactual material relating to an early 18th century French military installation.

The value of Fort St. Pierre to historical archaeology is immense. There are at least three contributions which can be made by the continuing work at this site. Firstly, as St. Pierre was occupied for just over a decade, the site will provide a tight temporally controlled assemblage of early eighteenth century artifacts. Secondly, the destruction of the fort, or at least part of it, is believed to have been by conflagration. Had this been the case, an active community frozen in time would provide an ideal situation for the reconstruction of social phenomena. Lastly, examined in conjunction with the various historic aboriginal sites in the region, an excellent arena for the study of French-Indian culture contact and change is provided. Contact between the two cultures appears to have been quite limited in the historical accounts, yet the preponderance of historic aboriginal artifacts at Fort St. Pierre suggests that the relationship may have been much closer. Records tell of the missionary pursuits, but little is known of the economic relationships. To what degree did the Indians depend upon the resources of the French, and conversely, how much of a role did the Indian play in the life of the displaced colonist? These are questions which can and hopefully will be answered by the continuing work at Fort St. Pierre.
Figure 1

Location of the three principal European and aboriginal sites along the Yazoo River
Historical Background

Fort St. Pierre and the various ten to fourteen French concessions established along the Yazoo River were a product of the financial enterprise engineered by John Law in the early 18th century. At this time France was encouraging colonial endeavors and a large proportion of the emigrants found their way to the shores of the Yazoo. In 1718, the year that Fort St. Pierre was erected, eighty-two people were in residence, and by 1720 the census had risen to 390 (Goodspeed 1891:64), a population greater than that enjoyed by New Orleans. The fort itself appears to have been quite a formidable structure. Diron D'Artaguiette described it as being square with four bastions. A moat, six feet wide and three deep, encompassed the palisades. The commandant, officers, and soldiers all resided within the fort and the discipline seems to have been quite strict. According to D'Artaguiette, "It is at this fort where I have seen the best disciplined troops and where the duty is performed with exactitude, thanks to the attention of the commandant" (Mereness 1916:51).

One receives quite a different impression from Father Poisson, who visited the post in 1727. Far from complimentary, he indicated that the artillery consisted of two very small guns and the fort itself was but a shed surrounded by a palisade. Either Poisson and/or D'Artaguiette exaggerated somewhat in their description, or Fort St. Pierre had deteriorated severely in a period of four years. The latter appears to have been primarily the case, and the reason may have been the unhealthy conditions of the Yazoo environment. One commandant considered moving the fort a league upriver where the air was healthier, but he unfortunately died before putting this operation into effect (Ibid). Another cause was undoubtedly the financial disaster suffered by John Law, and the subsequent failure of the colonial enterprise. Monsieur LeBlanc, the leading concession holder along the Yazoo, is reported to have abandoned his interests in that region, totally concentrating his efforts in the Natchez area to the south.

In terms of population, the last four or five years of St. Pierre's occupation thus amounted to very little, compared to its earlier glamor. This fact may provide an even tighter
temporal control of the artifacts. There is reason to believe from the accounts that there may also have been a 'shrinking in' of the fort in terms of its physical dimensions. If this was the case, the potential of the second contribution to be offered by the fort's excavation - ie that the fort may have been destroyed by fire, thus allowing for better reconstruction of social phenomena - will be reduced somewhat.

The destruction of Fort St. Pierre occurred in 1730 when a party of Yazoo Indians entered the fort under the guise of peace and proceeded to massacre its inhabitants. The Chickasaw had raised some panic in the area in 1722, but prior to 1730, there is no record at all of any trouble with the small aboriginal groups along the Yazoo River. The Natchez Indians, who staged a similar massacre in the fall of 1729, may have been responsible for the subsequent events at St. Pierre. Apparently a party of Yazoo Indians had accompanied M. Codère, the commandant of Fort St. Pierre, to Natchez when the Natchez Massacre occurred. These Indians were given presents by the Natchez and were encouraged to follow the example that had been set - the plundering and burning of the French settlements. The only historical evidence concerning the French-Indian relations along the Yazoo refers to this final massacre. It will be up to the archaeology to fill in the gaps in explaining the earlier relationships.

Excavations

The area of Fort St. Pierre which was excavated was situated upon a bluff remnant sandwiched between Highway 3 and the Yazoo River (fig.2). The rest of the bluff had been carved away in the early 20th century in order to build a bridge over the river. Thus, a good portion of the fort was undoubtedly destroyed by this action. The excavated area is believed to have been a part of the northwest bastion.

Prior to excavation, an instrument survey was conducted over the entire site. We first ran a resistivity meter longitudinally and latitudinally at fifteen meter intervals in order to determine if there were any linear subsurface features, such as ditches or walls. The best readings were
The site of Fort St. Pierre was located on top of this strategically-situated bluff remnant.
recorded over what was later discovered to be the palisade trench. Differential proton magnetometers, a transmitter-receiver, and ordinary metal detectors were also employed, the results being extremely worthwhile. The highest concentration of readings were recorded near the intersection of two linear embankments.

Excavation first began upon these embankments. They intersected at approximately a right angle, the western embankment running generally southwest to northeast and the other southeast to northwest. This area is believed to have been a part of the northwestern bastion of the fort, its western wall facing toward the Yazoo River. The height of the western embankment was approximately 1.5 meters, whereas the eastern one had a more gentle slope. A one meter trench through the edge of the western embankment revealed that this was a natural feature which the French had used to their advantage in the construction of the fort.

The stratigraphy which appeared in the trench was generally constant over the site. A reddish-brown clay subsoil was topped by a fine whitish loess, which in turn was capped by a homogeneous cultural layer. The subsoil was closer to the surface moving to either the east or west of this embankment, and the whitish loess was often so thin it could not be detected.

Excavating the area contained between the two embankments, a series of linear log stains was discovered. Thirteen log stains were detected, but this must be considered a minimum number as they were often hard to delineate. A good sweep of the trowel could very easily destroy one of these stains. The logs were quite wide, attaining a maximum width of about .4 meters. The structure formed by these logs was approximately 9 meters long and 2 meters wide. It ran parallel to both the western embankment and the Yazoo River and has been interpreted as the sleepers for a firing platform (pl. 1).

Further excavation below the western embankment revealed a series of small shallow trash pits running parallel to the embankment. It is not certain whether all of these features were indeed trash pits. The remains may have been just garbage thrown over the embankment which settled in the natural contours below. However, some of these features were definitely pits.
occupation of Port St. Peter
A shallow trash pit dating to the

PLATE 2
The particular feature shown in plate 2 is of some interest. It was a heart-shaped trash pit. Its maximum north-south and east-west dimensions were each 1.3 meters and the maximum depth was .15 meters. A circular pit, .2 meters in diameter, had been dug into the bottom of this feature and contained within this were the fragments of a single medium-sized aboriginal jar of the Yazoo variety of Mississippi Plain (Phillips 1970:134,5). Aboriginal pottery of all phases, including the historic, was prevalent throughout the site, but was largely of an incidental nature in the trash deposits situated beneath the embankment, being accounted for by fill. In the above feature, some individual had actually dug a hole in the base of a trash pit dating to the occupation of the fort, and deposited an aboriginal vessel within it. One possibility is that this trash pit predated the fort, but the high percentage of French military artifacts in all of the excavated pits parallel to the embankment argues against this possibility. Another alternative is that some Indians actually lived within the fort. This possibility is not that remote. Slavery and/or intermarriage between Frenchmen and Indian women was a fairly common practice (Le Page du Pratz 1972:18). Had this been the case at St. Pierre, the appearance of aboriginal wares coeval with the fort’s occupation should not be too surprising. At Fort Toulouse Heldman discovered various aboriginal features situated just outside the fort’s perimeter and dating to the French occupation of the fort (Heldman 1973:67). He felt the Indians were at the fort to trade, which fits in with the third possibility for the particular situation observed at St. Pierre, that the garrison employed aboriginal vessels and other implements when their stock of European supplies ran low.

In four of the shallow trash pits adjacent to the pit described above were erosion ditches, rich in artifacts, running away from the embankment toward the river. A deep ditch, the palisade trench, ran parallel to these features, sandwiching them between itself and the embankment. The width of the ditch was approximately 1 meter and its depth averaged between .6 and .8 meters. The fill was composed of mixed loess and reddish-brown clay subsoil, having obviously been filled with the same material dug out of it. Though no well-defined postmolds appeared in this ditch, one (possibly two) vertical shaft, approximately .2 meters wide and filled with loess mottled with flecks of clay, was
discovered. Such a situation could be expected had a post been removed, with erosion filling up the vacant shaft. This explains why the erosion ditches occurred. The removal of the posts occasioned erosion in the trash pits immediately to the east of the ditch.

Continuing our excavations to the west of the palisade trench and towards the river, very little was found in the way of artifacts, with one large exception. A pit containing a good amount of charcoal, some slag, and a thin coating of historic artifacts was discovered about 4 meters from the palisade trench. It was about 4 meters long and 3 meters wide, and has been interpreted as a waste pit for some smithing operations.

A month of excavation thus revealed a linear series of shallow trash pits sandwiched between a palisade trench and an earthen embankment of what was probably the northwest bastion of the fort. Situated on top of the embankment were the sleepers for what is believed to have been a firing platform. Heavy artillery could have been placed upon this structure, its fire easily clearing the palisade line located below.

**Artifacts**

Over 2,000 artifacts were found thus far at St. Pierre, most of which related to earlier aboriginal occupations. The greatest single artifact category was pottery. This shall not be discussed here as most of it did not date to the period of the fort. The historic European artifacts were also numerous. Ceramics, clay tobacco pipes, axes, knives, buttons, buckles, gunflints, and musket parts were all well-represented at the site.

Sixty-five sherds of tin-emaneled, lead-glazed, and unglazed earthenware were found at St. Pierre. Approximately half of the potsherds were French faience. A sample of the decorative motifs is shown in plate 3:1-3. Similar designs have also been found on ceramics from Fort Toulouse (Heldman 1973:fig.61c), on Delftware from Fort Michilimackinac (Miller & Stone 1970:fig.h-f') and Fort Ligonier (Grimm 1970:pl.68:2), and on export porcelain at Fortress Louisbourg (Miller & Stone 1970: Appendix B: fig. 2f).
South (1968) and Noël Hume (1970:fig. 53) also illustrated vessels with designs similar to that shown in plate 3:1.

Lead-glazed earthenware was also found at the site (pl. 3:4-13). The twenty-eight sherds of this artifact category had varying pastes, ranging from cream-colored, to a pale pink, to a smooth-textured orange paste. The first paste was associated with various shades of green lead glazes (pl. 3:4,5). The pale pink paste had green lead glazes both with (pl. 3:6,7) and without (pl. 3:8,9) a white slip between the body and the glaze. The orange paste was associated with yellow-green lead glazes and white slips. One particular variety of this type had a trailed circle-and-dot motif (pl. 3:10) and the other was plain (pl. 3:11). Unglazed earthenware, having a rough sandy-textured orange paste, was also found at the site (pl. 3:12,13), as well as a single sherd of stoneware (pl. 3:14).

Clay tobacco pipes were also a common find at the fort. Eight bowl fragments and eleven stems were recovered, the sample almost totally of Dutch manufacture. Four of the bowls, all of which were highly burnished and oriented at obtuse angles, had stamped initials or decorations upon the heels - 'RB' and 'GB', both with small crowns above; a man holding a gun (?); and a scale balance (?) (Pl. 4:1-4). According to Noël Hume, initials were stamped upon the flat heels of English pipes in the first half of the 17th century, but by the end of the century were being placed on either side of the heel or spur, or on the back or side of the bowl in cartouches (Noël Hume 1970:307). However, Dutch pipes had "...somewhat egg-shaped bowls very often with vertical paring on the sides, thin walls, narrow stems, and generally highly burnished buff surfaces. Maker's marks are stamped on the back of the bowls, on the bases of small heels,* or on either side of spurs, nearly always in diminutive letters or miniscule shields of arms. Equally small pictorial marks were impressed on the bases of small heels, among them a fish, a windmill, a milkmaid carrying two buckets, and a figure whom the Dutch describe as the 'lady of easy virtue' (Tbid:307)." The milled rim, common to two of the bowls (pl. 4:3,4), was also associated with Dutch-manufactured pipes (Walker 1971:76). Similar Dutch pipes have been found at Fort Michilimackinac (Stone 1971:404;fig.43e,h); Fortress Louisbourg (Walker 1971:fig.41);

* Emphasis mine
PLATE 3

Faience (1-3), lead-glazed earthenware (4-11), unglazed earthenware (12-13) and stoneware (14) from Fort St. Pierre
PLATE 4

Dutch clay tobacco pipes from Fort St. Pierre
The circumferentially impressed dot and saw tooth stem design (pl.4:5) was a common Dutch stamp (Stone 1971:406;fig.43j). This design has been detected on three pipe stems at Fort St. Pierre, and they have also been found at Fort Michilimackinac, being dated between 1715 and 1735 (Ibid). Walker discovered identical specimens at Fortress Louisbourg (1971:fig.29 & fig. 40b,d,e); and they have also been reported from the Spanish site of Santa Rosa, Pensacola dating between 1722 and 1751 (Ibid:83). Applying the Binford formula (1962:19,21) to the various pipe stem and bowl bore hole diameters, five of which were 4/64th inches in diameter and eleven 5/64th, a date of 1752.49 was secured. This date is not terribly disconcerting because in Harrington's initial contribution on pipe stem chronology (Harrington 1954), from whence Binford derived his straight-line regression formula, Harrington purposely excluded Dutch pipes from his graphs. These pipes frequently had shorter stems and narrower bore diameters than the English ones from the same period (Walker 1965:61). Thus, the application of Binford's formula upon Dutch pipes should result in a later date than they actually were.

A single axe was found at Fort St. Pierre (pl.5:1). It was constructed in the manner described by Quimby — a strap of iron was twisted into a loop and forged over a wedge-shaped center piece (Quimby 1966:71). Only the blade of this type of axe was discovered at St. Pierre.

Nine knife fragments were also recovered, six of which were clasp knives (pl.5:11-13). At least four of these (and all of those illustrated) were of the 'hawk-billed' shape, similar to Harris' (et al 1965;fig.20b) Type 2 at the Womack Site (1700-1730), and Stone's CI,GI,Tl,Vd knives from Fort Michilimackinac (Stone 1971:497;fig.55i). No names were detected on the Fort St. Pierre specimens. In addition to the above sites, 'hawk-billed' clasp knives have been found at the Gilbert Site, dating between 1700 and 1850 (Jelks et al 1966;fig.21e-g); the Bell Site, dating between 1680 and 1730 (Wittry 1963:35;fig.25I,J,L), the Gros Cap Cemetery Site, dating between 1710 and 1760 (Quimby...
PLATE 5

Axe (1), buckles (2-3), brass (4-8) and iron (9-10) buttons, and knives (11-14) from Fort St. Pierre
1966:132); the Fatherland Site, dating between 1699 and 1730 (Neitzel 1965:50:pl.13w,x,z); and the Guebert Site which dated between 1719 and 1833 (Good 1972:159;fig.37a,b). All of the above sites had date ranges overlapping with Fort St. Pierre's occupation span.

In addition to the clasp knives, a single case knife was discovered in the palisade trench (pl.5:14). It also was without a manufacturer's name. The tang, which had been inserted into a bone or wooden handle, had a rectangular cross-section which gradually tapered moving away from the blade. Similar knives have been discovered at Fort Michilimackinac - CII,SA,T2 (Stone 1971:503;fig.57q,r); at the Gilbert Site (Jelks et al 1966:fig.22f;6); at Childersburg, dating between 1700 and 1825 (DeJarnette & Hansen 1960:48;pl.12:C,3); at the Guebert Site (Good 1972:166;fig.39c); and at Mulberry Mound I (Or9) in Orange County, Florida (Rouse 1951:131;pl.8).

One complete buckle and a fragment of a buckle hook were found at St. Pierre (pl.5:2,3). The complete buckle, about 4.5 cm long, had a central pivot which spanned the length of the frame. According to Noël Hume (1970:86), stock, knee, and hat buckles, unlike shoe buckles, commonly had pivots which spanned the length rather than the width of the frame. The size of this buckle suggests that it might have been a belt or harness buckle (Ibid:fig.20:11). Strangely enough, this buckle type does not seem to have been represented at Fort Michilimackinac (Stone 1971). The buckle hook fragment, originally attached to a hinge bar, served to permanently secure the strap to the buckle. It was missing the prong which temporarily secured the loose strap to the buckle. Too little of the hook remained to classify the buckle type, but it belonged in Stone's C1,SA,Cat.I,Vb-d classification (Stone 1971:225;fig.19f-h,j-k).

Fifteen brass military buttons were recovered in the excavations, all of which were of the same type, differing only in size (pl.54-8). The shape of this button was concavo-convex. It had a wedge-shaped cast attachment handle with a hole drilled through the shank. The face of this button was without decoration except for a stamped ring encircling the edge of some of the specimens. Four circular iron objects were also found which may have served as button backs (pl.5:9-10). Brass buttons of the type described above have a fairly
wide distribution on colonial and historic aboriginal sites. According to René Chartrand (pers. comm.), buttons of this sort only appeared on post-1716 uniforms. They have been discovered at Fort Toulouse (Heldman 1973:148;fig.62D-F); at Site 1Ds53, an Alabama Indian cemetery and town dating to the first quarter of the 18th century (David Chase-pers. comm.); the Womack Site (Harris et al 1965:354;fig.22j); the Fatherland Site (Neitzel 1965:51;pl.14i); the International Paper Site, located a mile to the south of the Fatherland Site (LMS Collections); the Haynes Bluff Site, a historic Tunica Indian settlement situated a few miles to the northeast of Fort St. Pierre (LMS Collections); the Guebert Site (Good 1972:132;pl.7a-b); the Gros Cap Cemetery Site (Quimby 1966:132); and even as far east as the Patawomeke Site in Virginia, dating to the first half of the 17th century (Schmitt 1965:20;pl.3a). With the exception of the last, these buttons seem to have been absent from English-related sites. It was not represented at all on South's button chart compiled from the Brunswick Town excavations, a site having overlapping dates with Fort St. Pierre (Noël Hume 1970:91;fig.23). Nor was this button recorded at Fort Michilimackinac, though 1,302 specimens were recovered there. The prominence of this button type in the Gulf States was probably due to the clothing of the troops by the same private companies in France - Crozat in 1715 and Law's Western Company in 1717. These were independent from the Quebec government (Chartrand 1973:59), from whence Fort Michilimackinac and the more northerly military outposts were receiving supplies.

Strike-a-light flints and gunflints were also fairly common finds at Fort St. Pierre. Seventeen foreign flints were discovered, five of which were spall flints (pl.6:1-5). They were all translucent, ranging in color from light gray, to light gray with a brownish tinge, to dark gray. Two of these flints had been heavily used against fire steels. Seven 'French' blade flints were also recovered, only one of which had been backed and employed as a gunflint (pl.6:14), the rest being used against fire-steels. The other six 'French' blade flints (pl.6:8-13) were double-edged, all but two having triangular cross-sections. Witthoft described these as being primarily designed for the fire-steel (Witthoft 1966:30). Five additional flints were found, three of which were possibly spall flints (pl.6:6,7,16), one probably 'French' (pl.6:15), and the last, exhibiting fine bifacial percussion flaking, most likely aboriginal (pl.6:17).
PLATE 6

Gunflints and strike-a-light flints from
Fort St. Pierre
Three of the above 'French' blade flints had a bulb of percussion on their lower face, indicating that they were the top section of the particular blade removed from the core. Three of the four 'French' blade flints recovered at the Portland Site, a probable Tunica site dating from 1698 to 1706, also exhibited this bulb of percussion (MDAH Collections). According to Jean-Francois Blanchette (pers. comm.), the recovery of 'French' blade flints with bulbs of percussion is fairly common on late 17th and early 18th century sites. He believes that in the early manufacture of 'French' blade flints generally only one flint was produced per blade. This wasteful procedure decreased in the later stages of manufacture.

Also of interest is the cross-section of the 'French' blade flint. At the Josiah Winslow Site (1650-1700) in Massachusetts, the three 'French' blade flints recovered all had trapezoidal cross-sections (PP Collections). At the Chicoutimi Site, located in Saguenay, Quebec and dating prior to 1663, all but one had trapezoidal cross-sections (J-F Blanchette - pers. comm.). The Joseph Howland Site (1675-1725), also in Massachusetts, had six 'French' blade flints, all but one of which were triangular in cross-section (PP Collections). The Portland Site (1698-1706) had five specimens, three of which were trapezoidal. At Port Dauphin (1702-1760), both forms were represented (N. Read Stowe - pers. comm.). The two 'French' blade flints found at the Fatherland Site (1699-1730) had triangular cross-sections (Neitzel 1965:50; pl. 13p-v), and, as mentioned above, all but two of the seven specimens at Port St. Pierre (1719-1729) had triangular cross-sections. It seems that there might have been a transition occurring in the late 17th and early 18th centuries in the technology of 'French' blade flint manufacture, the triangular cross-sectioned form gradually gaining prominence over the trapezoidal. This also would have served to lessen wastage, as the blow was given closer to the edge of the core in the production of triangular cross-sectioned blades. The above hypotheses have to be checked against other sites bearing short occupation spans. Much has been published as to whether flints from sites were Dutch, French, or English, but too little effort has been given to the various attributes involved in the technology of gunflints and strike-a-light flints at the particular sites in question.
Musket parts, including lead balls, were also found at Fort St. Pierre. Nine lead balls were discovered, four of which had been flattened from firing. Four of the remaining balls were of .56 caliber and one was .59. The weight of the .56 caliber balls ranged from 235.4 to 280.2 grains. A similar caliber ratio was computed at Fort Michilimackinac, where 219 of the 294 lead balls were .56 caliber (Good 1972:Table 2).

Also found at St. Pierre were a trigger plate and four trigger guards, three of which were iron (pl.7:6,8) and one brass (pl.7:1). Similar brass trigger guards were represented by guards No. 4, 5, and 6 at the Womack Site (Harris et al 1965:324,5;fig.12E, F), and were also found at the Gilbert Site, as represented by No. 22 and 23. These particular guards were associated with bows which had single-line borders and a formal design in the center resembling the Chevrolet trademark (Jelks 1966:77,81;fig.39b). This design also appeared on two trigger guards from Angola Farm, an early 18th century Tunica site in Louisiana (LSU Collections). Hamilton (1968:7,8;fig.4A) described French trade guns bearing this design and he dated them between 1685 and 1730. The discovery of trade gun parts at a French military outpost was not too shocking, as it was reported that the troops in Louisiana in 1721 "were newly clothed but lacked military muskets and bayonets and were using trade muskets instead (Chartrand 1973:60)."

A flattened upper or intermediate brass rampipe section, 2.5 cm long, was found at St. Pierre. Brass rampipe sections are quite commonly found on historical sites. Similar ones to that found at St. Pierre have been recovered at the Portland Site (MDAH Collections), the Little Osage Site (Chapman 1959:24;fig.15), and Angola Farm (LSU Collections).

A single-notched tumbler, 2.4 cm long from point to point, was also found (pl.7:5). Its shaft was .6 cm square and .7 cm long. An identical double-notched tumbler was discovered at the Gilbert Site (Jelks et al 1966:fig.29b). These tumblers were either from good grade English guns made prior to 1700, or an unbridled form common to lower quality locks made after 1700 (George 1947:103).
PLATE 7

Brass (1) and iron (6,8) trigger guards, rampipe section (2), musket cocks (3-4), tumbler (5), and sear spring (7) from Fort St. Pierre
A single sear spring, broken on its upper leaf, was also discovered (pl.7:7). Its lower leaf measured 2.2 cm in a straight-line distance from the free end of the spring to the outside apex of the bend. A slightly smaller sear spring, having the same shape as the St. Pierre specimen, was found at the Gilbert Site. This type of sear spring was used with a vertical action sear (Jelks 1966:42).

Two musket cocks, both having the typical 18th century gooseneck form, were found at the fort. The first (pl.7:3) was 6.3 cm from its base to the top of its broken comb, and 4.0 cm from the socket base to the lower vise. The comb was wide, flat, and grooved, typical of early 18th century cocks (Hamilton 1960:9). Its base was plano-convex. The second musket cock (pl.7:4) was without a comb. It also measured 4.0 cm from the socket base to the lower vise. The base was flat in cross-section and beveled at the edges. Similar flat-based cocks have been found at the Gilbert Site (Jelks et al. 1966:43; No.2-7,9,10); the Womack Site, where the size (similar to St. Pierre) was thought to be suitable on a fusil class weapon (Harris et al 1965:320); Angola Farm, where it was attached to a curved lock plate dating to the period 1690-1740 (Hamilton 1960: fig.2); and at the Guebert Site (Good 1972:141; fig.30a, d, e). The flat-based cock was usually combined with a flat rather than a plano-convex lock plate (Harris et al 1965:320). This type of cock became popular on French guns between 1700 and 1750, whereas English trade guns had rounded base cocks on round locks from the end of the 17th century to the end of the 19th. Flat-based cocks were typical of late 18th century English guns, but not earlier (Jelks et al 1966: 43,7). It is probable then that both French and English cocks were represented at Fort St. Pierre.

Many other artifacts, of both European and aboriginal derivation, were discovered at the site of St. Pierre. Space unfortunately limits their further description at this time. However, enough artifactual material has been presented to give the reader an appreciation of the scope and value of the collection. In sum, the analysis of the artifacts has revealed what was expected - an early 18th century French military component.
Conclusion

In conclusion, the objective for the summer was satisfied, in that the location of Fort St. Pierre was proven. Not only did local history and known historical accounts point to the area investigated, but the recovery of abundant French colonial artifacts of the early 18th century, many of which were military hardware, and structural evidence support the records.

The three main contributions to historical archaeology which can be expected by the continued excavation of Fort St. Pierre, have been anticipated by the results attained thus far. The tight temporal control of the artifacts is perhaps the most important for securing a foundation for French historical archaeology in North America, and though the assemblage discovered at Fort St. Pierre thus far has not been extremely large, it is relatively pure. Very few artifacts have been found (excluding the earlier aboriginal components) which do not pertain to the fort's occupation. The hopes for the second contribution, of discovering an active community frozen in time, are still very much alive. The time at which the posts in the palisade trench were removed directly relates to this. The removal probably did not occur after 1730, as there is no record of any activity at all, including aboriginal occupation, in this area after the above date. It is possible that the removal could have occurred coeval with the destruction of the fort, but this situation does not seem likely. It is easier to light a match than uproot a log. The removal of the posts at some time prior to 1730 suggests that the fort was diminishing in size, a situation in agreement with the historical record. It also serves to explain the absence of any burning which would have resulted from the hypothesized conflagration of the fort. The immediate area under excavation had probably already been abandoned at the time of the massacre. Hopes still remain high for discovering the part of the fort which was destroyed.

The third contribution to be afforded by the continuing excavation of Fort St. Pierre, concerning the French-Indian relations, is perhaps the most exciting. The preponderance of historic aboriginal artifacts at Fort St. Pierre suggests that the relationship between the two parties may have been much
closer than indicated in the historic accounts. It is possible that the aboriginal phase pre-dated the fort's erection, yet we do not know this for sure. Perhaps the Indians aided in the construction of the fort. Perhaps some even lived within the structure after it was built. The discovery of a historic aboriginal pot in a trash pit dating to the occupation of the fort cannot be disregarded. If the pot was contemporary with the fort, it was either made and used by an Indian, or made for the service of a colonist. Either alternative raises some interesting questions on the nature of the French-Indian interaction. Though the historical record is all but exhausted, the archaeological contributions have only just begun.

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Collections' Abbreviations

LMS - Lower Mississippi Survey - Peabody Museum, Harvard University, Cambridge, Massachusetts.

LSU - Louisiana State University at Baton Rouge.

MDAH - Mississippi Department of Archives and History, Jackson, Mississippi.

PP - Plimoth Plantation, Plymouth, Massachusetts.
It is the purpose of this paper to indicate a potential role for archaeological evidence that has come to my attention through investigation of apparent inconsistencies among different documentary sources and between archaeological and documentary data. The basic focus of concern is to determine if archaeological data can be used to clarify the criteria by which categories of persons were defined in the historic past. In a rough way the paper deals with semantic boundary problems—an interest more usually associated with ethno-science than archaeology. A small-scale example drawn from the pioneer period of Kansas will illustrate the approach.

On the night of July 3, 1862 Arthur I. Baker was murdered in his trading post on the Santa Fe Trail east of Council Grove, Kansas. The Emporia News of July 12, 1862 carried the story.

It will be remembered that some few weeks ago we gave the particulars of the killing of an old man named Anderson by Judge A. I. Baker. Baker had branded Anderson and his two sons, Bill and Jim, as belonging to a band of horse thieves: and for this and perhaps one or two other reasons, which it is not necessary to make public, Anderson sought his life, and was shot by Baker in self-defense. At the same time, a Mexican, one of the band of horse thieves and desperadoes to which the Andersons belonged, was hung by a mob. Bill Anderson was arraigned on the charge preferred by Baker and bailed out. He swore vengeance on Baker and others and left the country. It was supposed at the time and the awful tragedy which we are about to relate proves the supposition to have been true—that they had gone to Missouri to join Quantrill. On Thursday evening, the 3rd of July, at 8 or 9 o'clock, Bill Anderson, Jim Anderson, Lee Griffin (another of the gang which had left), accompanied by two others, one of them supposed to be Quantrill himself, arrived at the residence of Judge Baker, on the Santa Fe Road, when one of their company proceeded to his house and reported himself as a lone traveler, and told Baker he wished to procure some whiskey. Baker went to his store, a short distance from his residence, to get the whiskey, and when in the act of going into the cellar the other four members of the gang rushed in
and discharged several pistols at him, two of them taking effect in his body. Baker reeled upon the steps, drew his revolver and fired into the crowd, hitting Jim Anderson in the thigh, but not seriously wounding him. Baker fell into the cellar in an expiring condition. A young man named Segur, a brother-in-law of Baker's, was present and was shot and thrown into the cellar with him. . . . They then closed the door and piled boxes and barrels upon it, and set them afire. . . . Judge Baker's head, arms and legs were literally burned to ashes. A portion of the body was saved from burning by some object which had fallen upon it during the conflagration. The devils then set fire to the remainder of his property, consisting of a large stone dwelling, several outhouses, a carriage, etc. They also stole two fine horses.

Biographical data concerning the life of Arthur I. Baker have been compiled from newspapers, memoirs and documentary records by Shimeall (1973). Baker came to Kansas in 1848 as a licensed Indian trader prior to the official opening of the territory for non-Indian settlement. When settlement was permitted in 1854, he moved rapidly into politics, land speculation, business, and farming. His house, built illegally on Indian land, was designated the first county seat of Breckenridge (now Lyon) County. In 1861 Baker, a former slave owner and Virginian by birth, became the pro-Union editor of the Council Grove Press. Later in the same year he apparently attempted to join the Confederate forces of General Sterling Price. This latter action, however, may have been an irrational response to the death of his wife. In 1862 relations between Baker and his neighbors, the Andersons, became strained. Baker may have reneged on a promise to marry an Anderson girl in order to marry someone else. He later swore out a warrant for the arrest of William Anderson Jr. on a horse-stealing charge. The dispute was climaxed by a gunfight at Baker's house in which William Anderson Sr. was killed. William Anderson Jr. ("Bloody Bill") and his brother, Jim, then joined Quantrell's raiders and on the night of July 3, 1862 revenged the death of their father.

The 1860 U.S. population census indicates that Baker was moderately wealthy. He is listed as owning $6,000 worth of real estate and $1,000 worth of personal property. Of the 818 individuals recorded as owners of real estate or personal property in Breckenridge County, Baker's holdings rank him in the top 20 in real estate value and the top 77 in personal property.

Though census records provide a numerical measure of Baker's economic status, this measure is not directly translatable into material terms. A partial inventory of Baker's material possessions, however, can be gained from a careful reading of documentary sources, and more importantly, from archaeological research. Baker's house and trading post were excavated during the summers of 1972 and 1973.
Though the trading post appears to have been reoccupied, the house seems to have remained virtually undisturbed since it was burned by the Anderson brothers. This paper will focus on the results of work at the house site.

A vague description of Baker's house can be obtained from accounts of the Baker-Anderson killings (Bailey 1912: 46; O'Dell 1912: 49; VanNatta 1913; 53-56). These accounts indicate that the structure was a two-story stone building with a parlor and kitchen located on the first floor and bedrooms on the second. Excavations seem to confirm this general arrangement (Fig. 1). When excavated, the house proved to be 44 feet long, 18 feet wide, and was divided on the first floor, at least, into three rooms. Flooring, though poorly preserved, appears to have been tongue and groove planking laid on joists. A six-foot wide front doorway opened into a central room that was probably a hallway containing a staircase leading to upstairs rooms. Artifacts found in this room include a hathook, ceramic churn, and a cluster of gun parts by a back, outside doorway.

Artifacts located in the room south of the "hallway" indicate use as a kitchen and dining area. Portions of a stovepipe were found here, as well as cooking utensils, knives, forks, spoons, and pressed glass fragments. Located along the east wall of this room were approximately twenty plates, twenty cups, twenty saucers, twenty cup plates, assorted bowls, serving dishes and platters. These ceramic items were with few exceptions white-glazed white earthenwares. Most were decorated with blue transfer designs. A fireplace and outside doorway were located in the south wall of this room. Again, gun parts were found by the outside door.

The room north of the "hallway" was identical to the south room, except that it lacked an outside doorway. Artifacts from this room, apparently the parlor, include chess pieces, an accordian reed, a musical instrument valve, furniture ornaments, and in the region of the hearth, several daguerrotypes and frames.

Confusing the probable kitchen-hallway-parlor arrangement was the presence of another set of white-glazed white earthenware dishes (mostly undecorated) in the southwest corner of the north room and the northwest corner of the central room. The fact that these dishes were scattered on both sides of a major interior wall suggests that they fell from the upper story, where they may have been stored.

Unfortunately, it was not possible to separate the artifacts of upstairs rooms from downstairs rooms on the basis of stratigraphy. Probable bedroom artifacts, however, were found in the kitchen and parlor areas. These artifacts include a bed screw, razor, toothbrushes, ceramic chamber pots, wash basins, and water pitchers. Also possibly associated with an upstairs room, but discovered in the kitchen area, were the instruments of Baker's land speculating business: a ruling pen, ruler fixtures, pen points, and a pencil lead. A cluster of sewing articles was also located in the kitchen area. Included within this cluster were scissors, thimbles, needles, an embroidery hoop, and a pair of eyeglasses. Buttons, buckles, hooks, eyes, corset...
Figure 1

Plan View of Baker House Site. Flat stone slabs on interior of the foundation are floor sills.
Figure 1

Plan View of Baker House Site. Flat Stone Slabs on Interior of the Foundation are Floor Sills
stays, and other clothing accessories were found in various parts of the house, as were pipe bowls and stem fragments.

Building hardware consisted of ceramic doorknobs, iron spindles, locks, door latches, hinges, cut nails, window glass, and screws. Candlestick holders provide the only evidence of artificial lighting.

The following generalizations can be made concerning the artifact assemblage from the Baker house site:

1. All items were factory produced.
2. No tools for the performance of heavy male tasks were found.
3. A variety of luxury and recreation items were present.

These generalizations do not seem to conform to the rough and ready log cabin and sod hut stereotype so prevalent in American history and folklore. Baker's house, though one of the first pioneer homes of Kansas, seems to possess amenities more usually associated with "settled" "frontier" America.

It has been suggested by the historian Robin Winks (1971) that the American view of the American frontier is a myth drawn largely from the late 19th century ideas of Frederick Jackson Turner. This myth, according to Winks, has functioned as a rationalization for American domestic and foreign policy. Winks mentions, but does not pursue in his discussion of Turner, the contention of Leach (1967) that myth has binary structure. The "Frontier Thesis" of Frederick Jackson Turner does indeed have binary structure. The European and the Indian represent to Turner the binary opposites of civilization and savagery. The frontiersman can be thought of as a mediator in the sense that he is neither entirely European, nor Indian, neither civilized nor savage.

The wilderness masters the colonist. It finds him a European in dress, industries, tools, modes of travel and thought. It takes him from the railroad car and puts him in the birch canoe. It strips off the garments of civilization and arrays him in the hunting shirt and the moccasin. It puts him in the log cabin of the Cherokee and Iroquois and runs an Indian palisade around him. Before long he has gone to planting Indian corn and plowing with a sharp stick; he shouts the war cry and takes the scalp in orthodox Indian fashion. In short, at the frontier the environment is at first too strong for the man. He must accept the conditions which it furnishes, or perish, and so he fits himself into the Indian clearings and follows the Indian trails. Little by little he transforms the wilderness, but the outcome is not the old Europe, not simply the development of Germanic germs... The fact is, that here is a new product that is American (Turner 1894: 81-82).
In "The Significance of the Frontier in American Life" Turner outlines what he feels to be the most important "intellectual traits" of the frontiersman.

That coarseness and strength combined with acuteness and inquisitiveness; that practical, inventive turn of mind, quick to find expedients; that masterful grasp of material things, lacking in the artistic but powerful to effect great ends; that restless, nervous energy; that dominant individualism, working for good and for evil, and withal that buoyancy and exuberance which comes with freedom--these are traits of the frontier, or traits called out elsewhere because of the existence of the frontier (Turner 1894: 111).

As Turner's characterizations of frontier life were abstracted from the writings of early travelers (Turner 1894: 111), it is not surprising to find that early Kansas visitors describe the Kansas frontiersman in remarkably "Turnerian" terms. One early observer was Thomas H. Gladstone, a correspondent for the London Times. He lists (1857: 112-113) the following characteristics as being typical of Kansas "bordermen": "open-heartedness," "hospitalable," "manly," "enterprising," "reckless of danger," "careless of comfort," "full of cool courage" and "capable of being transformed into the worst of ruffians." Perhaps the most important frontier trait, according to Gladstone, is the rejection of comfort.

To draw a true picture of Kansas life it is necessary of course, to place in the foreground the true typical Western frontiersman. Coming originally, whether from the cultivated farms of New England or from the broad plantations of the South, the settler in the West speedily acquires those general characteristics which belong to the border and which mark out the Western man as a species distinct from either Northerner or Southerner ... Placed in circumstances where they have to endure frequent hardships and deprivation, called oftentimes to encounter great danger, and to expose their lives to the most imminent perils, these hardy men become in short time wholly indifferent to all considerations of personal comfort or safety. By a natural transition they are next found deriving pride and pleasure from the life of hardship to which they have become inured, despising the softness of civilization and conventional society, and loving only the proud independence and excitement of a life in which the surmounting of obstacles, the subduing of nature and perpetual hair-breadth escapes, form the chief staple of each day's existence (Gladstone 1857: 106-107).

There are both agreements and inconsistencies between the Turner and Gladstone characterizations of frontiersmen. Both seem to
regard such "rough and ready" characteristics as independence, enterprise and ruggedness and essential. Turner and Gladstone appear to differ, however, in their view of the importance of generosity. According to Turner, the frontiersman is individualistic to the point of being antisocial (1894: 105). The frontiersman of Gladstone, on the other hand, is generous and hospitable. Turner's "pioneer" does not appear to reject comfort in and of itself, but does seem to value independence more than comfort.* Turner and Gladstone, then, have slightly conflicting opinions regarding the semantic boundary of the category of persons they term "frontiersman."

We might ask the question, "According to nineteenth century observers, was the rejection of comfort a necessary attribute of the category of persons called 'frontiersman' or 'pioneer'?" Baker, it would seem, did not glorify hardship. The archaeological record, in fact, indicated that he attempted to create a domestic environment that contrasts sharply with that of the supposedly typical Kansas frontiersman described by Gladstone.

The Western border man... loves his rude cabin with all its apparent discomforts. The wind which enters in gusts through the broad gaping chinks betwixt log and log is to him an agreeable ventilation; wanting this the place would feel close and remind him of the pitiable habitations of "city-raised Down Easters." The filth upon the floor, the smoke which fills the air, the blending of diverse odours arising from the cooking of hog-flesh over the fire and the presence of living hog-flesh in the room, the intermingling of pig and poultry, parent and child, within the same few yards square, the strange decking of sides and roof with household stores and buffalo-skins, rifles, hatchets and powder horns, all these things seem to be elements of charmed life to the true-born Western man (Gladstone 1857: 147).

Could Baker, in spite of his apparent interest in material amenities, have been identified by his contemporaries as a typical frontiersman or pioneer—assuming that these terms are synonyms? Gladstone, presumably, would say "no." Fortunately, an acquaintance of Baker did comment on the subject.

I was well acquainted with Judge Baker, repeatedly enjoyed the hospitalities of his house during the lifetime of his first wife, who was the most estimable lady, and I need not say that I was deeply shocked at his untimely fate. He was

*Turner (1894: 96) seems to equate "pioneer" and "frontiersman." Gladstone does not use the term "pioneer."
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a bold, rough, open-handed, large-hearted man, a warm friend and an open foe; a true type of the pioneers of the border (Bailey 1912: 47).

Bailey's description of Baker "a true type of the pioneers of the border," includes rough, ready, and generous personality traits. The pioneer characterizations of Turner and Gladstone are contrasted with statements and inferences about the character of Arthur Baker in Table 1.

**TABLE 1 - TURNER AND GLADSTONE PIONEER TYPES CONTRASTED WITH ARTHUR I. BAKER**

<table>
<thead>
<tr>
<th></th>
<th>Rough and Ready?</th>
<th>Generous?</th>
<th>Rejects Comfort?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turner</td>
<td>Yes</td>
<td>No</td>
<td>Yes, if interferes with independence</td>
</tr>
<tr>
<td>Gladstone</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Baker</td>
<td>Yes (Bailey 1912: 47)</td>
<td>Yes (Bailey 1912: 47)</td>
<td>No (archaeological record)</td>
</tr>
</tbody>
</table>

Table 1 suggests that for some nineteenth century observers rough and ready personality traits were essential defining attributes of the pioneer. Generosity was, perhaps, a less important characteristic, as was the rejection of comfort.

Though this proposition is in need of much further testing, it can be seen that archaeological data can be of use in generating propositions dealing with semantic boundary type problems. This situation arises because we are, as anthropologists, in a position to compare and contrast different items of documentary and archaeological data; to note consistencies and inconsistencies and to apply anthropological models to the results.
### Bibliography

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CONTRIBUTED PAPERS - INTRODUCTION

The concept of "Contributed Papers" has allowed those not presenting papers at the conferences to still be able to have their papers published by submitting them to me for consideration for publication here. The four papers in this section are an excellent example of the value of this section of the volume.

Iain Walker's detailed presentation of research on Stub-stemmed clay tobacco pipes, Joyce McKay's discussion, Duncan Mathewson's underwater article, and John R. White's study of culture change are all welcomed additions to this volume. It is hoped papers such as these will continue to be submitted for publication here.

Stanley South, Chairman
The Conference on Historic Site Archaeology
In a preliminary overview of the origins of the Bethabara, North Carolina, pipes this writer (Walker 1971a: 27) suggested that the stub-stemmed earthenware pipe originated in Central Europe in response to the needs of English and Dutch mercenaries during the Thirty Years' War, 1618-48, who unable to obtain the white clay pipes to which they were accustomed, had crude earthenware pipes made for them; but subsequently available evidence now suggests another origin for these pipes.

In a study of Polish pipes, Żurowski (1951) points out that there are two distinct types of clay pipes found in Poland: the conventional long-stemmed ballclay pipe, which in Poland appear to be either Dutch imports or copies of them, and the bowl and stub-stem earthenware type. The former pipe is called in Polish fajka, which derives from the German Pfeife, pipe, a term for smoking-pipe represented in closely analogous forms throughout western European languages and presumably originating in the English term pipe; the stub-stemmed earthenware pipe, however, is called a luleka, a word which is derived from the Persian work lule meaning inter alia a tobacco-pipe, in which sense it also appears in Turkish. In view of the extents of the Polish and Turkish empires in the sixteenth century and seventeenth century, when they had hundreds of miles of common border, it would not be surprising to have Turkish influence entering Poland from the south just as the fajka obviously came into Poland from the west through Germany; and it now seems highly likely that the Central European stub-stemmed earthenware pipe derives from Turkish forms (cf examples in Raban 1971: 151-2, 154, 152 illus. upper centre left; also to Brongniart 1844: 190, 191-2, 189 fig. 79, G and F, 1854 ed) – Dunhill (1924: 235, 237-8, figs. 226-9) attributes the similarity in bowl-forms between the Turkish chibouk and on the one hand the typical meerschaum pipe bowl-shape and on the other the typical wooden bowl-forms of Russia, Finland, and Siberia to this same Turkish contact through the Balkans and southern Russia. (According to Cassidy (1895: 22), who is certainly not a scholarly source, a Dr. Vikarius (sic) 200 years earlier had accidentally invented the "jointed pipe-stem" so characteristic of German pipes: presumably this is a reference to a story involving some alleged inventor ca. 1700 of the idea of a separate bowl and stem for a pipe, but the story is unknown to this writer. An even more unreliable source (Bastien 1973: 2nd chapt.), quotes a Dr. Johan Franz Jacob Vicarius (sic) as saying that a manufactory of porcelain pipe-bowls was established at Vienna in 1693, and these two stories may be garbled versions of some original;* but the

*Vicarius is presumably the Dr. Johann Jacob Franz Vicarius (note name order) or Johannes Jacobus Franciscus Vicarius (B 1664, D 1716) who wrote a number of medical treatises in Latin published in Germany at the end of the seventeenth century and beginning of the eighteenth century. According to Gurlt and Wernich's Biographisches Lexikon der hervorragenden Ärzte... (Gurlt and Wernich (eds) 1962 ed: IV, 746). Vicarius was born at Lauf(f)enburg, studied at Freiburg, and was successively Physicus at Waldshut, professor of medicine at the temporary university of Constanz, and professor of medicine at Freiburg. Haller's Bibliotheca medicinae practicae (Haller 1788: IV, 68) notes a work by Vicarius entitled De tubo tabacario orientali in quo per aquam fumus transit, suggesting Vicarius did indeed have an interest in smoking.
latter reference is certainly wrong because porcelain was not invented in Europe until 1708-09 at Meissen - a pipe-bowl was among the first experimental pieces of porcelain exhibited at the Leipzig Easter Fair of 1710 (Honey 1934: 45, 1954 ed; cf Brongers and Van der Poel 1970: 159 quoting E. Zimmermann’s Meissner Porzellan (1929) as saying pipe-bowls were being produced at Meissen as early as 1710). Vienna was in fact the second European porcelain-manufacturing centre, commencing production in 1719 (Honey 1952: 647).)

Unfortunately, very little is known to this writer on Turkish pipes, but as early as 1610 an Englishman referred to the Turks smoking tobacco "through reeds that have joyned unto them great heads of wood to containe it [tobacco]: I doubt not but lately taught them, as brought them by the English:..." (quoted in Laufer 1924: 62), suggesting the English had recently introduced smoking into Turkey and indicating two-piece pipes were in use there from the beginning. Initially, drastic punishment, including execution, was meted out to smokers in Turkey, but from the middle of the seventeenth century prohibitions were relaxed and according to Laufer (1924: 63) "smoking both from the dry pipe and the water-pipe became a general custom". Laufer also quotes (loc. cit.) a traveller in 1675 observing that the finest pipe-heads in Turkey were sold at Luleburgaz in modern European Turkey, again indicating the use of bipartite pipes; and the 1759-65 edition of Savary des Bruslons’s Dictionnaire universel,..., where the entry on pipes is probably basically early eighteenth century in date, says the Turks used pipes three or four feet long with a reed or wooden stem and an earthenware bowl which was removed after smoking [Savary des Bruslons 1759-65 ed: IV, col. 200 (this is repeated in the 1762-64 Dictionnaire domestique portatif,... (Roux et al 1762-64: II, 357)]. The available evidence would suggest therefore, that any time from the early seventeenth century the lulka form of pipe could have been finding its way into Poland. Examination of Central and Eastern European museum collections for both types of pipes is much to be desired, for Żurowski's early article can now be seen to have much wrong or suspect dating of material.

Virtually no study has yet been made of clay tobacco-pipes produced in the United States, but though conventional white ballclay pipes were produced, the characteristic type made was an earthenware pipe, sometimes glazed, made with a bowl and a stub stem, into which latter a reed or similar stem was inserted. This type of pipe was being produced at Bethabara from 1755 in the "Moravian" community there, a community largely of central European origin. The potter who made these pipes and other items, Gottfried Aust was born in 1722 at Heidersdorf (now Łagiewniki), ca. 25 miles SSW of Breslau (now Wrocław) in Silesia, now part of southern Poland (not, as Bivins (1972: 16) says, part of Czechoslovakia), and learnt his trade at the Moravian community of Herrnhut near Zittau in East Germany, where now the boundaries of Germany, Poland, and Czechoslovakia meet, where he was apprenticed in 1743; and as similar pipes were being made in Poland by the end of the seventeenth century and being fired in exactly the same manner known to have been used at Bethabara it seems likely that the Bethabara tradition of pipe derives from the Central-East European tradition described above (the evidence is discussed in Walker 1971a; see also below). Their manufacture at Salem, near Bethabara, continued at the pottery there through the nineteenth century certainly as late as 1882 (Bivins 1972: 111 fig. 46) and no doubt until the pottery closed when the last potter there died in 1902. Journeymen potters continued the tradition, however, producing a pipe known as the Moon Shine pipe (Albright 1958: 24); in 1967 a former colleague of the writer
obtained a non-anthropomorphic bowl apparently of fire- or brickclay in Salem, and anthropomorphic pipes with a turbaned head are still being made from an old Salem mould (Walker 1971a: 28).

Pamplin, Virginia

The earthenware stub-stemmed pipe tradition is quite different from that of the balclay pipes of England and the derived tradition of the rest of Britain, and Low Countries, France, and the Westerwald and Brandenburg areas of Germany (the manufacturing techniques used in these countries are exhaustively discussed in this writer's Ph.D. thesis (Walker 1973: chapt. 2) which it is hoped eventually to publish; for brief accounts of British and Dutch pipemaking meantime see Walker and Walker 1969 and Walker 1971b). The only relatively detailed description of the manufacture of stub-stemmed pipes relates to the Pamplin area of Virginia (Hamilton and Hamilton 1972: 11-12; Apschnikat 1972: 3, figs. 3 and 4; Heite 1970a; Thompson 1969). The Pamplin Smoking Pipe and Manufacturing Company, Inc., claimed at least latterly in its advertising literature to have been founded in 1739 (e.g. Hamilton and Hamilton 1972: 9) - 16 years before the Bethabara industry - but the evidence is fairly clear (Hamilton and Hamilton loc. cit.) that the firm was established immediately prior to 1880 and was in fact a branch of the Akron Smoking Pipe Company of Ohio (see below). The company was dissolved in 1952 after a protracted period a-dying, the firm latterly buying pipes made by local women after the Minimum Wage Law made it impractical to manufacture the pipes at the factory. The factory itself was sold in 1947 (Hamilton and Hamilton op. cit. 11), though at least as late as 1969 part of it, and the derelict 200,000-pipe capacity kiln, still stood (ibid, 11, 28 pl 4 and 29 pl 5).

However, the tradition of making this form of pipe in the Pamplin area apparently goes back far beyond the arrival of the Pamplin Smoking Pipe and Manufacturing Company, and while it may not have been learnt from the local Indians (Thompson 1969: 13; cf advertising material of the firm illustrated in Heite 1971: 196) - Thompson suggests this is "very questionable" - the Hamiltons (p. 4) believe the local tradition that the industry started almost as soon as the first white settlers arrived in the area is correct, and that the industry was well under way by the 1740s. It certainly seems probable that the suitability of the local clay for working would have been quickly realized, though strangely there seems little evidence for items other than pipes ever being produced (though the 1929 charter of the Pamplin Company notes among a varied list of interests the manufacture of "crocke and earthenware" (Hamilton and Hamilton pp. 10-11); and the settlement of the area, as the Hamiltons note (p. 3), was well established by the 1740s. This home industry aspect of the trade continued until 1953, when the last woman maker died at the age of 95, having made 500 pipes in her last year (Hamilton and Hamilton p. 4).

According to the Hamiltons (loc. cit.) the home industry was practically speaking entirely one of white women, but Thompson (1969: 13 and 15) says that negro slaves also produced pipes, recounting a local legend that they had learnt the trade "from an aged white man who lived as a hermit and supported himself by making pipes" and noting that just before the American Civil War, 1861-65, the slaves of "a rich
old indulgent bachelor" were allowed to operate quite a thriving business manufacturing and selling these pipes. After the Civil War, in which so many men had been killed, the trade became especially important among white women.

Interestingly, a fairly crude stub-stemmed pipe with primitive incised stem decoration has recently been found in a rubbish-dump in coastal Virginia with material deposited ca. 1730; it appears to have been made with the aid of metal tools (Heite 1970b). Heite notes this is one of the earliest-known contexts in Virginia for such a pipe, though so far there seems no compelling evidence to indicate the pipe was made by Europeans. Its presence in this context, nevertheless, would indicate a tradition of this pipe type this early. A full report on the context of this find is to be prepared.

The methods used to manufacture these pipes, whether in the home industry or in the more mechanized factory industry, were straightforward enough. The factory used two-piece metal moulds - one dating from the late nineteenth century and early twentieth century is in the Smithsonian (Thomas and Burnett 1972: 10) - and a machine to mould the pipes which had been invented in the mid-1840s by Calvin Merrill of the Merrill Pottery near Akron, Ohio (Blair 1965: 3). Different moulds could be attached to the machine, and it is described as being "foot powered"; but unfortunately, although illustrations of this machine have twice appeared (Heite 1970a: 118; Hamilton and Hamilton 1972: 30 pl 6) and both the Hamiltons (p. 11) and Apschnikat (1972: 2) talk of the machine as being foot-powered, it is not clear just how the machine did work: the Smithsonian describes the machine as having "a single metal block mold that opens to reveal the pipe shape and receive a ball of clay; when closed by a single action, plunger pins from the top and side enter the mold to form the bowl and stem openings" (quoted in Thomas and Burnett 1972: 10). The Smithsonian Institution suggests (Thomas and Burnett loc. cit.; see also below) that the metal moulds were possibly made in an Atlantic Coast factory, but at least some were made locally at Pamplin according to one informant, who claimed a local man "had a shop and made many molds" (quoted in Hamilton and Hamilton 1972: 11). This last, however, may have referred to the firm's later years, when equipment would have become increasingly hard to obtain. Another Smithsonian suggestion, that "Local producers could have built their own apparatuses to hold and operate the block molds" (quoted in Thomas and Burnett loc. cit.) might be true, again particularly for the latter years.

In the home industry, however, no such machine was used, and the moulds were much more makeshift affairs made from a piece of oak split and hollowed out and filled with molten lead to about quarter of an inch from the two openings in the mould for the mouth and the stub-stem. When cold the lead was drilled and reamed into the form of the pipe. The quarter-inch gaps at the top of the bowl and stem were then
CONTRIBUTED PAPERS - Walker

filled with lead and openings carved so that tools to form the hollow bowl and stem could be inserted to the correct depth. The two parts of the mould were attached by an ordinary hinge; they were held together with two wooden pegs which fitted into holes in one half and when closed fitted into holes in the other, and by a hook attached to a screw to one half which fastened over a screw inserted in the other half.

The clay used was a local very fine red clay which was mixed with water and when at the right consistency - a smooth dough - was rolled into pieces "the shape of a rope" and then cut into required lengths, rather as in the present Westerwald industry. In the last years of the factory's operation "some white clay from either West Virginia or Kentucky was shipped in by railroad" (quoted in Hamilton and Hamilton 1972: 3) which produced pipes of a lighter colour, at times light grey to white. The small cylinders of clay were then placed in the mould which was closed, and in the home industry a tool called by Thompson a bowl-reamer was inserted and rotated into the bowl part of the mould. The bowl-reamer was of wood, shaped with a handle narrowing to a collar larger in diameter than the rest of the tool and with a straight or diagonal slot ca. 1/4 inches in width cut in either side of the collar. Below the collar was a symmetrical finger which formed the inside of the pipe bowl. The excess clay was forced by the reamer into the space for moulding the stub (called by Thompson the "shank cavity", which may indicate the stub stem was termed the shank) and also out through the slots in the collar of the bowl-reamer.

With the bowl-reamer still in position the shank-reamer, a similar but smaller tool, was inserted into the shank cavity and rotated, forming the stem bore almost as far as the bowl. This tool was then removed and the mould opened. The bowl-reamer, still in position, was used to lift the pipe from the mould and the mould lines were removed and the pipe generally smoothed with a "hooked-scraper tool". This was a flattened metal rod or a flat piece of metal with a shallow hook at one end, fitted with a wooden handle; in appearance it resembles closely the Dutch and German shankers. The bowl- and shank-reamers, Thompson says, had many different names: the most common was "stick", which is reasonable enough in view of their being made of wood, though one would like to have had the other terms to see whether any connection to the European manufacturing tradition might be postulated. At this point any identifying name - ORIGINAL, GENUINE, FLORENCE, AND HAYITI (see below) are all known from examples - was impressed on the stub stem. These names were also used on the factory-produced pipes, as were POWHATAN, CATLINS, 103, and 117; the last three were raised inscriptions, suggesting they were mould-imparted.

The pipes, still with the bowl-reamer in position, were then either sun-dried on a board in summer or dried in a stove oven in winter. When this was finished the pipes were said to have "set-up". As they dried the reamer became free and was removed, and a piece of wire was pushed through the shank cavity to complete the bore into the bowl. Firing followed. At the factory, this was done in a large circular kiln (Hamilton and Hamilton 1972: 29 pl 5) which had a capacity of 200,000 pipes. The pipes were fired in circular, bottomed, fireclay saggars with holes irregularly placed in the sides and bottom (Hamilton and Hamilton op. cit. 31 pl 7), the firing lasting for 24 to 48 hrs. The fuel used
is not stated. On occasion the pipes were salt-glazed, the salt being thrown through an opening in the top of the kiln. The home industry, however, used a much more primitive method of firing, simply placing the set-up pipes in a cast-iron pot which was covered in split seasoned chestnut wood—used because it would not smoke—which was fired by fine kindling wood. The pot was allowed to cool after it had become cherry-red, and when the pipes had cooled they were coated with beeswax and mutton tallow and then polished with a woollen cloth. Black pipes are known from the home industry: the Hamiltons (1972: 16) suggest these were obtained by allowing burning wood from the fire to fall into the iron pot which acted as the saggar, and undoubtedly something like this—firing the pipes with wood or sawdust in the pot—must have been used.

Stems 5 inches and 10 inches long were made of reed—a native variety of bamboo, Arundinaria gigantea—and at least latterly most came from the Dismal Swamp in southeast Virginia (cf. Caywood 1955: 59), where they were cut in 12-foot lengths by men in boats, left to dry for six months, cut into shorter lengths, and reamed out. They were then tapered to fit the pipe shank and secured with a cork or something similar; some were put in a machine and bent. A high-pressure mill extruded the cork, which was cut off with a wire. In some cases a metal ferrule, apparently of brass, was used to attach the stem (Hamilton and Hamilton 1972: 19), but this may have been to take a more conventional stem similar to that on a briar pipe, for the type of pipe on which this ferrule was found (ibid. 44 pl 20, AA), and also several other types (ibid. 40 pl 16, L, 42 pl 18, S, 45 pl 21, AB, AE; cf Heite 1972a: 211, 212 figs. 7 and 12) do not appear to be suitable for taking a reed stem—indeed, the Hamiltons suggest (p. 19) that two of the pipe styles they illustrate (45 pl 21, AD and AE) may have been conventionally-stemmed clay pipes, though if so, and if Pamplin products, they must have been very rare. In the days when Pamplin pipes were shipped to other parts of the United States and abroad they were packed in barrels in alternating layers of pine-needles (also known as pine-straw and pine-tags), or in sawdust.

An unopened box from the Pamplin factory contained two pipes complete with their reed stems and two spare reed stems, together with a leaflet describing the pipes in rather fanciful terms. In this instance the stems were 10 inches long (Heite 1971). These pipes, which had POWHATAN on the front of the bowl and ORIGINAL on the side of the stub stem, must represent the last Pamplin products. The stems were fitted to the pipes with small cork bands.

Terminology for pipe types is not entirely clear, but one key, apparently not discovered by the Hamiltons, is that earthenware bowls were called "hamburg" and stoneware bowls "shakers" (Heite 1972a: 211). (Whether there is any connection between this latter term and the production of pottery pipes from before 1800 in a Shaker community in Massachusetts (Watkins 1950: 93) is unknown; a 1795 reference to these Massachusetts pipes incidentally notes that the term "stail" was used there for the reed stem which went with the pipes, but no special term for the stem appears to have been recorded so far elsewhere.) According to Thompson (1969: 17), the home industry pipes fell into two categories, the "Zuvee", with a plain, slightly conical, bowl and stub stem; and the "Original", with a plain cylindrical body and an octagonal stem, which came in three sizes—small, medium, and large. In fact, the Pamplin home industry appears to have produced four styles marked ORIGINAL (one of them alternatively marked FLORENCE); and two of these, including the Florence style, were also
produced by the Pamplin factory. In addition to the home industry also produced a type marked GENUINE and another marked HAYITI, which latter the factory also produced,* and the factory produced a type marked POWHATAN. Further, the factory also produced a type marked CATLINS, and two others bearing the numbers 103 and 117 (Hamilton and Hamilton 1972:15).

Specific names used by the factory and recorded by the Hamiltons (passim) were "Akron Hamburg", "Akron Shaker", "Ole Virginny Shaker", "Powow Shaker", "Wigwam Shaker", "Powhatan Original", and "Tomahawk". The term "Akron" is no doubt an allusion to the Company's Ohio origins and possibly represents a bowl-form brought from there; the "Akron Shaker" was produced for a time in later years, at least by 1941, and was similar in form and decoration to the "Akron Hamburg" but made of fireclay, suggesting the difference between Hamburg and Shaker pipes given by Heite is correct and that it is a difference in body, not form. The "Powow Shaker" was similar save for a single small rounded band of beading near the bowl lip to the HAYITI-marked bowl referred to above. The "Powhatan Original" was not the same as that marked POWHATAN referred to above: this last was a version of the firm's novelty pipe, of which their "Tomahawk" was another version, the bowl being in the shape of a tomahawk blade - which naturally reduced its practicality - and in the case of the POWHATAN-marked pipe with a likeness of Washington on the right side surmounted by the name WASHINGTON raised and on the left side a likeness of an Indian in Plains headdress with POWHATAN in raised letters above.

As the Hamiltons indicate (p. 23), it is likely that when the factory arrived in Pamplin immediately before 1880 it adopted the local Original bowl form and also added the term Powhatan to their advertising, probably adding the former term to three other bowl forms subsequently. Thompson (1969: 17) says that the appearance of the mark ORIGINAL on Pamplin pipes was a later addition to pipes of this form, the earlier having been unmarked; the mark had certainly appeared by the 1870's, for bowls marked thus have occurred at Fort Stambaugh, Wyoming, occupied 1870–78 (R. L. Wilson 1971: 49–50, 80 fig. 38), and at Fort Sully, North Dakota, occupied 1866–94 (R. L. Wilson 1971: 50–51, 80 fig. 39,C). At Fort Laramie, Wyoming, occupied 1834–1938, a Pamplin pipe marked POWHATAN on one side and ORIGINAL on the other was found (R. L. Wilson 1961: 125, 124, p1 II,1; 1971: 10–11, 61 fig. 5,C); however, this may be a late example, particularly in view of the late occupation of the site, as this double use of words - albeit with the POWHATAN on the bowl - occurs on the last products of the factory (see above) and in the final years when the factory was selling home-made pipes an identification tag with the heading "This Is An 'Original' Powhatan"

*According to a 1900 pricelist for Scottish-made clay pipes (Anonymous 1900: 29), White's of Glasgow produced two pipe styles called a Large Hayti and a Small Hayti (their numbers 437 and 438 respectively). Unfortunately, no bowl forms are at present known for these types, but it would be interesting to know if they resembled in any way the "Hayiti" forms illustrated by Heite (1972a: 212 Nos. 5 and 6), and the Hamiltons (1972: 42 pl 18,Q) - as noted below, it is said that Pamplin pipes at one time were exported to Britain and Europe.
Pipe" was used (Hamilton and Hamilton 1972: 14, 36 pl 12). However, the term Powhatan, like the term Original, was certainly in use well back into the nineteenth century, for a box of Pamplin-made pipes was found in the wreck of the Bertrand which sank in the Missouri in Nebraska in 1865, the pipes being destined for a firm in Virginia City, Montana, and carrying the identification of their box THE CELEBRATED VIRGINIA POWHATAN (CLAY), J. R. FRANKLIN & CO., SOLE AGENTS FOR THE MANUFACTURERS, PAMPLIN DEPOT, APPOMATTOX COUNTY, VA (quoted in Hamilton and Hamilton p. 5)* - Pamplin, originally called Merriman's Shop, had been renamed Pamplin Depot in 1854, becoming subsequently Pamplin City and finally simply Pamplin. The 95-year old woman noted earlier who made pipes until her death in 1953 claimed that the "Powhatan 'Original', "Hamburg", and "Zuvez" or "Zoo" forms were some of the first pipe forms in the area (Hamilton and Hamilton p. 6); bearing in mind that Hamburg referred to pipes of a certain firing, i.e. stoneware, or at least to a different clay body and not to a specific bowl shape, this claim seems reasonable - presumably the use of the term Original would have become necessary only when a second form, presumably the Zuvee, began to be produced. If so, the Zuvee must have been introduced by the 1870s, for as noted above Original-marked bowls have occurred in an archaeological context of 1870-78. The Hamiltons (p. 3) found 12 different sizes of Powhatan 'Original', suggesting it may have been either the oldest form, or the most popular, or quite possibly both.

(Sprague (1937: 1-2) illustrates a Pamplin-style mould and the two reamers - but not the scraper - and notes that the moulds he had seen were not hinged. His article unfortunately attempts to combine descriptions of American moulds with accounts of pipemaking from seven different nineteenth century encyclopaedia sources, themselves of varying accuracy and based on both British and Continental practices.)

Bethabara, North Carolina

Although the pipe products of Aust and his two sequential successors at Bethabara, Rudolph Christ and Gottlob Krause, have been studied in detail (South 1965: 1967: 35, 49-50), few references have been found on their manufacture. An inventory of 1766 lists Aust with a tobacco pipe press and eight moulds, seven of which appear to be represented in the material found. In 1772, the year after Aust had moved to nearby Salem, an inventory listed him as having three lead moulds and one of brass, suggesting he possibly left four moulds for Christ. The pipe-fragments excavated indicate these moulds were bipartite, and while there are no detailed descriptions of the moulds or presses used at Bethabara, undoubtedly they would have been the same as the nineteenth century and late eighteenth century material recorded by Albright (1958) and Bivins (1972: 98-8, 175 fig. 155) at Salem. Here again, lead or pewter and

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*Petsche (1974: 72) in giving this inscription has POHATAN AND PAMPLINS DEPOT for Powhatan and Pamplin Depot. Both these spellings would appear to be inaccurate, but whether the error lies in Petsche's quotation or in the original inscription is unclear.
brass moulds (the composition of the last varying almost to bronze) were used. The two halves of the mould were fastened to each other with wooden or metal pegs set in one half and aligned to enter holes in the other half. Almost all the moulds described by Albright had brass, bronze, or iron plates screwed or soldered to the bowl rim; two had similar plates on the stem end. Thomas and Burnett (1972: 10-11) describe two moulds from South Carolina which were probably poorer versions of those described above, being made of soapstone and lead or pewter. These moulds came with two wooden handmade plungers to form the bowl and stem openings, and a wooden form was used to hold the two parts of the mould together when in use. The Bethabara moulds were clamped in vices, which could either be an ordinary carpenter's vice or a quite elaborate instrument, the equivalent of the chest and head and handle of the English industry but entirely different in form; they are called by Albright reamer vices, but Bivins, perhaps more accurately, calls them pipe presses - a 1793 inventory of Christ listed one valued at £12. This instrument comprises a block of wood about one foot long and 4 inches by 5 in section surmounted by a wooden or metal frame. In the centre of the block is a niche ca. 2 1/4 inches cube cut out of one top edge to take the mould, which is clamped in position by a threaded crank at the right side of the block. Thumbscrews at the back and on the left side of the block centre the mould under the frame which holds the wooden or metal plunger or reamer which forms the bowl. This is on the end of a T-shaped handle; occasionally, as on the example illustrated in Albright 1958: 20 fig. 4,e and Bivins 1972: 97 fig. 30, the handle shaft was threaded - Bivins dates this example to the late eighteenth century.

A lump of clay was placed in the mould prior to its being put in the vice, the mould having been first greased. The reamer was turned a few times, the excess clay was scraped off the stem end (where presumably it had been forced out by the plunger) and another plunger, called a "peg", of wood or iron and with a wooden handle was inserted to form the stem. The reamers were then withdrawn and the stem bored completed with a wire attached to a wooden handle, and the pipe was removed from the mould and hung on a peg board to dry (cf Bivins 1972: 98 fig. 31).

Of the five presses illustrated by Albright three are described as probably mid-nineteenth century and the two better presses are dated to the eighteenth century. If this is correct then it may be assumed Aust's press was of this latter kind: whether the style was brought from central Europe or not is unknown, but it bears no resemblance to pipe presses used in England; and the Dutch, Germans, and French did not use presses.

An examination of the cross-sections through Aust's pipes (South 1967: 50 fig. 10) suggests he produced them in the above fashion - it appears, for example, that a wire or similar tool of lesser diameter than the bore of the stub stem was used to effect the junction of the stem bore and the bowl after each of the latter had already been formed (the "borer" used by Pollock's of Manchester in Britain for this purpose for their stub-stemmed ball-clay pipes).
The pipes were fired hanging on their bowls from clay pins which were fastened either to the outside of a cylindrical clay saggar or to the inside of cylindrical saggars which had a series of stepped-out shelves (South 1965: 52 illus.; 1967: 49 fig. 9, three illus. on right; Bivins 1972: 103 figs. 38-9). Most of the pipes were unglazed, but about a quarter of those found in the excavation were black-, brown-, green-, mottle-, or clear-glazed (inventory figures for the end of the eighteenth century and the early nineteenth century (Albright 1958: 18) also indicate most pipes made were unglazed).

According to South, the saggar pins were made in two pieces and fitted together, but it seems likely that the "joint" is simply the mould-line from a bipartite mould. The firing of the pipes on pins attached to the outside of a vessel is recorded in the presumptively ancestral Polish material (Świechowska and Dukwicza 1955: 154-55 and pls 17-20). (These Polish pipes were made in bipartite clay or wooden moulds, and a yellow or green glaze was apparently standard. Unlike the Bethabara material, most of which was anthropomorphic, the Polish material was plain, though two examples bore a simple flower.)

Little is known about the actual firing techniques or the type of kiln used, but wood was the fuel used — in 1764 it was noted that Aust particularly liked oak "because it makes few coals and burns almost entirely to ashes" — and the kilns were almost certainly beehive-shaped updraught kilns (Bivins 1972: 86). Being of earthenware, the pipes would undoubtedly have been fired in the same manner and at the same time as normal earthenware products; for special products, such as Aust's creamware and Christ's tin-glazed earthenware and possibly his salt-glazed stoneware, special kilns were built (Bivins 1972: 87-9).

After firing, the pipes were ready to take reed stems. These stems, which were made from reeds found locally along the stream banks, were supplied with the pipes in many cases; but providing them does not appear to have been always the pipemaker's responsibility, an 1806 reference for example noting that a former pottery-worker was engaged in providing reed stems for one of the Philadelphia firms to which the Salem pottery sold their pipes and was wondering "whether any or all of his Stems & reeds were sold" (Bivins 1972: 174).

Albright also describes how the moulds were made. An iron pattern was placed on its side in sand and buried to half its depth. A metal dam was placed around it and the metal poured over it to the necessary thickness. The process was repeated for the other half. Plaster moulds are also known. Albright suggests they were probably not used when large quantities of pipes were needed, for although these moulds were easy and quick to make they could not be used in the press and in any case would wear out quickly. He notes two examples where there were no opening for reaming: these he suggests were used by pressing clay into one half with the thumb and then closing the mould, a relatively slow process which was commonly used at Salem to produce small, fancy pottery bottles. It seems more probable to this writer, however, that these plaster moulds were used as forms to produce the metal blanks necessary in the manufacture of new metal moulds. Certainly,
one would not expect plaster moulds to be used in any process which necessitated vigorous handling such as the use of the reamers; not only would the moulds break in no time but pieces of plaster would flake off, and if mixed with the clay would be disastrous when the pipes were fired. Plaster forms are used at Gouda in the Netherlands to produce the blanks for the new metal moulds.

Akron and Point Pleasant, Ohio

Besides South Carolina and Virginia, a third major area of production of stub-stemmed pipes appears to have been Ohio. Germans from Bucks County, Pennsylvania, where stub-stemmed pipes are known to have been made and which is adjacent to the Moravian settlement of Bethlehem founded in 1741 (Walker 1971a: 29) where Aust actually worked in the pottery for ca. 10 months in 1754-55 before going to Bethlehem (Bivins 1972: 17), settled in Ohio; and it is tempting to suggest that the Ohio industry, which was certainly quite widespread (Blair 1965: passim; Thomas and Burnett 1972; Murphy and Reich 1973), also derived from Moravian traditions. No systematic work has yet been done on Ohio stub-stemmed pipes, but as noted above, the Pamplin Smoking Pipe and Manufacturing Company established at Pamplin, Virginia, immediately before 1880 was a branch of the Akron Smoking Pipe Company of Ohio, suggesting the Pamplin factory method of production outlined earlier would have been that used in Ohio; and Thomas and Burnett’s excavation and research on an 1840s-1880s kiln site at Point Pleasant, ca. 25 miles southeast of Cincinnati in the extreme south of the state, where these pipes had been produced, also give some idea of Ohio manufacturing methods.

At Point Pleasant, the clay was "seasoned" - i.e. macerated - after being procured. Two-piece moulds were used, but none were found on the site. The reminiscences of a local octogenarian suggested they were two-piece iron moulds, two wooden plungers being used to form the bowl and stem openings. According to this informant, two long wooden levers were also used, but how and on what could no longer be remembered. This description, vague though it is, indicates some semi-mechanical device was used, and it is possible it was a machine of the foot-operated type used at Pamplin; like that machine, it evidently took metal moulds. A member of the Smithsonian staff suggested that "block molds were made, perhaps in an Atlantic Coast factory and then supplied to pipe making firms such as the one in Virginia [Pamplin] and possibly [the Point Pleasant site] in Ohio"; but as noted when discussing the Pamplin firm’s production methods at least some of their moulds were made locally, though this could have been a feature of later times, as sources of supplies dried up. The moulded pipes were allowed to dry for a time, then put - evidently in no order, to judge by a saggarful found in the excavations - in large perforated saggars, which were separated from each other by spacers. Illustrations (Thomas and Burnett 1972, 17 fig. 4; Hamilton and Hamilton 1972: 31 pl 7) suggest the Point Pleasant and Pamplin saggars were essentially identical. Four fires, one at each corner (sic) of the kiln, were said to have been used, wood being the principal fuel. When a salt glaze was required salt was shovelled on to the fires towards the end of the firing, although
fly-ash glazing may have been used to fire the pipes found. At Pamplin, as already noted, salt-glazing was effected by throwing in the salt from the top of the kiln; this may represent a different tradition, but effectively the two techniques are the same.

The stub-stemmed pipes found in a refuse-dump at Mogadore on the east-southeastern limits of Akron by Murphy and Reich (1973) are probably products of the Akron Smoking Pipe Company which worked at Mogadore 1885-ca. 1895, succeeding Fenton and Company who were in business 1883-85. By coincidence, the Akron Smoking Pipe Company also had a factory at Point Pleasant which continued in production until 1908; and apart from being the parent of the Pamplin Smoking Pipe and Manufacturing Company they also had another Virginia factory, at Hampton, which suggests the firm was an unusually large one. The Mogadore dump pipes are particularly interesting because the majority have letters or symbols raised on the bottom inside the bowl. If, as Murphy and Reich suggest, these are marks identifying Mogadore-produced pipes, they will provide a most useful means of establishing trade patterns (see below).

Trade

As noted above (also Walker 1971a), the Central-Eastern European tradition of the stub-stemmed earthenware pipe came to North America with the "Moravian" settlers who established themselves at Bethabara, North Carolina, in the early 1750s and there produced this form of pipe for over 100 years, leaving indeed a tradition of their manufacture which is not yet completely dead in that area.

The spread of stub-stemmed earthenware pipes throughout the United States as a distinctively American style of pipe had not yet been studied in any detail, though this writer attempted a preliminary overview (Walker 1971a) in which a spread from a Bethabara origin was tentatively suggested, a suggestion which subsequent evidence (see above) would now alter. It seems at least likely that a presumably indigenous development of the pipe form had occurred among white settlers in the Pamplin area of Virginia before the 1740s, some two decades before Gottfried Aust came from Upper Saxony to settle at Bethabara as the town's potter and pipemaker in 1755. Further, as noted earlier, Aust had worked at the pottery at Bethlehem in Pennsylvania, a Moravian settlement dating from 1741, for ca. 10 months in 1754-55 before going to Bethabara, and while no work has been done on Pennsylvania Moravian pipes, stub-stemmed pipes were definitely being produced in the Pennsylvania Deutch area of Bucks County, immediately southeast of Bethlehem, at one time. Certainly, if the stub-stemmed pipes found at Hanna's Town immediately north of Greensburg in southwest Pennsylvania, 25 miles east-southeast of Pittsburg and almost 250 miles west of Bucks County (Mary L. Fields, "Sifting the Ashes for Hanna's Town", paper presented at the spring 1972 symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state), do belong to the period of that settlement, they must have been available to settlers in that area of Pennsylvania by the last quarter of the eighteenth century, for Hanna's Town was founded in 1773 on a site where there was already a tavern and one or two houses and after 1787,
when Greensburg became the county seat, it gradually became farmland (see also Grimm 1972). Certainly, in the early nineteenth century German settlers from the Bucks County area moved to Ohio where pottery was being made in the Akron area by 1828 and stub-stemmed pipes were being factory-produced by the mid-1840s (Blair 1965: 2-3). Immediately before 1880 an Akron, Ohio, firm, the Akron Smoking Pipe Company (see above) set up a subsidiary in Pamplin and also had another factory in Virginia, at Hampton. Much farther north, in Massachusetts, as noted earlier, a Shaker community was producing this form of pipe by 1795 (Watkins 1950: 93); another Akron firm, H. J. Ayres and Company, advertised on their billheads of the 1870s that they manufactured "Wood, Clay and Enamed Smoking Pipes; Also, All Styles of Shaker Pipes" (Blair 1965: 30 illus.), but no description is given of these last.

From this widespread eastern United States base, stub-stemmed pipes followed the opening of the American Mid-West and West. They are known from Michigan, Indiana, Illinois, Kentucky, Mississippi, Louisiana, Minnesota, Arkansas, North Dakota, South Dakota, Nebraska, Oklahoma, Montana, Idaho, Wyoming, Colorado, New Mexico, Washington state, Oregon, and California; and they were certainly being made last century in Texas. In the East, they have been recorded from New York state, New Jersey, Maryland, Georgia, and Florida; they have also been found at the other end of the continent, in Alaska (for a list of sites see Walker 1971a: 29-31 and refs., to which should be added Quimby 1942; Bullen and Bullen 1945; VanStone 1955; Lenik 1965; 1967; J. P. Wilson 1967; M. L. Wilson 1968; Heite and Batte 1968; Cresthull 1969; R. L. Wilson 1971; Kelso 1971; MacCord 1971; Thomas and Burnett 1972; Michael 1972; Hamilton and Hamilton 1972; Bray 1972; Murphy and Reich 1973; Moore and Stinson 1973; Brose and Essenpreis 1973; Wray 1973; Bartlett 1974; Petsche 1974; Chance and Chance 1974; Murphy 1974; Fairbanks 1974; also Hagerty in litt. 27 January 1969 referring to finds at Fall Brook, Genesee, 27 miles SSW of Rochester, NY New York state (same site as in Wray 1973 above) and at Brewerton, at the west end of Oneida Lake, 13 miles north of Syracuse, upper New York state; Zimmerman in litt. 14 March, 13 September, 5 November, and 25 November 1974 referring to two examples from northern New Jersey bearing the name J. M. WATKINS on the right side of the stub stem*, and Mary L. Fields, "Sifting the Ashes for Hanna's Town" (see above), paper presented at the spring 1972 symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state).

Some of these finds are definitely of Pamplin-made pipes and others probably are (cf Hamilton and Hamilton 1972: passim, esp. pp. 5,

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*It is almost unknown for this class of pipe to carry names, the only other examples known to this writer is one with LEWIS on one side and CASS on the other from Fort Vancouver, Washington state (Caywood 1955: 59) and some manufactured by the Akron Smoking Pipe Company of Ohio (see above) with FINZER on two of the six facets of a stub stem (Murphy 1974: 248).
The extent of Pamplin trade has yet to be examined - last century stub-stemmed pipes spread widely in the United States and occasionally into Canada (see below), but how many were Pamplin-produced has still to be determined - but certainly it was widespread. Apart from the specific instances noted earlier of Pamplin trade to North Dakota, Wyoming, and Montana, and the two sources noted immediately above, an 89-year old Pamplin woman recalls local women trading their pipes for goods at her father's general store and that her father sent the pipes to wholesale houses from where they were shipped to the Cotton States and to the West. Large orders were filled for a tobacco factory in Pennsylvania, where they sold bags of tobacco with the pipes (quoted in Hamilton and Hamilton p. 6).

About 1956-58 this woman and a neighbour dug up some of these pipes from the site of the store basement, sending some to a person in Atlanta, Georgia, who had happened to comment to her that these pipes were now unobtainable (Hamilton and Hamilton p. 7). Further, it is said that at one time these pipes were shipped to Britain and certain countries in Europe (Hamilton and Hamilton p. 10); indeed, according to Apschnikat (1972: 2) the factory "ceased to exist in the early 1940's [sic - as indicated above, it continued, albeit in a moribund state, until 1952] because WW II stopped planned shipments overseas and markets weakened".

Thomas and Burnett in their report on the Point Pleasant kiln-site in extreme southern Ohio (Thomas and Burnett 1972: 12-13 and refs.) have identified probable Point Pleasant pipes widely in the western states (cf also Humphrey 1969: fig. 27 and Thomas and Burnett 1972: 27 fig. 8-h examples PL-4 and PL-5). Two stub-stemmed pipes from Fort Union, New Mexico, illustrated by R. L. Wilson (1966) have been identified as products of the Akron Smoking Pipe Company of Ohio (Murphy 1974: 248) (Murphy also identifies five Fort Union pipes with Point Pleasant types, and notes that at least seven others are closely related to Point Pleasant types - his Point Pleasant site, though identified with the Akron Smoking Pipe Company's site, may however be the same as Thomas and Burnett's site, though he is apparently unaware of the latter's investigation and report).*

Identifiable Bethabara pipes, on the other hand, are rare so far: at one time they certainly formed part of a major trade both to Indians and to white settlers in the eastern United States (South 1965: 49; Divine 1972: 174; Albright 1958: 18) - reed pipe-stems were being sent from Bethabara as far as Philadelphia at the beginning of the

* The two sites are very close to each other but on opposite sides of a creek, and at one time both factories had owners by the name of Peterson (Thomas and Burnett 1973: 7). According to Thomas and Burnett (pp. 6-7) their site was owned by an N. S. Davis prior to the Petersons; according to Murphy (1974: 250) the Akron Smoking Pipe Company site was also owned by an N. S. Davis at this time, which suggests ownership of the sites, if not the sites themselves, has been confused.
nineteenth century, which suggests Bethabara pipes must also have been traded that far - but there are no records of the distribution of these pipes. MacCord (1971: 104) notes a fragment of a possible example from the Lipes site in western Virginia, ca. 23 miles NNE of Roanoke, but otherwise the only occurrences in archaeological contexts known to this writer of what are almost certainly Bethabara pipes is one from the Fall Brook site at Geneseo, upper New York state (Wray 1973: fig. 15-16) and a whole example and fragments of several more from the underwater excavations carried out recently by the Research Division of the National Historic Parks and Sites Branch in Ottawa on a French supply-ship, the Machault, in the Baie des Chaleurs on the Quebec-New Brunswick border in Canada (in Research Division's collections in Ottawa figs. 1-4). The Fall Brook site is dated by Wray to ca. 1750-79, while the Machault was sunk in 1760: if the pipes are indeed Bethabara-made, these dates would indicate they were certainly products of Aust; and their excellent-quality moulding and extreme similarity to the Aust products illustrated by South leave little doubt as to their Bethabara origin. The Fall Brook site pipe can most easily be explained as having come by trade from one of the northern centres to which Bethabara pipes are known to have been traded; those from the Machault raise more intriguing problems, for the ship was en route to Montreal in an attempt to relieve the beleaguered French forces there - pending further research on the ship's cargo and previous ports of call a possible explanation is that the ship or some of its crew had been in a southern American Colonial port.

Certainly, in the years following Aust's arrival in Bethabara in 1755, his pottery was widely traded, including to Charleston, a prominent Colonial port. Further, in 1807 a slaver leaving Charleston for the Congo included in her cargo "1 Box Pipes" (Donnan (ed) 1935: 567): the type of pipe is not stated and certainly a manuscript account of New England legitimate trade with West Africa at the beginning of the nineteenth century lists English and Dutch pipes among the New England trade goods (Brooks 1970: 329, 334), but it is at least possible that pipes shipped from Charleston would have been local American stub-stemmed types rather than conventional European white clay pipes. Parenthetically, it may be noted that the American stub-stemmed pottery pipe might have been particularly acceptable to West Africans, whose own native pipes were stub-stemmed, usually decorated and certainly in the earlier examples painted, and of earthenware (e.g. Shinnie and Ozanne 1962: 99-103, figs. 6-10; Ozanne 1963: 55-7, figs. 1-3; York 1973: 35-43, figs 15-23, and Ozanne and York 1974:199; cf also remark quoted in Brooks 1970: 92 n. 25 that Africans, finding the European pipes too small, made most of their own pipes with extremely large bowls - the manuscript account of New England trade referred to above and dating to the beginning of the nineteenth century lists at one point (Brooks op. cit. 324) "Pipes Common short, with large bowles").

Apart from the Machault pipes almost certainly made by Aust, only six Canadian sites known to this writer have produced stub-stemmed pottery pipes, and these only rarely; and certainly for three of the sites there is sound historical evidence to suggest the pipes reflect contacts from the United States.
As two of the sites - an Hivernant-Métis site of the third quarter of the nineteenth century in the Cypress Hills of extreme southeast Alberta where fragments of two such pipes were recovered (Elliott 1972); and Fort Walsh, 1875–83, also in the Cypress Hills but in extreme southwest Saskatchewan, where the stem of one example and a probable bowl fragment was recovered in the 1973 excavations conducted by the Research Division of the National Historic Parks and Sites Branch - other archaeological evidence also indicated United States contacts and historical data showed the sites had been supplied through Fort Benton, ca. 180 miles SSE in Montana. In fact, both major American trading-companies of the period, I. G. Baker and T. C. Power, established permanent stores at Fort Walsh, for until the trans-continental Canadian Pacific Railway reached the Canadian Prairies supplies for that region from eastern Canada had to be shipped through the United States (for the history of Fort Walsh see McLeod 1969).

At the third site, Lower Fort Garry in Manitoba, a Hudson's Bay Company post 20 miles NE of Winnipeg founded in 1830, where part of a bowl of a stub-stemmed pipe of a type also found at Fort Vancouver, Washington state, another Hudson's Bay post (Caywood 1955: 59, fig. 16 2nd bottom line 2nd example from left labelled "knobby" pipe), was found (in collections of the Research Division, National Historic Parks and Sites Branch, Ottawa), the situation is essentially the same: the route north up the Mississippi and down the Red River of the North from St. Paul in Minnesota offered substantial practical advantages - including a railway from 1878 connecting Winnipeg to the United States - than did any pre-Canadian Pacific Railway alternatives in Canada (for Lower Fort Garry historical background see Miquelon 1970).

At the fourth site, Fort Coteau-du-Lac, Quebec province, on the St. Lawrence ten miles from the Ontario border, a stub-stemmed fragment was found during excavations by the Research Division of the National Historic Parks and Sites Branch in 1965–66. Fort Coteau-du-Lac was founded in 1779 and the military establishment there ended in 1851; the context of the pipe-fragment is unknown, but as the fort was built to defend a canal designed to circumvent the rapids on the St. Lawrence here and as the canal remained the only way of taking goods upriver beyond this point until the Beauharnois Canal was completed in 1845, it is extremely likely the pipe-fragment came from an American traveller on the river; in addition, the Fort itself is only ca. 20 miles from the American border (for brief accounts of the Fort Coteau-du-Lac excavations see Rick 1970; Folan and Ingram 1973).

At the fifth site, the Deadman site ca. 35 miles west of Kamloops in British Columbia, most of an unusual stub-stemmed pipe, glazed and with a grotesque face, was found, and while little other artefact material was recovered from the site a date of ca. 1860 has been suggested by the excavators (Miss L. Robinson in litt. 8 and 20 February 1974): and it is at least possible this pipe also represents
the penetration of American trade north into Canada prior to the completion of the Canadian Pacific Railway in 1885 which tied the country together and allowed Canadian goods to flow west without being shipped through the United States for much of the route.

The sixth site is the Ermatinger House at Sault Ste. Marie, Ontario, on the St. Marys River between Lakes Superior and Huron. The house was built in 1814, replacing the original structure of 1804, and was continuously occupied, apart from a short break in the 1830s, until 1967, when it was purchased by the Sault Ste. Marie Historic Sites Board. Excavations in 1974 produced almost a thousand clay pipe fragments, including two examples of plain stub-stemmed pipes of tan-coloured clay. Sault Ste. Marie is directly across the river from the town of the same name in Michigan, so that the occurrence of a stub-stemmed American pipe at the Ermatinger House should occasion no surprise - C. O. Ermatinger, who built the house, was a trader first for the Northwest Company and later for the Hudson's Bay Company (Reid in litt. 14 October 1974 and in conversation).

CONCLUSIONS

As already noted, this writer's original suggestion as to the ultimate origin of this rather distinctively United States product - that it appeared in Central Europe during the Thirty Years' War, 1618-48, among soldiers-of-fortune forced to make do with primitive substitutes for conventional ballclay pipes - has to be altered in view of subsequently-available Polish evidence. The ultimate origin of this pipe-form must now be seen in the Turkish lule form of pipe, with its separate bowl and stem, which was known in Turkey from the beginning of the seventeenth century and which spread, along with its name, into Poland probably during the first half of the seventeenth century as the lukka, establishing a tradition entirely different to that of the Western European pipe-form of a single-piece long-stemmed pipe, which was also spreading into Poland at this time bringing with it its own term, fajka.

This writer's other suggestion, admittedly tentative, that Gottfried Aust introduced this form of pipe from Central Europe to Bethabara in North Carolina in the third quarter of the eighteenth century and that the excellence of his products there popularized the stub-stemmed pipe to such a degree that it spread throughout the United States in the following 100-150 years, can now be seen as being much too simplistic an idea. There is no doubt that Aust introduced Central European pipe-forms and their distinctive manufacturing techniques to Bethabara - the highly-specialized method of saggar ing the pipes at Bethabara identical to that used in Poland, is proof of this - but the simple diffusionism implied by the original suggestion as to the spread of this pipe-form from Bethabara must now be considered wrong: evidence noted above indicates that Bethabara was not the earliest American production centre for stub-stemmed pipes, that it was indeed not even the earliest centre in America for the production of Central European derived pipe-forms, and that although it was a major centre for the production of this pipe-form at any rate in the later eighteenth
century and earlier nineteenth century the archaeological evidence for this importance is almost non-existent and there certainly does not appear to have been any Bethabara trade to the American West.

If we accept the Hamiltons' conclusions, the earliest-known production area for stub-stemmed earthenware pipes in America is the Pamplin area of Virginia, where the Hamiltons conclude there was local production from before 1740. Despite the solid research done by the Hamiltons, however, very little is known of the pre-factory period of the Pamplin industry, that is pre-ca. 1880: about all that can be said is that there was a major industry there by the mid-nineteenth century, long before the Akron Smoking Pipe Company from Ohio set up the Pamplin Smoking Pipe and Manufacturing Company immediately prior to 1880 and brought in factory production, and that there was an extensive trade with the American West - there is one probable Pamplin pipe from Old Sacramento City in California, occupied 1846-52; and a shipment of Pamplin pipes, their box obligingly marked with a place of origin, shipping agent, and destination (Virginia City, Montana) was recovered from the Bertrand, which sank in the Missouri in Nebraska on route to Montana in 1865, indicating the existence of this trade by the mid-nineteenth century.

What is needed, however, is systematic research into the Virginia clay-pipe industry, both Indian and Colonial, from the sixteenth century onwards. There was certainly a major local industry in Tidewater Virginia in the seventeenth century, both among white settlers and Indians, in the production of single-piece clay pipes in brick-red or yellow or variagated clay generally imitating English forms and ranging from examples mould-made with as much skill as English pipes, with bowls closely following English shapes and presumably made by white settlers, to ones clearly Indian-made with Indian decoration (e.g. Harrington 1951; Steward 1956; Schmitt 1965; Winfree 1967; Peck 1967; Pawson 1969; MacCord 1969; Winfree 1969; Heite 1972b). The English clay tobacco-pipe, and hence the Western European clay pipe form in general, appears to have been derived from a Virginian Indian form towards the end of the sixteenth century, which suggests the one-piece pipe was the standard pre-European pipe form at least in coastal Virginia. Thomas Hariot, one of the settlers in the first English colony in Virginia, that of 1585-86, wrote in 1588 that the colonists adopted the local Indian custom of smoking with clay pipes and that they continued to do so after their return to England (Dickson 1954: 134-35); and although tobacco was certainly being smoked in pipes and indeed was being grown in England before this time, it appears that it was following the return of the Virginia colonists that smoking began to rise rapidly in popularity and pipes began to be produced in England (Oswald 1970: 232 and refs.) - a 1590 illustration (reproduced in Dunhill 1924: 211 fig. 202, 210-11) shows an Indian pipe from Virginia which is certainly extremely similar, save for its large size, to early English pipes (cf. Oswald 1961: 59 types 1 and 2, 56-7). However, Indian two-piece pipes were also being recorded
on the eastern seaboard of North America in the second half of the seventeenth century, for in 1589 it was recorded that Sir John Hawkins, who is generally regarded as the first Englishman to introduce tobacco in any appreciable amounts into England following his return from his second voyage in 1565, had observed Florida Indians smoking two-piece pipes comprising a clay bowl and a reed stem (MacInnes 1926: 27-8).

No formal study of the local Virginia-made seventeenth century pipes has yet been made, but apart from its importance for its own sake and especially its relevance for the study of the acculturation of the Virginian Indian (e.g. Noé Hume 1962; MacCord 1969), a detailed examination of the geographical and chronological extent of these pipes might be of relevance to a study of the origins of the Pamplin-area pipes. In particular, one should remember that it was the suitable local clay in the Pamplin area which invited the local manufacture of pipes and that this clay was presumably known to Indians before the arrival of white settlers, and that Pamplin is 100 miles west of Jamestown and the Tidewater area of Virginia and may have had quite different native traditions.

The fact that these Virginia-made pipes, both those presumably made by English settlers and the whole gamut of Indian varieties, appear to cease ca. 1700 would suggest that the ever-increasing volume of trade-material from Britain was providing standard white ballclay pipes in sufficient quantities to make local production of imitations unnecessary - there is other evidence to suggest that up to ca. 1700 the English American colonies laggard behind England in their level of material culture at any rate in the lower classes (Walker 1972: 149 and refs.). No matter how convenient local clay was for manufacturing clay pipes, however, it must have been difficult to produce pipes with long stems, particularly as the stem-length of English pipes was steadily increasing throughout the seventeenth century - they were averaging 15-16 inches by ca. 1700 (Oswald and James 1955: 188) - and the breakage-rate for stems of locally-made pipes must have increased enormously in Virginia in the later seventeenth century. A tendency to produce a stub-stemmed pipe with a simple, cheap, reed stem may thus have been a natural adaption by a resourceful local maker. This may have been particularly the case in then-frontier areas such as the Pamplin area, well away from the coast and the relatively easy access to comparatively cheap replacements. A major study of Indian pipes in the sixteenth century and seventeenth century and of the Colonial Virginia pipe-industry of the seventeenth century is certainly much to be desired.

However, if the origin of the American stub-stemmed pipe cannot be attributed to one Central European, Gottfried Aust, settling in North Carolina in 1755, that same Central European tradition can still plausibly be claimed as making a major contribution to the development and spread of this pipe form in the United States. Aust, as noted above, spent ca. 10 months in 1754-55 working in the pottery at the Moravian settlement of Bethlehem in SE Pennsylvania before moving to Bethabara, which itself had been founded in 1753 by settlers from
Bethlehem; and while no studies of Bethlehem pottery or pipes are yet available it must be regarded as certain that the Bethlehem pottery, which was founded in 1749 (Foley 1967: 66n.), would have been producing material to all intents and purposes the same as that produced at Bethabara from 1755. It is therefore reasonable to suppose that stub-stemmed pipes were being produced at Bethlehem from ca. 1750. Certainly, as noted above, stub-stemmed pipes have been found in western Pennsylvania at Hanna's Town in a 1770-80s context, while Bucks County Germans from the Bethlehem area - who were certainly using stub-stemmed pipes on the evidence of undated material in the Bucks County Museum at Doylestown (Walker 1971a: 29) - moved to Ohio in the early nineteenth century where a major stub-stemmed pipe-making industry had sprung up in at least two areas, Akron and at Point Pleasant in the extreme south of the state, by the mid-nineteenth century. It is at least plausible that the Ohio industry derives from Moravian-German traditions, in which case the latter may indeed be said to have contributed to the widespread adoption of the stub-stemmed pipe in the United States, for both Akron and Point Pleasant pipes have been either probably or definitely identified at a number of sites in the American sites from at least the mid-nineteenth century - probable examples from Old Sacramento City, California, 1846-52, and from the USS Cairo sunk near Vicksburg, Mississippi, in 1862 attest to widespread trade that early.

Later, in what was perhaps a burst of late speculative monopoly-building, the Akron Smoking Pipe Company set up a subsidiary company at Pamplin immediately before 1880, the Pamplin Smoking Pipe and Manufacturing Company, and had at least two other branches at the turn of the century, one at Hampton, also in Virginia, and the other at Point Pleasant in Ohio.

It is clear, therefore, that while much research remains to be done on the field of stub-stemmed tobacco pipes, particularly at a local level, a fairly reliable overall picture can now be sketched of the American stub-stemmed tradition. There are at least four major production centres, the Pamplin area of Virginia, Bethabara in North Carolina, and two widely-separated locations in Ohio, Akron and Point Pleasant. The Ohio industries may derive from mid- and second half of the eighteenth century German and Moravian industries of south-east Pennsylvania and hence ultimately from the same East-Central European origins as the Bethabara industry certainly had; the Pamplin industry appears to have evolved without any outside stimulus. All four centres appear to have established a widespread trade with their products, but only the Pamplin and the two Ohio industries appear to have traded into the American West. In the last decades of stub-stem pipe manufacture one of the Ohio firms took over much of the Pamplin industry, introducing some of its bowl-types to that area.

The field of research is by no means exhausted, however. The Moravian settlement at Bethlehem was established in 1741 only after an unsuccessful attempt to settle at Savannah, Georgia, in 1735,* the possibility of pipes substantially the same as Aust's products being made in the South-East 20 years before Aust set up at Bethabara

*where in 1736 John and Charles Wesley also went, to be much influenced by the Moravians.
must be considered when discussing finds of stub-stemmed pipes in this area. Further, any manufacturing of this form of pipe as early as 1735 would push the date for such pipes back approximately as early as the presumed earliest Pamplin production. The types produced at Bethlehem itself from the 1740s are at present totally unknown: it is essential that the Bethlehem industry is examined to see how it fitted into the pattern of stub-stemmed Pennsylvania pipes, particularly those in the 1770s-80s context at Hanna's Town, and to see if definite connections can be made with the nineteenth century Ohio stub-stemmed pipe industries.

Again, there can be no doubt but that there were other, lesser, production centres for these pipes in the nineteenth century: at least one manufactory is known in Texas in the second half of the century (Walker 1971a: 34 n.30), and stub-stemmed pipes have occurred often enough in northern New Jersey (Lenik 1965; 1967; Zimmerman in litt. 14 March, 13 September, 5 November, and 25 November 1974) to suggest there may have been a local manufactory there. The available evidence suggests that the makers of these pipes were normally potters, the pipes being a sideline to their more important production, so studies of local potteries - a much-neglected field of North American archaeology - may yield the necessary information on pipe-production. The desirability of a major study of native Virginia pipe-manufacture has already been noted, and it is clear that despite the excellent work of local stub-stemmed pipe-industries by a few individuals - the Hamiltons, Thomas and Burnett, Murphy and Reich - much more needs to be done on the early periods of the industries in the areas these individuals have examined. Documentary research, excavations of kiln-sites, and the very much better examination of nineteenth century archaeological sites than has generally been the rule so far, are urgently required. So too is the systematic examination of all the stub-stemmed pipe material from the numerous sites in the American West with the specific task of identifying as certainly as possible the various sources of this material.

Lastly, on a lighthearted note, one may observe that if indeed Bethabara pipes were being sent to West Africa in the early nineteenth century they would have met pipes which were possibly their extremely distant cousins in the form of the native West African pipes, for one probable source for the introduction of tobacco and smoking into West Africa was Timbuktu and ultimately from across the Sahara from Morocco (Ozanne 1969); and if this is the case it is conceivable that early Turkish pipe forms, presumably bipartite as indicated above, could have been introduced by this route to be the ancestors of the native West African form.
POSTSCRIPT

Since writing this article, I have received through the kindness of Harold Zimmerman of the Friends of the Hermitage Archaeological Work Team (see Bibliography) a stub-stemmed earthenware pipe made in Haiti. The pipe is of a pleasing polished brick-red colour and appears to have been made without the use of a mould; broad smoothing marks suggesting shaping with a blade are visible. The opening through the stub stem has been made by inserting a pointed tool about the size of a large pencil. The bowl opening may have been either scooped out with some tool or fashioned with a plunger type of tool; in any event, it has been relatively roughly finished off by inserting some tool and partly turning it, and the bottom of the bowl opening shows the use of some pointed object. Apart from its polish, the pipe is decorated with two incised lines, one round the mouth of the bowl and the other round the end of the stub stem, and three bands of miniature honeycomb decoration - giving an appearance similar to the surface of a file - one running along each side of the stem and up the bowl and the third running along the bottom of the stem and up the front (i.e. the side away from the smoker) of the bowl. The decoration has been applied with a flat implement pressed on to the pipe surface. There is also an incision across the junction of the stem and bowl.

This pipe is mentioned here partly to note yet another area of the New World where these pipes occur - perhaps in this case with ultimate African origins - but mainly to observe that disappointingly this bowl bears no close resemblance whatsoever to the Pamplin "Hayiti" bowl-form mentioned above, though some historical association between Haiti and the Pamplin products - export models particularly favoured there, perhaps - may yet be discovered.
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FIGURES 1-4

Four views of two probable Gottfried Aust pipes from the wreck of the Machault, a French supply-ship scuttled during the Battle of Restigouche in the Baie des Chaleurs, Quebec province, 1760. The lower examples (figs. 1 and 2), the only complete specimen recovered, is Aust's "anthropomorphic roccoco" form as illustrated by South (1967: 50 fig. 10, 1); the upper examples (figs. 1 and 2), the only other substantially-whole specimen recovered, is almost certainly Aust's "anthropomorphic fluted" form (South fig. 10, 2), though the fluted upper portion of the bowl is missing. Figures 3 and 4 are bottom and front-on views of the same pipes. (Photographs copyright National Historic Parks and Sites Branch, Department of Indian and Northern Affairs, Ottawa, Canada.)
A THEORETICAL APPROACH TO HISTORICAL ARCHAEOLOGY

Joyce McKay

Because of the apparent inability of the discipline to offer new insights into the study of past cultures, some suggestions toward a more unified theory in historical archaeology are outlined in this paper. Historical archaeology relies on its two parent disciplines for its theoretical content. Therefore, it is necessary to define the general aims, similarities, and divergences of history and anthropology to delimit the field of historical archaeology.

Historical archaeology can hardly be viewed as a mature discipline. Because its theoretical underpinnings are far from sound, the discipline lacks a coherent outlook. Instead of being viewed as a bright, young upstart among the more aged disciplines of anthropology, its theoretical thrust has been somewhat sterile. To say the least, its potential has hardly been realized. After defining the broader affiliation of historical archaeology with history and anthropology, the field will be narrowed to a discussion of historical archaeology itself. The limits of the field will be defined, theoretical suggestions included, and some of its potentials recognized.

To discover the theoretical heritage of historical archaeology, it is necessary to define the aims and limitations of the two parent fields and to delimit their common points and differences. Briefly, then, what is the meaning of history?

History must be first distinguished from historiography. History is defined as "past actuality." On the other hand, historiography is an abstraction from past reality. To Taylor, the former designates all that happened, while the latter refers to contemporary thought about that past actuality (Taylor 1967: 29). Although Taylor is not entirely clear, contemporary may refer to the thoughts of the historian of the present. However, it should also denote the thoughts of observers at the time of the action. Then, this paper actually discusses historiography, not history.

Taylor views historiography as:

the discipline characterized by the construction of cultural contexts abstracted from totality of past actuality [and] more specifically, it is projected contemporary thought about past actuality, integrated and synthesized into contexts in terms of cultural man and sequential time (1967: 32).

Then, historiography is an interpretation of the past by the selection of events which have been filtered through the mind of the original recorder. The recorder sets down his thoughts from an infinite group
of facts. The historian selects from these facts, which are actually thoughts about the facts that the recorder has documented (Carr 1961: 11-18). The historian integrates his facts to produce a synthesis or context (Taylor 1967: 30). Although reference has been made to written documents, these facts may come from oral and artifactitious sources as well.

The word fact needs some clarification. The historical fact is not the tangible piece of information it appears to be. A fact represents or symbolizes a plethora of other facts; it is a generalization about them. The fact receives its meaning only in association with these other facts. Hence, in the integration of facts, their context becomes extremely important. Apart from its original associations, facts lose their meaning (Becker 1969: 178-180).

Furthermore, the historian must deal only with a statement of the event which has itself vanished. This statement of historical fact can persist only in the mind. The original source of this fact was the human mind. He somehow recorded an image of the fact which later becomes the possession of the historian.

Then, the historical fact becomes timeless. The actual event has ceased. The historical fact persists in a latent form; the memory, a record, or perhaps the artifact; to be later ascertained by the historian. Then, the fact becomes revived (Becker 1969: 180-184). The... "actual past is gone, and the world of history is an intangible world, recreated imaginatively, and present in our minds" (Becker 1969: 185).

The historian can never reconstruct the past. Although he may be able to verify isolated facts to some extent, he cannot unquestionably discover their original relationships. Hence, the entire past context or actuality of a fact is unknowable. All that can be done is a "construction" of the past (Taylor 1967: 33-34). In other words, because the historian works with an incomplete record of thoughts about contemporary happenings, he can never be totally objective (Carr 1961: 35).

Another factor also enters into this problem of objectivity. The historian's point of view is molded by his society. He may be prone to interpret facts from his own vantage point and not from that of the culture he is studying. Hence, this process of history "is a continuous process of interaction between the historian and his facts, an unending dialogue between the present and the past" (Carr 1961: 43). In this sense, the fact is timeless. The point of view of the historian reflects his place in history. Only when the historian realizes that the individual acts within the context of his own culture, can he transcend the bounds of his own culture and become aware of the differences between his own and past cultures. In this light, past events take on different meanings (Carr 1961: 43-54). The anthropologist position is similar. In line with the maxims of Boas, he must be relativistic and study facts within the context of the culture.
The definition of historiography quoted above is apart of the definition assigned to cultural anthropology. Taylor contends that anthropology goes one step beyond the integration of the data. Like historiography, cultural anthropology sets its problem; collects, analyzes, and criticizes its data; puts the data in sequential order; and synthesizes its facts (Taylor 1967: 35). However, the anthropologist's aim is the "...elucidation of the nature, the processes, and development of culture" (Taylor 1967: 35). It seeks laws: regularities, cultural constants, and processes. Hence, anthropology may be defined as "...the comparative study of the statistics and dynamics of culture, its formal, functional, and developmental aspects" (Taylor 1967: 37). When historians deal with cultural regularities, then they become anthropologists. Historians use their study of culture in the explanation of unique events; the anthropologists utilize unique events to make general statements about culture (Taylor 1967: 39-40).

Some historians might disagree. History may be viewed as the study of general social forces, not unique events. History dissects the general from particulars (Carr 1961: 59). Statements of fact themselves generalize. Searching for regularities, history may be placed in the same category as anthropology.

In general, Processual Archaeologists should agree with this aim of history. Process might be simply defined as the workings or operation of culture. Since culture is a dynamic entity, this definition recognizes the usual emphasis upon culture change in a consideration process.

The "New Archaeologist" might define process from a systemic point of view: "...the dynamic relationships (cause and effects) operative among sociocultural systems,...those processes responsible for changes observed in the organizations and/or content of the systems" (Binford 1972: 87). Although differently conceptualized, the Processual Archaeologists basically agree with the aims of the historian.

However, they do not agree upon exactly what methods should be employed. Taylor, for example, advocated his conjunctive approach to get at cultural process. The archaeologist must make a detailed study of the inter-relationships of artifacts and other material remains at one site, only later considering comparisons among sites (1967: 5). Taylor's basic unit, although ambiguous, appears to be the site. Binford enlarged upon this idea and attempted to perceive the site as a structured entity. Culture becomes a system composed of inter-related subsystems, continuously changing and modifying one another (1972: 87). Hence, the difference between the two lies not in their aim to study cultural processes, but in their view of culture.

Then, Binford does agree with the careful contextual analysis of a culture for artifact interpretation. Here, Binford refers to the fact that all artifacts in archaeology have sociocultural referrents.
He states that the undifferentiated and unstructured view of artifacts is inadequate, that artifacts having their primary context in different operational subsystems of the total cultural system exhibit differences and similarities differently in terms of the structure of the cultural system of which they are a part (1972: 21-22).

Though the study of the spatial and temporal relationships of the material remains, it is possible to derive something of the nature and dynamics of the sociocultural systems (Binford 1972: 21-22).

Thus, their basic divergence is the definition of culture. For Taylor, artifacts refer back to the mental construct held in the human mind. For Binford, artifacts refer back to the subsystems which compose culture. Then, to Binford, culture is an adaptive system (1972: 198), while to Taylor, it is a mental construct, an idea, not material objects or behavior. However, both definitions were developed to discover cultural process.

Binford and many Processual Archaeologists separate themselves from Taylor, as well as historians, in a second way. Binford complained that historical explanations advanced by the so called "traditional" archaeologists did nothing to explain processes of culture (1972: 22). The aim of anthropology afterall was to explicate and explain the total range of physical and cultural similarities and differences characteristic of the entire spatial-temporal span of man's existence (1972: 21).

Binford called for a more scientific approach, a method where explanation could be tested and proven. He proposed a scientific procedure by which "...the accuracy of our knowledge can be measured..." This "yardstick" was hypothesis testing (1972: 90). Hence, the second difference is a deductive rather than a wholly inductive approach. Whether or not such an approach is tenable for archaeology, Binford did make clear that the historical generalizations which explain phenomena tend to remain implicit. In a cause and effect sequence, "connective propositions" are rarely stated (Binford 1972: 116). This realization is perhaps the greatest contribution New Archaeology has made. Historians as well as archaeologists must be explicit about the assumptions they make.

One historian, R. G. Collingwood, has offered certain valid and sobering arguments which deny the archaeologist not only the very ability to formulate regularities, but to construct the culture of past peoples. Collingwood defines away the very reason for the discipline. However, he more clearly explicates view points which are shared by some archaeologists and often left inarticulate.
Collingwood states that the aim of history is human self knowledge, the apprehension of man's nature. History aids in this quest because it informs man of what he can do by revealing what he has done (Collingwood 1956: 10). Although the rational does not precisely fit anthropological thinking, the general goal is identical. The nature of history is not the sequence of events, but the processes of thought.

The past is not a fact to be empirically known. The past may be only known indirectly. Historical knowledge may only be gained by rethinking the past. During this process, the historian must visualize the original context, re-enact the processes of thought from reasons for the act to the end decision (1956: 282-283).

However, the gap of the time must be "bridged" at both ends (1956: 293). The fact or event of the past cannot be revived by itself. Someone had to compile thoughts about these thoughts. But historical knowledge is limited further to "...thought, not things thought about but the act of thinking itself" (Collingwood 1956: 305).

Hence, "...all history is the history of thought" (Collingwood 1956: 215). It does not involve material objects or behavior, but ideas. Similarly, archaeology is engaged in the exploration of culture, a mental construct, rather than a simple analysis of the artifact (Taylor 1967: 98). Like historiography, it attempts to bridge the gap between present and past thought. Also, thought is timeless. By being apprehended and rethought by the historian, it becomes a part of the living present and "...a permanent addition to human knowledge" (Collingwood 1956: 218, 226). Likewise, Taylor has observed the fleeting quality of material objects and human behavior and the tenacity of ideas (Taylor 1967: 99-100).

Despite mutual emphasis on the nature of man and his thought, Collingwood's methodology to achieve those ends diverges widely from archaeology. Studies from historic fact can make no definite generalizations beyond the period of their existence. Hence, facts from other periods would have no bearing (Collingwood 1956: 222-223).

To regard such a positive mental science arising above the sphere of history, and establishing the permanent and unchanging laws of human nature, is therefore possible only to the person who mistakes the transient conditions of a certain historical age for permanent conditions of life (Collingwood 1956: 274).

The historian cannot establish regularities. Thus, Collingwood denies the aim of processual archaeologists.

Because of its inability to discover ideas of the past, archaeology cannot construct past cultures. Collingwood makes it very clear that history, consisting of thought, may be derived only inferentially
Similarly, archaeology must infer culture or mental constructs from its physical manifestations. How then can the past be known? It must be rethought. Although thought functions only within a context, it may be revived in a new context without losing its identity. However, the new context must be as appropriate as the old. Hence, the thought must parallel experience sufficiently close to the background of the historian so that it may be comprehended. Then, although in a different context, the thought must appear in the context of the historian's mind with the same premise, processes of argument, and conclusions. To transmit such thought through time, the historian's mind must be "pre-adapted" by having sympathy with the thought and by following certain ways of thinking. For the thought to be historical, it must be an act not only of thought but of reflective thought, that is, one which is performed in the consciousness that it is being performed (Collingwood 1956:308).

Hence, the action must be a purposeful effort, something that has been considered ahead of time. This stricture limits historical inquiry to such reflective fields as politics, warfare, and economic activity (Collingwood 1956: 300-309).

If the historian must apprehend history as conscious and reflective thought, then it must be written or revealed orally. Archaeology infers thought or mental constructs of culture only through the material record. According to Collingwood, archaeology cannot practice history. And because the two disciplines deal with similar subject matter, past thought, Collingwood in a sense denies archaeology itself. It appears that man can only know the past as oral or written thought which generally excludes the more mundane affairs of life. Such circumspection on Collingwood's part reveals the tenuous hold archaeology does have on the past. But, then, Collingwood desired to know the past. The archaeologist, as Taylor points out, can only construct the past. Reality may only be approximated.

Finally, how similar are history and anthropology? Levi-Strauss offers some insights. He contends that the difference is only one of perspective, not method or goal. They share the same subjects, social life; similar aims, and understanding of man; and a similar procedure, the study of testimony (Levi-Strauss 1963: 18). Thus, as Edmund Leach explains, the diachronic study of history and the synchronic and cross-cultural study of anthropology aim toward the same end, the study of the unconscious mind. Levi-Strauss is able to use both history and anthropology because the structure of primitive thought is present in the modern mind (Leach 1970: 8-9). Thus, Levi-Strauss states

If, as we believe to be the case, the unconscious activity of the mind consists in imposing forms upon content, and if these forms are fundamentally the same for all kinds—ancient and modern, primitive and civilized—it is necessary and sufficient to grasp the unconscious structure underlying each
institution and each custom in order to obtain a principle of interpretation valid for other institutions and other customs (1963: 21).

Then, how is this unconscious structure which imposes universal forms on content of the mind to be perceived? Here, the anthropological and historical methods complement one another. While history places emphasis upon the study of the conscious or the surface structure, anthropology concentrates upon the elucidation of the unconscious or the deep structure. "History organizes its data in relation to conscious expression of social life, while anthropology proceeds by examining its conscious foundation" (Levi-Strauss 1963: 18). The written word, which history emphasizes, is nothing more than conscious rationalization reflecting many times removed an underlying, unconscious structure. In other words, many surface manifestations may be alternatives to far fewer meanings. Here, Levi-Strauss is drawing upon transformational grammar quite extensively. These secondary elaborations upon the unconscious structure also plague the anthropologist. In both cases, the basic, unconscious framework is obscured (Levi-Strauss 1963: 18-20). The historian, as the anthropologist, must grapple with these ideas behind the documents with the unconscious.

Further, the historian and anthropologist struggle toward a similar goal, generalizing or the discovery of some sort of regularity. For Levi-Strauss, the elucidation of a basic structure of the mind is thus generalization. Then, a parallel may be drawn with the aims of the historian: "The transition from conscious to unconscious is associated with progression from the specific toward the general" (Levi-Strauss 1963: 20-21).

History is necessary to anthropology. Because it studies societies in their change, history is able to apprehend the variations upon a basic structure or secondary elaborations. Only history can abstract from these variations that which is constant, since it provides the anthropologist with the perspective of time. Thus, the reason the anthropologist studies the historical record as closely as he does is to "...eliminate by a kind of backward course, all they [the historical evidence] owe to historical process and to conscious thought" (Levi-Strauss 1963: 23).

Although the historian is cognizant of unconscious structures, his primary emphasis is to explain social phenomena in the context of original events and conscious expression of them by individuals. But, to explain them, he must deal with "...the whole range of unconscious elaborations." Hence, while the anthropologist goes from the conscious to the unconscious, the historian goes from the explicit to the implicit. Then, the anthropologist's orientation is toward the unconscious and general, while the historian's is toward the conscious and specific (Levi-Strauss 1963: 23-24).
In somewhat more practical terms, what does Levi-Strauss offer the historian–anthropologist? Leach has noted that although Levi-Strauss never denies diachronic underlying structures, he fails to apply his analysis to the past (Leach 1970: 9). In *Structural Anthropology*, Levi-Strauss confesses that analytical techniques are not yet sophisticated enough to deal with diachronic structures (Levi-Strauss 1963: 21). However, he makes it clear that the historian and anthropologist must deal with human thought on levels removed from the unconscious structure. That is, the events or thoughts which they study do conform to some underlying regularities. However, they now must be content with a kind of half-way-house. Then, Levi-Strauss does not leave the historian to deal solely with the particular. He can remove his view to a "richer perspective" (Levi-Strauss 1963: 24). Thus, Levi-Strauss, unlike Collingwood, concludes that the historian does have the ability to generalize. Also, the archaeologist may look for the mental construct behind his material evidence. But, these cultural elaborations do not constitute the underlying structure. This task is as yet left to the ethnographer.

Binford states that the archaeologist as an anthropologist brings to his data some sort of explicit model. He must be aware of his own cognitive map. Similarly, the historian must recognize his own view of man's situation (Binford 1972: 244–246). While the archaeologist as anthropologist attempts to make his assumptions explicit in some formal terms, the historian does not. His assumptions remain implicit. Hence, the divergence of anthropology and history resolves to a matter of orientation, a way of thinking. Each could enter the other's territory.

What is the breed of the archaeologist, anthropologist or historian? He may be viewed as neither and as both. The archaeologist is a technician with the job of procuring and processing the archaeological record. He is both because he may draw upon the theory of either to interpret his findings (Taylor 1967: 41–42). Perhaps he should be seen as a technician, anthropologist, and historian.

His ability as a technician depends on the point of view he takes. The procedure of archaeology draws upon the theory of history and anthropology. How he excavates is guided by the theory he applies. For example, artifacts represent and relate back to the sociocultural system. Excavation and the study of the archaeological context of the artifacts proceed upon this supposition. To draw necessary distinctions, he employs an etic model, a structure based upon models developed by contemporary anthropologists in the field. Like the historian, the archaeologist must realize that the specific model held by the culture with which he is dealing differs from his own. Because of cultural change, these models will not necessarily fit the structure of past societies. The archaeologist may have to modify and adjust or completely change these models in their study of past societies. In so doing, the archaeologist may eventually develop an overall model of cultural dynamics.
Then, what sort of model might the archaeologist hold? That is, how can we get at the thoughts of the past upon which the study of history is based. As the historian-archaeologist infers thoughts from documents and oral sources, he should by some circum-locations attempt to infer thoughts represented by the configuration of artifacts.

However, the maker of these artifacts probably does not hold a distinctive model of the artifact in his mind. Rather, he carries impressions of the social standards which are then modified to suit his immediate needs and desires. Man is not a robot. He has a generalized model with certain defined limitations upon which he can make some variations. Hence, it is the duty of the archaeologist to sort these variations from the general themes. Behind these themes, he may find significant regularities.

If the archaeologist is at once an historian and an anthropologist, then what is the historical archaeologist? Certainly, from Collingwood’s perspective he is an archaeologist with an extra advantage. The theory of historical archaeology will depend upon the theory of history and anthropology, which, after all, are very close. A broad definition of historical archaeology would include the study of cultures anywhere which are historically known through supplementary documentation such as written records, oral tradition, and the like. The time span ranges from the earliest documentation to the present. This factor allows for the application of the direct historic approach as suggested by Ingersoll (1971c). Hence, as pointed out by Schuyler, the study of European occupation of North America is only a division of historical archaeology by subject matter (Schuyler 1970). The discipline must be defined on theoretical grounds and should not be delimited by areas of the globe. This broader definition allows the development of general theoretical content which is separate from the specific content of the study.

This multi-source approach gives historical archaeology a great asset. Written sources, oral tradition, pictorial sources, archaeological information, etc. must be integrated around the specific purposes and objectives of the study. It cannot be stressed too greatly that each source has certain advantages and limitations and must be used in the appropriate situation. For example, while oral tradition contains diminishing veracity through time, it may be considered as a social commentary on the social life of the past.

One source, artifacts above ground, has been dismissed by some archaeologists. Items such as architecture are as valid an artifact as those buried in the ground. The distinction arises in data collection. Above ground, the artifact will probably still be intact, making time-consuming excavation unnecessary.

In this light perhaps a newly evolving definition of archaeology might be described as the study of past material culture in relationship to the mental configurations behind it.
The above definition of historical archaeology has been fashioned with certain viewpoints in mind which should be elaborated.

There is a specific emphasis in historical archaeology upon the interdisciplinary approach. Ingersoll has developed this point. He proposes the use of the direct historic approach to insure the best cultural and historical construction possible (1971a: 11). In a study of a community, any information is fair game (1971c: 4). The archaeologist must go beyond the artifact and may in many cases solve his problems with non-archaeological materials (1971c: 5). In this context, the archaeologist becomes an ethnohistorian. Then, with the direct historic approach, he will start with the present neighborhood of his site. This study should include the data of the social anthropologist such as family structure, kinship, income, occupations, voluntary associations, values, and the like. More traditional archaeological data would include the use of physical space, artifact functions and significance, land ownership, dietary habits, architecture, etc. From present oral interviews, the archaeologist will descend in time through earlier memories, records, and the levels of the site. Through time, he will transfer emphasis from living experience to physical and written evidence (1971c: 4-6).

Exactly what Ingersoll meant by ethnohistory was not made clear. At present, this study generally encompasses feelings and views the people under study hold about their past. The ethnohistorian must not impose his own interpretations upon their outlook. Again, these oral interviews, enlarged by available resources, are taken to reflect the situation of the present and the more recent past. They only become more or less accurate indices to the past in conjunction with other sources. It must be remembered that the past may be manipulated to uphold and explain the present and is therefore not necessarily an accurate account of the past situation. Then, having interpreted the present, the archaeologist is better able to deal in a backwards manner with the changes in the past. Ingersoll appears to contend that the archaeologist must realize the present context of the site before he can deal with less and less recent contexts of his site.

Also, Ingersoll (1971b) takes a different approach toward the integration of material. He develops his synthesis around the community, attempting to describe the local culture. Further, he then relates the site to the surrounding area. Like Taylor, having developed the relationships within the site, Ingersoll enlarges upon its meaning by attempting to place it within its past contexts. In this way, the site gains greater significance.

With a few notable exceptions, the historical archaeologist has failed to utilize his extra advantage to achieve the goals set out by Taylor, tracing cultural process. Admittedly, particularly in the light of recent doubt, he may have set high standards. But, are they totally beyond the archaeologists' reach? Relying on traditional, ethnographic models, archaeologists have for the most part fallen short of their goals. Perhaps, archaeologists must create new models to deal with their unique data.
Within the theoretical lacuna now existing in historical archaeology, the feasibility of these goals will never be recognized. To fill the gaps, some theoretical suggestions have been offered as a start toward a more explicit and comprehensive theory of historical archaeology. Emphasis has been placed upon the relationships of historiography and anthropology. In so doing, a definition of each was generated. The basic difference appears to be the existence of an explicit model in anthropology. The archaeologist, then, is at once a technician, historian, and anthropologist. The historical archaeologist has the benefit of at least one subsidiary document. His study is not limited in area. His special task is the integration of these sources into a cohesive study. Its aim is shared by historiography, anthropology, and archaeology. With a solid theoretical foundation, historical archaeology may discover the means by which specific cultures and cultural processes can be inferred from its material counterpart.
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NEW CONCEPTS IN MARINE ARCHAEOLOGY:
SHALLOW WATER HISTORICAL ARCHAEOLOGY IN THE LOWER FLORIDA KEYS

Duncan Mathewson
Larry Murphy
Bill Spencer

Introduction

Normally the development and trend of research in any field of inquiry is reflected by what is published in that field. In the case of New World historical wreck archaeology, the relative dearth of publications pretty well speaks for itself. To a large extent this has been due to the inability to appropriate sufficient funds and staff to organize archaeological research programmes. No where has this been more apparent than in Florida.

The present position in Florida has been described by Sonny Cockrell, the State underwater archaeologist. Sonny has recently stated that due to insufficient appropriations it has become increasingly difficult to merge the salvage programme with research activities and to cope with the backlog of accumulated research data (Cockrell 1973). Apart from a short report by Charles Harnett (1965), Carl Clausen's pioneering work (1965) done on the "Coloured Beach site" of the 1715 fleet still stands as the only substantial contribution made in historical wreck archaeology in Florida for almost a decade.

The historical wreck sites in Florida waters in the past have been essentially worked by commercial salvage companies whose interests have been to work a wreck for the recovery of material in the shortest possible time, but with the maximum amount of monetary returns on retrieved treasure and other salable artifacts. Needless to say, this has resulted in wanton destruction of numerous sites all along the Florida coast.

As is well known, much of this underwater work has been given a false sense of respectibility by the salvage companies who have referred to their operations in one way or another as being archaeological. These types of operations at best are only the equivalent to surface pot hunting and relic collecting. Being only interested in the objects themselves it is hard for most treasure divers to comprehend that what is really important to archaeology is not finding the objects themselves but utilizing the information derived from them. It is only when artifactual information is explained and culturally interpreted that the marine antiquarian takes the important step to becoming an archaeologist.

Due to the past lack of professional archaeologists involved in historical wreck archaeology, there has been a very noticeable absence of theoretical concern and rather ingenuous attempts at archaeological interpretation by non-professionals. This vagueness in cultural explanation clearly reflects the unstructured way in which wreck site archaeology has initially developed in Florida out of antiquarianism.
Since John Goggin's major contribution to underwater archaeology in 1960, there has not been much of an effort on part of archaeologists to develop a theoretical framework in which to base the essential concepts and objectives for data collection and interpretation in Marine wreck sites. Consequently, the working out of many of the basic theoretical and practical problems applicable to historical wreck archaeology is only in its infancy.

All too often shallow water wreck archaeology in the New World is lumped together with deep water archaeology in the Mediterranean as if they were more or less the same thing. Nothing could be farther from the truth. Whenever this is done it indicates a basic misunderstanding of what historical wreck archaeology in the New World is all about. Different types of sites and marine conditions necessarily dictate different technological problems and archaeological research objectives. Techniques used well under deep water conditions in the Old World do not necessarily mean that they can be utilized with the same degree of success in Florida waters. This is not to suggest, however, that the prevailing marine conditions along the shallow Florida coastal areas are so turbulent that they negate the practice of good archaeological techniques in the recovery of reliable cultural data. On the contrary, we believe that it is well within the capabilities of archaeologists to develop underwater technological and methodological skills to cope with the marine environments of the Florida coastal areas. And by so doing archaeologists can then begin to recover systematically the vast amount of cultural data which heretofore has been beyond our grasp.

Historical wreck archaeology should be more than just a series of learned underwater skills but rather a structured research discipline designed to recover reliable scientific data from a marine environment for the explanation and interpretation of cultural phenomena.

What we propose to do in this paper is to outline briefly some of the main new approaches as we see them in terms of developing historical wreck archaeology into a scientific discipline within the normal tenets of anthropological theory. Emphasis will be placed on the discussion of theoretical and methodological concepts pertaining to the research, excavation, and analysis of historical wrecks in Florida waters.

The presentation of this paper is geared to both underwater archaeologists and land archaeologists working in the Colonial Period. In the first instance we will try to approach some of the major problems and objectives of underwater archaeological work in hopes that it might be a contributory step towards working out a more scientific framework for historical wreck archaeology with our underwater colleagues. In the second instance we will try to explain to land based archaeologists some of the developing concepts and underwater techniques with which they may not be familiar. By doing this it is hoped that the land archaeologists will develop a better idea as to the future potential for the recovery and interpretation of data from historical wreck sites which may be utilized by them for a more holistic approach to the interpretation of land sites.
Throughout this paper we will be drawing upon our individual backgrounds in archaeological methodology and underwater experience and will be limiting our remarks to those which only apply to historical wreck sites along the Florida coastal area. Many of the ideas expressed in this paper arose out of an on-going dialogue developed while working together over the last six months in association with Treasure Salvors, Incorporated.

This salvage company is presently working two wreck sites located some forty miles out of Key West. The descriptive material used in this paper will be drawn from one of these sites designated in the State contract file as S-8. The S-8 site is an early 17th century Spanish Galleon, believed by Treasure Salvors, Incorporated to be the "Nuestra Senora de Atocha" known to have been part of a Flota which sunk in this area of the Keys on 6 September 1622.

Cultural Explication:

Shallow water archaeology along the Florida coast offers an unrivalled opportunity to obtain new information on the exploration, colonization, and early commercial development of the New World. As is well known, after Columbus' voyages of discovery, the Spanish very soon discovered advantages of the Gulf Stream, sailing with it through the Florida Straits and out north of the Bahamas and back to Spain (See Peterson 1972). During the 1530's this route became the main "pipe line" for the Spanish merchant fleets and it was through these straits that the vast bulk of freight and treasure flowed for over 300 years from the entrepots of Vera Cruz, Cartagena, and Portobelo towards the home ports of Spain. Thousands of ships during this period foundered and were wrecked either from storms, navigation errors or naval action along the reefs and shoals which flank the Florida coasts. By no means were all these ships Spanish, as French and English ships particularly were drawn very early into this area in their struggle for New World colonies and wealth. This became more apparent towards the end of the 17th century with the growing French presence in Hispaniola, Tortuga and at the Gulf settlements of Biloxi and Mobile. Similarly by the 1670's the English increasingly utilized the Florida Straits as their main shipping route between Port Royal in their newly established Jamaican colony, and Bermuda, Charleston, and their New England colonies to the north.

The availability of different types of shallow water wrecks of different periods and nationalities dotted along the Florida coast presents an ideal opportunity to devise archaeological research programmes to answer cultural and historical questions which documents alone cannot answer.

There are four main areas of inquiry associated with the archaeological research of historical wreck sites. These involve answering historical and cultural questions pertaining to 1) maritime life styles, 2) maritime trade patterns, 3) material culture technology, and 4) ship archaeology. All four of these cultural manifestations of maritime material culture present varying problems of data collecting and interpretation. In order to classify adequately wreck site material culture for an interpretive

1) The State of Florida site designation for the S-8 contract is SM0141.
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study, clear distinctions must be drawn first between the crews personal possessions, the ship's cargo, the ship's fittings and rigging, and the ship's accoutrements.

The study of artifactual material from wreck sites represents an excellent opportunity to further develop archaeological method and theory. The analysis of material from different wreck sites of known date and cultural affiliations allows for the comparative study of the spatial and temporal, aspects of cultural change within particularly unique and controlled contexts not generally available in land sites.

The "time capsule" concept in archaeology is well known. This concept is basic to historical wreck archaeology and has been previously described by Carl Clausen (1967). More recently Ivor Noel Hume (1969: 189) has expressed its importance by stating that, "Unlike the trash that the archaeologist must make the most from on land, wrecked ships contain cargoes of complete objects, all irrefutably associated and possessing an unimpeachable terminus ante Quem".

The analysis of the material culture of a wrecksite cannot only provide a microcosmic study of the maritime material culture at any given period, but also aspects of the macroculture of the New World. For this reason, one can only agree with Ivor Noel Hume when he states "Each wreck may be a miniature Pompeii and deserves to be treated accordingly". (1969: 190)

Comparative Analysis

The full potential of the synchronic study of wreck site material culture is enormous. Within the region of the Southern Gulf Stream alone there are numerous shallow water wreck sites which have produced a vast amount of artifactual material which has yet to be properly studied. This material should produce a considerable quantity of new data for a processual analysis of major artifact types through almost two hundred years. These wrecks, mostly Spanish in origin, are too numerous to mention here by name. However, the 1553 Padre Island site (Clausen 1973), the 1622 "Atocha" and "Margarita" sites, the 1656 "Maravillas" site (Marx 1973), and the 1715 and 1733 plate fleet sites (Plotter 1972) would adequately lay the basis for a temporal sequence in which regional approach could be developed for the study of Spanish material culture within the Colonial period.

Nowhere is the potential for a regional comparative study more obvious than in ceramic analysis. Such a study would provide powerfully controlled new data for the defining of many European and New World ceramic types and mode variations throughout much of the colonial period. In particular this kind of a regional ceramic study should lead to closer type definitions of the Olive jar. This would be especially true for John Goggin's (1960b) "Middle style" olive jar which he dates from about 1580 to 1780. Quite clearly if sub-varieties of this Olive jar type could be established through multivariate analysis, these empirically defined ceramic variations of this ubiquitous ware might then present a new opportunity in which to utilize them for the closer dating of Indian/Spanish contact and colonial sites throughout Florida.
The ceramic analysis of the pottery from the S-8 site has only just begun. However, it is already clear that there is a wide variety of olive jar necks, glazed and unglazed earthenwares, majolica wares, and what may be Amer-Indian pottery. Interesting enough, one of the main large utilitarian storage vessels defined in the S-8 ceramic assemblage dated to the early 17th century is easily recognizable as closely similar to the thick, unglazed earthenware decorated with a wavy, four line incised design described by Carl Clausen as coming from the 1715 Coloured Beach wreck site (Clausen 1965: 10; also Pl Lv lower B). Clearly these storage vessels represent the same ceramic tradition existing at these two different sites, and it will be interesting to see what additional data will reveal in the future about this cultural continuum of some 100 years.

Of course processual studies cannot be restricted to ceramics alone; already there is a considerable amount of available data from the S-8 site for the study of the rate in morphological change of a whole range of material culture of a type which has not been studied by archaeologists before. There is not time here to go into this aspect in any great extent. However, the astrolabe recovered from the S-8 site does warrant a quick mention by way of illustrating the types of information available from the site.

According to Commander D. W. Waters of the National Maritime Museum in Greenwich, England, there were only thirty-two known sea astrolabes in existence (Jenkin 1973: 193). The one from the S-8 site now makes it thirty-three. This astrolabe was brought up complete and is in perfect working condition. A full analysis of this navigational instrument has not yet been completed. An initial examination has however indicated that its scale is sub-divided into single degree increments. This suggests that the astrolabe may have been made prior to 1593, when a royal resolution was passed requiring the manufacture of astrolabes with graduations of 1/3 to 1/2 degrees for more precision (Lyon, Per. com.).

It is hoped in the very near future to be able to compare this astrolabe with the three astrolabes reported by Mendal Peterson (1972: 256) as having been recovered from the 1553 wrecks off Padre Island, in addition to the late 16th century astrolabe recovered some time ago by Harry Cox off Bermuda. It is believed that such a typological study of the New World astrolabes together with the European museum specimens should produce interesting new data on the development of the astrolabe and its role in navigational science.

Research Design

There are four main types of research procedures which have been used with some success on the S-8 site and are generally applicable to other wreck sites as well. For the purposes of this paper these procedures can be categorized as Historical, Exploratory, Archaeological, and Interpretative. These are briefly described and illustrated below.

Historical research is of course essential in helping to track down the available documentary evidence in archival records to locate the
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general area of particular wreck sites as well as to provide as much historical background to them as possible. Searching through the Spanish archives in Sevilla, Eugene Lyon produced documentary evidence to indicate for the first time that the 17th century Spanish usage of the term "Matecumbe" did not refer to the specific locality situated today in the Middle Keys but instead was simply a generic term used to designate the Keys as a whole. This new discovery had an immediate effect of placing the wreck of the "Atocha" somewhere West of the Marquesas and not off Islamorada as was first thought.²

In addition, a vast amount of background documentation was recovered on the "Atocha" and her sister ships. This includes detailed information on many of the materials and cargo on board, the crew and passengers, the commercial transactions involving the shipment of goods and raw materials, the ship's construction and rigging, as well as a host of other items which when collated with the archaeological data should go some ways towards building an interpretative cultural and historical model of the Spanish Flota system during the early years of the 17th century.

Exploratory research is principally based upon magnetometer surveys once the general locality has been indicated through documentation. The actual pinpointing of any wreck site by this method is done by the interpretation of the magnetic anomalies registered normally as ferrous objects. In the case of the S-8 site, the main artifact scatter was eventually identified soon after the magnetometer survey located a Galleon anchor reported to measure about twenty feet long.

Archaeological research is initially involved with determining the scatter pattern and the main concentrations of artifactual material within the wreck site itself. The recognition and interpretation of the patterning or configuration of the artifact spread in both a horizontal and stratigraphic sense is crucial for the explication of the site and those factors determining cluster accumulation and overall spread of the archaeological material.

The mapping of the artifact scatter on the S-8 site is resulting in the emergence of a distribution pattern which appears to be largely determined by the following four factors: 1) the spatial contexts of the artifacts within the ship, 2) the direction from which the vessel sank and broke up, 3) the density of the artifacts themselves, and 4) the hydrological conditions of the site.

The location and contextual associations of some of the artifacts are not nearly as random as one would have thought. A growing amount of predicative data will soon allow for the control needed for hypothesis testing and sampling to find the area of the main ballast concentration.

²) See Archivo General de Indias: Contaduría 1,112, Escritura de Camara 75-A, Santo Domingo 134.
Excavations are now generally proceeding in a more systematic pattern and are no longer purely intuitive. We will briefly return to some of these points later.

Interpretative research, here simply meant to mean ways by which one might attempt to reconstruct the events leading up to the wreck of the vessel. Apart from utilizing data already obtained through the other research procedures mentioned above, topographical and cartographical aspects should be considered. These are fairly self-evident and include factors such as the bottom topography, the type and depth of overburden, the consistency and movement of bottom sediment, water depths, and local place-names. Geological and hydrological factors must also be considered. These include reef diagenesis, bedrock surface contour, currents, tides, and the prevailing winds and storms of the area.

An example of the type of interpretative studies possible on historical wreck sites has recently been done on the S-8 site by Commander John Cryer, a U.S. Navy meteorologist. His research objective was to try to locate the wreck site of the "Atocha" by reconstructing the events of her four-day passage out of Havana prior to her sinking in a hurricane some three miles to the east of her sister ship the "Santa Margarita". His basic data consisted only of a brief narrative compiled from survivors' reports on the approaching hurricane and the eventual sinking of the Flota.3

In order to reconstruct the distance made good by these vessels through the hurricane he had to make a number of assumptions for the various vector factors in the absence of any recorded data. By working out the average speed and leeway of the Flota on the known courses and the set and drift of the Gulf Stream he plotted the progress of the vessels against the velocity and storm track of the encroaching hurricane. This he reconstructed largely from meteorological assumptions based upon his experience in the meteorology of this area.

Not having had any prior knowledge as to the actual locality of the S-8 site, his meteorological and sailing computations led him to place the wreck of the "Santa Margarita" only about one mile West of the area presently being worked as the S-8 site. Not only did this research exercise help to indicate the probable identity of this site, but it also produced some new thinking on the actual sinking of the vessel which may help to further explain some of the peculiar features of this site.

Artifact Configuration

In the underwater excavation process, two concerns are of utmost importance. These are mapping techniques and conservation. Only through the accurate mapping of the artifact scatter distribution can the spatial relationships and contextual associations be reliably determined as a measure of the degree of patterning of the archaeological material. As we have previously noted, our experience with the S-8 site has led us to believe that there appears to be a greater degree of patterning here than has hitherto been thought possible on a shallow water wreck site.

Carl Clausen's work on the "Coloured Beach Wreck" lead him to believe that the "jumbled and scattered condition of the wreck" resulted in "little if any discernible spatial relationship between the recovered items" (Clausen 1965: 27). This is somewhat hard to reconcile when one looks at the site plan itself. Definite clusters of gold and silver artifacts are apparent which would seem to suggest some degree of patterning within the artifact scatter. How this might be explained in the total context of the site is difficult to determine as it is apparent that many of the non-commercial artifacts were discarded or were never brought to the surface.

After several false starts at the S-8 site, reasonably effective horizontal control was maintained by taking compass bearings and distance readings from excavated holes within a laid out buoy system aligned on the main axis of the artifact spread which extends for over 300 meters.

Already this relatively crude effort at mapping the artifactual associations has resulted in some new insights into different types of spatial relationships observable on this shallow water wreck site. For instance, the presence of indigo generally appears in areas of ballast concentrations. At this time there appears to be small localized clusters of firearms and munitions, though this may well be only an apparent distribution. The main scatter of ballast conforms to a definite lineal pattern of about 25 meters wide in a NW-SE direction aligned on the Galleon anchor. Though much of this ballast scatter still needs to be tested, the presence of ballast in this configuration suggests that what one is dealing with is a thin spread of ballast and not the main pile.

The importance of stratigraphy as an archaeological concept has been generally neglected in shallow water archaeology. We maintain that this should not necessarily be the case. Granted that when one deals with a single component site like a ship wreck, one can not expect to find stratified cultural material like one finds on land sites. However, the S-8 site is producing stratigraphic information which is assisting in the interpretation of the site and it is clear that this type of information on shallow water wreck sites can no longer be ignored.

The stratigraphic testing of the S-8 site consisted of digging with the blowers at specified RPM's for known durations through the sand overburden. After each blow, the presence and absence of artifacts were noted and all objects recovered were recorded as to their general depth. Admittedly, this is a pretty rough and ready way to "cut a section" but it did produce some interesting information. After 29 successive blows, a hole about fifteen feet had been dug without any sign of bedrock. This "section" along with corroborating evidence collected previously, clearly suggests that the relatively light weight artifacts, particularly the ceramics, generally occur in the upper zone of shifting sand and probably concentrating within the 4 feet to eight feet zone in deep sand. On the other hand, the heavier objects generally occur beneath the upper zone of loose shifting sand and tend to accumulate in a dark clay layer underlying the upper sand.
The origin of this clayey layer is still unclear, but it appears to vary considerably in thickness and is seen to rest upon bedrock. Whatever its derivation, this bottom layer contains a high proportion of the heavier objects. And it is clear that the heavier artifacts relative to the lighter objects have moved downward through the sand to accumulate near the bedrock.

As we have already noted, artifact density is one of the major factors effecting the scatter distribution pattern. This is essentially seen as effecting not only the horizontal spatial clustering but also the stratigraphical contexts of certain classes of artifacts. Many of the 5,000 odd coins recovered so far come from the lower zone of the overburden as do three silver ingots, numerous cannon balls, precious metal discs, and heavier encrusted objects.

At the moment it seems that there may have been relatively little secondary movement of some of these heavier artifacts subsequent to their initial scattering during the break up of the vessel. This would lead one to conclude that the presence and/or absence of these heavier artifacts as well as ballast generally defines the primary scatter pattern and indicates the direction in which the ship originally sank.

Stratigraphic data only have recently started to be collected, but it is hoped that more empirical data will become available in the future, providing more information on the stratigraphical and spatial cluster relationships of different types of artifacts.

All artifacts do not provide information of the same relevance for the explication of a wreck site. One must be able to determine what types of information can be best extracted from the spatial relationships of certain classes of artifacts. Only in this way can one learn what to look for in an attempt to understand the patterning and form of archaeological remains on shallow water wreck sites.

**Conservation**

Conservation is really too involved a subject to go into any detail here. However, it is probably true to say that it is one of the most crucial areas which has to be intensified in the future if we are to be able to extract all the possible available data from our recovered artifacts. Clearly no objects should ever be recovered which can not be preserved.

Mendel Peterson (1965) has made an excellent start by outlining basic methodological conservation procedures. However, the marine environment as it effects different materials in varying depositional conditions within the warm shallow Gulf Stream has only been superficially examined. What we need now are new conservation procedures to deal more effectively with the treatment of such complicated artifacts such as arquebuses and better facilities and more streamlined techniques to handle all recovered materials more expeditiously.

All too often there has been a considerable time lag between the recovery of objects and their eventual conservation. Conservation is a
most important stage in the whole excavation process for if we are to extract all the data we can from the artifacts for cultural interpretation, these objects must be first cleaned and properly stabilized.

Conservation is not only an essential prerequisite to the writing of comprehensive site reports but also in preparing archaeological museum exhibitions. This point can not be emphasized enough for it is only through museum archaeological displays that the artifacts themselves can ever in reality be considered as becoming part of the cultural heritage of the public.

Artifact Recovery

Underwater archaeology should never be thought of as being distinct from land archaeology as the theoretical objectives are generally applicable to both types of sites. The only basic difference between the two is the media in which the data collection occurs. The marine environment of historical wreck sites simply redefines the archaeological problems of data collection and in turn demands new concepts to deal with this different research situation.

The archaeologist working underwater, applying control methods similar to those familiar to surface excavations has little in common with commercial salvage operations. The underwater archaeologist is not a salvager and the treasure hunter is not an archaeologist.

In the past, the word "salvage" has been a source of possible confusion when applied to underwater archaeological work. The term "salvage" used in the context of underwater work has a completely different connotation than it has when used in association with rescue excavations carried out on land sites threatened with destruction. In a marine context "salvage" is taken to mean simply the commercial recovery of lost material, and nothing more. In these types of operations little or no effort is ever made to collect or record archaeological information in association with artifacts.

Differentiation must be made therefore between the pure salvage operation where little or no archaeological procedures are followed and those commercial diving operations which accept the application of archaeological techniques in the mapping and recovery of the material objects.

Clear distinctions must be established however between archaeological excavation and archaeological recovery. Where as archaeological excavation refers to a complete and exhaustive procedure which will always remain beyond the range of competency of commercial companies, archaeological recovery as an underwater procedure may under certain conditions be successfully adopted by these companies.

Recently, experience with working historical wreck sites in Florida waters had indicated that with the proper approach, commercial diving companies perhaps can be made to realize the advantages of developing archaeological recovery as a technique for the collection of data which can be of direct relevance to their operations and of immediate use to archaeologists.
Though there is a long way to go before most commercial companies will seriously consider adopting operating procedures which will approach a degree of acceptable archaeological control, there is some grounds to believe that continued progress along these lines can be made so that more archaeological data will become available in the future - data which would otherwise have been irretrievably lost.

Acknowledgements

In conclusion we would like to acknowledge gratefully the continuing assistance and cooperation which we have received from archaeological colleagues in the Division of Archives, History, and Records Management in Tallahassee and from members of Treasure Salvors, Incorporated. In particular, we would like to thank the salvage company's research historian consultant, Dr. Eugene Lyon, for making available unpublished data and the Company's photographer, Mr. Don Kincaid, for supplying the illustrative slides for this paper.
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Abstract

A classification system established by George Quimby and Alexander Spoehr in order to classify ethnographic material is modified and adopted for use in classifying artifacts found in the historic contact situation. Preliminary work done at Fort Ross, California indicates that the examination of artifacts from each of the categories might give the archaeologist insights into the acculturation process. The suggestion is that there is a positive and discoverable correlation between certain types of artifacts and their socio-cultural context. By examining a historically well-documented contact site (such as Fort Ross), and correlating this with the attendant archaeological record, relationships beneficial to the archaeologist may be determined that will be useful in other contact sites lacking the historic documentation.

An important facet of frontier dynamics, the transferance of material culture elements from the more technologically advanced contact group to the simpler recipient, is the central theme of this short statement. This acculturative process has been traditionally ignored in most archaeological reports (there are, of course exceptions). This nonfeasance is perhaps understandable in studies dealing with prehistoric culture contact, where independent data on material culture is scanty or nonexistent. It is less so, when it is a historic sites archaeologist that is the nonfeasor. Most historic sites archaeologists have devoted themselves to the mere recovery and description of artifacts and have dismissed the thought of anything more theoretical with statements such as "why dig it if you can read about it". Unfortunately this glib reply is only a half-truth. While certain things are historically recorded such as dates, social contexts, etc., other things are not i.e. processes of change, rates of assimilation and acculturation; in short, the dynamics of culture change. These important facets of culture are left to the archaeologist-anthropologist to work out. I would suggest that this is why he digs or should dig. The symposiasts discussing the archaeological classification of culture contact situations were right-on when they cautioned:

The most important desideratum is the carefully controlled excavation of more sites whose histories are known from written records, to provide a sound basis for analogical inferences in interpreting the evidence at fully prehistoric sites (Willey and others 1956: 25).

Preliminary work at Fort Ross, a Russian fur-hunting and agricultural colony in Sonoma County, California attests to the potential use of well-documented sites as laboratories for the study of culture change. The site is unique in offering the chance to study through archaeological investigation, the contact of three distinctly different cultures. It is obvious that, as in most archaeological studies, artifactual returns will be a chief means towards achieving this end.
Fort Ross is located 90 miles north of San Francisco on a marine
terrace 150 feet above the Pacific Ocean.

Historically the Russians became engaged in fur hunting on the
west coast of North America north of the 55th parallel as early as
1745. Kodiak was the first Russian settlement in North America.
They established colonies of hunters in Alaska and employed the in-
digenous Aleuts as hunters. Sitka became the center for Russian ac-
tivity in North American in 1804 (McCracken 1957).

In 1798, the Russia-American Company was formed to exploit the
fur resources of the California coast. In 1809, and again in 1811,
quarters were established at Bedega Bay, California, for the purpose
of exploiting the sea otter herds. It was decided late in 1811 that
Bedega was unsuitable as a permanent headquarters site, and in 1812,
Fort Ross was founded on the site of the large Pomo Village of Meteni
or Mad-Shuí-Nui (Kroeber 1953: 234). Rights of occupation were
agreed upon peaceably between the Russians and the Pomo Indians.
Spanish and American authorities were not consulted on the matter.
The fort was built in three months by a crew consisting of 95 Russians
and 40 Aleuts. The name Ross is short for Rossiya, a euphemistic
Russian name for their homeland. (California State Historical Association
1930: 57).

The Russian-Aleut-Pomo community existed amicably and with
relatively few "incidents" for twenty-nine years. The Aleuts handled
the main hunting chores; the local Pomo were enlisted as menials and
agriculturalists; and the Russians occupied the fort and kept operations
running smoothly.

Fort Ross served two principal functions. First, it gave the
Russians a foothold in an area of vast fur hunting potential, and
secondly, it filled the need for a settlement from which agricultural
products could be exported to the more remote and inclement areas of
the far North. What happened is now history. Russian efficiency
soon depleted the otter herds and the agricultural experiment proved
a miserable failure. In 1839, Moscow ordered the sale of the holdings
and the return of the settlers to Russia (State of California 1967: 4).

In 1841, the fort was sold to John Sutter, the Sacramento Valley
pioneer, for $30,000. Sutter removed the livestock, farming equipment,
and some of the wooden buildings. In subsequent years the property
passed through several hands and the dismantling of the fort continued
until 1906 when the remains were badly damaged by earthquake. At this
time, the property was purchased from the G. W. Call family by the
State of California. Several buildings, including the church, were
reconstructed during the 1920's. Further reconstruction took place in
the 1950's. After an archaeological survey by Treganza, (1954) the
stockade and blockhouses were restored. Fort Ross is at present a
California State Historical Monument owned and maintained by the
California State Department of Parks and Recreation.
In the Spring of 1968, a crew under my supervision did some exploratory excavations in the dump located directly adjacent to the Pomo occupation area. Brief in duration, these excavations nevertheless revealed some interesting potentialities. Side scrapers made from bottle glass and porcelain bore testimony to borrowing and modification by the Pomo of European materials.

Culture change through contact has been observed in ethnographic situations, and statements concerning the dynamics involved have been formulated (Barnett 1953). But no such formulations have ensued from interpretation of the archaeological record. This is less likely the fault of the archaeologist than the circumstance of history.

As often happens there is no prior notice to the investigator of the contact situation and he is left to discover it (or not) and then discuss its significances; or if the contact is known about prior to investigation, the documentation is often scanty, or the contact so tenuous, that the archaeologist has scarcely any head start at all toward explanation of the situation's dynamics.

These limitations do not exist in the case of the Russian-Aleut-Pomo community at Fort Ross. If it can be said that archaeology is in need of control conditions in order to test out or firm up certain hypotheses or theories concerning diffusion and acculturation, then certainly this is an instance of that needed control. At Fort Ross we have the exact dates of contact and break-up and a term of years (29) during which this community existed (which is also a manageable length of time with which to work). We have the presence of a literate group from whom we have day-by-day log records of the fort's activities; e.g., the Russian American Fur Company. We have a record of vital statistics kept by the Russian Orthodox Church, we have numerous accounts, supported by sketches, handed down by people who were visitors to the fort in the course of its three decades of existence.

Spicer and others (1961) have described several major processes of contact change; i.e., additive, incorporative, assimilative, fusional, and compartmental. One feature of their work was the observation of change in process dominance, or shifts in the balance of processes as contact continued. Work at Fort Ross, or sites with similar control conditions, could add new dimensions to these observations by the collection and classification of contact artifacts and the documentation of their relevance by the historical record.

The contact situation in archaeology should give the investigator insights into the mechanics and manifestations of culture change. Indian groups, whose cultures underwent change through contact with European peoples, have succeeded in setting down an indelible record of this change. Artifacts introduced by the Europeans and used and/or modified by the Indians reflect certain processes of culture change. A close examination of these introduced items and their associations and modifications might well permit identification of the dynamics of those processes.
In an important but relatively unnoticed article written in 1951, Quimby and Spoehr established seven categories of material culture objects which might be found in any acculturation situation. With the addition of a new category and a redefinition of some others, this scheme, though originally designed for museum purposes, can be a valuable tool in the analysis of artifacts found in the contact situation. Taken in concert with the written record, these categories may be used to show the degree of acculturation in a particular sphere of activity.

The scheme itself is broken down into two major subdivisions designated as A and B, these subdivisions separate artifacts new to the adopting culture from those that are traditional. Each major division is further broken down by number into various subtypes.

A.1. New Types of Artifacts Received for Which There is a Native Counterpart

This category differs from the succeeding ones in that the items here named are those which, while new in terms of material and design, are nevertheless equivalent in general form to artifacts already being used by the native group. The implications here are that the receiving culture is already acquainted, in at least a general way, with the newly introduced artifact type, and hence there is little need to make extensive socio-cultural adjustments to allow for its incorporation into the culture. The assumption is that it marks a different degree of change where the introduced artifact fits into an established scheme (as where European porcelain is given to a group with a long pottery tradition) than where the new item has no counterpart in the receiving culture.

Artifacts in this category are not altered but are used in the same manner as their native counterparts. As Barnett observed (1940:33) an introduced trait having the same form as an indigenous one is usually given a meaning in conformance with its native formal analog. When accepted, the element takes on a function in accordance with the newly attributed meaning. When the introduced artifact is recognized by the recipients as superior to the traditional, substitution may take place if not it becomes an additive.

Examples of category A.1 artifacts would include metal knives, trade beads, and European porcelain (where a pottery tradition exists).

A.2. New Types of Artifacts Received Where There is No Native Counterpart

Artifacts in this category are ones which were introduced by the European culture in trade, and the uses put to them by the adopting Indian group were generally those for which they were originally designed. Any modification or functional change in the introduced item would require putting it into another category, signifying a different level of acculturation.

The items in this category are new in the sense that the receiving culture has no equivalent (at least in form) to the introduced item.
Unlike the preceding category, where there is an established scheme into which the new artifact may fit with relatively minor disruption, this category implies a greater degree of culture change since the recipient culture must develop a context in which the new artifact will have function and meaning.

The introduced element although formally unrelated may be functionally equivalent to an element in the recipient culture; even so, the introduced trait will usually retain the meaning attached to it by the donor group. This being the case, the element is additive rather than substitutive. However, this is not invariable, for as Barnett points out, the recipient group may derive a new meaning from a fortuitous realization of inherent possibilities (1940: 37).

Examples of A.2 artifacts would be firearms, bottles, and porcelain (where no pottery tradition exists).

A.3. New Types of Artifacts Made From Native Materials But Copying Introduced Models

This category is considerably narrower than the previous one. In that case, with the original models readily attainable, presumably it did not benefit the user to manufacture his own from local material. But unlike those of the previous category, the artifacts involved here imply not only a cultural change through use of the object but also an introduction of a technology of manufacture. Since specific technological patterns are involved in the manufacture of the item, the culture has changed to the degree necessary to accommodate both the artifact and the assemblage of techniques necessary for the manufacture of the new form can come from either of two sources, it is profitable to divide this category into two smaller units based on this difference.

a. Where the Techniques are Introduced Along With the New Artifact

Such would be the case if pottery were introduced along with the various skills—selecting the clay, shaping, decorating, firing—necessary to its manufacture. It follows that in this case, the native material used must be the same as, or similar enough to, the material of which the original is made in order for the introduced techniques to be of use.

This diffusion of model and techniques marks a different degree of change than that of subcategory b.

b. Where the Techniques Come From Within the Recipient Group

Such is the case where the contact was of such a nature that the techniques were not transmitted from donor to recipient or where the material used by the recipient group was different enough from the material of the original model, that the original set of techniques did not apply. For example, stone bullet molds (in lieu of the original iron) would entail a different set of techniques than those involved in the manufacture of the introduced iron model.
The artifacts in this division carry the clear implication that the members of the adopting culture were sufficiently accustomed to, and sufficiently impressed by, the introduced article that they were willing to assure permanent implantation of it in their cultural inventory by creating their own. It makes little difference whether the motivation for this copying was due to scarcity in supply or to dissatisfaction with original materials. The point is, the artifact is culturally accepted to the extent that creation by the adopters is warranted.

Quimby (1966: 10) makes no distinction based on the source of the manufacturing techniques, but such a separation would seem justified as different learning patterns are involved.

Such introduced complexes would tend to be additions.

A.4. New Types of Artifacts Where the Introduced Model is Decorated After the Native Manner

This division, like the one immediately preceding it, indicates a relatively high degree of integration of the object into the recipient culture. The rationale is that, to use a tool is one thing, to impart to it a decorative distinction associated with values common to the adopting group is another. The endowing of the adopted article with native value associations is in the nature of a signature of cultural acceptance.

This fusion of cultural elements from donor and recipient groups suggests reinterpretation or the alternation of meaning to fit the native context. In either case, artifacts in this division are generally well integrated into the native system.

Examples would be knives with carved handles, European clothing with shell pendants or beads sewn on, coins drilled and hung as pendants, etc. Excavations at the Brownell Site (4-Glenn-10), a historic Wintun cemetery, turned up a leather belt copiously hung with small abalone (H. crackerdii) pendants (Woolfenden 1969: 34). Apparently the European belts were satisfactory enough to the owner but the personal native touch made them that much more desirable.

A.5. New Types of Artifacts of Introduced Forms, Where the Manufacture is Local But the Maker Employs Imported Material and Technique

Of the categories thus far, this one marks the highest degree of culture change. Not only has the user accepted the object (as in Category A.2) and the attendant techniques necessary for its manufacture (as in Category A.3) but where his environment does not allow for the acquisition of the raw material, he imports it. The "new" object has become as much an article of customary use as the traditional aboriginal tools, and the scale of the cultural system has been enlarged to the degree that new extra-societal relationships are developed for procurement of the necessary raw materials.
Examples would be knives made locally with imported iron (either imported for that specific purpose, or converted from some less useful item such as a barrel hoop or file), and clothing copied after the European style using imported cloth and sewing devices.

B.1. Old Types of Artifacts Where This is a Substitution of an Imported Material for a Local One But No Change in Manufacturing Techniques

Like Category A.1., this division contains a wide range of artifacts and is probably the easiest to recognize in the archaeological situation. Artifacts in this division reflect a lesser degree of culture change than do those of any other category. The items in this category indicate only that a new material is recognized as preferable to the native material and is adopted while the traditional artifact form and the skills involved in its manufacture go unchanged. The imported material must be such that there is no need to change the basic manufacturing technique.

Examples would include projectile points of glass, gaming pieces of porcelain, (Smith 1960: 145) scrapers of glass or porcelain, etc.

B.2. Old Types of Artifacts Where There is not Only a Substitution of Material but also the Employment of an Entirely Different Technique than Formerly Used to Achieve the Similar End

When an entirely different raw material is introduced, the adopting culture must not only embrace the material itself, but a complex of techniques necessary to the successful manipulation of it. You cannot make a brass or sheet metal projectile point by pressure flaking. An ambitious Indian would find his day a long one should he set out to convert a gun barrel to a flute by using a chalcedony drill.

The utilization of an imported material as well as a new technique displays a degree of cultural change more pronounced than of a mere acceptance of a new material, as in the previous category.

Examples would include traditional stone tools made from imported metal; projectile points, scrapers, etc. (Woolworth and Wood 1960: 282).

B.3. Old Types of Artifacts Modified by the Introduction of a New Element of Subject Matter

This category includes those examples in which the native craftsmen working in his traditional medium introduces a non-native element. This category represents essentially the same degree of acculturation with respect to traditional artifacts that Category A.4. does with respect to the non-traditional types.

Examples include foreign design elements on pottery, basketry, petroglyphs, etc.

By determining the relative proportion of each of these artifact types in a contact situation, the archaeologist may provide himself
with a rough indicator of the degree of culture change in both material and non-material spheres. As stated above, each category represents a different degree of culture change. Sites with very superficial contact will be expected to have relatively few artifacts in Categories A.3., A.4., and A.5. (New Types) and Categories B.2. and B.3. (Old Types), while displaying more items in Categories A.1., and A.2. (New Types) and Category B.1. (Old Type). Sites which underwent relatively intensive contact, on the other hand, might be expected to contain artifacts in the reverse proportions.

As Spicer points out, material culture items do not always change more rapidly than do the social or religious institutions. He does concede, however, that when graphs were made enabling the investigators of six Indian cultures to analyze persistencies, a general statement could be made. To wit, technological changes had, over the entire span of contact, far outdistanced changes in language, and social structure (Spicer 1961: 543).

The validity of these divisions as indicators of acculturation can be tested by comparing the archaeological findings at a well-documented contact site such as is represented by Fort Ross, with the available written sources. The copious records kept by the fort's occupants, as well as the detailed descriptions of travellers, can provide direct historical evidence of the kind and degree of culture contact that occurred at Fort Ross; this in turn will serve as a check on the validity of the inferences made from the artifact classification system. Careful formulations based on such controlled conditions should prove of value in examining the archaeological record in contact situations elsewhere.

Unfortunately, the number of contact sites excavated with the idea of providing this kind of information in detail are few. The historic archaeology that has been done usually tends to emphasize information more historic than anthropological. Whether this distinction is one of kind or one of degree need not be argued here; suffice it to say that the emphasis has been on the technically accurate reconstruction of sites, while archaeological investigation of the dynamics of culture change has for the most part been neglected.

NOTE

The author wishes to express his appreciation to George Quimby and Alexander Spoehr both of whom are responsible for the initial work on the artifact categories. Full responsibility is mine for any statements concerning their validity in the archaeological study of acculturation processes.
<table>
<thead>
<tr>
<th>Category</th>
<th>DESCRIPTION</th>
<th>EXAMPLE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>New types of Artifacts Received For Which There is a Native Counterpart</td>
<td>Trade Beads. European clothing (in some cases). Iron Knives. Ceramic containers where there is a pottery tradition.</td>
<td>Less need for extensive socio-cultural adjustments. Presence of an already established scheme.</td>
</tr>
<tr>
<td>2</td>
<td>New types of Artifacts Received Where There is No Native Counterpart.</td>
<td>Bottles. Firearms. Skillets</td>
<td>Implies a greater degree of culture change since a context must be developed to give the artifact function and meaning.</td>
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<td>3</td>
<td>New Types of Artifacts Made From Native Materials but Copying Introduced Models</td>
<td>Pottery-making</td>
<td>Culture must accommodate both the artifact and the assemblage of techniques necessary to its creation.</td>
</tr>
<tr>
<td></td>
<td>a. Where the techniques are introduced along with the new artifact</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Where the techniques come from within the recipient group.</td>
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<tr>
<td></td>
<td></td>
<td>Where there is a change in the material of manufacture making a new set of techniques necessary.</td>
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<td>4</td>
<td>New Types of Artifacts Where the Introduced Model is Decorated After the Native Manner</td>
<td>Carved handles. European clothing modified in Native manner.</td>
<td>Native decoration implies a certain degree of cultural acceptance.</td>
</tr>
<tr>
<td>5</td>
<td>New Types of Artifacts Where the Manufacture is Local but the maker Employs Imported Material and Techniques</td>
<td>Knives converted from raw iron or a less useful article. Clothing made by importing cloth and sewing devices.</td>
<td>Highest degree of change. Development of relationships for procurement of the raw materials.</td>
</tr>
<tr>
<td>B.1</td>
<td>Old Types of Artifacts Where There is a Substitution of an Imported Material For a Local One.</td>
<td>Class projectile points. Porcelain gaming pieces. Glass or porcelain scrapers.</td>
<td>Least amount of culture change reflected. Only the material is new.</td>
</tr>
<tr>
<td>2</td>
<td>Old Types of Artifacts Where There is a substitution of Material and Technique.</td>
<td>Metal projectile points.</td>
<td>Culture must embrace a complex of techniques as well as the new material.</td>
</tr>
<tr>
<td>3</td>
<td>Old Types of Artifacts Modified by the Introduction of a new Element of Subject Matter.</td>
<td>Foreign designs on pottery, basketry, petroglyphs.</td>
<td>Represents essentially the same degree of change as A. 4.</td>
</tr>
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