8424447

Martin, Patrick Edward

THE FILBERT SITE AND PATTERN RECOGNITION IN HISTORICAL ARCHAEOLOGY

Michigan State University

PH.D. 1984

University Microfilms International 300 N. Zeeb Road, Ann Arbor, MI 48106

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark __√__.

1. Glossy photographs or pages __√__
2. Colored illustrations, paper or print _____
3. Photographs with dark background __√__
4. Illustrations are poor copy _____
5. Pages with black marks, not original copy _____
6. Print shows through as there is text on both sides of page _____
7. Indistinct, broken or small print on several pages __√__
8. Print exceeds margin requirements _____
9. Tightly bound copy with print lost in spine _____
10. Computer printout pages with indistinct print _____
11. Page(s) __________ lacking when material received, and not available from school or author.
12. Page(s) __________ seem to be missing in numbering only as text follows.
13. Two pages numbered __________. Text follows.
14. Curling and wrinkled pages __√__
15. Other ______________________________

THE FILBERT SITE AND PATTERN RECOGNITION
IN HISTORICAL ARCHAEOLOGY

By

Patrick Edward Martin

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Anthropology

1984

ABSTRACT

THE FILBERT SITE AND PATTERN RECOGNITION

IN HISTORICAL ARCHAEOLOGY

By

Patrick Edward Martin

The Filbert Site (20CN8) is a farm and mill complex located on the Straits of Mackinac in northern Michigan and was occupied during the late eighteenth and early nineteenth centuries. Excavated between 1972 and 1975 by the Michigan State University Museum and the Mackinac Island State Park Commission, the site yielded a wide variety of structural and artifactual data reflecting a diverse range of activities. These data, combined with an extensive documentary survey, offer insights into civilian and military life during a critical period in the history of this important region.

The Filbert Site data are used as a vehicle to examine the utility and validity of Stanley South's artifact Patterns, descriptive quantitative models of British-American material culture. Artifact frequencies from 39 sites and archaeological contexts are also analyzed by means of discriminant function analysis to explore the relationships within and between groups. Other examples of Pattern analysis are examined and two alternative groupings of sites are evaluated.

South's Patterns are supported as both descriptive and analytical constructs. Three tentative hypotheses to explain their presence and persistence are tested, and a general functional explanation is discussed.

TABLE OF CONTENTS

TABLE OF CONTENTS Continued

LIST OF TABLES

LIST OF TABLES Continued

LIST OF TABLES Continued

LIST OF FIGURES

LIST OF FIGURES Continued

CHAPTER I
INTRODUCTION

From its essentially antiquarian beginnings to the overtly scientific stance of many present practitioners, historical archaeology in North America has seen tremendous growth and development over the past few decades. No longer simply a "handmaiden to history," the techniques and perspectives of historical archaeology are increasingly being applied to broader questions of cultural change and adaptation. As this field of inquiry has matured, it has borrowed and adapted techniques and approaches from its sister disciplines, most notably prehistoric archaeology and geography. It has further fostered unique theoretical and methodological perspectives of its own. The present study will examine one such set of new approaches, stimulated by other areas of inquiry and characterized by novel techniques and insights.

In particular, this study will examine the concept of Pattern Recognition and Analysis, introduced by Stanley A. South (1977). This quantitative technique for characterizing and comparing artifact assemblages offers great unrealized interpretive potential. Ignored by some because of its overt quantification, and by others because it was fundamentally a descriptive scheme, the Pattern concept has seen limited use. Rather than serving as the explanatory springboard South envisioned, it seems to have had more effect in stimulating the proliferation of new Patterns, more constructs that have only limited descriptive value.

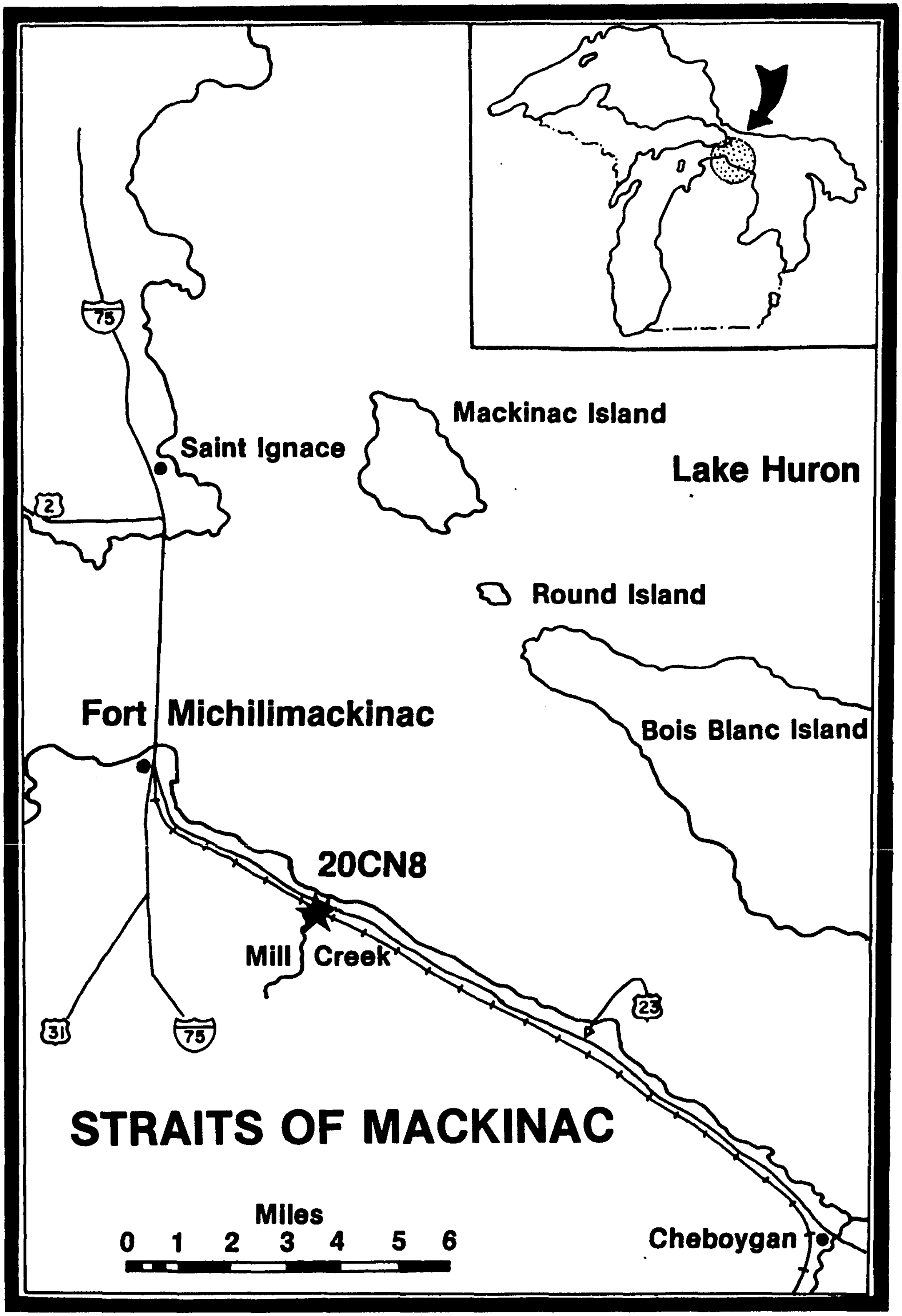
The objectives of this study are (1) to explore the Pattern concept as a classificatory and comparative tool, (2) to attempt to validate the existence of one or more Patterns as models of British-American material culture, and (3) to attempt to identify and explain the causes for the appearance of distinctive Patterns.

A further objective and vehicle for the analysis is the description of the results of three seasons of excavation at the Filbert Site (20CN8) in Cheboygan County, Michigan (Figure 1). Supported by the Michigan State University Museum and the Mackinac Island State Park Commission, this research project served primarily to provide information to guide the reconstruction and public interpretation of this late eighteenth and early nineteenth century site. Typical of projects supported by such mission-oriented agencies as the Mackinac Island State Park Commission, the project's goals were not the collection of data for sociocultural analysis, but rather were oriented toward the generation of structural and artifactual data. As is so often the case in such studies in historical archaeology, the theoretical considerations came after the practical considerations.

Even so, the Filbert Site provides an excellent data base with which to explore the Pattern concept and its uses. The unique characteristics of the artifact assemblage and historical data afford insights into the site's structure and use, as well as its place in a broader cultural context.

Beyond the Filbert Site, data were collected on a number of other historic sites from a variety of temporal and geographical contexts. These data are used to test the validity of the Pattern concept, and to test alternative explanations for the presence of the Patterns.

Figure 1. Straits of Mackinac Region


75
Mackinac Island
Saint Ignace
Lake Huron
2
Round Island
Fort Michilimackinac
Bois Blanc Island
20CN8
Mill Creek
23
31
75
STRAITS OF MACKINAC
Miles
0 1 2 3 4 5 6
Cheboygan

CHAPTER II
THE PATTERN CONCEPT

Introduction

In his monumental work Analytical Archaeology, David L. Clarke outlined three broad objectives which were of central interest to archaeology as a discipline:

> First, the definition of the fundamental entities that pervade the diverse material, their elements, structures and patterns, the processes that operate on them, and the effects of the processes on the entities in the dimensions of space and time. A study in statics and dynamics going beyond particular instances.
> Second, the search for repeated similarities or regularities in form, function, association, or developmental sequence amongst the particular entities from every area, period and environment.
> Third, the development of higher category knowledge or principles that synthesize and correlate the material at hand whilst possessing a high predictive value. The development of increasingly comprehensive and informative general models and hypotheses (1968: 21-22).

Though certainly not accepted universally, these objectives have met with wide general agreement amongst practitioners of archaeology. Clarke's identification of "fundamental entities," i.e. attributes, artifacts, artifact-types, assemblages, cultures, and culture groups, simply made explicit those concepts which were taken as implicit by most archaeologists. The "search for regularities" is likewise widely embraced, even if not in those precise terms. The most controversial aspect of Clarke's vision of archaeology is his insistence on the quest for comprehensive models and hypotheses. As perhaps the leading British proponent of the quantitative, overtly-scientific movement within the discipline, Clarke's propositions aroused considerable attention, both pro and con.

Leaving aside for the moment any discussion or judgement of the overall merits of his work, it is clear that the definition of fundamental entities and the search for regularities are basic undertakings for all archaeologists. Clarke's insistence on explicit definitions and an ongoing search for systematic similarities lie at the foundation of his contribution to a maturing discipline. It is these principles that the present study seeks to emphasize and apply to a particular body of archaeological data, with hopes of approaching Clarke's final objective, the refinement of general models of cultural behavior.

Within the literature of historical archaeology, the call for more science, more hypothesis-testing, and more generalization has been heard only infrequently. Ironically, resistance to the use of explicit hypothetico-deductive reasoning has partly been due to the availability of documentary sources of evidence for the interpretation of historic archaeological remains. The existence of these sources and their traditional use by historians has encouraged a somewhat particularistic emphasis in this field of inquiry. This tendency has been amplified by the mission-orientation of many of the agencies that are the primary sponsors of historic sites research, agencies that seek to interpret and restore sites for public use, rather than to study them as archaeological examples of human behavior to be used in broader studies. Due to these and other circumstances, historical archaeology has continued on a decidedly mon-scientific trajectory. What makes this tendency ironic is that the presence of documentary lines of evidence makes these sites particularly amenable to hypothesis-testing. Often the archaeological and documentary sources can be considered independent sources of evidence with which to test general propositions, thus adding a dimension of verification which is not available to the student of prehistoric remains. Even if the documents are not treated as totally independent evidence, for whatever reason, they afford a depth of insight that simply has no parallel in prehistory.

The addition of documentary evidence often allows the historical archaeologist to control variables which are not controllable for the prehistorian. It may be possible to specify the duration of an occupation, the number or ethnic identity of the inhabitants, the site's primary function, or any number of other dimensions of variability which can only be inferred in a prehistoric context. This is not to say that such control is always possible with sites of the historic period, of course, for the documentary record is subject to many of the same types of gaps as the archaeological record. For many periods, in many regions, and for many functional site types, documentary evidence may be missing or nonexistent. It may be falsified, or mistaken. The authors of descriptions may be misinformed or may have misunderstood; they may not have actually seen or experienced the events they describe, and it may have been to the author's personal advantage to over or under estimate a quantitative measure. In short, there is little justification for investing excessive dependence on documentary sources as opposed to archaeological evidence. However, their existence can be of tremendous interpretive value to the cautious and astute analyst, even in an overtly scientific investigation.

South's Pattern Recognition

One of the most influential and consistent proponents of the application of quantitative analysis in historic sites archaeology has been Stanley South. For more than two decades South has argued that quantitative methods hold great potential for expanding the explanatory power and applicability of historic sites research for broader anthropological questions. He has further suggested that progress from particularistic, site-specific studies to broad generalizations can result only through quantitative and comparative analyses. Perhaps the most influential of his ideas has been the concept of Mean Ceramic Dating (South 1972:77). This technique, based on the assumption that artifact-types display a unimodal curve of popularity over time, uses the relative frequencies of various historic ceramic types to estimate the median occupation date of a historic site component. Though the technique may be (and has been) employed simply as a dating tool to augment other sources of chronological data, it has broader importance as a test of the unimodal popularity curve and horizon style concepts commonly used by prehistorians. The success of the technique in estimating median occupation dates for components which can be independently dated with documents lends credence to the widespread application of those general principles in the archaeology of undocumented and prehistoric sites.

South has sought other kinds of patterned regularity in the archaeological record, as well. His more recent work on the delineation of Patterns expressed in the archaeological remains of British colonial America is of particular interest here (South 1977). Beginning with an artifact classification scheme which is based on hierarchically nested functional categories, South has brought together data from a number of sites and components. Most of the initial sites examined were excavated and reported by South, though subsequent analyses included additional sites from different regions, excavated by different archaeologists. South's use of a general taxonomy of artifacts provides a consistent base for quantification and comparison. Though there remains room for disagreement and adjustment in the classificatory categories, the use of this scheme has great merit in the search for variability and regularity through time and space, and this has been South's avowed purpose.

The initial step in this process involves the classification of artifacts. South employs a hierarchical arrangement with the Type at the lowest, most particular level. Implicit in the definition of Types is the consistent clustering of attributes. The veracity of the type concept has not been a central issue amongst historical archaeologists since many, if not most artifacts result from standardized, industrial processes and as such are not subject to the same kinds of attribute variability as are prehistoric artifacts which result from individualized or craft activities.

Types are occasionally clustered together into intermediate categories, such as ceramic Wares, but the primary categories used for pattern recognition are the Class and Group (Table 1). Classes are

Table 1. Stanley South's Artifact Classification Scheme

Group	Class
Kitchen Group	Ceramics Wine Bottles Case Bottles Tumblers Pharmaceutical Bottles Glassware Tableware Kitchenware
Bone Group	
Architectural Group	Window Glass Nails Spikes Construction Hardware Door Lock Parts
Furniture Group	
Arms Group	Musket Balls, Shot, Sprue Gunflints Gunparts
Clothing Group	Buckles Thimbles Buttons Scissors Straight Pins Hook and Eye Fasteners Bale Seals Glass Beads
Personal Group	Coins Keys Personal Items
Tobacco Pipe Group	Tobacco Pipes
Activities Group	Construction Tools Farm Tools Toys Fishing Gear Stub-stemmed Pipes Colono-Indian Pottery Storage Items Ethnobotanicals Stable and Barn Miscellaneous Hardware Other Military Objects

generally based on attributes of form, while the Groups are fundamentally broad functional categories. The composition of South's Groups is somewhat arbitrary and unequal. For instance, the Kitchen Group includes a relatively large number of artifact classes, while other groups, such as the Tobacco Pipe Group, includes only a single class. For the purpose of abstracting patterns of regularity, this inconsistency is not considered significant, for the Classes and Groups may easily be modified as situations warrant change.

Since both Classes and Groups are broad, general categories, inclusion of individual Types in one Class or another, one Group or another, is open to question. For example, a glass bead might have functioned as an item of ladies' clothing in one context and properly be classified within the Glass Bead Class and Clothing Group. At another site of the same age, however, that same type of bead may have functioned as an item of trade, used by its British owner to acquire furs, and may later have been used by an Indian male as a grave offering for a dead kinsman. Clearly, this artifact should not necessarily be classified identically in both contexts. However, so long a the user of the scheme recognizes this kind of inconsistency and uses the system to explore variability and compare assemblages, its value is not weakened. The recognition of differences in Type, Class, and Group frequencies between contexts under comparison begs for explanation and draws the archaeologist beyond simple description and categorization.

Carolina Pattern

After classifying and tabulating frequencies of artifacts from an initial sample of five components (Table 2), South's inter-site

Table 2. Artifact frequencies and percentages, South's Carolina Pattern sites (Source: South 1977:103)

Group	Brunswick S25		Brunswick S10		Cambridge 96		Ft. Moultrie A		Ft. Moultrie B	
	Count	%	Count	%	Count	%	Count	%	Count	%
Kitchen	22,479	(52.9)	6,795	(51.8)	12,854	(64.6)	4,185	(60.1)	1,208	(56.9)
Architecture	9,620	(22.6)	4,116	(31.4)	5,005	(25.2)	1,510	(21.7)	344	(16.2)
Furniture	83	(0.2)	82	(0.6)	35	(0.2)	6	(0.1)	2	(0.1)
Arms	1,262	(3.0*)	45	(0.3)	27	(0.1)	39	(0.6)	20	(0.9)
Clothing	5,574	(13.1*)	72	(0.6)	1,069	(5.4)	136	(1.9)	69	(3.3)
Personal	71	(0.2)	20	(0.2)	108	(0.5)	4	(0.1)	4	(0.2)
Tobacco Pipes	2,830	(6.7)	1,829	(13.9)	349	(1.8)	167	(2.4)	50	(2.4)
Activities	578	(1.3)	159	(1.2)	432	(2.2)	916	(13.1*)	425	(20.0*)
	42,497	100	13,118	100	19,880	100	6,963	100	2,122	100

*values that were subsequently adjusted by South, factored down to Pattern mean values comparison begins. Percentage representation is used rather than raw frequencies in order to minimize the effects of very different sample sizes. Thus, the search for patterned regularities concentrates on proportional relationships between formal and functional categories rather than between absolute numbers of objects. South predicts that British colonial sites in America should exhibit some degree of similarity in the proportions of artifact Classes and Groups recovered. His original examination and description of the Carolina Pattern results from a comparison of percentages from these five sites in North and South Carolina (Table 3).

Table 3. The Carolina Artifact Pattern*
(Source: South 1977:107)

Group	Mean %	Percentage Range
Kitchen	63.1	51.8-69.2
Architecture	25.5	19.7-31.4
Furniture	0.2	0.1-0.6
Arms	0.5	0.1-1.2
Clothing	3.0	0.6-5.4
Personal	0.2	0.1-0.5
Tobacco Pipes	5.8	1.8-13.9
Activities	1.7	0.9-2.7

*derived from original sites with some values adjusted by South

South's comparison demonstrates a remarkable degree of similarity within this small sample. He uses the mean percentage values from this sample to define the Carolina Pattern, then compares the Pattern with data from a roughly contemporary British colonial site in Newfoundland called Signal Hill as a "test" of the Pattern's generality. This comparison reveals a very close fit of the Pattern and the Signal Hill assemblage, strengthening the Pattern's credibility as a descriptive model of regularity within British colonial American assemblages of the eighteenth and nineteenth centuries.

South draws upon the internal consistency amongst the artifact Classes in Groups in his Carolina Pattern study in order to posit a general Law of Behavioral By-Product Regularity: "The by-product of a specified activity has a consistent frequency relationship to that of all other activities in direct proportion to their organized integration" (South, 1977:122). The essence of this statement lies in the assumption that a cultural system displays an internally consistent array of functional artifact categories, an array that may be altered by variations in cultural behavior. The discovery and explanation of specialized behavior and/or functions within a cultural context is made possible by the dection of variations from modal artifact frequencies and proportions. Of particular interest are direct relationships between "integrated" activities, identified in specific instances by the analyst. To return to an earlier example, it may be necessary for the archaeologist studying assemblages from documented fur trading sites to "break out" glass beads and other trade items from the classification system in order to more fully assess their contribution to the observed array of functional categories. Since the documentary evidence suggests an "organized integration" between trading activities and certain types of artifacts, the recognition of degrees of variability is critical to understanding the processes which create the archaeological record. In proposing this "Law," South is generalizing beyond the particulars of his original sample.

Frontier Pattern

Though some assemblages examined by South conform closely to the Carolina Pattern array of artifact percentages, others do not conform. One particular group of three sites, characterized as isolated from sources of supply, display considerable similarity to one another in addition to their difference from the Carolina Pattern. South uses data from these sites to define an alternative pattern which he terms the Frontier Pattern (Table 4). The primary distinction between the Carolina and Frontier Pattern sites is the inversion of the ratio between Kitchen and Architecture Group artifact percentages. While Carolina Pattern sites exhibit an average of 62.8% Kitchen Group and 24.0% Architecture Group, the Frontier Pattern sites average 27.6% Kitchen and 52.0% Architecture Group (Table 5). South postulates that a shorter period of occupation or the relative inaccessibility of the Frontier Pattern sites might explain the inversion in Group percentages, but does not test either explanation. Rather, he leaves the Frontier and Carolina Patterns as essentially descriptive models against which to compare sites and contexts. The recognition of deviation from expected artifact proportions indicates a need for explanation and guides additional inquiry.

Though the artifact proportions are similar from site to site within the Patterns, South feels it necessary to adjust some extreme values in certain cases when it appears that specialized activities are

Table 4. Artifact frequencies and percentages,
South's Frontier Pattern Site
(Source: South 1977;155)

Group	Ft. Ligonier Count	Ft. Ligonier %	Ft. Prince George Count	Ft. Prince George %	Spalding's Store Count	Spalding's Store %
Kitchen	5,566	(25.6)	1,679	(22.7)	5,789	(34.5)
Architecture	12,112	(55.6)	4,252	(57.5)	7,222	(43.0)
Furniture	44	(0.2)	6	(0.1)	51	(0.3)
Arms	1,820	(8.4)	471	(6.4)	227	(1.4)
Clothing	833	(3.8)	70	(1.0)	51	(0.3)
Personal	99	(0.4)	9	(0.1)	10	(0.1)
Tobacco Pipes	411	(1.9)	851	(11.5)	2,343	(14.0)
Activities	893	(4.1)	2,633	(26.4*)	1,077	(6.4)
Totals	21,778	100	9,971	100	16,770	100

*values that was subsequently adjusted by South by removal of Colono-Indian Pottery

Table 5. The Frontier Artifact Pattern*
(Source: South 1977:145)

Group	Mean %	Percentage Range
Kitchen	27.6	22.7-34.5
Architecture	52.0	43.0-57.5
Furniture	0.2	0.1-0.3
Arms	5.4	1.4-8.4
Clothing	1.7	0.3-3.8
Personal	0.2	0.1-0.4
Tobacco Pipes	9.1	1.9-14.0
Activities	3.7	0.7-6.4

*derived from three original sites with some values adjusted by South

responsible for skewing observed values beyond normal variation. In order to adjust for extreme values, South computes averages for all artifact classes and in four instances simply substitutes this mean value for the observed "deviant" value. For example, in the case of Brunswick Town Structure 25, an observed value of 5574 or 13.1% in the Clothing Group is considered to be extreme, since the mean for the remaining sites is 3.0%. This structure is known from documentary sources to have housed a tailor's shop and South believes that the high incidence of tailoring materials, resulting from this specialized, non-domestic function, is contributing excessive variation within this otherwise consistent artifact Group. Therefore, the value is adjusted down to the mean for the remaining sites. The observed values for Arms in Structure 25, Activities in Fort Moultrie A and Activities in Fort

Moultrie B are likewise adjusted, since those figures are interpreted as the results of specialized activities.

This action is understandable and supportable on one level, for it removes the influence of what might be termed idiosyncratic behavior from this exercise in behavioral generalization. On the other hand, it is desirable that any explanatory scheme have the power to explain even the extremes of variability within the data utilized. This is especially true in this instance, for the artifact Groups are essentially functional constructs and the adjustment of artifact frequencies might serve to mask the functional variability which is the focus of both classification and analysis. Therefore, South's artifact frequency tables are left with their original, unadjusted values for all quantitative analysis in this study.

Other Examples of Pattern Analysis

Other archaeologists are employing South's artifact classification system to facilitate inter-site comparison and continue the search for assemblage regularity. One of the earliest to offer an expansion of the Pattern concept was Michael Forsman, who used the classification system to characterize a group of fur-trading posts from Western Canada (Forsman 1979; Forsman and Gallo 1979). Forsman was initially concerned with standardizing the available data from excavations conducted by various individuals and institutions for a synthetic study of the fur trade in that region (Table 6). He found, and demonstrated, that this selected group of sites exhibited an internally consistent pattern of artifact frequencies that was significantly different from either the Carolina or Frontier Pattern (Table 7).

Table 6. Artifact frequencies and percentages, Forsman's Early Fur Trade Pattern Sites (Source: Forsman and Gallo 1979:Appendix 1)

Artifact Group	Rocky Mt. House		Ft. George		Buckingham House		Edmonton House		Sturgeon Fort		LeBlanc Post	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Kitchen	56	0.48	840	3.24	163	11.19	205	11.45	18	0.42	15	1.07
Archi-tecture	146	1.22	873	3.36	326	22.39	123	6.87	143	3.36	50	3.57
Furniture	1	0.01	6	0.02	0	0.0	2	0.17	2	0.05	1	0.07
Arms	235	1.97	832	3.21	77	5.29	197	11.00	143	3.36	33	2.36
Clothing	11,102	93.07	21,018	81.00	612	42.03	739	41.26	2,352	55.17	1,126	80.49
Personal	12	0.10	217	0.84	11	0.76	170	9.49	1,518	35.60	35	2.50
Tobacco Pipes	200	1.67	759	2.92	184	12.64	252	14.07	12	0.28	72	5.15
Activities	177	1.48	1,404	5.41	83	5.70	102	5.69	75	1.76	67	4.79
Totals	11,929	100.00	25,949	100.00	1,456	100.00	1,791	100.00	4,263	100.00	1,3999	100.00

Table 7. The Early Fur Trade Artifact Pattern
(Source: Forsman and Gallo 1979)

Artifact Group	Mean	Percentage Range
Kitchen	4.64	0.42-11.45
Architecture	6.79	1.22-22.39
Furniture	0.05	0- 0.17
Arms	4.54	1.97-11.00
Clothing	65.50	41.26-93.07
Personal	8.22	0.10-35.60
Tobacco Pipes	6.12	0.28-14.07
Activities	4.14	1.48- 5.70
Total	100.00	

Proportions of the artifact Classes and Groups in Forsman's sample sites diverged markedly from South's Patterns, yet displayed relatively little variation amongst themselves. Forsman derived average values and ranges for the proportions and called this array the Early Fur Trade Pattern (Forsman 1979). He noted that an important cause for the divergence of the Early Fur Trade Pattern from the others was the inflation of Clothing Group percentages due to the inclusion of large numbers of glass trade beads. He statistically compared his new Pattern with the Carolina and Frontier Patterns using Kendall's Coefficient of Concordance Test and concluded that it was indeed significantly different from the others. Though he did not attempt any formal tests of his tentative hypothesis, Forsman suggested that the Early Fur Trade Pattern may have been the result of the rapid, exploratory development of this extractive industry with its characteristic temporary, special purpose settlements.

Forsman's study of western Canadian fur trade era sites was not only the source of another Pattern, but also raised doubt about the validity of the Carolina and Frontier Patterns as separate entities (Forsman and Gallo 1979:175). Using Kendall's Rank Correlation Coefficient Test, Forsman and Gallo failed to reject a null hypothesis which suggested that the Frontier and Carolina Patterns were unrelated. These authors had concluded (1979:173) that the data from which South's Patterns were derived did not meet the requirements of parametric statistical testing, such as the assumption that samples are drawn at random from normally distributed populations. Therefore, they selected the nonparametric Kendall's Test in order to avoid violating the basic prerequisites of most parametric tests. While such a cautious approach may have prevented some problems attendant to violation of the data requirements of some tests, it may well not have been warranted in this instance. By choosing the conservative approach and using a nonparametric test, they reduced the interval-scale frequencies and proportions found in the original data sets to ordinal-scale ranks, overlooking a substantial portion of the information inherent in these data. For example, this reduction in data complexity results in ranking the relative proportions of each artifact Group from 1 to 8, and therefore does not allow the researcher to either recognize or interpret the magnitude of the difference between any two ranks. As a consequence, some doubt is cast upon the interpretation of a significant relationship between the Frontier and Carolina Patterns. A more detailed examination of the Patterns is necessary, using more powerful statistics and the fuller information value of interval-scale data. Such an examination will be conducted in a subsequent chapter of this study.

Another study published in 1979 which exemplifies the potential uses of the classification system and Pattern concept was Jeffrey Tordoff's investigation of the relationships between South's Patterns and primary de facto refuse (Tordoff 1979). This examination of limited assemblages from excavations at nineteenth century Fort Snelling in Minnesota pointed out significant divergences from the Carolina and Frontier Patterns among artifacts from the Clothing and Arms Groups. In particular, artifacts such as small lead shot, straight pins and glass beads were disproportionately represented in limited contexts from the Officer's Quarters. The practice of frequent sweeping of floors using sand evidently caused these items to be deposited as primary de facto refuse beneath the floors, and these deposits, taken separately from the remainder of the assemblage, exhibited a divergent, "Frontier-like" array of frequencies unlike the other contexts or the total site.

Tordoff maintained that the proportions of artifacts from these contexts were caused not only by the specific cultural activities related to the functions of the objects (i.e. tailoring and small game hunting) but also by the particular form of refuse deposit. To support this latter point, he referred to similarities with a limited context from one of South's original Carolina Pattern sites, the Public House-Tailor Shop, Structure 25, at Brunswick Town, North Carolina. Within the rooms of that structure, a very similar artifact assemblage and refuse type were noted, and explained as resulting from use of the rooms for tailoring, based on documentary sources and the high frequency of tailoring objects. Tordoff argued that the refuse type itself might explain the "deviant" artifact array, and that the separate examination of contexts within sites was a necessary element of the analysis of variability and regularity in archaeological assemblages.

In the same year, William Lees and Kathryn Kimery-Lees also published a study which utilized South's Pattern concept (Lees and Kimery-Lees 1979). This investigation questioned the proper classification of Colono-Indian ceramics, suggesting that they should be classified within the Kitchen Group, rather than the Activities Group where they had previously been placed. Using an assemblage from Limerick Plantation in South Carolina, they examined both the frequency of occurrence and contexts in which Colono-ceramics were found. They concurred with Leland Ferguson (1978) that these ceramics were manufactured by non-Indians, probably African slaves, and originally functioned in a kitchen setting, as did European ceramics. Further, the reclassification of these artifacts caused the Limerick assemblage to fit more closely the Carolina Pattern which it was expected to exhibit. In addition, this study demonstrated a change in the frequency of use of this ceramic type over time.

Leslie Drucker has used South's format to investigate socioeconomic status at an undocumented eighteenth century site in South Carolina called Spiers Landing (Drucker 1981). Comparison of the excavated assemblage with the Carolina Pattern guided the inquiry along productive lines, concentrating on divergences from expected artifact proportions. Drucker assumed that some divergence from the Carolina Pattern could be explained by a difference in socioeconomic standing between this presumed slave dwelling and the higher-status sites used by South to delineate the Pattern. While individual Group percentages conformed generally to South's predicted Carolina Pattern ranges, the overall assemblage was significantly different. This and other lines of evidence support the interpretation of the site as an Afro-American slave dwelling.

Patrick Garrow, in a paper presented at the Society for Historical Archaeology meeting in New Orleans in 1981, proposed recognition of the Carolina Slave Artifact Pattern (Garrow 1981). This Pattern was based on artifact assemblages from Spiers Landing (Drucker 1981), Yaughan, and Curiboo (Wheaton, Friedlander, and Garrow 1983) and was characterized by a high percentage of Kitchen Group objects, coupled with a low percentage of Architecture Group objects (Tables 8 and 9).

Garrow suggested that this array of proportions was significantly different from either the Carolina or Frontier Pattern, but that the Carolina and Slave Artifact Patterns should converge in situations where Afro-Americans became more acculturated into the dominant Anglo-American culture.

Garrow continued to examine artifact assemblages in terms of the Pattern models. In a study of collections from the area of the proposed Washington D.C. Civic Center, he used South's classification scheme as a tool to measure cultural change over the occupation span of this urban neighborhood (1982). Before applying the Pattern models, however, Garrow changed some of the Group totals for sites South originally used to derive the Carolina and Frontier Patterns. Garrow's revisions built upon the conclusions drawn by Ferguson (1978) and Lees and Kimery-Lees (1979) regarding the appropriate classification of Colono-Indian ceramics. Garrow shifted the Colono-ceramics from the Activities Group,

Table 8. Artifact frequencies and percentages, Garrow's Carolina Slave Pattern Sites (Source: Garrow 1981:65)

Group	Yaughan A (38BK76) Count	Yaughan A (38BK76) %	Curiboo (38BK245) Count	Curiboo (38BK245) %	Yaughan B (38BK75) Count	Yaughan B (38BK75) %	Spiers Landing Count	Spiers Landing %
Kitchen	18,813	84.18	4,428	80.01	4,476	70.94	2,275	74.84
Architecture	2,641	11.82	749	13.54	1,567	24.83	631	20.76
Furniture	12	.05	4	.07	5	.08	2	.07
Arms	5	.02	15	.27	11	.17	6	.20
Clothing	66	.30	20	.36	32	.51	24	.79
Personal	8	.04	1	.02	5	.08	2	.07
Topacco Pipes	751	3.36	300	5.42	182	2.88	74	2.43
Activities	52	.23	17	.31	32	.51	26	.86
Totals	22,348	100.00	5,534	99.99	6,310	100.00	3,040	100.02

Table 9. The Carolina Slave Artifact Pattern
(Source: Garrow 1981)

Group	Mean %	Percentage Range
Kitchen	77.52	70.94-84.18
Architecture	17.74	11.82-24.83
Furniture	.07	.05-.08
Arms	.17	.02-.27
Clothing	.49	.30-.79
Personal	.05	.02-.08
Tobacco Pipes	3.5	2.43-5.42
Activities	.48	.23-.86

where South originally placed them, to the Kitchen Group, where subsequent research suggested that they were more appropriately classified. This adjustment was made for Fort Moultrie, Fort Prince George, Spaldings Store, Brunswick Town Structure 25, and the Cambridge cellar at Ninety-Six. He further adjusted the totals from Spaldings Store and the Cambridge cellar by shifting stub-stemmed pipes from the activities group to the Tobacco Pipe Group, a shift not profound but certainly defensible.

These changes in Group totals altered the general Pattern arrays somewhat, especially as regards the Kitchen and Activities Groups, since they represent shifts of up to 2583 objects, in the case of Fort Prince George, from one Group to the other. The revised Patterns, as suggested by Garrow (1982), are presented in Tables 10 and 11.

Table 10. Revised Carolina Artifact Pattern
(Source: Garrow 1981:58)

Group	Brunswick S25		Brunswick S10		Cambridge 96	
	Count	%	Count	%	Count	%
Kitchen	22,710	61.77%	6,795	51.80%	12,916	64.97%
Architecture	9,620	26.17%	4,116	31.38%	5,006	25.18%
Furniture	83	.23%	82	.63%	35	.18%
Arms	34	.09%	45	.34%	27	.14%
Clothing	1,070	2.91%	72	.55%	1,069	5.38%
Personal	71	.19%	20	.15%	108	.54%
Pipes	2,830	7.70%	1,829	13.94%	379	1.91%
Activities	347	.94%	159	1.21%	340	1.71%
Totals	36,765	100.00%	13,118	100.00%	19,880	100.00%

Table 11. Revised Frontier Artifact Pattern
(Source: Garrow 1981:58)

Group	Fort Prince George		Fort Watson		Spalding's Store		Revised % Range	Revised Mean
	Count	%	Count	%	Count	%		
Kitchen	4,262	42.7	627	43.8	5,956	35.5	35.5-43.8	40.7
Architecture	4,252	42.6	595	41.6	7,222	43.0	41.6-43.0	42.4
Furniture	6	.1	19	1.3	51	.3	.1- 1.3	.6
Arms	471	4.7	128	8.9	227	1.4	1.4- 8.9	5.0
Clothing	70	.7	23	1.6	51	.3	.3- 1.6	.9
Personal	9	.1	2	1.0	10	.1	.1	.1
Tobacco Pipes	851	8.5	18	1.3	2,344	14.0	1.3-14.0	7.0
Activities	50	.9	20	1.4	909	5.4	.5- 5.4	2.4
Totals	9,971	100.0	1,432	100.0	16,770	100.0		100.0

After proposing revisions to the Patterns, Garrow compared the Patterns with data from excavations at Fort Watson, South Carolina (Ferguson 1975), the Delaware State House (Wise 1978), Camden, South Carolina (Lewis 1976), and the Hepburn-Reonalds House (S7) at Brunswick Town (South 1977). Wise, in her analysis of materials recovered from the Delaware State House, had proposed a new Pattern, called the Public Structure Pattern (1978:119-120). Garrow noted that the sites used by Wise to derive this Pattern and those within his revised Frontier Pattern exhibited very similar arrays of artifact proportions. He then proposed that this new Pattern should more properly be termed the Public Interaction Pattern, since the sites and contexts exhibiting this particular array of artifact proportions can better be characterized by public activities without reference to architectural structures (Garrow 1982:59). The proposed Public Interaction Pattern is presented in Table 12.

Table 12. The Public Interaction Pattern
(Source: Garrow 1981:64)

	Range-Urban	Range-Rural	Percentage-Range
Kitchen	45.4 - 52.0%	35.5 - 53.8%	35.5 - 52.0%
Architecture	42.3 - 48.3%	41.6 - 43.0%	41.6 - 48.3%
Furniture	0.0 - 0.4%	0.1 - 1.3%	0.0 - 1.3%
Arms	0.0 - 0.5%	1.4 - 8.9%	0.0 - 8.9%
Clothing	0.0 - 4.5%	0.3 - 1.6%	0.0 - 4.5%
Personal	0.0 - 0.2%	- .1%	0.0 - 0.2%
Tobacco	1.0 - 4.6%	1.3 - 14.0%	1.0 - 14.0%
Activities	0.6 - 2.0%	0.5 - 5.4%	0.5 - 5.4%

Garrow's adjustments to the original Patterns seem sound and will be incorporated into subsequent analyses in this study. His proposed new Patterns will be examined, as well, in the light of additional data and new perspectives.

Summary

South and the other scholars utilizing his classification scheme and exploring assemblage variability through the Pattern concept have clearly pursued the objectives outlined by David Clarke. They have sought to define essential entities and structures in this portion of the archaeological record. They have identified regularities in assemblage form, and, implicitly, function over time and space. Finally, they have attempted to develop general principles and models which explain the processes responsible for the regularities which they observe. While this latter goal has had equivocal success, the former two preliminary steps have been taken in a decisive, purposeful manner. The development of a consistent, if not elegant, classification system has made broad scale comparison not only easier, but more efficient. Without such comparative and quantitative analysis the recognition of assemblage regularities would not be possible. The identification of the Carolina, Frontier, and Fur Trade Patterns have certainly not ended the search for regularities, but rather have given it a healthy beginning. These Patterns, based as they are on samples that are limited in number, geographical, and chronological distribution, have provided valuable benchmarks for the investigation of assemblage variability. It remains to be seen whether historical archaeologists can resist the temptations to merely pigeonhole collections or to proliferate patterns.

Rather, archaeologists must refine these tools and used them to define and explore the underlying cultural processes that cause the observed regularities and variability in the archaeological record.

CHAPTER III
THE FILBERT SITE: DOCUMENTARY SUMMARY

Methods and Sources Consulted

The author carried out a program of historical research beginning before full-scale excavations started in 1973 and continuing through a decade. The documents gathered together by Ellis Olson, amateur archaeologist and local historian, provided a substantial base from which to begin, as they combined a variety of esoteric and fundamental sources of information, many of them found in private collections. Olson's diligence and skill must be applauded and his efforts recognized.

Building on Olson's work, the author consulted a broad range of documents, in both published and manuscript form. The chronological narrative that follows resulted from this search. Among the libraries consulted that held relevant collections were the Michigan State University (East Lansing), the Bently Historical Library (Ann Arbor), the Clarke Historical Library (Mt. Pleasant), the Burton Historical Collections (Detroit Public Library), the Huntington Library (San Marino, California), the Western Reserve Historical Society Library (Cleveland), the State Historical Society of Wisconsin (Madison), the Minnesota Historical Society Archives (St. Paul), the Chicago Historical Society Archives, the Milwaukee County Historical Society, the Michigan State Library (Lansing), the Michigan State Archives (Lansing), and the Public Archives of Canada.

Manuscript collections, letter files, tax lists, maps, surveys, wills, census records, and published accounts of many kinds were consulted in the attempt to gain insight into the characteristics of the site and its occupants. All relevant references were transcribed or copied and filed with a cross-index that indicated the type of information, the time of the event or topic of interest, and the characteristics of the document. Gradually an extensive file was built up, upon which the historical narrative was based.

Historical Narrative

The earliest reference concerning the establishment of a mill in the Mackinac Straits area was in a letter from Lieutenant Governor Patrick Sinclair to Diedrick Brehm, Governor Haldimand's aide-de-camp in Quebec, dated October 29, 1779, immediately before the relocation of the British garrison from Fort Michilimackinac to Mackinac Island.

> Since my last letters I employ'd for three days from Sun to Sun in examining the Island of Michilimackinac on which I found a great quantity of Excellent Oak, Elm, Beach & Maple with a considerable vein of the largest and finest Cedar Trees I ever saw, Thro' which there is a run of water sufficient for a Saw Mill.
>
> We now mix of Barrel of old Flour (indeed not good) to three of new to make it eatable. If the General sends in the Spring men capable of erecting & working a Saw and Grist mill with some of the Dutch Refugee Families from below, I will answer for the success of the scheme, of Agriculture & make Provision to turn to some account which might have been useless
>
> (Sinclair 1886a:532-533).

It is clear that Sinclair recognized a need for a mill and the concomitant development of an argicultural base to provide provisions for the garrison and settlement. In February of 1780, Sinclair wrote Brehm of his further plans for the settlement on Mackinac Island. "Our Village will be washed on one side by a fine Spring which with some care may be brought to turn a mill at least one day in seven" (Sinclair 1886b:540). Again, it was apparent that Sinclair was concerned about the establishment of a mill as a necessary element of the settlement.

Sinclairs's plans were answered by Brehm in April of the same year.

> in the present situation of affairs, His Excellency thinks it more essential to employ your strength in the immediate Execution of your Defences than to begin by building a Saw Mill, which must therefore be an after consideration (Brehm 1886:534).

Despite the lack of interest or support on the part of the superiors in Quebec, the Commandants at Michilimackinac continued to pursue a means for setting up a mill. In a statement of work by P. Durand dated October 22, 1780, there was a description of a trip ordered by Major DePeyster

> down the river besides the house of the chief Macquiquiovis to examine & find the pineries of red and white pine to make a saw mill & to examine the different sorts of wood and land for the good of the King (Durand 1886:36).

Apparently no mill had been established by June of the following year, for Brehm's secretary, R. Mathews wrote Sinclair

> The General is informed that there is very good stones for Mills & Grind Stones on the Island, he begs you will give him your opinion

of their Quality, and if possible send him a Sample of them, as He purposes erecting a Wind Mill on the Island, and at other Posts, he therefore wishes for the best Information and Remarks (Mathews 1886:488).

The recognized need for a mill and the concern for establishment was echoed in a letter from a later Commandant, Captain Daniel Robertson, to Secretary Mathews in June, 1784. "I likewise forgot to inform that there is a very advantageous fall for mills on the River Tessalon, and a large Pinery adjacent" (Robertson 1888:420). The Thessalon River was located approximately 50 miles north of the Straits of Mackinac, in present-day Ontario. This may have been the same river and pinery surveyed by Durand in 1780.

By May of 1793, however, there had been a change in the state of affairs regarding mills, as Captain William Doyle, Commandant at Fort Mackinac, wrote to Lieutenant Colonel England, commanding the district at Detroit, of the "ruionous state of the officers and soldiers barracks" and mentioned his plans to undertake repairs. In reference to those repairs he wrote "I have accordingly made a Contract for a sufficient number of boards, Which I must send to Campbell's Saw Mill for, whenever the large boats are repaired" (Doyle 1887:48-49). The necessity of repair to the large boats prior to sending for the lumber suggests that the saw mill was not located on Mackinac Island, as Sinclair had originally planned, but rather somewhere on the mainland. Work on the barracks was apparently delayed for some time, for on the 6th of September Doyle again wrote England regarding the repairs. "I propose in a few Days sending to the Saw Mill for Plank, when I shall give the Barracks a thorough repair having received orders from His

Excellency Major General Clarke to that purpose" (Doyle 1893:381). Only the mention of the name Campbell in Doyle's correspondence provided a clue as to the location of the mill.

Robert Campbell was among a group of traders, merchants, and other inhabitants "formerly commodiously settled at the Old Village of Michilimackinac in the year 1780" who presented a petition to the Commandant, Robertson, in October of 1783 (Campbell et al 1888:393-395). This petition stated that all of the undersigned inhabitants had moved to Mackinac Island, at the request of Sinclair, when the garrison has moved, and had abandoned valuable improvements as a result. Sinclair had promised, and apparently delivered, comparable land grants on the Island as incentive to make the move and as partial compensation for their losses. In 1783, following the Treaty of Paris in which the British ceded the Northwest Territory to the United States, these petitioners were concerned that the American government might not acknowledge their loosely documented claims and asked in this petition that the Commandant confirm their claims. At least one of the petitioners, Pierre Grignon, received a signed land grant from Sinclair (Sinclair 1908:432-434), but for the most part these deeds have either not survived or were perhaps not issued.

After a trip through the Northwest Territory in 1796, to arrange for the change of government from British to American control, Winthrop Sargent wrote to the Secretary of State regarding land records.

> Whilst I was at Michilimackinack Sir I examined the Land Records of the Island which was purchased from the Indians in 1781 and a formal Deed is now with the Commandant - a copy of which I have the

honour to transmit - By those records it appears their Land Transactions were sometimes extreme loose - scarcely a singly Deed made where a Boundary was expressed, and in many Cases neither Boundary nor Quantity - at the same Time, the principal part of the Island appears to have been granted away, and the Possessors or Claimants can, I believe, by oral Testimony, very generally define their Lots, which were all derived immediately from Lieutenant Colonel P. Sinclair, the Governour of the Island (Carter 1931:457).

Little information was recorded regarding Robert Campbell. His signature on the Sinclair petition was his earliest appearance in the documentary record and it suggested that he was well established in the Mackinac settlement by the winter of 1780-81 when the garrison was moved. His name appeared a number of times in official documents of the 1780;s and 1790's (Gruet 1785, July 20; St. Martin 1908:497-498; St. Martin 1910:102). Campbell also was mentioned in a letter from Charles Morison of Mackinac to John Askin in Detroit dated February 10, 1801. "And the ice only closed the 22nd. Mr. Fraser had to stay at Mr. Campbell's 15 days before he got over here, which was on the 24th Ulto" (Morison 1910:294). This reference made it clear that Campbell had a house on the mainland near the Straits, as Mr. Fraser was forced to stay there awaiting safe ice conditions for his passage to the settlement on the island.

Following the British cession of the Northwest Territory in 1796, the United States government established the Detroit Land Commission to review all land claims in Michigan Territory, which, as Sargent suggested, were very loosely documented. The Land Commission collected information and examined claims during 1804 and 1805, reporting to Congress in January, 1806. The Detroit Land Office was established by Congress in March, 1807, to further examine the claims and to reject or confirm them. This office and its Board operated from June 1807 until January 1825. The details of Land Office operations are of little concern here, except as they relate to the particular property under consideration. As was the case with the majority of claims processed for the Territory, Private Claim 334 was a claim based not on any clear deed or grant, but rather on occupancy and improvement prior to the United States takeover in 1796. Though it was most likely a grant of land made by Sinclair to Campbell subsequent to the removal of the garrison from the mainland to Mackinac Island, no deed or grant has been found, nor was one mentioned in the claim.

Robert Campbell died in 1808 and on October 19 of that year, "the legal representatives of Robert Campbell, deceased" presented a claim to the Register of the Detroit Land Office for 640 acres, 20 in front and 31 acres in depth on the mainland south of Mackinac Island.

> whereon the said Robert Campbell, for many years past, and until his death, did live and improve, together with the house, mills, and other improvements thereon erected and made, commonly known by the name of Campbell's farm. The said heirs of the said Robert Campbell claim said tract of land by virtue of long and continued possession, occupancy, and valuable improvements by them, and the said Robert Campbell, under whom they claim, made upon said farm (Lowrie 1832:408).

This claim was witnessed by Daniel Daly, who added that "forty acres and upwards are cultivated" (ibid.). Michael Dousman was also a witness to the claim, and said "that there are considerable improvements made on the premises, to wit, a grist and a saw mill, a large orchard, and valuable buildings" (ibid.). The claim of Campbell's heirs was confirmed on the 25th of October, 1808 with the requirement that they have the claim surveyed and file a copy of the survey with the Detroit Land Office (Lowrie 1832a:408-409). These documents supported the conclusion that Robert Campbell was the owner of the saw mill earlier mentioned by the British commandants.

Aaron Greeley was the Deputy Surveyor designated by the Land Office to survey the private claims in the Mackinac area, and the map showing his survey of 1810 illustrates Private Claim Number 334, "confirmed to the legal representatives of Robert Campbell" (Greeley 1810). The Campbell claim was located on the southern shore of Lake Huron and at the eastern edge of a tract of 11,520 acres which also included the "Old Fort of Michilimackinac" and Private Claim Number 335, confirmed to Patrick McGulpin. This large tract was labelled, "Ceded to the United States by the Chippewas at the Treaty of Greenville in the year 1795" (ibid.).

> The Treaty Greeneville referred to a number of cessions of Indian lands to the United States including The post of Michilimackinac, and all the land on the island, on which the post stands, and the main land adjacent, of which the Indian title had been extinguished by gifts or grants to the French or English governments; and a piece of land on the main to the north of the island, to measure six miles on lake Huron, or the strait between lakes Huron and Michigan, and to extend three miles back from the water of the lake

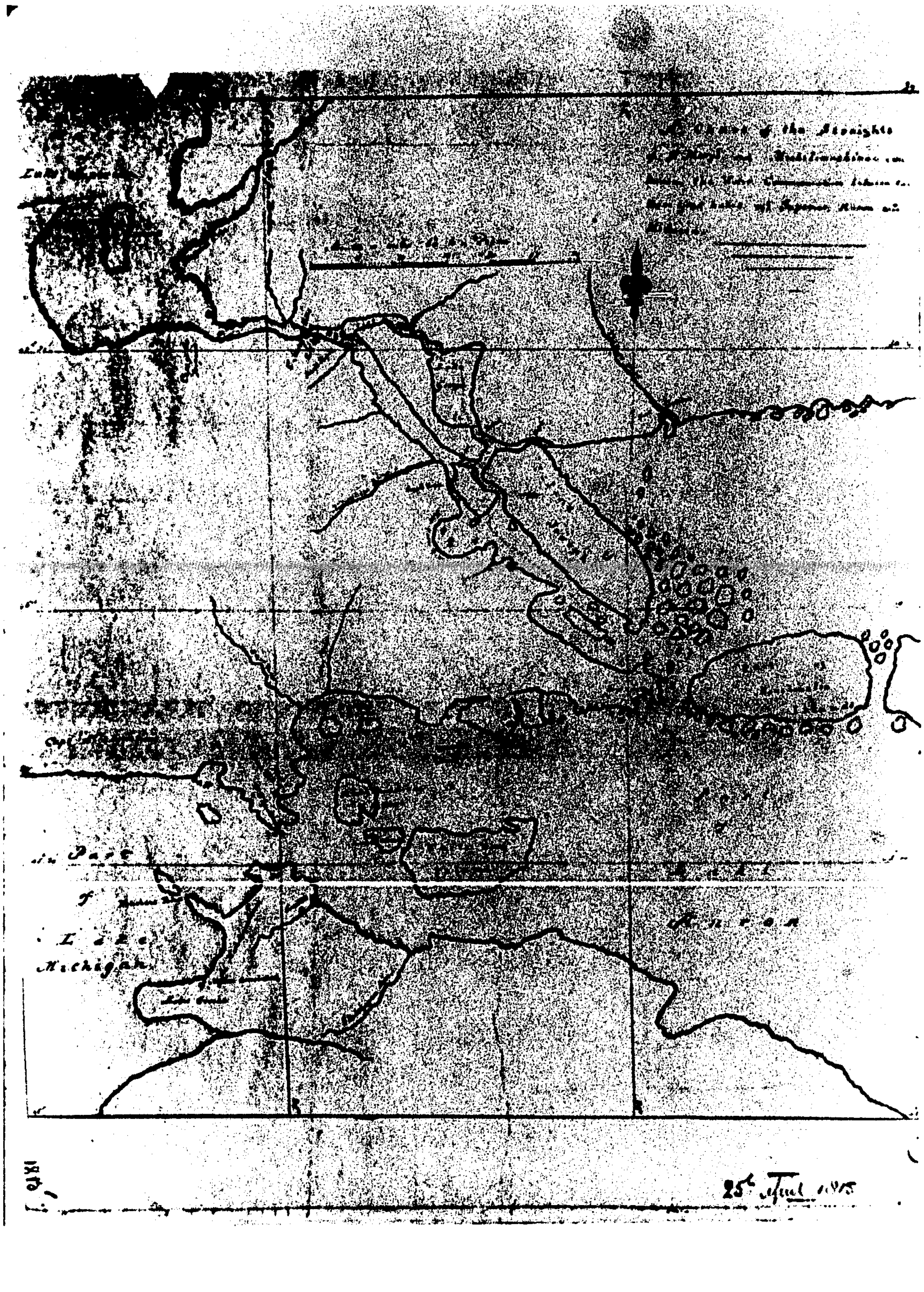
> or strait, and also the island De Bois Blanc, being an extra and voluntary gift of the Chippewa nation (Kappler 1972:40).

The land "on the main land adjacent" was evidently the large tract which includes Private Claims 334 and 335, the "reservation of the post at Michilimackinac" which was originally ceded in the 1785 treaty of Fort McIntosh (Kappler 1972:8). This supposition was supported by a reference in the Patent issued to Campbell's heirs in 1811, which describes Private Claim 334 as containing 640 acres, "located at the Southwest corner of the reservation at Old Michilimackinac" (Cheboygan County, Liber B:147).

Another map of the Straits of Mackinac area, from the Public Archives of Canada, was dated in pencil, April 25, 1815, but probably was drawn earlier than that date, perhaps in the 1790's (Public Archives of Canada:1815; Figure 2). The questionable nature of this map's dating was based primarily on the inclusion of Fort Thessalon on the Thessalon River in Ontario, an establishment which was only in existence during the 1780's and 1790's. This map showed a "Saw Mill" located on the west bank of Mill Creek near the creek's mouth.

On March 12, 1819, Robert Campbell's heirs sold Private Claim Number 334 to Michael Dousman of Mackinac Island for $1,000. (Cheboygan County, Liber 52:544). Dousman was an individual of some notoriety in the Upper Lakes, and enterprising man with wide-reaching interests. Born in Pittsburgh, Pennsylvania in 1771, Dousman came to the Northwest Territory in August, 1796. He spent some weeks ill in Detroit and arrived in Mackinac in October of that year. Dousman made his home in Mackinac and was active in the fur trade for most of the remainder of his life. He was a partner of David Stone from Detroit and for some time

Figure 2. Straits of Mackinac *circa* 1785


L a k e
Michigan
Huron
25th April 1815

worked for John Jacob Astor's American Fur Company, as well as on his own account, importing over $16,000. worth of goods during the period 1803-1824 (Mackinac Impost Book 1802-1850).

Dousman was commissioned Lieutenant of Militia for the Mackinac District in 1805 and was appointed Marshal of that District in 1808 (Carter 1941:727). During the Land Claims Commission hearings, he witnessed numerous claims in the Mackinac and Sault Sainte Marie areas, including Robert Campbell's, as well as filing claims on several hundred acres himself. One of these claims, his farm and residence on Mackinac Island, was the source of considerable friction between Dousman and the U.S. Army in 1811 (ibid. 370-371). The Army claimed that it was rightly their property and wanted it for the wood growing there. Dousman claimed that the wood had largely been cut and that he had made valuable improvements, including a two-story house, a still-house, and a mill. Dousman ultimately won this argument and his claim was confirmed.

A major source of Dousman's notoriety was his role in the 1812 capture of Fort Mackinac by British forces. Subject of litigation for years after the incident, Dousman's role in the events that led to the capture was not clearly understood. Before the Island's inhabitants, both military and civilian, knew of the declaration of war between Great Britain and the United States, there was suspicion regarding British activities in the region. Dousman evidently set out on a trip to St. Joseph's Island, ostensibly to check on his trading interests in that area. It was alleged that he was intercepted and captured by a British force on its way to attack Fort Mackinac, a force which knew of the official state of war between the two nations. Dousman was sworn to secrecy and set ashore on Mackinac Island with directions to see to the removal of noncombatants from the village, which was very near the fort. This task was accomplished without warning the troops of the garrison and the British attained an overlooking vantage point at the rear of the fort. The American Commandant surrendered his position without a shot being fired and Dousman was branded a traitor by many of his fellow citizens.

His actions in this incident apparently prompted the British government to grant him certain concessions during their occupation of the area, which lasted until 1814. Dousman provided the British garrison with various supplies, including hay and lumber, and was evidently unrestricted in the pursuit of furs. This behavior left him open to numerous charges of collaboration with the enemy following the war and was a source of lawsuits and the denial, from 1816 until 1819, of a license to engage in the fur trade. Though he was cleared of the allegations of collaboration and his right to trade reinstated, Dousman suffered accusations for some time and was quick to affirm his allegiance to the United States. It was clear that his ties with the British were little more than expedient, for as soon as hostilities ceased, he filed claims with the British government in Canada for services he provided and damages to his property suffered during the occupation (Dousman 1815).

In 1819, Dousman purchased the Mill Creek property from Campbell's heirs, John Campbell and his wife Elizabeth, Peirre Pyant and his wife Mary, and James Stevens. During that year, he "fit out" a cooper to manufacture barrels (Dousman 1819a) and petitioned Governor Lewis Cass for a determination of his citizenship and rights to engage in the fur trade, succeeding in regaining his lost license (Dousman 1819b). He expanded his trading activities, selling a variety of goods to the Indian Agent at Mackinac among others (Dousman 1819c), and investing in land in Wisconsin. The United States Census of 1820 reflected something more of Dousman's commercial activities (United States Census 1820). His household was listed as containing 24 persons, enumerated below.

Table 13. Michael Dousman household, 1820 Census

2 free white males under 10
2 free white males between 16 and 18
7 free white males between 18 and 26
6 free white males of 45 and upwards
2 free white females under 10
1 free white female between 10 and 16
1 free white female between 16 and 26
1 free white female between 26 and 45
1 free colored male between 14 and 26
1 free colored female between 14 and 26

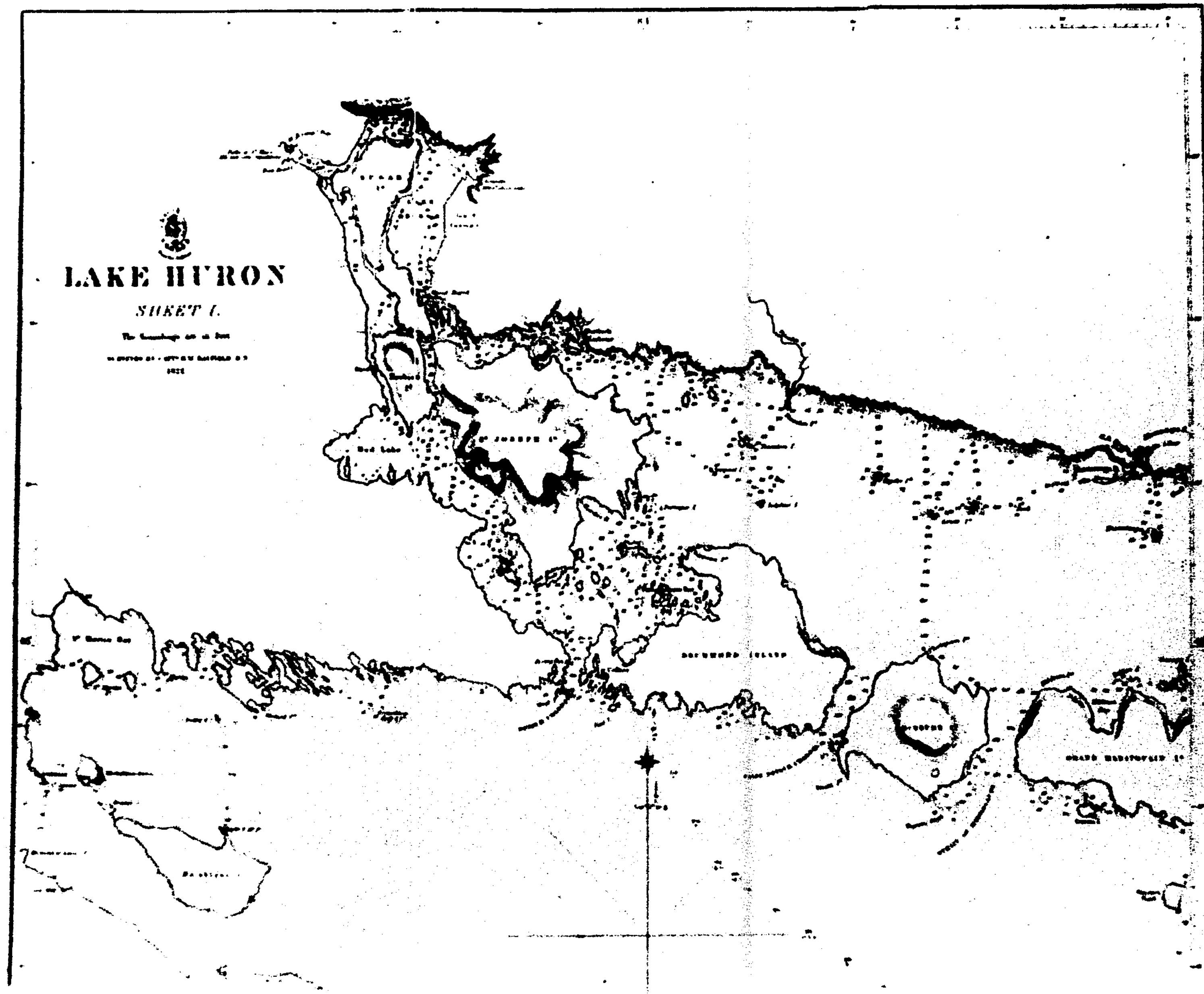
Of these, 9 were foreigners, 9 were engaged in agriculture, one was engaged in commerce, and one was engaged in manufacture. The term "household" was evidently applied rather broadly in this Census, for the "household" of Ramsay Crooks, chief agent of the American Fur Company at Mackinac, was listed as containing 207 persons, 193 of them engaged in commerce, 157 of them foreigners. It was apparent that these individuals did not all reside under a common roof, but included most or all of the persons in the employ of the company, many of whom may not have even resided in Mackinac during much of the year. Such was evidently the case with Dousman's "household", for his family at that time numbered only 9, suggesting that the other 15 individuals listed were servants and/or employees.

Dousman's saw mill on Mill Creek was noted by James Duane Doty, secretary of the Lewis Cass expedition through the Upper Lakes in June of 1820. Doty observed that "Off the upper end of Bois Blanc (Island) about 10 miles distant on the main there is a saw mill" (Doty 1895). The agricultural activity of Dousman is further attested to by his registration of a cattle brand that year with the Circuit Court (Michilimackinac County 1820).

During 1821 Dousman concluded more sales to the Indian Agent, including 300 feet of lumber (Dousman 1821). In this year he was also awarded the first of several annual War Department contracts to supply beef and other commodities to the garrison at Fort Mackinac. This particular contract was for fresh beef, to be furnished at a rate of 10¢ per ration, 25% higher than the rate paid at any other War Department installation that year (U.S. Congress 1822). He was appointed Associate Justice of the County Court by Governor Cass (Carter 1942:205-206), and was evidently getting involved in the shipping business, for his correspondence that year includes a reference to a contract for the transfer of goods from one place on the lakes to another.

In 1822, Dousman's saw mill was depicted on a map of Lake Huron which was drawn by H.W. Bayfield of the British Royal Navy (Bayfield 1822; Figure 3). This map placed buildings on both sides of Mill Creek, rather than only on the west side, as was the case on earlier maps. In correspondence, Dousman complained of having his trade goods and furs stalled due to the difficulties of winter travel in the Upper Lakes (Dousman 1822). Though his goods and furs were not moving, Dousman

Figure 3. Straits of Mackinac, 1822


LAKE HURON
SHEET I.

himself travelled rather widely during the winter of 1822-23, visiting both Detroit and Buffalo. He noted in a letter from Detroit that there was "much talk of the New Company," referring to the newly amalgamated Hudson's Bay Company and Northwest Company (ibid.). The reorganization of these two firms into a single Hudson's Bay Company concentrated the influence and power of the Canadian fur trade into an ever more dominant force.

In October of 1823, Dousman filed a claim with the Detroit Land Office for a tract in the rear of the 330 acres which had previously been confirmed to Robert Campbell's heirs (Lowrie 183b:222-223). An impressive group of witnesses provided testimony supporting Dousman's claim, and, coincidentally, offering information concerning the Campbell's earlier occupation of this land. Ambrose R. Davenport described extensive meadows which provided quantities of hay and supported a large number of cattle for Robert Campbell. Patrick McGulpin swore that "he recollects to have seen Robert Campbell in possession of the tract before mentioned in the year 1790" (ibid.). John Campbell, aged 37, testified that

> ever since his recollection, his father, Robert Campbell occupied until his death the tract of land described in the annexed notice; that after his father's death this deponent occupied said tract until he, together with the other heirs of his said father, sold the same to Michael Dousman, since which time said Dousman has been in possession of the same; the meadows on this tract have always been considered very valuable, and this deponent well knows that his father every year cut large quantities of hay upon them, and

this deponent did the same while he was in possession of them (ibid.).

Dousman's claim, extending the tract to its original 640 acres, was confirmed by the Land Board on October 22, 1823 (ibid.). A tax list for Michilimackinac County for that year showed Dousman as the holder of real property valued at $15,000 and personal property valued at $2,000 (Michilimackinac County 1823). In either of these categories and in aggregate, Dousman was by far the largest individual property holder and taxpayer in this vast northern district. He was second only to the American Fur Company, which held $20,000 worth of real property and $30,000 worth of personal property, most likely in the form of trade goods and furs.

The financial and economic activities of Mr. Dousman continued apace during 1824, and he received his second contract to supply fresh beef to Fort Mackinac (U.S. Congress 1825). A single ledger page from 1824 and 1825, entered as evidence in a suit between Dousman and John Laird, showed that Dousman was selling lumber, flour, barrels, hay and beef in the community, as well as renting a house (Michilimackinac County 1828). He remained the County's second largest property holder and taxpayer in 1824, but his appraisals dropped to $11,000 real property and $1,500 personal property (Michilimackinac County 1824). However, the bulk of the county's appraisals also fell in that year, the total value of real property dropping from $83,100 to $65,462 and the value of personal property from $57,891 to $29,932. The general economic conditions of the time might have been the cause of this decline in values, but other indicators did not show a similar drop.

Perhaps a more important contribution to the change in values was the appointment of Michael Dousman as tax assessor (ibid.).

In October, 1825, Dousman was also appointed one of the County Commissioners for Michilimackinac County (Carter 1942:900-901). In December, he was one of 35 signers of a petition to Congress "by Merchants of Michilimackinac" for a light house to be built at the eastern end of Bois Blanc Island as a navigational aid to ships travelling up the lake (Carter 1942:836-837).

The county tax list for 1826 showed Dousman still the second largest property holder and taxpayer (Michilimackinac County 1826). He won the contract to provide fresh beef for the garrison that year (U.S. Congress 1827) and his correspondence reflected his continued interest in trade. In a June letter to John Lawe in Green Bay he wrote of lead and fish hooks, the difficulty of acquiring sufficient gunpowder and flints, and remarked that a vessel had recently made the trip from Buffalo to Mackinac in just nine days (Dousman 1826).

During the later years of the 1820's and the early 1830's, Dousman was employed by the American Fur Company, as was his eldest son, Hercules. Following a period of employment as a clerk at Mackinac, Hercules was dispatched to Prairie du Chien in 1827 (Lockwood 1903) and developed a flourishing trade for the company in that district. He quickly established a reputation with the Indians as a forthright trader. His expertise as a negotiator made him a valuable and frequent contributor to treaty efforts in the Old Northwest. Hercules, in partnership with Ramsay Crooks, purchased the northern division of the Company in 1834 from John Jacob Astor. This venture was neither particularly successful nor long-lived, but Hercules had sufficiently diversified his business interests into railroads and steamships to allow him to amass a considerable fortune.

In 1828, Michael Dousman again secured the contract to provide fresh beef to Fort Mackinac, as he did in 1829 and 1830 (U.S. Census 1829; 1831; 1832). He also won a contract to supply 30,000 pounds of "good Timothy and Clover Hay for $1.10 per hundred pounds" to Fort Mackinac in 1830. Writing of an excursion to the mainland to cut timber in the winter of 1830, Mr. Martin Heydenburk reminisced that "Michael Dousman had a saw-mil about two miles distant from our logs and we soon had them there" (Wood 1918 (1):415). Dousman evidently milled the lumber, which was then moved across the frozen Straits to be used in the construction of the Mission Church on Mackinac Island.

The U.S. Census of 1830 (U.S. Census 1830) listed Dousman's household as containing 19 individuals enumerated below.

Table 14. Michael Dousman household, 1830 Census

1 white male between 10 and 15

1 white male between 15 and 20

4 white males between 20 and 30

3 white males between 30 and 40

3 white males between 40 and 50
(Dousman should be 58-59)

1 white female between 5 and 10

1 white female between 10 and 15

2 white females between 15 and 20

2 white females between 20 and 30

1 white female between 40 and 50

Dousman retained his fresh beef contract for 1831 and also contracted to deliver 23,000 pounds of timothy and clover hay at $12.50 per 1,000 pounds (U.S. Congress 1832). His correspondence included references to raising and shipping pigs to several of his associates in the region (Dousman 1831). During the period 1832 through 1836, Dousman continued to supply fresh beef to Fort Mackinac (U.S. Congress 1833; 1834; 1836), and was involved in shipping with at lease one vessel, the Nancy Dousman, plying the lakes with passengers and freight (La Ronde 1908:349). Consistent with a series of earlier land purchases in the Green Bay area, in 1833 he made significant land buys and began developments in the new village of Milwaukee with Morgan L. Martin, a land speculator and cousin of James Doty (Still 1948:9, 22, 30). His acquisitions included several lots, upon which he constructed a warehouse, a store, and dwellings.

In November, 1834, Dousman signed a "Petition to Congress by Owners and Masters of Great Lakes Vessels" (Carter 1945:812-814). This document complained of the difficulties of navigation on Lake Michigan, especially the great distance between harbours on the western shore. The petitioners further predicted that 150 vessels were expected to be involved in commerce in the area the following year. They asked that funds be allocated to develop a harbour at the mouth of the Milwaukee River.

A map of the Greenville Treaty cession lands in the Straits of Mackinac was prepared in 1834 and shows "Dousman's Mill" on Mill Creek (Ellis 1834). Though the scale was small and detail limited, it depicted three structures at the mill site, all on the west side of the stream.

In 1835, Dousman's sons, George and Talbot, moved to Milwaukee to look after their father's growing interests in that city and to establish themselves in business (Buck 1890:73-74, 131). They operated a large farm in Waukesha County, outside the city, and had interest in the operation of a sawmill and a gristmill in Milwaukee. Their primary occupations in those early years, buying, storing, and shipping grain from their warehouses near the harbour, earned George the appellation "leading forwarder of his day" (Holton 1906:256, 258, 260).

A "memorial to Congress by the Inhabitants of Michilimackinac" seeking an appropriation for the construction of two piers to protect the harbour at that place was signed by Michael Dousman and a number of others, including J.M. Lewis, master of the Nancy Dousman (Carter 1945:1030-1031).

Lieutenant Benjamin Poole of the Third Artillery Regiment, U.S. Army, surveyed a proposed road route from Saginaw to Mackinac in 1839 (Poole 1839). The northern terminus of this route reached Lake Huron at the east side of Mill Creek and the map showed "Dousman's Saw Mill" on the east bank.

The 1840 federal census lists Michael Dousman's household as containing eleven persons, enumerated below.

Table 15. Michael Dousman household, 1849 Census

4 white males between 20 and 30

1 white male between 30 and 40

2 white males between 40 and 50
(Dousman would be 68-69)

1 white female between 10 and 15

1 white female between 20 and 30

1 white female between 40 and 50

The Population Schedule listed one person engaged in commerce, none in agriculture, manufacture, etc. Evidently, if Dousman was employing others in those occupations, they were enumerated in separate households.

In 1841, Dousman contracted with Lieutenant John Phelps to furnish and deliver fuel to Fort Mackinac (U.S. Congress 1842). He was to provide 300 cords of firewood at a rate of $3.45 per cord, a price that was double the going rate of War Department contracts at Detroit that year. In 1842, Dousman won the contract to provide straw to the garrison "as required" at a rate of $15 per ton (U.S. Congress 1843).

Dousman's wife of 35 years, Jane, died in Mackinac in May of 1842 (King 1843). On April 26 of the following year, his daughter, Nancy, died in Milwaukee, only to be followed in death on May 1 by her brother, Presley, aged 29. News of his childrens' deaths reached Michael while he was travelling through Detroit two weeks later, and he was stricken with grief, falling near death himself (Dousman, M., 1843).

After recovering from these blows to his family, Dousman seemed to throw himself into his farming, trading, and speculation with renewed vigor. He won the contract for hay and straw at Fort Mackinac and Fort Brady, in Sault Sainte Marie, during 1843 (U.S. Congress 1844).

Talbot Dousman wrote to his older brother, Hercules, in February, 1844, complaining of their father's compulsive work habits. Consistent in the siblings' correspondence was the belief that Hercules had greater influence over Michael, perhaps since he was the oldest and most established of the children.

> I wish Father could be induced to close his business and leave Mackinaw. He appears to think if he does not work he will starve,

and the more he works the more he loses--I believe if you could see him you would induce him to close up every thing and live at ease the balance of his days (Dousman, T.C., 1844).

At the same time Talbot was seeking to slow his father down, Michael was awarded contracts with the War Department to provide 100 cords of firewood to the Indian Agency at Mackinac at $2.50 per cord, and hay and straw for Fort Mackinac through 1845 and 1846 (U.S. Congress 1845). In a letter from Michael to Hercules dated July 13, 1844, posted in Milwaukee during a business trip, the father announced "I have looked Close to my Business at Mackinac" (Dousman, M., 1844). Later that year he was awarded a contract for a year's firewood for Fort Mackinac and the fresh beef contract for that installation (U.S. Congress 1846). Far from slowing down, he was accelerating his activity. Bear in mind, these transactions are gleaned from scattered sources, not Dousman's ledgers or other business records, and surely reflect only a portion of his commercial activities.

On October 3, 1844, Michael Dousman, 74 year old widower, was bound over at $2,000 bond on charges of "assault with intent to commit rape upon the wife of John Knapp" (Michilimackinac County 1844). A messy little business, this, replete with detailed descriptions of several incidents during which old Michael did send his servant John off on duties elsewhere while he pursued the lovely Emily, offering such enticements as a new pair of shoes if she'd sit on his lap, and worse, culminating in some physical abuse upon her person after refusing to roll in the hay. The matter was made somewhat more interesting by the testimony of an eyewitness, who had secreted himself beneath Mrs. Knapp's bed, in the one instance, and in the haymow, in the other. Alas, the ultimate outcome of this affair is unknown to the author, as examinations of court records failed to recover the settlement.

Dousman continued to contract for hay and straw for Fort Mackinac during 1846 and 1847, at $16 and $15 per ton, respectively (U.S. Congress 1847). Much of his correspondence during these years discussed the successes of his sons in shipping and warehousing, as well as the operation of a farm and mill in the Milwaukee area (Dousman, M., 1847a, 1847b).

Michael Dousman remarried on September 28, 1847 at Mackinac. He married 30 year old Eliza McLeod of Mackinac, giving his own age as 60 (Gruet 1785-:116).

In April of 1848, Dousman wrote his will in Milwaukee, leaving a token $100 to Hercules, his house in Mackinac and $5,000 to his wife Eliza. The remainder of his estate was to be divided among John B. Dousman, George D. Dousman, Talbot C. Dousman, and Eliza Jane Wolcott (Dousman, M., 1848a). Shortly thereafter, Dousman wrote his eldest son, telling him of the will, adding that "life is very uncertain" (Dousman, M., 1848b). Another letter from Michael to Hercules, dated November 26, 1849, stated "I have sold over 200 Barels Flour this Sumer, not less than $5" (Dousman, M., 1849).

The 1850 federal census was the first to enumerate detailed information on agriculture and manufacturing. Michael Dousman was listed in Michilimackinac County with 100 acres of improved land, 536 acres of unimproved land, a farm appraised at $10,000 cash value, implements appraised at $101, 2 horses, 26 milch cows, 2 working oxen, 2 other cattle, 11 swine, total value of livestock $800, 200 bushels of oats, 100 bushels of Irish potatoes, $200 worth of orchard products, 400 pounds of butter, 30 tons of hay (U.S. Census 1850). He does not appear in the population schedules for Michilimackinac County, nor in Milwaukee, so enumeration of his household is impossible.

An 1852 survey of the Straits of Mackinac showed considerable detail, including the clearing for the old Mackinaw Road on the mainland, and buildings on Mackinac Island, but included neither buildings nor dam on Mill Creek (Macomb, Raynolds, and Potter 1852). A later map based on some of the same survey but published in 1854, showed a building on the east bank (Kearney and Macomb 1854).

On August 22, 1854, James Duane Doty, Dousman's lawyer and old friend wrote to John Jacob Astor, a long-time mutual business associate in New York, "Michael Dousman died when I was in Milwaukee and made me one of his executors. I am compelled to go to Mackinaw immediately to take an inventory of his property, etc." (Doty 1854). Dousman's will was entered into probate in Mackinac on October 11, 1854. It was contested first by Talbot and later by the widow Eliza, on behalf of her minor daughter Elizabeth. The estate was settled only after lengthy litigation.

The executors of Dousman's estate sold Private Claim 334 to William W. Wendell for $400 in 1856 (Cheboygan County, Liber 52:549). The property was subdivided and portions of it sold a number of times during the remainder of the nineteenth century.

In the field notes of a survey of the Duncan, Alpena, and Ausable River State Road, later known as the Old Mackinaw Road, surveyed by David S. Oliver in 1862, were noted the following observations of the Mill Creek area. "Thro old clearing to bank of Stream thence N67W 1 chain across stream-Banks 12 ft. high almost perpendicular and rocky at Old Mill site" (Oliver 1862).

During the latter half of the nineteenth century, Mackinac Island became increasingly popular as a summer vacation spot. One summer visitor published a descriptive account of a trout fishing excursion to Mill Creek in August of 1867. Though primarily impressed by the tenacious insects he encountered, "these tribes of Buzz and Hum," this observer did leave an interesting account of the mill site.

> We made our way up the stream about half a mile, where there had formerly been a sawmill, the ruined dam of which still obstructed the channel. It was evident that no trout with the use of his fins would stay here. There had formerly been a cleared spot of land about the mill, but it was fast growing up into forest again (G.P. Putnam & Sons 1868:73).

In 1881 a crew of workmen who were preparing a railroad grade and bridge to cross Mill Creek recovered a brass or copper plaque bearing an inscription:

> Here lieth the Body of
> John Annan Late Corpl
> in the 2nd Battn 60th Regt
> Who departed this lif feby 10
> Anno domini 1771
> aged 51 years (H.R. Page & co. 1884:102).

A check of British muster rolls from Fort Michilimackinac from this time period revealed that a Corporal John Annan did indeed die on the date indicated on the plaque. The object has long since disappeared and there are no known photographs of it, but the likelihood of its being a fraud is very low, since the publication of the find predates the public release of the Muster Roll information in England.

A number of further transactions regarding the history of Private Claim 334 took place in the early years of the twentieth century. Beginning with 1902 and continuing through the next twenty years, the owners of the property sold off and leased portions to the Petoskey Mackinac Lime Company and its agents. This company further leased to Willis Y. Durrell of Cincinnati the rights to all limestone and clay lying on or under the surface of the property, to open and "to operate one or more quarries or pits, have sidetracks, and such buildings as are necessary with machinery, etc., to quarry, mine, and ship said limestone and clay" (Cheboygan County, Liber 24:374; Liber 52:561). This mining operation has had a tremendous effect on the landscape in the general site area and its effect on the physical remains of the eighteenth and nineteenth century occupations have yet to be fully assessed. One large quarry pit cuts into the high bluff overlooking the site, as do a number of smaller pits scattered along the bluff edge to the east. In addition, there is a cut that earlier contained a railroad spur on the west side of the stream.

An affadavit was filed in the Cheboygan County Courthouse, evidently in relation to an ownership dispute, on November 11, 1916, by Angeline Bennett, aged 85 (Cheboygan County, Liber 64:441). Mrs. Bennett and her husband Charles lived on Private Claim 334 "for upwards of 50 years," beginning shortly after the close of the Civil War as tenants of the Wendell family. She described a man named Young who had erected a house and manufactured lime on the premises for two years prior to her occupancy. She and her husband continued to live in the house erected by Young until about 1911, when the house burned and they were forced to move elsewhere.

During the middle years of this century, the greater portion of Private Claim 334 reverted to State ownership and was incorporated into the Hardwood State Forest, under the jurisdiction of the Department of Natural Resources, Forestry Division. In 1975 the property was transferred to the Mackinac Island State Park Commission for inclusion in its public interpretation program.

Summary

The subject property was ceded to the U.S. government by the Chippewas in the Treaty of Greenville, 1795. Since it was part of a "Reservation" surrounding the abandoned British Fort Michilimackinac, and since John Annan, a British Corporal was evidently buried on the property, it appears that the British used this area, if only for procuring firewood.

Patrick Sinclair expressed a strong need for a mill and for the development of agriculture in the area, and thus probably granted this land to Robert Campbell as compensation for his losses when the Fort was moved. Campbell occupied the land at least as early as 1790, operating a sawmill, gristmill, and farm. When Campbell died in 1808, his son John continued to operate at least the farm, selling out to Michael Dousman in 1819.

Dousman was an early trader and entrepreneur, involved in the fur trade, was a government contractor for hay, lumber, beef, and other commodities, and a land speculator. Together with his children he became involved in shipping and wholesaling. He did not reside at the Mill Creek site, but rather lived at his farm on Mackinac Island. The documentary record did not indicate just how the mill and mainland farm were operated.

Local history placed the closing of the mill at 1839, but other documents suggest that it ran perhaps into the 1850's. The site was in a ruinous state by the end of the Civil War, an observation which supports the argument for earlier closure.

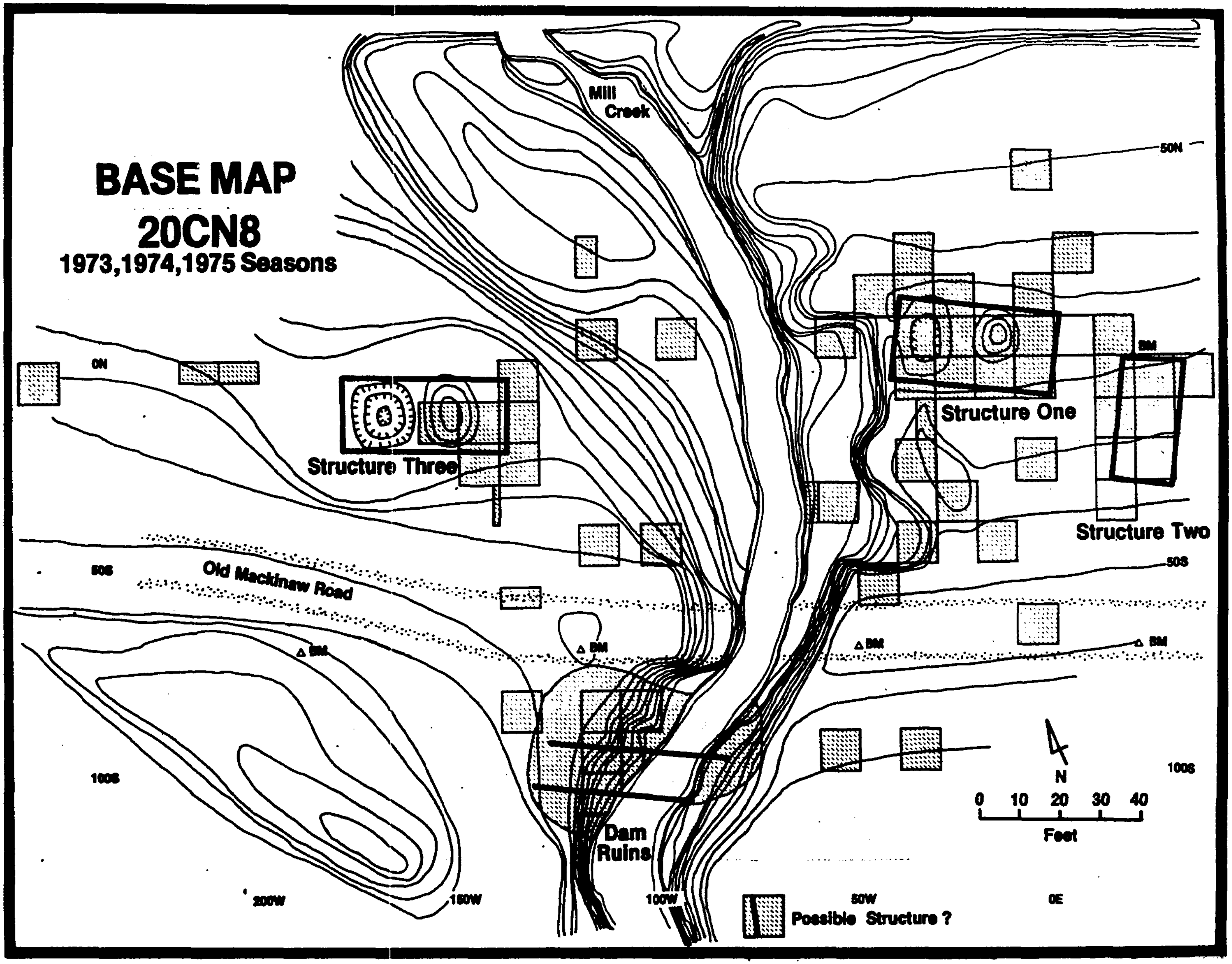
CHAPTER IV
THE FILBERT SITE: ARCHAEOLOGICAL SUMMARY

Project History and Field Research Methods

In the summer of 1972, Dr. Lyle M. Stone, archaeologist with the Mackinac Island State Park Commission, was approached by three local amateur archaeologists with artifacts from a site near Mackinaw City. Ellis and Mary Olson and Margaret Lentini, all of Cheboygan, had discovered a site on Mill Creek, approximately three miles east of Mackinaw City. Working over the area with a metal detector, the Olsons and Lentini recovered a variety of artifacts including buttons, gun parts, nails, tools, utensils and ceramics. A cursory examination of the collection indicated a late eighteenth century and early nineteenth century occupation for this site, and stimulated interest on the part of the Park Commission. Stone diverted a small crew from his ongoing excavations at Fort Michilimackinac to conduct limited test excavations during the first two weeks of August. Under the field supervision of Jerry Galm, these excavations were intended to assess the character and condition of the site.

Galm's test pits were located at the northwest and southeast corners of a building ruin which was visible on the ground surface, a building later designated Structure One (Figure 4). A five foot by ten foot test unit was also excavated ninety feet east of the building ruin in order to aid in the determination of the site's spatial limits. Excavation within the building ruin revealed structural detail and recovered a quantity of artifacts. The eastern test unit yielded only a small number of ceramic sherds and was interpreted as lying near the

Figure 4. Base Map, 20CN8


BASE MAP
20CN8
1973,1974,1975 Seasons
Mill
Creek
50N
0N
BM
Structure One
Structure Three
Structure Two
50S
Old Mackinaw Road
BM
BM
BM
BM
100S
100S
N
0 10 20 30 40
Feet
Dam
Ruins
200W
150W
100W
50W
0E
Possible Structure ?

outer edge of the site. Just over 5,000 objects were recovered in 1972 by Galm and the amateurs from Cheboygan, and were deposited in the collections of the Mackinac Island State Park Commission.

Ellis Olson, a history teacher in the Cheboygan school system, continued his research on the site through the following months of 1972 by gathering an impressive array of documentary resources. Olson's diligence resulted in the identification of this locality as the site of a farm and mill complex established shortly after the Revolutionary War and operated until the mid-nineteenth century. He was able to identify two principal owners of the property, Robert Campbell and Michael Dousman, and learned that the mill had supplied lumber to the British Army at Fort Mackinac. The combination of substantial documentation and the archaeological evidence revealed through excavation convinced Stone and the administrators of the Mackinac Island State Park Commission that this site deserved further attention.

The author, then a Graduate Research Assistant at The Museum, Michigan State University, was hired as project supervisor for the 1973, 1974, and 1975 field seasons under the direction of Dr. Stone and, later, Dr. Donald Heldman. Artifact analysis and further documentary research was conducted during the intervening academic years while enrolled in the Ph.D. program, Department of Anthropology, Michigan State University.

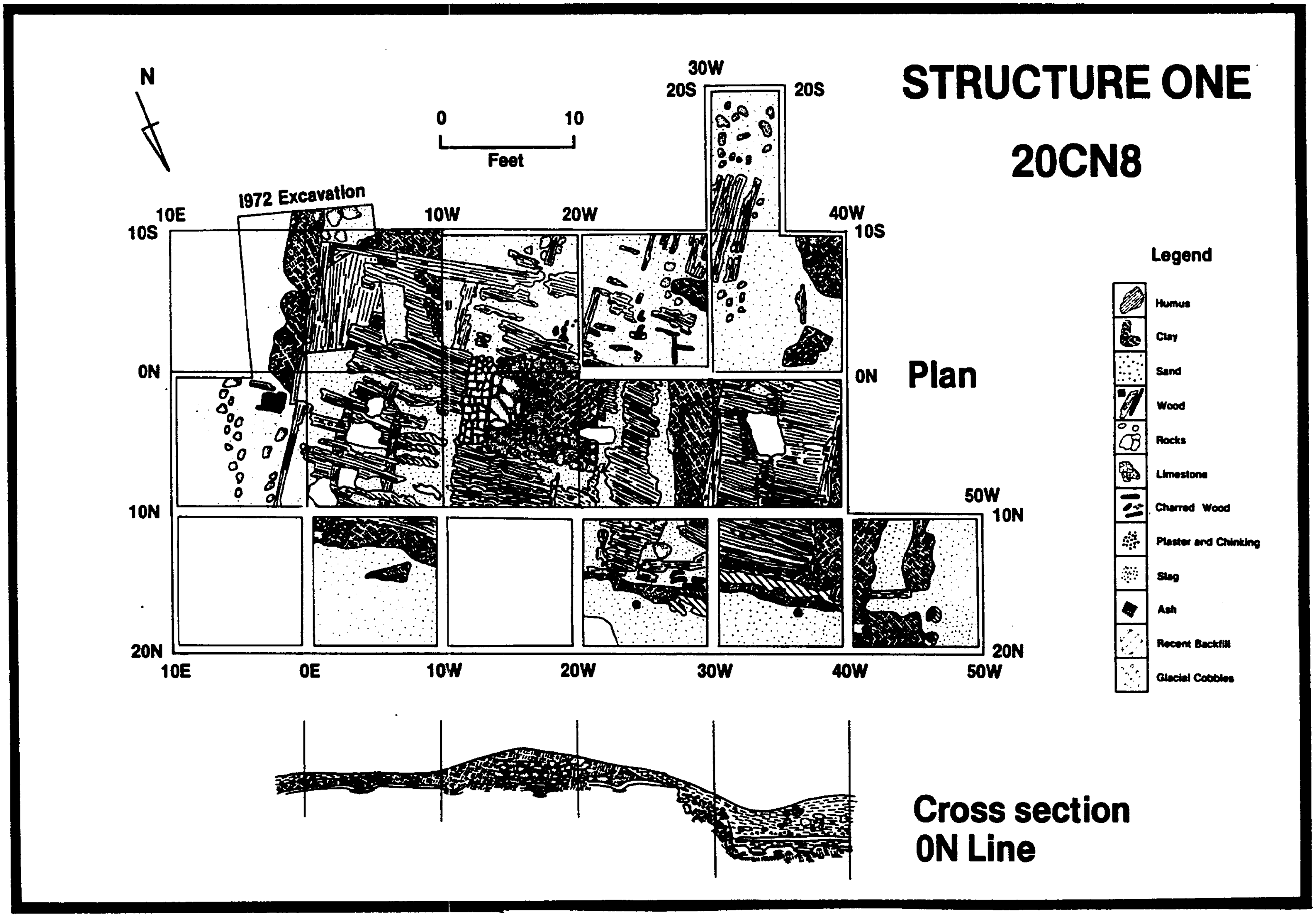
The 1973 field season began June 11 and ended August 25. Excavation was carried out by seven student workers from Michigan State University, five Central Michigan University students enrolled in a field methods course taught by the author, the Olsons and Mrs. Lentini from Cheboygan, and eight Michigan Archaeological Society members who volunteered from one to two weeks of their time. Fieldwork began with the removal of a thick cover of scrub vegetation which included numerous wild hazelnut bushes. The presence of these plants, originally misidentified by a visitor as cultivated European filberts (Corylus avellana), led Stone to call this the Filbert Site. A closer examination correctly identified the plants as native North American beaked hazelnuts (Corylus Cornuta), commonly found as second-growth cover in this region. The site name has been retained by this author for the sake of consistency, though it has been called the Campbell Farm, the Dousman Farm, and the Mill Creek Site by various others.

Once the site was cleared, a line of six permanent concrete benchmarks was set in place along the Old Mackinac Road at a compass bearing of N 67 W. This baseline was used to establish a grid of ten foot by ten foot squares over the site area and to maintain horizontal control for the excavation and recording of archaeological features. The benchmarks consisted of large nails set in concrete pillars and were later tied in with an elevation provided by a National Oceanic and Atmospheric Administration survey team that was recording lake levels, thus establishing vertical control.

The primary goals of the 1973 field season were: 1) continuation of excavation within Structure One; and 2) expanded testing for additional features. Excavation was accomplished, in most instances, in ten foot square units identified by the grid intersection located at the southwest corner of the unit. Techniques of excavation varied on the basis of local conditions. Most units were excavated with sharpened mason's trowels in 0.3 foot arbitrary levels. Whenever natural or man-made layering of deposits was detected, the arbitrary levels were abandoned in favor of the natural or cultural deposits as units of excavation. All soil was screened through 0.25 inch hardware cloth and soil within structures or features was often further passed through window screen to insure maximum recovery of small artifacts or ecofacts. Excavation was expanded to a line 0.5 feet from each grid line within excavated units, resulting in the retention of 1.0 foot thick balks between adjacent squares. This practice resulted in the preservation of portions of the stratigraphic record of deposits. The vertical and horizontal locations of significant artifacts and features were recorded on scale drawings of each excavated level. Prose descriptions of each unit were recorded on the reverse side of these level sheets, noting procedures and materials encountered. Each level within each excavation unit was given a unique catalog number to identify all artifacts recovered within it. In addition to the level sheets and drawings, both black and white and color photographs were taken to record the process and results of excavation. All site documentation was placed on file with the Mackinac Island State Park Commission.

The 1973 season revealed approximately 50% of the ground plan of Structure One, a building ruin measuring forty feet by twenty feet. Built of wood with sills laid on a clay pad, the structure had a cellar beneath the west end and a large, H-shaped double hearth in its center (Figure 5). The presence of burned wood and artifacts suggested that this structure had burned in the early decades of the nineteenth century. A wide variety of domestic and architectural artifacts were recovered and the building was tentatively identified as a residence.

Figure 5. Structure One, 2OCN8


STRUCTURE ONE
20CN8
N
0 10
Feet
1972 Excavation
30W
20S 20S
10E 10W 20W 40W
10S 10S
0N 0N
Plan
50W
10N 10N
20N 20N
10E 0E 10W 20W 30W 40W 50W
Legend
Humus
Clay
Sand
Wood
Rocks
Limestone
Charred Wood
Plaster and Chinking
Slag
Ash
Recent Backfill
Glacial Cobbles
Cross section
0N Line

To achieve the second goal, a stratified random sampling strategy was employed. After establishing a 120 foot by 120 foot grid over the east bank site area, the grid was divided into strata that each enclosed thirty-six ten foot by ten foot units, numbered 01 to 36. A table of random numbers was consulted to select units for exploratory excavation within each of these four strata. This procedure was utilized in order to sample the site and to locate features of interest to the project sponsors. Systematic sampling was subsequently abandoned and efforts were directed toward gathering data useful for eventual reconstruction and public interpretation of the site.

The sampling strategy resulted in the discovery of a second building ruin, designated Structure Two, east of the first. This ruin, measuring thirty feet by fifteen feet, was oriented roughly north/south, at a right angle to Structure One. Most of the structure's floor plan was excavated during the 1973 season, revealing a somewhat less substantial building with a different artifact assemblage. A greater proportion of artifacts encountered were tools and trade items, leading to an interpretation of Structure Two as a workshop and storehouse, rather than a residence.

A third ruin was observed on the west bank of the creek late in the field season. Available time and funds allowed only a minimal examination of Structure Three in 1973. A two foot by ten foot trench was excavated near the south-eastern corner of the building, the outline of which was visible on the ground surface. This building was clearly similar to Structure One in its layout, with a central hearth and a cellar depression under the west end. Artifacts recovered indicated a primarily domestic function for the structure and a date slightly later than the occupation of Structure One, perhaps 1820-1840.

During the 1973 field season, a total of twenty-four ten foot square units, one five by ten foot unit, and one two by ten foot unit was excavated, or 2,470 square feet. At the close of the season, all units were backfilled after lining unfinished units with black plastic sheeting. Sod was replaced where possible and grass seed was sown to stabilize surface soils. Over 17,000 objects were catalogued from the season's work.

Guided by the findings of the 1973 excavations, plans were made to continue fieldwork in the summer of 1974, and a crew of five students was hired to work under the author's supervision from June 17 through August 23. The primary goals of this field were were: 1) continue excavation of Structure One; 2) conduct exploratory excavations in areas near the ruined dam in search of structural remains of the mill or mills indicated by documentary research; 3) begin excavation of the dam in order to determine its age and mode of construction; 4) begin broad excavation of Structure Three.

The continued excavation of Structure One included reopening three units which were not completed in 1973 and new excavation in four additional units. Considerable structural detail was encountered, including floors, sills, joists, hearths, and the cellar of the building (Figure 5). A large quantity of domestic and architectural artifacts were collected, as well.

Exploratory excavations near the dam revealed no evidence of mill structures. On the east bank, shallow soils yielded only scattered twentieth century artifacts. West bank excavations disclosed a thick deposit of twentieth century fill over the remains of the dam, fill which evidently resulted from a limestone mining operation of the early part of the century. Examination of the dam revealed a wooden crib constructed of heavy hewn timbers, filled with glacial boulders and faced with planks on the upstream side (Figure 8).

Excavation in Structure Three was limited to two ten foot square units at the southeast corner of the ruin. Remains of wooden structural fabric of the building and a large quantity of artifacts were recovered.

The 1974 fieldwork resulted in over 1,200 square feet of excavation and produced approximately 5,700 cataloged objects and samples. Though mill buildings were not located, considerable new evidence regarding the dam and Structures One and Three was collected.

The 1975 field season was initiated with two objectives: 1) further attempts toward pinpointing the location of the mill building(s); and 2) additional excavation of Structures One and Three. With these goals in mind, investigation began on June 16 and ended August 24 with a crew of six students. During the course of the summer, several Michigan Archaeological Society members volunteered their labor, as did two archaeology students from Great Britain. The work force was generally divided evenly between excavation of known structures and the search for mill buildings.

The exploratory efforts proved largely fruitless: no remains of mill buildings were encountered. Nine ten foot square units and two five by ten foot units were excavated to this end, spread on both sides of the stream below the dam. No structural remains were noted, though a

Figure 6. Structure Two, 2OCN8

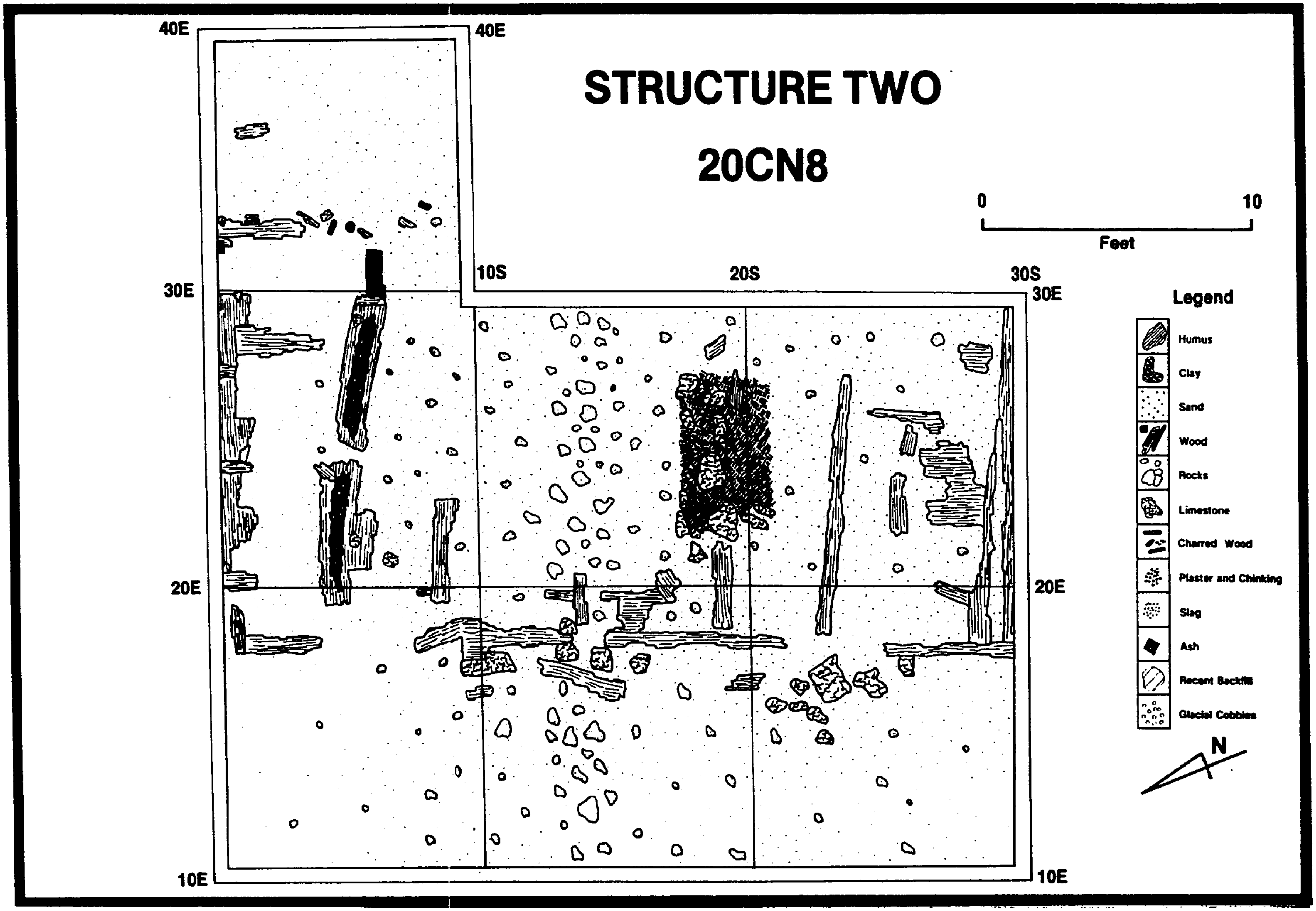

STRUCTURE TWO
20CN8
0
10
Feet
40E
40E
30E
30E
20E
20E
10E
10E
10S
20S
30S
Legend
Humus
Clay
Sand
Wood
Rocks
Limestone
Charred Wood
Plaster and Chinking
Slag
Ash
Recent Backfill
Glacial Cobbles
N

Figure 7. Structure Three, 2OCN8

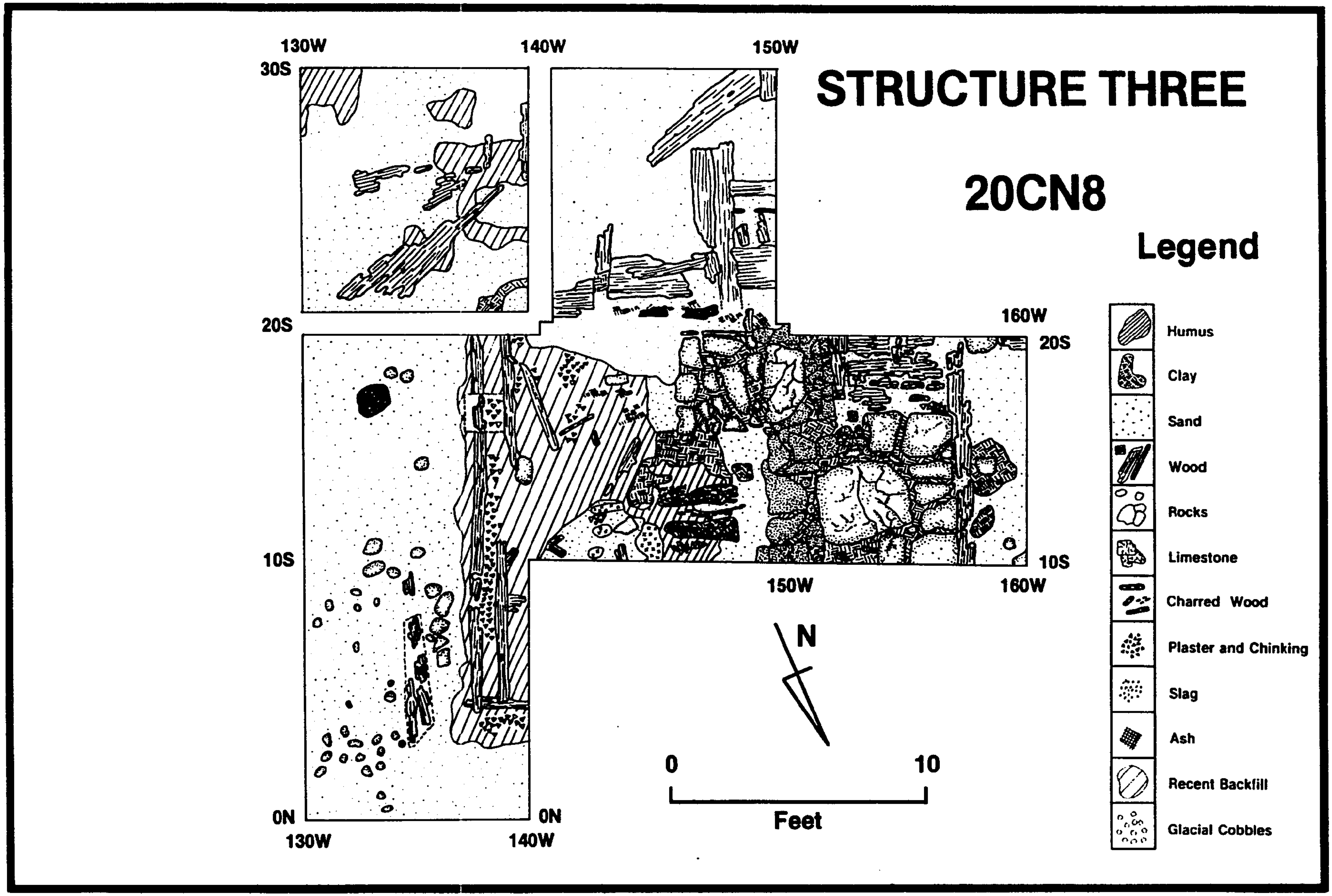
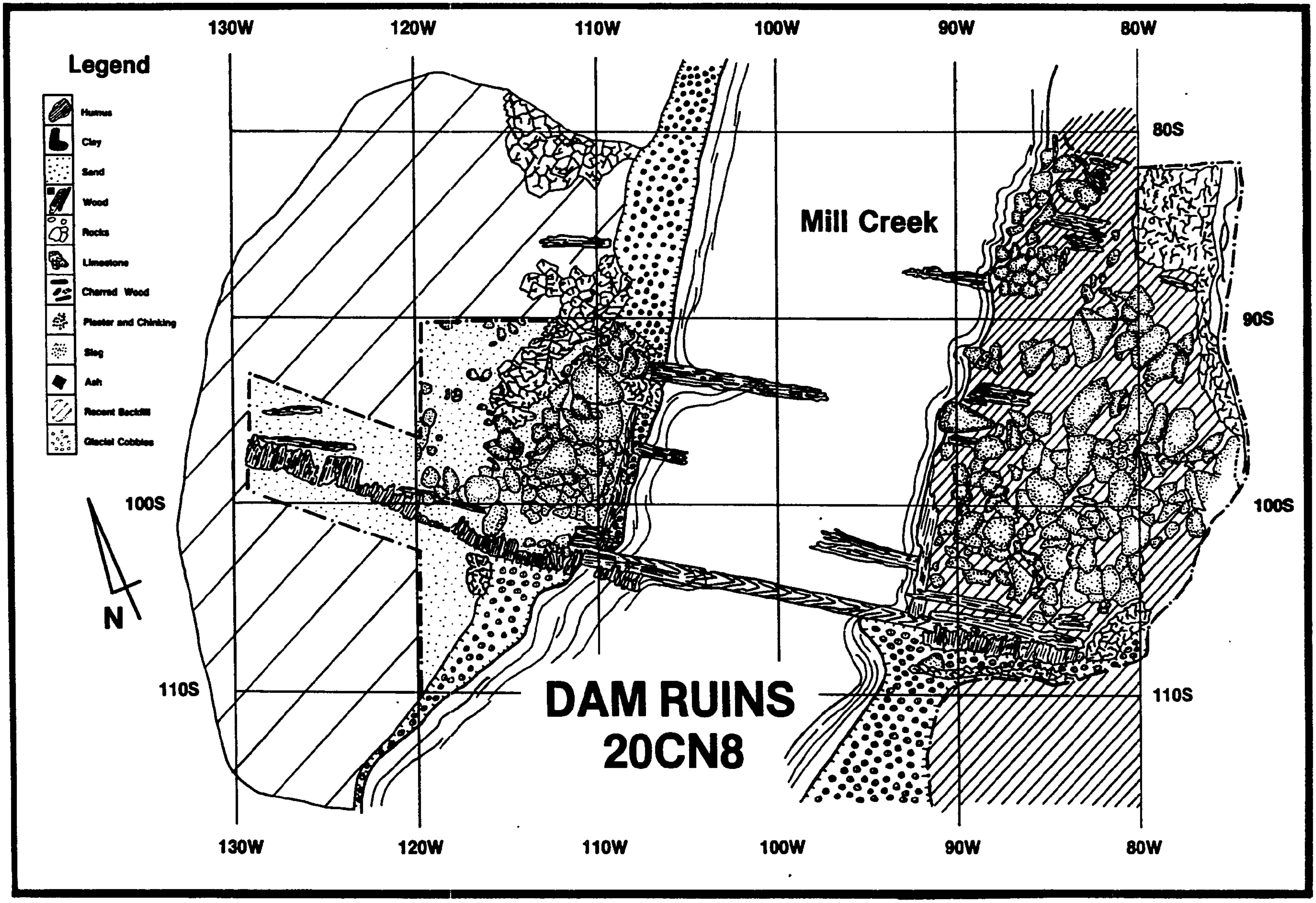

STRUCTURE THREE
20CN8
Legend
Humus
Clay
Sand
Wood
Rocks
Limestone
Charred Wood
Plaster and Chinking
Slag
Ash
Recent Backfill
Glacial Cobbles
130W
140W
150W
160W
30S
20S
10S
0N
N
0
10
Feet

Figure 8. Dam ruins, 20CN8



Legend
Humus
Clay
Sand
Wood
Rocks
Limestone
Charred Wood
Plaster and Chinking
Slag
Ash
Recent Backfill
Glacial Cobbles
130W
120W
110W
100W
90W
80W
80S
90S
100S
110S
Mill Creek
N
DAM RUINS
20CN8

minor concentration of artifacts, including architectural remains such as locks, was located near the stream directly east of Structure Three. These objects could easily have originated in Structure Three, however, rather than a separate building.

Several shovel-width test trenches were opened adjacent to the dam on the west bank. These trenches revealed a large deposit of dark soil below the sod, mixed with clay, sand, gravel, and occasional artifacts. The extent and conformation of this fill deposit stimulated an hypothetical interpretation of the feature as the filled cellar of a mill building. The more than five foot depth of this feature, plumbed in a single excavation unit in 1974, suggested that excavation by hand labor would require excessive time, so it was decided that the feature would be partially excavated with heavy equipment. To this end, the Mackinac Island State Park Commission hired a combination front loader/backhoe for eight hours. Four hours were occupied stripping topsoil and exposing the extent of the feature. At that time, the entire area was shovel-shaved and the feature was photographed and drawn. The additional four hours of machine time were then used to remove the bulk of the obviously-mixed twentieth century fill of the feature.

After the machine was finished, three ten foot square units were established and excavation continued by hand. Only the remains of the dam were encountered; no building foundations were evident. The upstream plank facing of the dam was exposed to a width of nearly fifty feet, butted into sterile beach sand and limestone bedrock (Figure 8).

Excavation in Structure One continued in and near the southwest corner of the ruin, resulting in the nearly completed exposure of the building's floor plan. Artifact collections were consistent with materials recovered in previous work, confirming a late eighteenth and early nineteenth century residential occupation of the building.

The excavation of Structure Three was expanded by opening four ten foot square units on the east end of the ruin. Both structural and functional evidence resulted from this work, yielding new information regarding the construction and use of the building. A double hearth chimney base was exposed, with fireboxes facing east and west (Figure 7). The east-facing firebox, offset from the centerline of the building and evidently added sometime after original construction, had a curious opening in the masonry at the back, just above the hearth. Scattered throughout the east room were large quantities of slag, ash, rivet blanks, and iron scrap, leading to an interpretation of this room's use as a workshop or small scale smithy. The artifacts certainly supported such an interpretation, and the peculiar hearth masonry likely allowed air to be forced into the fire by means of a bellows.

The 1975 excavations exposed over 2,700 square feet of area and yielded nearly 17,000 catalogued objects and samples. These four seasons of work (1972, 1973, 1974, 1975) resulted in nearly 6,400 square feet of excavation and yielded nearly 45,000 catalogued objects and samples.

General Description

The Filbert Site (20CN8) is located about three miles east of Mackinaw City, in Cheboygan County, Michigan (Figure 1). The site straddles Mill Creek approximately 75 yards upstream from the creek's outlet into Lake Huron. Lying to the south of U.S. 23, the site is cut by a single railroad track of the Michigan Central Railroad which runs parallel to the highway. A late nineteenth century roadway, used until the construction of U.S. 23 in the 1930's, known locally as the Old Mackinac Road, also crosses the site at essentially the same orientation as the highway and the railroad. The Old Mackinac Road is located toward the southern edge of the site.

The Filbert Site represents the remains of a farm and mill complex that was contained within a tract of land identified as Private Claim Number 334 in the legal description. It is not known at this time whether there are cultural remains in other areas of the Private Claim, since no detailed exploratory survey has been conducted. The present study concerns only those remains found adjacent to Mill Creek near the roads and railroad grade. Though other remains related to and contemporary with these ruins may be found, it is only this limited locality that will be considered here.

The site lies on a wave-cut terrace at an average elevation of 615 feet above mean sea level. This is likely a glacial Lake Nipissing wave terrace and is backed on the south by a steep wave cliff which rises to approximately 650 feet above mean sea level. Devonian age Bois Blanc limestone outcrops are found at the site, especially in the creek bottom and along its banks. Mill Creek has cut down through the mantle of clay and glacial till to the limestone, leaving steep banks on both sides of the stream. These limestone outcrops were likely a critical factor in the selection of this site for settlement, for they provided convenient anchoring points for the crib dam used to store water and power the mill(s) that were established there. The outcrops also attracted mining and quarrying activity in the late nineteenth and early twentieth centuries, activities which in some instances buried and in others probably obliterated portions of the remains of the earlier occupation.

Topsoil in this locality is generally sandy loam. Vegetation consists of a mixture of coniferous and deciduous species, including elm, cedar, birch, and aspen. The creek bank areas where limestone is exposed support dense stands of cedar. In open areas, shrub growths of hazelnut and hawthorn are found, along with scattered apple trees.

The site area has long been used by fishermen and campers attracted to the stream. Stone campfire rings and castoff tent pegs belie some of the recent uses of the area. Partly because of this recreational use, portions of the site are clear of climax vegetation and support only grasses and weeds.

Contexts

Excavation at the Filbert Site revealed and focused upon the ruins of three buildings and a wooden crib dam located on Mill Creek (Figure 4). In addition, exploratory excavations recovered artifacts from areas outside the structures on both sides of the stream. Discussion and analysis of the archaeological evidence is organized on the basis of these contexts: Structure One, Structure Two, Structure Three, dam, non-structural areas on the east bank of the stream, and non-structural areas on the west bank of the stream.

Structure One

The first of three building ruins to be discovered, Structure One was also the largest and most substantial of the buildings when it was standing (Figure 5). Excavation revealed the major portion of this wooden building which was forty feet long and twenty feet wide, oriented with its long axis perpendicular to the flow of Mill Creek, its western end at the bank overlooking the stream.

Portions of the wooden sill of the building were located intact near the northeast corner and were identified by the United States Forest Service Forest Products Laboratory in Madison, Wisconsin as white pine (*Pinus strobus*). The sill was laid on a prepared pad of sterile yellow clay which extended the length of the north wall. The clay pad was evidently used to provide a level platform for the structure's base, because the building was constructed on a surface which sloped gently toward the north. This interpretation of the function of the clay pad was partially borne out by the absence of a pad beneath the upslope or south wall of the building. The clay pad may also have functioned to aid in water drainage. Large glacial cobbles were encountered at or near the corners of the structure and located at irregular intervals along the walls, apparently to provide additional support for the sills.

The construction of the superstructure of this building was indicated by the large quantity and variety of clay chinking found with the structure, some fragments mixed with gravel, others bearing the impressions of grass mixed in for tempering. The chinking was initially somewhat enigmatic, because its form was inconsistent from one fragment to the next. Some pieces were equilateral triangles in cross-section, bearing the impressions of two rounded logs on two sides and a flattened, plastered and/or whitewashed wall surface on the third side. Other samples displayed the impressions of sawn lumber, hewn lumber, and rived lath, but these impressions tended to be arranged in undecipherable planes of orientation. It was unclear just what kind of construction was represented, other than some log construction with internal plastering.

Only after numerous descriptions were consulted and remains of nineteenth century structures such as the Biddle House on Mackinac Island were examined did the mode of construction become evident. This building was of a common French-Canadian type called poteaux sur sole or posts in a sill. This type of construction involves a sill and heavy upright framing. The spaces between the uprights were filled with short horizontal sections of log, sometimes hewn square, sometimes left in the round, and chinked with clay. The horizontal members were generally tenoned on the ends and slid into grooves cut into the faces on the uprights. In the 1820 description of a group of buildings to be erected by John Dousman and George Mitchell for the use of George Boyd, Indian Agent on Mackinac Island, this type of construction was clearly specified. The plans called for the "posts of the building to be eleven feet high" and "filled in with wood and mortar" (Dousman and Mitchell 1820). It was apparently just such a combination of rounded and hewn surfaces which resulted in the observed array of chinking characteristics from Structure One.

The central chimney of Structure One was an interesting structural feature. Upon excavation, the mound which had been noted in the center of the building was found to consist largely of clay in its upper levels. The masonry structure of two fireboxes was intact to a height of two feet, laid up of limestone mortared together with clay. The hearth base was formed of limestone slabs arranged in a rectangle approximately six feet by ten feet, with a firebox facing each end of the building, butted back to back on the centerline of the structure. A thick deposit of ash and artifacts was found lying on the hearth in each firebox. Loose limestone fragments found in the upper levels above the intact masonry suggest that the stonework originally extended further up the chimney than it does at present, but there clearly was not sufficient stone in evidence to have represented the remains of a full masonry chimney. Rather, the heavy deposit of clay found overlying the masonry suggests that this structure had a catted chimney, made of clay laid wet over a wooden framework. This was a common practice in construction of the eighteenth and nineteenth centuries in the Upper Great Lakes, and was well described by David Thompson of the Hudson's Bay Company, writing of a house built in present-day Montana in 1809,

> our Chimneys were made out of stone and mud rudely worked for about six feet in height and eighteen inches thick, the rest of layers of grass and mud worked round strong poles inserted in the stone work, with cross pieces, and thus carried up to about four feet above the roof (Barbeau 1945:11).

Wooden flooring was found through a great portion of the building. Laid parallel to the long axis, the floorboards were identified as white pine (*Pinus strobus*). Regularly spaced shallow depressions were revealed, upon lifting a section of flooring, to be shallow trenches into which were set the floor joists. Though the joists were not well enough preserved to determine their original dimensions, a fragment from one joist was identified as northern white cedar (*Thuja occidentalis*), while another was identified as hemlock (*Tsuga canadensis*).

There was a cellar beneath the western room of Structure One, clearly evident as a depression even before excavation. Wooden flooring and other structural debris, such as chinking and plaster, had collapsed into the cellar hole, along with a variety of artifacts. Excavation revealed a relatively shallow cellar, extending only five feet below the level of the hearth and the wooden floor of the room above. The cellar measured 14 feet in the north/south dimension and nine feet east/west. It had a white pine floor laid on cedar floor joists that were set in shallow trenches. The hole was originally excavated into clay, likely the source of the clay for the pad beneath the north sill. One vertical post, measuring roughly three inches square, was noted in the northwest corner. Several fragments of horizontally laid slabs, with the bark sides facing out, remained on the north side of the cellar evidently representing the wall.

Scattered throughout the building were burned and charred boards, melted window glass, and other burned and scorched artifacts. The bulk of the objects recovered from this structure were found on, just above, or just beneath the wooden flooring. It appears very likely that the building burned while it was occupied, causing a wide variety of objects to be found in roughly the locations where they would have been used, an artifact distribution pattern which has been called primary de facto refuse (South 1977:297).

A total of 18,299 objects and samples was recovered from Structure One. This distribution represents a density of 22.9 objects per square foot of excavated floor space. The artifacts have been classified according to Stanley South's scheme in order to facilitate comparison with other sites and to allow assessment of his Frontier Pattern model.

Even a casual perusal of Table 16 reveals that over 93% of the objects recovered are classified within the Kitchen and Architecture Groups. Three artifact classes make up the bulk of the finds: ceramics, window glass and nails account for approximately 90% of the catalogued objects.

The subjective impression left by the artifacts is of a domestic function for this structure. The relatively high proportion of Kitchen Group artifacts and domestic items such as buttons, straight pins and personal objects suggests that Structure One was a family residence.

Structure Two

Located just to the east of and oriented at a right angle to Structure One, Structure Two measures thirty feet in length and fifteen feet in width (Figure 6). The ruin is represented by a cluster of wood, limestone slabs and clay. Linear arrangements of boards or beams were noted in exploratory excavation units and were pedestaled as digging proceeded. As the discovery of artifacts and more wood prompted expansion into adjacent squares, the regular rectilinear shape of this building became evident in plan, and the structure was completely excavated. The western sill of the structure was largely intact, resting on tabular blocks of limestone. At approximately six foot intervals, sections of floor joists were encountered which originally ran across the width of the building. Wood samples from the joists and sills were identified as white pine (*Pinus strobus*).

Table 16. Artifact Frequencies and Percentages, 20CN8, Structure One

GROUP	COUNT	%
Kitchen		
Wine and Case Bottles	587	
Ceramics	5,900	
Tumbler	66	
Pharmaceutical	99	
Glassware	0	
Tableware	31	
Kitchenware	7	
Total Kitchen	6,690	36.5
Architecture		
Window Glass	8,647	
Nails and Spikes	1,679	
Construction Hardware	23	
Door Lock Parts	9	
Total Architecture	10,358	56.6
Furniture	15	0.08
Arms		
Balls, Shot	366	
Gunflints	39	
Gun Parts	38	
Total Arms	433	2.4

GROUP	COUNT	%
Clothing		
Buckles	10	
Thimbles	5	
Buttons	135	
Scissors	6	
Straight Pins	13	
Hook and Eye	1	
Bale Seal	1	
Glass Beads	106	
Total Clothing	277	1.5
Personal		
Coins	0	
Keys	3	
Personal	42	
Total Personal	45	0.25
Tobacco Pipes	287	1.6

Table 16. Continued

GROUP	COUNT	%
Activities		
Construction Tools	33	
Farm Tools	2	
Toys	3	
Fishing Gear	12	
Stub-Stemmed Pipes	0	
Aboriginal	58	
Storage	29	
Botanical	12	
Horse Tack	2	
Miscellaneous Hardware	33	
Other	0	
Military Objects	2	
Total Activities	187	1.0
Grand Total	18,299	

This may well have been a frame structure, for no chinking was recovered, even though virtually the entire floor area of the building was excavated. Nothing beyond this negative evidence was revealed regarding the superstructure of the building. On the centerline of the long axis and 11-12 feet from the south end of the building, a rectangular deposit of hard yellow clay and limestone slabs was noted. This was the ruin of a crude hearth; no coursed masonry was evident, but several of the limestone slabs were laid on edge around the perimeter of the clay deposit. This may well represent an even simpler form of catted chimney and stone firebox than that seen in Structure One.

The collection of objects from this ruin numbered 5,158, considerably fewer than found in Structure One and only one-half as densely distributed (11.5 objects per square foot of floor space in Structure Two versus 22.9 objects per square foot of floor space in Structure One). Not only were the absolute frequencies and densities of artifacts very different, but also the percentage representations of artifact classes were quite dissimilar between the two ruins (Tables 17 and 19). While the percentage of Architecture Group artifacts is roughly equivalent between the two structures, the density per square foot of excavated floor space is roughly half as great in Structure Two. The Kitchen Group percentages were half as great in Structure Two, the Tobacco Pipe and Activities Group percentages were double, and the Clothing Group jumps from 1.5% in Structure one to 14.4% in Structure Two. There were clearly some functional differences between these contemporary buildings, differences which may parallel the structural

Table 17. Artifact Frequencies and Percentages, 20CN8, Structure Two

GROUP	COUNT	%
Kitchen		
Ceramics	644	
Wine and Case Bottles	221	
Tumbler	37	
Pharmaceutical	30	
Glassware	1	
Tableware	11	
Kitchenware	8	
Total Kitchen	952	18.5
Architecture		
Window Glass	1,855	
Nails and Spikes	1,156	
Construction Hardware	6	
Door Lock Parts	2	
Total Architecture	3,018	58.5
Furniture	2	0.04
Arms		
Balls, Shot	75	
Gunflints	16	
Gun Parts	5	
Total Arms	96	1.9

GROUP	COUNT	%
Clothing		
Buckles	2	
Thimbles	1	
Buttons	31	
Scissors	1	
Straight Pins	5	
Hook and Eye	3	
Bale Seal	0	
Glass Beads	702	
Total Clothing	745	14.4
Personal		
Coins	1	
Keys	2	
Personal	0	
Total Personal	3	0.06
Tobacco Pipes	244	4.7

Table 17. Continued

GROUP	COUNT	%
Activities		
Construction Tools	13	
Farm Tools	1	
Toys	0	
Fishing Gear	4	
Stub-Stemmed Pipes	0	
Aboriginal	18	
Storage	16	
Botanical	27	
Horse Tack	1	
Miscellaneous Hardware	17	
Other	0	
Military Objects	0	
Total Activities	97	1.9
Grand Total	5,158	

Table 18. Artifact Frequencies and Percentages, 20CN8, Structure Three

GROUP	COUNT	%
Kitchen		
Ceramics	2,389	
Wine and Case Bottles	138	
Tumbler	2	
Pharmaceutical	211	
Glassware	3	
Tableware	6	
Kitchenware	3	
Total Kitchen	2,752	36.5
Architecture		
Window Glass	2,723	
Nails and Spikes	1,604	
Construction Hardware	4	
Door Lock Parts	0	
Total Architecture	4,331	57.4
Furniture	8	0.11
Arms		
Balls, Shot	72	
Gunflints	16	
Gun Parts	12	
Total Arms	100	1.2

GROUP	COUNT	%
Clothing		
Buckles	4	
Thimbles	1	
Buttons	55	
Scissors	1	
Straight Pins	11	
Hook and Eye	3	
Bale Seal	0	
Glass Beads	39	
Total Clothing	114	1.5
Personal		
Coins	0	
Keys	3	
Personal	12	
Total Personal	15	0.2
Tobacco Pipes	192	2.5

Table 18. Continued

GROUP	COUNT	%
Activities		
Construction Tools	9	
Farm Tools	6	
Toys	0	
Fishing Gear	5	
Stub-Stemmed Pipes	1	
Aboriginal	0	
Storage	11	
Botanical	15	
Horse Tack	0	
Miscellaneous Hardware	0	
Other	0	
Military Objects	0	
Total Activities	44	0.6
Grand Total	7,556	

differences noted in the discussion of structural details. The subjective interpretation of this structure suggested a function such as a storehouse and workshop.

Structure Three

Only one building ruin was discovered on the west side of Mill Creek, and only about 40% of the floor area of Structure Three was excavated during the 1973-1975 field seasons. Excavation was limited to the east end of the structure and the central chimney mound.

After a thick cover of vegetation was removed, Structure Three looked very much like Structure One; a slightly raised rectangle forty feet long and twenty feet wide, a mound located roughly in its center, and a depression in the west end (Figure 7). Excavation confirmed some of the similarities between the structures but revealed several differences as well. For instance, examination of the east end of the building revealed a nearly intact sill and remains of another log or beam that had fallen inward parallel to the sill. Between the two wooden members there was a heavy deposit of clay chinking. The attitude of these wooden elements and chinking suggested that this end of the structure, at least in the lower courses, was of _piece sur piece_, or horizontal log construction, rather than the _poteaux sur sole_ construction seen in Structure One. There were no further clues to the construction of the superstructure indicated during excavation. Very little flooring was evident, and was found only in the western room, near the hearth. Some clay was noted in the area around the southeastern corner of the structure, evidently remaining from a clay pad on which the sill rested.

In the upper levels, the chimney mound in this structure was very similar to that noted in Structure One; clay mixed with occasional loose stones in the upper levels, then limestone mortared with clay. Once the two foot high intact portion of the masonry was exposed, a significant difference became apparent. The west-facing hearth, measuring roughly nine feet square, was built on the centerline of the long axis of the building. The hearth which faced into the eastern room was offset to the south, against the south wall, and was located beside the western hearth, not backed directly against it as was the case in Structure One's double hearth.

The eastern hearth was smaller in size, approximately five feet by eight feet, and appeared to have been added after the construction of the larger, western hearth. The masonry was distinctly separate, not interlocked, and the western hearth had a finished surface on the south side, including a large vertical slab of limestone. The elevations of the hearth surfaces were nearly identical, but the presence of flooring in front of the west hearth and its absence on the east makes the floor levels in the two rooms appear to be very different. The vertical distribution of artifacts in the east room suggest that there may have been only a dirt floor in this room, for artifacts were found to a depth of more than a foot below the hearth level in sandy deposits mixed with clay, ash, and charcoal.

The soil deposits in the east room proved intriguing. Artifact densities were high and the types represented were somewhat different than from other parts of the site. Soils were for the most part dark and sandy, with charcoal scattered throughout and concentrated in the area just north of the hearth. This area in the eastern half of the room, north of the hearth, contained a heavy deposit of clay and three linear features. Averaging four feet in length and five feet in width when recognized, these features appeared as shallow trenches or troughs, lined with clay and filled with charcoal and ash. They were oriented in parallel with the long axis of the building and a heavy deposit of slag material and corroded iron was found just beyond the east end of the features. A contemporary blacksmith suggested that they might have been used to temper iron rods, dipping the hot iron into the trench filled with powdered charcoal.

Another interesting, and probably related aspect of this room and its hearth was the discovery of an opening in the masonry back of the firebox at the center, approximately six inches above the hearth surface. While it is possible that the masonry in this area had simply deteriorated, the visual effect was unambiguous; there was a deliberately constructed hole at the rear of the firebox. When considered in combination with the linear features, slag, charcoal and ash deposits, and the artifactual collection from this room (which included rivets, iron and brass scrap and tools), the opening was interpreted as an air passage for a smithy's bellows, used to stoke a fire on the hearth. The presence of a smith's forge would also help to explain the apparent absence of wooden flooring in this room.

The west hearth was larger and faced into a room that still contained remnants of white pine flooring. A single upright post, species unidentified, approximately three inches square in cross section, was noted at the southwestern corner of the firebox masonry. This was evidently one of the upright poles used to form the framework for the catted clay chimney which originally extended up from the masonry beyond the building's roof.

Both fireboxes in this structure contained thick deposits of ash. Numerous artifacts were recovered from these ash layers, including nails, tobacco pipes, and glass bottles.

A total of 7,556 objects and samples was catalogued from Structure Three, approximately 23.6 objects per square foot of excavated floor space. The general array of Artifact Groups and Classes was much like the collection from Structure One (Tables 18, 19), with no immediately apparent divergences of any magnitude. The subjective impression left by this assemblage was one of both residential and workshop functions.

East Bank

Over 1,600 square feet of area outside the structural remains on the east side of Mill Creek saw excavation during 1973, 1974, and 1975. In general, these areas were excavated as part of the exploratory examination of the site. Initial exploratory units were chosen in 1973 by reference to a stratified random sample. As structural remains were found, the sampling frame was modified to a systematic orientation, examining areas between and beyond the known remains. In particular, excavation was directed toward recovery of evidence of the full range of activities that had occurred during the site's occupation, and evidence of the mill or mills known through documentary references to have been operated there.

The exploratory work proved both rewarding and frustrating. On the one hand, it failed to expose structural remains of the mill or mills.

Table 19. Artifact Frequencies and Percentages, 20CN8, Excavated Structures

Group	Structure One Count	%	Structure Two Count	%	Structure Three Count	%
Kitchen						
Ceramics	5,900		644		2,389	
Wine and Case Bottles	587		221		138	
Tumbler	66		37		2	
Pharmaceutical	99		30		211	
Glassware	0		1		3	
Tableware	31		11		6	
Kitchenware	7		8		3	
Total Kitchen	6,690	36.5	952	18.5	2,752	36.5
Architecture						
Window Glass	8,646		1,855		2,723	
Nails and Spikes	1,679		1,156		1,604	
Construction Hardware	23		6		4	
Door Lock Parts	9		2		0	
Total Architecture	10,358	56.6	3,019	58.5	4,331	57.4
Furniture	15	0.08	2	0.04	8	0.11
Arms						
Ball, Shot	366		75		12	
Gunflints	39		16		16	
Gun Parts	38		5		12	
Total Arms	433	2.4	96	1.9	100	1.2
Clothing						
Buckles	10		2		4	
Thimbles	5		1		1	
Buttons	135		31		55	
Scissors	6		1		1	
Straight Pins	13		5		11	
Hook and Eye	1		3		3	
Bale Seal	1		0		0	
Glass Beads	106		702		39	
Total Clothing	277	1.5	745	14.4	114	1.5

Table 19. Continued

Group	Structure One Count	Structure One %	Structure Two Count	Structure Two %	Structure Three Count	Structure Three %
Personal						
Coins	0		1		0	
Keys	3		2		3	
Personal	42		0		12	
Total Personal	45	0.25	3	0.06	15	0.2
Tobacco Pipe	287	1.6	244	4.7	192	2.5
Activities						
Construction Tools	33		13		9	
Farm Tools	3		1		6	
Toys	3		0		0	
Fishing Gear	12		4		5	
Stub-stemmed Pipes	0		0		1	
Aboriginal	58		18		0	
Storage	29		16		11	
Botanical	12		27		15	
Horse Tack	2		1		0	
Miscellaneous Hardware	33		17		0	
Other	0		0		0	
Military Objects	2		0		0	
Total Activities	187	1.0	97	1.9	44	0.6
Grand Total	18,299		5,158		7,556	

Table 20. Artifact Frequencies and Percentages, 20CN8, Non-structural and Total Site

Group	East Bank Count	East Bank %	West Bank Count	West Bank %	Total Site Count	Total Site %
Kitchen						
Ceramics	672		248		9,853	
Wine and Case Bottles	159		66		1,171	
Tumbler	5		0		110	
Pharmaceutical	50		111		501	
Glassware	23		3		30	
Tableware	4		4		53	
Kitchenware	2		1		21	
Total Kitchen	915	39.4	433	47.5	11,742	34.29
Architecture						
Window Glass	712		182		14,119	
Nails and Spikes	453		192		5,084	
Construction Hardware	0		1		34	
Door Lock Part	0		3		14	
Total Architecture	1,116	50.2	378	41.5	19,251	56.23
Furniture	2	0.09	1		28	0.08
Arms						
Ball and Shot	29		1		543	
Gunflints	6		0		77	
Gun Parts	8		1		64	
Total Arms	43	2.5	2		684	2.04
Clothing						
Buckles	6		0		22	
Thimbles	0		1		8	
Buttons	8		3		232	
Scissors	0		1		8	
Straight Pins	1		0		30	
Hook and Eye	1		0		8	
Bale Seal	0		0		1	
Glass Beads	3		1		851	
Total Clothing	19	0.8	6		1,160	3.39

Table 20. Continued

Group	East Bank Count	East Bank %	West Bank Count	West Bank %	Total Site Count	Total Site %
Personal						
Coins	3		0		4	
Keys	0		0		8	
Personal	5		7		66	
Total Personal	8	0.3	7		78	0.23
Tobacco	69	3.0	21	2.3	813	2.37
Activities						
Construction Tools	2		0		57	
Farm Tools	1		0		11	
Toys	3		0		6	
Fishing Gear	1		3		25	
Stub-stemmed Pipe	0		0		1	
Aboriginal	42		12		115	
Storage	5		30		81	
Botanical	46		8		108	
Horse Tack	0		1		4	
Miscellaneous Hardware	0		9		59	
Other	0		0		0	
Military	0		0		2	
Total Activities	90	3.7	63	6.9	469	1.37
Grand Total	2,321		911		34,237	

On the other, this negative evidence was valuable, for it limited the alternative locations for the mill. In addition, it suggested possible locations where subsequent activities might have obliterated structural evidence of the mill. This was the case particularly in the area just south and west of Structure One, where a very regular rectangular cut had been removed from the limestone bedrock exposed in the east bank (Figure 2). It appeared early in the project that this might be a likely location for a mill building, butted into the rocky creek bank and creek bed. Consequently, several units were excavated in and around the cut bank with nearly uniform negative results. Virtually no eighteenth or nineteenth century artifacts were recovered within the cut and no structural remains were encountered.

This negative evidence was tempered, however, by excavation through a raised mound just to the east of the cut bank, south of Structure One. The upper two feet of this mound were made up of broken limestone with very few artifacts. Beneath this layer of stone was a buried sod zone rich with eighteenth and nineteenth century artifacts, contemporary and consistent with those recovered from Structure One nearby. The mound of stone debris had clearly been deposited atop this midden well after the occupation of Structure One, probably during the later nineteenth century, when limestone was mined on the site. Thus, if the mill or mills had been located in this east bank area, later mining activity, represented by the mound of limestone rubble, may have obliterated structural remains.

It is appropriate at this time to note also that an unreferenced, unsubstantiated local history of the region states that Dousman's mill was dismantled and some of the parts reused in the Cheboygan area about 1860 (Ware 1876:41-42). A millstone found by Ellis Olson at Meyer's Creek was allegedly used at both locations; Mill Creek as well as Meyers Creek. The important point here is the possibility that all or some part of the mill building or buildings were removed purposefully.

It needs also to be considered that Mill Creek experiences a heavy Spring runoff. Discharge data were collected by the United States Geological Survey in the mid 1950's, prior to the construction of a dam upstream in Dingman's Marsh (United States Geological Survey 1974). An average discharge during the three year measurement period was 2.4 cubic feet per second, yet the flow measured in the early Spring was from 10.0 to 13.0 cubic feet per second. A heavy runoff, confined by the narrow rocky banks at the site, could have scoured out the lower remnants of a mill building or buildings. When this consideration is combined with the possibility of the mill having been salvaged for use elsewhere, and the destructive potential of limestone quarrying, it is not surprising that no substantial mill structures were found.

One possible additional structure was encountered late in the 1975 field season in unit 140S80W. This unit was located south and, therefore, upstream of the dam ruins, on the high bank overlooking Mill Creek. A small L-shaped irregularity on the surface attracted attention and excavation revealed a linear feature consisting of wood, charcoal, and stained soil (Figure 2). The feature had the appearance of a burned sill, but the lack of associated artifacts and the need to continue ongoing excavation elsewhere on the site led the fieldworkers to abandon this possible structure.

West Bank

On the west side of the creek, over 1,900 square feet of ground was excavated outside the immediate area of Structure Three (Figure 2). Of this total over 1,200 square feet were opened in the area of the dam. Those excavations will be discussed below. Beyond the dam excavations, most work on the west bank was exploratory, directed toward the recovery of information regarding the mill and other site functions. Units were excavated on the Old Mackinaw Road, low down in the flood plain of the creek, and on the sloping banks between Structure Three and the creek in search of the mill building, to no avail. Artifacts recovered from these excavation units generally parallel and complement the assemblage from Structure Three.

Three units were excavated to the west of Structure Three in search of artifacts and/or features. The two adjacent five by ten foot units, 5S210W and 5S220W, revealed only scattered aboriginal stone debitage and a large tree fall. The westernmost unit, 10S260W, was opened over a surface depression which piqued interest as a potential feature. Excavation revealed a large circular hole, seven feet wide at the surface narrowing to a flat four foot wide bottom cut three feet into the limestone bedrock. The feature contained early twentieth century artifacts, such as a leather shoe sole, a granite ware basin, and a quantity of fish bone and scales. It appears likely that this was a hole originally opened as a well or privy, or perhaps as a test hole for the limestone deposits. In any case, it served as a convenient repository for a small quantity of twentieth century trash, probably left by workers at the limestone quarrying operation nearby.

Dam Ruins

The upstream sill timber of a cribbed dam was visible spanning the bed of Mill Creek when the site was first discovered in 1972, as were portions of two of the downstream timbers (Figure 8). No excavation was attempted until 1974, when the eastern end of the dam was exposed and a clean profile was cut on the western bank. In addition, two units (90S110W and 90S120W) were opened in an attempt to reveal something of the dam's internal structure.

The eastern of these two units was located on the sloping bank just downstream from the main structure of the dam. Excavation exposed the limestone bedrock and little else. In 90S120W, only the western five by ten foot segment was excavated in 1974, to a depth of ca. six feet below the ground surface. The soils appeared to be thoroughly mixed, with twentieth century artifacts scattered throughout. The clear impression left was that this area had been filled, probably using heavy equipment, during the early twentieth century.

In 1975, an attempt was made to further examine the west end of of the dam. Several narrow trenches were cut through the topsoil to determine the areal extent of the fill deposit. These trenches revealed a large area, measuring 25x35 feet, filled with dark sandy soil mixed with gravel, sand, clay, and glacial cobbles. Since 90S120W, dug in the previous year, had indicated that this deposit was as much as six feet deep, it seemed reasonable to employ power equipment to explore this feature.

Toward that end, a backhoe with a front end loader was employed for eight hours work. Four hours were spent removing topsoil to expose the full area of the deposit. Next the excavation crew shovel-shaved the entire feature for mapping and photography. Then, the machine removed an additional two feet of the fill, while the crew noted carefully any suspicious artifacts or possible structural features.

After the machine was finished, ten by ten foot excavation units were established and more of the dam's structure was exposed by hand. Excavation to undisturbed subsoils and bedrock revealed that the dam extended beyond the 120W grid line. Because the season was coming to a close, the rectangular grid system was abandoned and a six foot wide, ten foot long trench over the dam's upstream face was opened beyond the 120W line. Even at the completion of this trench, on the final day of excavation, the extreme western end of the dam was not exposed. Subsequent excavation in 1979 revealed the end of the dam, just beyond the end of the 1975 trench.

The dam was primarily a wooden crib, roughly 35 feet long and approximately 20 feet wide, laid up of alternating white pine cross-timbers and filled with heavy glacial cobbles. The eastern end of the dam was abutted into limestone bedrock, the sills laid in narrow trenches cut into the rock. The western end of the crib was also anchored into limestone bedrock.

Beyond the west end of the crib all that was exposed through excavation was the upstream white pine plank facing, which originally covered the entire water face. It probably also covered the exposed air face on the downstream side of the dam, though none of the downstream facing has survived. This sloping vertical facing gave the dam structure a relatively impermeable surface to prevent water from flowing through and eroding the fill.

Downstream from the main crib, remains of timbers project into the creek bed at right angles to the flow, parallel to the crib. It is likely that these timbers supported a wooden plank apron, constructed to prevent water that flowed over the dam from washing out the creek bed below the dam.

No evidence of a sluice, spillway, or other structural elements were noted. No artifacts were recovered to afford insight into the dates of construction or use of this dam. The presence of high, narrow limestone banks at this point on Mill Creek makes for an optimal situation for a dam, offering solid anchoring points as well as a bedrock creek bottom that resists erosion. Since no other dam ruins were encountered, it may be assumed that this structure, or another at the same location, served the Campbell and Dousman mills throughout their operational history.

Chronology

A critical task in the investigation of archaeological sites is the examination of chronological evidence. The description of structural and artifactual materials is put into perspective only after the temporal ordering of events responsible for the formation of the archaeological record. A primary activity of archaeologists, and often an end in itself, the consideration of chronology takes on a particular character in historic sites archaeology. The combination of documentary evidence with strictly archaeological methods of chronological ordering gives this undertaking an added dimension that is lacking in prehistoric archaeology, each type of evidence acting as a check on the other.

The relatively short occupation and particular physical characteristics of the Filbert Site has limited the use of stratigraphy to a minor role. Instead, techniques more peculiar to historic sites are to be utilized, methods that combine documentary and archaeological evidence. In particular, Mean Ceramic Dating, a technique developed by Stanley South, will be used, as will an examination of other dateable artifacts, such as window glass, military buttons, and pipestems.

Mean Ceramic Dating

Founded on the concept of the horizon, articulated by Willey and Phillips (1958), this technique was introduced by Stanley South as a means of estimating the median occupation date of an undocumented archaeological site (South 1972; 1977). Simply stated, this technique calculates a middle occupation date by weighting sherd counts with the known middle manufacturing date of each pottery type, summing the products and dividing by the total sherd count. The technique is widely used to estimate occupation dates and to calculate dates on specific contexts for comparative purposes. It is this latter use that is of interest here.

Mean Ceramic Dates have been calculated for each of the three structural contexts in order to assess their relative ages. The raw data and calculations are shown below in tabular form (Tables 21, 22, and 23). It must be remembered that this technique is applied simply as a comparative tool, as an estimate of occupation date. The reliability of the estimate may be made questionable by any of number of factors.

Table 21. Mean Ceramic Date, Structure One

Ceramic Type (South's Type #)	Median Date	Sherd Count	Product
Whiteware, #2	1860	0	0
Ironstone, #3	1857	0	0
Canton Porcelain, #5	1815	99	179,685
Overglaze Painted Porcelain, #7	1808	25	45,200
Transfer-Printed Pearlware, #'s 10/11	1818	437	794,466
Polychrome Painted Pearlware, #12	1805	168	303,240
Annular Pearlware, #13	1805	32	57,760
Light Yellow Creamware, #15	1798	3,469	6,237,262
Blue Painted Pearlware, #17	1800	289	520,200
Overglaze Painted Creamware, #18	1788	1	19,668
Blue and Green Edged Pearlware, #19	1805	235	424,175
Undecorated Pearlware, #20	1805	961	1,734,605
Transfer-Printed Creamware, #23	1790	3	5,370
Debased "Scratch Blue" Stoneware, #24	1780	32	56,960
Decorated Delftware, #49	1750	95	166,250
		5,922	10,667,601

$$MCD = \frac{10,667,601}{5,922} = 1801.4$$

Table 22. Mean Ceramic Date, Structure Two

Ceramic Type (South's Type #)	Median Date	Sherd Count	Product
Whiteware, #2	1860	28	52,080
Ironstone, #3	1857	0	0
Canton Porcelain, #5	1815	40	72,600
Overglaze Painted Porcelain, #7	1808	3	5,424
Transfer-Printed Pearlware, #'s 10/11	1818	15	27,270
Polychrome Painted Pearlware, #12	1805	25	45,125
Annular Pearlware, #13	1805	1	1,805
Light Yellow Creamware, #15	1798	336	604,128
Blue Painted Pearlware, #17	1800	10	18,000
Overglaze Painted Creamware, #18	1788	2	3,576
Blue and Green Edged Pearlware, #19	1805	20	36,100
Undecorated Pearlware, #20	1805	97	175,085
Transfer-Printed Creamware, #23	1790	1	1,790
Debased "Scratch Blue" Stoneware, #24	1780	3	5,340
Decorated Delftware, #49	1750	10	17,500
		591	1,065,823

$$MCD = \frac{1,065,823}{591} = 1803.4$$

Table 23. Mean Ceramic Date, Structure Three

Ceramic Type (South's Type #)	Median Date	Sherd Count	Product
Whiteware, #2	1860	214	398,040
Ironstone, #3	1857	72	133,704
Canton Porcelain, #5	1815	10	18,150
Overglaze Painted Porcelain, #7	1808	1	1,808
Transfer-Printed Pearlware, #'s 10/11	1818	898	1,632,564
Polychrome Painted Pearlware, #12	1805	103	185,915
Annular Pearlware, #13	1805	98	176,890
Light Yellow Creamware, #15	1798	405	728,190
Blue Painted Pearlware, #17	1800	105	189,000
Overglaze Painted Creamware, #18	1788	0	0
Blue and Green Edged Pearlware, #19	1805	91	164,255
Undecorated Pearlware, #20	1805	55	99,275
Transfer-Printed Creamware, #23	1790	0	0
Debased "Scratch Blue" Stoneware, #24	1780	0	0
Decorated Delftware, #49	1750	0	0
		2,052	3,727,791

$$MCD = \frac{3,727,791}{2,052} = 1816.7$$

For instance, the sorting of pearlware, creamware, and whiteware at the level of small sherds is an extremely subjective and tricky undertaking, at best. The proportion of sherds classified in each of these ware categories profoundly affects the Mean Ceramic Date estimate. So long as the researcher is consistent, however, such sorting problems should not hamper the comparative use of the Mean Ceramic Date estimate, even though the absolute values may be questionable.

Structures One and Two appear to be roughly contemporary, judging by the Mean Ceramic Date estimates, 1801.4 and 1803.4 respectively. There are, as well, fragments of single vessels that were recovered from both structures, further indication of contemporaneity. These observations should be contrasted with the situation in Structure Three, with a Mean Ceramic Date estimate of 1816.7. This later date estimate results from the presence of significant proportions of some of the later ceramic types, such as transfer-printed pearlware, whiteware and ironstone, and indicates a later occupation period for this structure.

While the Mean Ceramic Date estimate offer insight into the relative ages of the structures, they must be combined with other chronological indicators to increase confidence in their veracity.

Military Buttons

Of 232 buttons recovered, at least 41 are military uniform buttons, and there are likely more, since U.S. Army artillery units wore plain brass buttons between 1796 and 1802, as did other units at other times, buttons indistinguishable from those used by civilians. Military buttons can be of use in unraveling chronology, since uniform changes were well documented. Their chronological value is somewhat diminished, however, in a non-military context such as this one. That they are present in such numbers at the Filbert Site is something of a mystery in itself. In addition, some doubt is cast upon the chronological attribution of the buttons, for it has not been established that they were worn by soldiers on active duty. Therefore, the dates during which the buttons were in use by the Army may not be the dates in which they were worn and lost or discarded at Mill Creek.

Notwithstanding these problems, the buttons can certainly be of some use in the interpretation of the site's history and use. To begin, the documentary record offers some insight into reasons for their presence on the site. In a general sense, Francis Paul Prucha's book concerning the role of the military in the settlement of the Northwest Territory, Broadax and Bayonet (1967), points out that many, if not most, of the skilled mechanics, blacksmiths and millwrights in the region came via the Army. The critical importance of sawn lumber and milled grain for the military in an area as isolated as the Straits of Mackinac is easily understood, and it would not be surprising to learn that the military commanders of Fort Mackinac provided such skilled labor to a private miller in order to facilitate the production of needed materials. In fact, Prucha pointed out several such incidents at other posts in the region. A search of early nineteenth century duty rosters by Keith Widder, an historian with the Mackinac Island State Park Commission, proved fruitless, however (Widder 1977). If soldiers were assigned such duty, it was evidently not officially recorded by their superiors.

There were, of course, more casual notes regarding visits by soldiers to pick up lumber, such as Captain Doyle's correspondence of 1793, quoted earlier, where he refers to sending to Campbell's mill for lumber to repair the barracks at Fort Mackinac. Furthermore, the use of the site as a layover for overland travelers is implied by both the Benjamin Poole map of 1839, showing Dousman's Mill as the northern terminus of a road from Saginaw, and the letter from Charles Morison to John Askin of February, 1801, quoted above, which says that a Mr. Fraser was forced to stay at Mr. Campbell's for 15 days, waiting for favorable ice conditions to cross to Mackinac Island. Use of the site as a jumping-off point for travel to and from the fort and settlement on Mackinac Island could at least partly explain the presence of military buttons on the site.

Another indirect explanation, combined with Prucha's earlier observations, adds an additional way to explain the buttons' presence. During some of his most active trading years, 1816 to 1819, Michael Dousman was denied a fur trading license by the U.S. Government due to his alleged complicity in the British seizure of Fort Mackinac during the War of 1812. Testimony to his continued activity during the time in which his license was revoked is found in the Mackinac Impost Book (Mackinac Impost Book 1802-1850), the record of taxes paid on merchandise shipped into the port. During the period 1816 through 1819, Dousman received twelve shipments which included taxable items valued at $18,931.89, as well as other goods which were evidently not taxed. Included in these shipments were several unenumerated "packages," as well as silverworks, twine, shoes, tobacco, quantities of powder, shot, and lead, net thread, snuff, wine and spirits, nails, sheet and bar iron, coffee and tea.

A letter from Matthew Irwin, Factor at the U.S. Fur Factory at Green Bay, to Colonel Thomas L. McKenney, Superintendent of the Indian trade, in 1819, listed a number of British subjects actively engaged in the fur trade in direct competition with the U.S. Government. Irwin discussed a particular ploy used by John Jacob Astor's American Fur Company, and others, to avoid the prohibition on British citizens engaging in the trade.

> It appears that the persons sent by Mr. Astor to other places to trade with Indians were British subjects; and, when it happened that the principal person having charge of the goods was culpable in his conduct in the Late War, in that case a discharged soldier was procured at Mackinac to accompany the goods, who would affect to have the agency of them, whilst all others, even the boat-man, were British subjects. Similar conduct has been observed by the house of David Stone & Co., at Mackinac; one of the partners of which (Michael Dousman) piloted the British armament to Mackinac during the Late War (Irwin 1876:277-278).

The use of discharged or even serving American soldiers to legitimitize trade ventures could explain the presence of military uniform buttons at Mill Creek, for at least some parts of the uniforms were the personal property of the soldiers.

In fact, all of these explanations probably worked in combination to bring soldiers to the site. But it seems likely that long-term employment and occupation as millers, coopers, or traders probably was the primary reason for the presence of the buttons in the assemblage, not any official military activity.

As to the chronological utility of the buttons, it should first be noted that there are eight basic types represented, all manufactured and issued during the late eighteenth and early nineteenth centuries. There is a single British button, made of brass in two pieces, plated with silver (Figure 35 g). The button bears the Arabic numeral "16" within a broken circle and was issued to an officer of the 16th Regiment of Foot, a unit which served in America between 1767 and 1782, but was not stationed at Mackinac (Dunnigan 1975:5). Furthermore, none of the British officers stationed at Fort Mackinac during the late eighteenth century had been with the 16th Regiment (Dunnigan 1974). The 16th Regiment button was found in Structure Two.

The second button type is known to some collectors as the "frog-legged" eagle, as can easily be understood (Figure 35 a). This cast pewter button was issued to cavalry and infantry units between 1792 and 1798 (Campbell 1965:2). Two examples of this button were recovered, both from Structure One.

The next button type represented was issued to the 1st Artillery Regiment between 1802 and 1810 (Campbell 1965:3). Made of a single piece of brass (Figure 35 i, j, n, o), these buttons bear an insignia which depicts an eagle perched upon a cannon with a drum and a stack of cannonballs on the ground below. This type of button was manufactured by a number of Army contractors and consequently there is some variation in the insignia. In some instances, the cannon points left, in others it points right; most of the buttons bear the legend "1 Regt" below the design, while one bears the simple numeral "1". There are also two sizes, 20 and 15mm diameter, presumably for different applications. Of ten specimens, nine were recovered in or near Structure One, the tenth found about twenty feet east of Structure Three.

The next button type, in terms of age, is the script "I" button, of cast pewter (Figure 35 e, f) issued to infantry units between 1812 and 1815 (Campbell 1965:2). Bearing a foliated script "I" above either an empty oval or an oval containing a star, this button also is found in two sizes. Of the six specimens found thus far at the Filbert Site, four were recovered from Structure One and the other two from Structure Two.

The script "A" button, a one-piece brass button, replaced the earlier artillery buttons in 1813-1814 (Campbell 1965:3). One of the examples recovered at Mill Creek bears the foliated "A" above an oval containing the numeral "1", while the other two display the numeral "3" within the oval (Figure 25 k). The numbers refer to the regiment of the wearer; there were three such regiments during the War of 1812. All three examples were found in Structure One.

In 1814, the three artillery regiments were reorganized into a Corps of Artillery and a new button was issued which looked much like the old 1st Regiment buttons (Campbell 1965:3-4). In use until 1821, these buttons bore the eagle atop a cannon motif, with the word "CORPS" below (Figure 31 l, m). Six of the 15 specimens were recovered from Structure One, while the remaining nine were found in Structure Three.

From 1815 to 1821, enlisted men in the infantry units wore a pewter button bearing an eagle holding a shield, while the officers wore a similar button made of silver-plated brass (Campbell 1965:3). Both versions of this button were recovered at the Filbert Site, the officer's type displaying a slightly different and previously unknown design, with the eagle facing right rather than left, and with the legend "REGT" below (Figure 35 b, c, d). Of five examples, three were found in Structure One, one in Structure Three, and one had no provenience recorded.

The final type of military button was probably issued between the 1830's and 1902, and was known as a "staff" button (Dunnigan 1975:9). This two-piece brass button bears an eagle with spread wings grasping arrows and a leafy branch, surrounded by a circle of stars (Figure 35 h). The single example from the Filbert Site was recovered from Structure Three.

Though there is considerable overlap in the distribution of button types among the structures (Table 24), the general tendency agrees with the Mean Ceramic Date estimates. Structures One and Two appear contemporary and Structure Three appears to date somewhat later. Structure Three contains no buttons that were in use before 1812, while the majority of the buttons found in Structures One and Two were in use before that date.

Table 24. Military Button Distribution

Structure One		Dates of Official Use
2	"Froglegged" eagle	1792-1798
7	1st Regiment	1802-1810
4	Script "I"	1812-1815
3	Script "A"	1813-1814
6	"CORPS"	1814-1821
3	Eagle with shield	1815-1821
25 Total		
Structure Two		
1	16th Regiment of Foot	1767-1782?
2	1st Regiment	1802-1810
1	Script "I"	1812-1815
4 Total		
Structure Three		
1	Script "I"	1813-1815
9	"CORPS"	1814-1821
1	Eagle with shield	1815-1821
1	"staff" button	1830-1902?
12 Total		
East Bank		
1	Eagle with shield	1815-1821
West Bank		
1	1st Regiment	1802-1810

Window Glass

Several archaeologists have explored the utility of window glass as a source of chronological information within nineteenth century contexts (Chance and Chance 1974; Grosscup and Miller 1969; Moir 1983; Roenke 1978; Walker 1971; Wentworth 1979). The common conclusion arrived at by all of these authors was that the thickness of glass window panes appears to have fluctuated over time and that measured samples from archaeological contexts might aid in dating episodes of construction and/or window replacement. In general, the thickness of window glass seems to have increased during the nineteenth century, possibly because window pane sizes increased during this time, due to changes in the manufacturer's capabilities and the styles of windows utilized in construction.

Over 14,000 fragments of window glass collected in excavation were cataloged and measured to the nearest .001" with a micrometer. Measurements were systematically taken at the midpoint of each fragment, one measurement per fragment. Simple remeasurement of several catalog units by the author verified the comparability of results obtained by the several student lab workers who took the original measurements. Negligible variation in results was noted. Catalog units were grouped together into the major interpretive contexts of the study; Structure One, Two and Three, non-structural contexts, and the total site. Tabular presentation of the raw data and analysis follows

The descriptive statistics suggest that the thickness of windows in Structures One and Two are similar, and that Structure Three has thinner glass panes. The frequency distribution of window glass grouped in

Table 25. Window Glass Descriptive Statistics

	Structure One	Structure Two	Structure Three	Other Areas	Total Site
Mean	.060"	.063"	.052"	.061"	.059"
Range	.213	.099	.241	.111	.244
Standard Deviation	.014	.014	.012	.013	.014
Kurtosis	9.187	.793	93.707	1.754	13.563
Skewness	1.602	.757	5.771	.862	1.816
Valid Observations	8,507	2,004	2,709	1,387	14,607

in intervals of .005" (.030-.034" = Category 1) for each context displays more clearly the similarities between Structures One and Two, and the divergence of Structure Three (Figure 9). The reader will note the very different shape of the curve for Structure Three, especially the higher relative frequencies in Categories 4 and 5 and the lower frequencies in Categories 7 through 14.

The conclusion drawn after examination of these data is that Structures One and Two were likely constructed at or near the same time, since it appears that window panes of the same thickness were used in the two structures. A T-test applied to samples drawn from these structures confirms that there is no significant difference between the distributions. On the other hand, Structure Three's window glass does appear to be significantly different in its thickness distribution. T-tests comparing Structure Three's window glass to each of the other structures and to the whole site collection confirm this observation (Table 26).

Figure 9. Window Glass Thickness Frequency Distribution

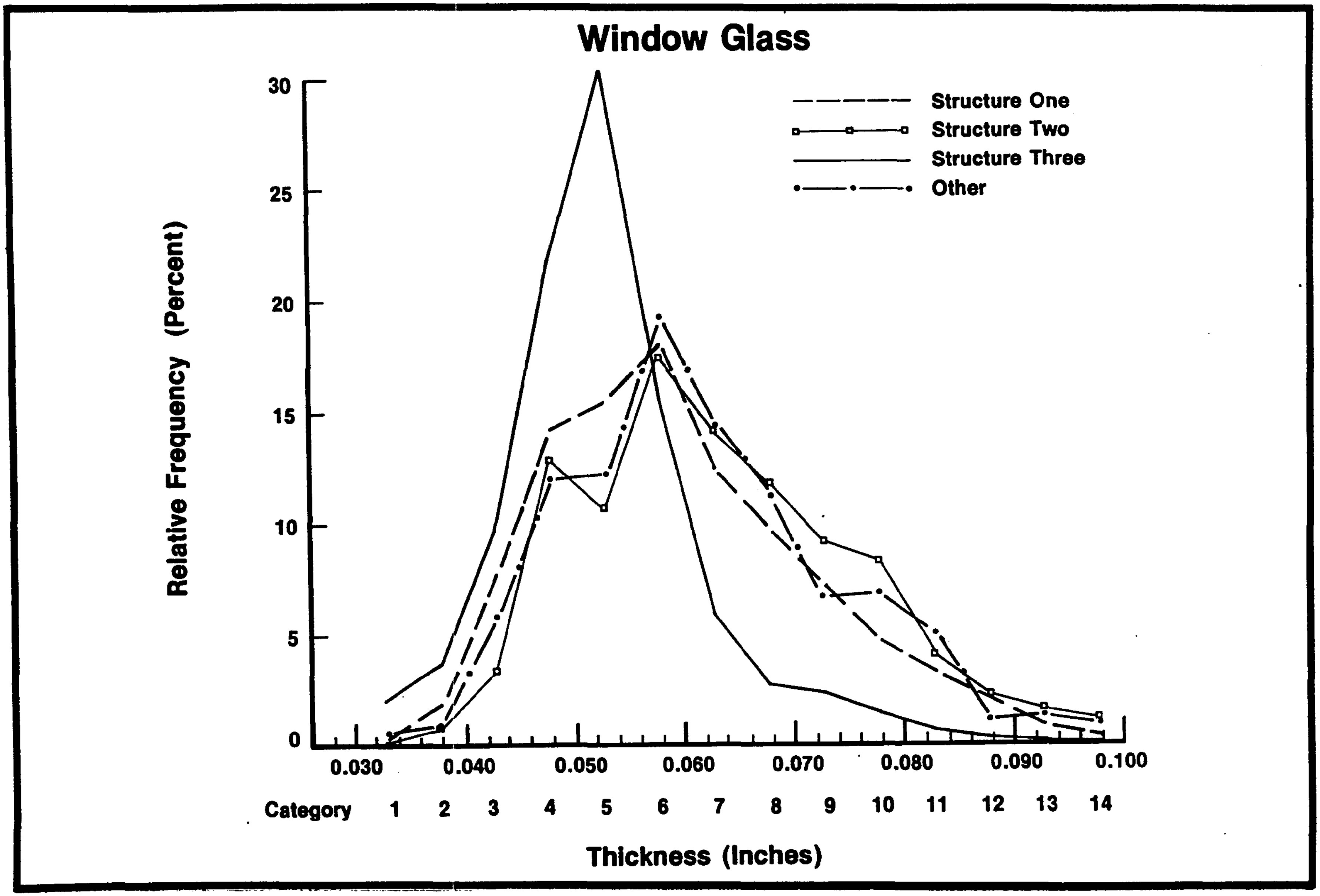

Window Glass
30
25
20
15
10
5
0
Relative Frequency (Percent)
Structure One
Structure Two
Structure Three
Other
0.030
0.040
0.050
0.060
0.070
0.080
0.090
0.100
Category 1 2 3 4 5 6 7 8 9 10 11 12 13 14
Thickness (Inches)

Table 26. T-Tests, Window Glass Thickness by Structure

	N of Cases*	Mean	Std. Dev.	T Value	Freedom	Prob.
Structure One	835	.060"	.013	-2.43	1,021	.015**
Structure Two	188	.062"	.014			
Structure One	801	.060"	.014	9.17	660	.000
Structure Three	266	.052"	.009			
Structure One	835	.060"	.013	-.26	966	.797**
Other	133	.060"	.013			
Structure Two	197	.063"	.014	9.40	319	.000
Structure Three	266	.052"	.009			
Structure Two	188	.062"	.014	1.46	319	.144**
Other	133	.060"	.013			
Structure Three	266	.052"	.009	8.28	393	.000
Other	129	.061"	.011			

* 10% sample drawn for each run

** fail to reject H_o ($u_1 = u_2$) at .01 level

That Structure Three's window glass is different seems clear enough. It remains to provide an explanation for the observed difference in thickness. The previous researchers, mentioned above, have suggested that thickness of window glass tended to increase during the nineteenth century. This assumption suggests that the construction of Structure Three predates Structures One and Two, since the window glass is generally thinner, both in the overall means and in the frequency of the thinner group intervals.

Randall Moir's presentation to the Society for Historical Archaeology in January, 1983, offered a linear regression formula which could be used to establish the initial date of construction of a structure, based upon the mean thickness of window glass from that structure. Using Moir's regression formula, initial construction dates for each of the three structures were calculated (Table 27).

The application of Moir's formula suggests that the initial construction of Structure Three predates that of Structure One and Two by twenty years or more. These observations run counter to the chronology derived from other artifacts, most notably the ceramics. Both the Mean Ceramic Dates and the relative chronology based on presence/absence of certain types suggests that Structure Three is clearly more recent than Structures One and Two, and that those structures are evidently contemporaries of one another. The window glass evidence suggests that the opposite is true. This situation might be explained in a variety of ways.

Table 27. Initial Construction Dates derived from window glass

Contest	Mean	Initial Date
Structure One	.060" (1.524 mm)	1841.1
Structure Two	.063" (1.6002mm)	1847.5
Structure Three	.052" (1.3208 mm)	1823.9
Other Areas	.061" (1.5494 mm)	1843.2
Total Site	.059" (1.4986 mm)	1838.9

Formula: Initial Construction Date = 84.22 x mean + 1712.7
(Source: Moir 1983)

First, it may be that the observations of Chance, Roenke, Moir, and the others are peculiar only to certain regions or markets, due to original sources of supply. The initial work of the Chances and Roenke concentrated on the Pacific Northwest region, and their results could be invalid when projected to other regions. This conclusion seems unlikely, however, for Moir utilized samples drawn from both the deep South and the Northeast, and his analysis suggested that the regression formula held true for a broad area of supply.

Another possible explanation is that Structures One and Two underwent significant modification late in their occupation period. The addition or replacement of windows with newer glass might have skewed the results of this analysis, especially if samples were selectively drawn from deposits which derived from the areas of addition or replacement. This explanation seems unlikely, for the frequency distributions show none of the bimodality one would expect had windows been replaced. Furthermore, the collections were derived from near-total excavation, so no sampling bias should be evident.

A third, admittedly speculative, explanation might be considered which incorporates some of the documentary evidence regarding the use and users of the site, as well as other archaeological evidence. The Mean Ceramic Dates and other artifactual evidence suggests that Structure Three was constructed more recently that Structures One and Two, perhaps even after those structures ceased to be utilized. Artifactual and structural evidence suggests that Structure Three was utilized by a blacksmith. The historical documents show that Michael Dousman acquired the site in 1819, and in June of that year wrote of "fitting out a cooper" to make barrels for his business of shipping flour, fish and, perhaps, spirits. If Structure Three was the cooper's shop, established by Dousman in 1819, it might well be expected to contain window glass which was newer, and hence thicker, than that found in Structures One and Two, which evidently date to the earlier Campbell ownership of this site.

It should be noted, however, that Dousman was an active merchant who bought and sold all manner of goods. Among the items appearing in the Mackinac Impost Book are bills of shipment to Mr. Dousman including "25 feet" of glass in 1815 and "10 feet" of glass in 1816. It is assumed that these references indicate square footage of window glass. Though Dousman's letters and bills suggest that he sold a wide range of goods to a variety of clients, there are no known sales of glass, so it is presumed that these, and perhaps other shipments, were for his own use. It could be that this glass was stored by Dousman and perhaps even by the merchant who shipped it to him, and used in construction long after its manufacture. This explanation, then, rests on the assumption that there was a significant time lag between manufacture and use.

Of these explanations, the first seems most plausible, suggesting that the trends in thickness change observed in other regions should not be generalized to this region. In particular, it appears that Moir's regression formula should not be applied here without further testing. It may well be that this site is merely an anomaly and that other sites will yield data which more closely conform to the predicted thickness norms. Until such evidence is examined, however, the formula should be used only with caution.

Pipestems

Since J.C. Harrington's first recognition that differences in the average bore diameters of samples of clay pipestems provided an indication of temporal differences (1954), historical archaeologists have used pipestems as critical tools in reconstruction of site chronology. The insights of Moreau Maxwell and Lewis Binford were applied to collections from Fort Michilimackinac, along with some other sites, when they expanded on Harrington's earlier work and derived a regression formula that described the relationship between bore diameters and time (Maxwell and Binford 1961:107-109; Binford 1962:19-21). In subsequent articles, several additional authors sought to refine this formula in order to improve site age estimates based on pipestem samples (Binford 1972; Hanson 1971; Heighton and Deagan 1972). A common observation by these and other writers suggests that this formulaic approach to pipestem dating has very limited utility for collections from nineteenth century contexts, largely due to changes in the manufacture and distribution of the pipes. Thus, the application of the regression formula does not appear appropriate for the assemblage from the Filbert Site. In fact, the formula was applied and the resulting dates clustered in the 1750's and 1760's, clearly inaccurate for the assemblage in which the pipes were found.

However, the examination of pipestem bore diameters aggregated by structural context is suggestive of differences between the structures, differences that may well be evidence of the age differences indicated by other measures. Table 28 illustrates these data, showing the breakdown of pipestems by class interval and structural context.

Table 28. Pipestems by Structure

	Bore Diameter				
	4/64"	5/64"	6/64"	7/64"	Total
Structure One	142 (62.2%)	89 (38.4%)	1 (0.4%)	0	232
Structure Two	90 (62.5%)	50 (34.7%)	4 (2.8%)	0	144
Structure Three	40 (38.1%)	56 (53.3%)	8 (7.6%)	1	105
				Grand Total	481

Once again, Structure One and Two exhibit strong similarities on chronological measures, while Structure Three appears different, with a higher percentage representation in the larger bore class intervals. These data are consistent with the other chronological measures that indicate contemporaneity between Structures One and Two, and a difference between these ruins and Structure Three.

Functional Differentiation

The comparison of assemblages derived from structural contexts and classified using South's scheme can offer insight into the original functions of these structures. Variability amongst the structures is evident in several ways. First, there are chronological differences suggested in the discussion above, with Structures One and Two evidently contemporary, and Structure Three somewhat more recently occupied. Second, the density of artifacts per square foot of excavated floor space varies considerably (Table 29).

In this measure, Structures One and Three are quite similar, despite their apparent age differences, and Structure Two is consistently different. Overall density, including all artifact groups, is roughly equal in Structures One and Three, approximately twice as dense as in Structure Two. Similar relationships are evident in the Kitchen and Architecture Groups, the two largest categories of artifacts, as well as the Furniture and Personal Groups. An inverse relationship is seen in the Clothing Group, where Structure Two has a considerably higher density than Structures One and Three. This situation can be explained by recognizing that the Clothing Group includes glass beads and that Structure Two yielded 702 nearly identical small beads. In

Table 29. Artifact Density per Square Foot of Excavated Floor Space

Artifact Group	Structure One	Structure Two	Structure Three
Kitchen	8.4	2.1	8.6
Architecture	12.9	6.7	13.5
Furniture	.02	.004	.03
Arms	.5	.2	.3
Clothing	.3	1.7	.4
Personal	.06	.007	.05
Tobacco Pipes	.4	.5	.6
Activities	.2	.2	.1
Total	22.9	11.5	23.6

this instance, there is little reason to suspect that these beads found their way into the archaeological assemblage of Structure Two by way of direct use as clothing items, but rather more likely they were stored there in preparation for trade. The low densities of Kitchen, Furniture, and Personal Group artifacts suggests other than domestic functions for this structure.

Another measure of functional variability is derived from the ceramic assemblages from the three structures. There is considerable variability in ceramic types present, vessel types present, and number of vessels present (Tables 30, 31 and 32). In this examination, a version of the ceramic classification system proposed by George Miller (1980) is used, rather than the system employed by South. The

Table 30. Minimum Vessels by Type; Structure One

CERAMIC TYPES	VESSEL TYPES					
	Plates	Cups	Deep Bowls	Shallow Bowls	Other	Total
CC ware			4	3	2 (cream pitchers)	9
Edged	5					5
Banded		1	1			2
Painted			5		1 (vase?)	6
(crossmend w/Structure Two)		2	3	3		8
Printed	2	6	4	3		15
Delft					3 (mortar, flower bowl, unknown)	3
Porcelain		1	3	1	6 (mug, vase, 2 pitchers, jar?)	10
Stoneware					1 (handle)	1
(crossmend w/Structure Two)					1 (bottle)	1
Redware (crossmend w/Structure Two)			1			1
Total	7	10	21	10	13	61

Grand Total = 61 vessels (10 crossmend w/Structure Two)

Table 31. Minimum Vessels by Type; Structure Two

CERAMIC TYPES	VESSEL TYPES Plates	Cups	Deep Bowls	Shallow Bowls	Other	Total
CC ware						
Edged	1					1
Banded						
Painted (crossmend w/Structure One)		2	3	3		8
Printed			1			1
Delft						
Porcelain (crossmend w/ Structure One)			1			1
Stoneware (crossmend w/Structure One)					1 (bottle)	1
Redware			1			1
(crossmend w/Structure One)			1			1
Total	1	2	8	3	1	15

Grand Total = 15 vessels (10 crossmend w/Structure One)

Table 32. Minimum Vessels by Type; Structure Three

CERAMIC TYPES	VESSEL TYPES					
	Plates	Cups	Deep Bowls	Shallow Bowls	Other	Total
CC wares					1 (saucer?)	1
Edged	7					7
Banded			1		2 (tureen, unknown)	3
Painted		4	6	4	2 (saucer, pitcher)	16
Printed	11	8	10	6	2 (2 tureens/ chamber pots, unknown)	38
*(possible crossmend w/Structure One	1		1			2
Porcelain			1			1
Stoneware						
Redware					1 (unknown)	1
Yellow ware		1 (mug)			2 (salter?)	2
Total	19	13	19	10	10	71

Grand Total = 71 vessels

* may simply be duplication of pattern

simplicity of Miller's system, which lumps together the undecorated fine earthenwares (creamware, pearlware, whiteware, and ironstone) under the rubric cream-colored (CC) as did the merchants who marketed the ceramics, has tremendous appeal and utility for this predominantly nineteenth century assemblage. A major part of this appeal is the removal of severe sorting problems which occur when attempting to differentiate creamware, pearlware, whiteware, and ironstone as small sherds. In addition, it is a classification which is more consistent with that used by the nineteenth century producers, sellers, and users of the ceramics.

Through comparison of these ceramic assemblages, several things become apparent. First, Structures One and Two exhibit a number of crossmended vessels, reconfirming the contemporaneity of these structures. However, these two structures must have been quite different in use, for the ceramic assemblages are very different, despite the shared vessels. Structure Two has considerably fewer vessels and a much more limited range of types represented.

Structures One and Three, on the other hand, display similar numbers and varieties of both vessels and ceramic types. Despite the evidence that these structures are of different ages, there are two apparent crossmends of transfer-printed vessels. These crossmends may represent only duplication of pattern rather than actual vessel crossmends, but in either case suggest at least some overlap of occupation times.

The similarities noted in ceramic distributions suggest similarities in function for these structures and a difference between them and Structure Two.

To continue this comparison of ceramic assemblages, CC Index Values were calculated for each of the structural contexts, using the 1814 scale and the technique described by Miller (1980:11-12). The tabular results (Table 33) show clearly the higher values in Structures One and Three, which contrast with the low values for Structure Two.

Table 33. CC Index Value, using 1814 Scale

	Structure One	Structure Two	Structure Three
Plates	1.9	1.3	2.6
Cups	2.7	1.5	2.5
Bowls	1.8*	1.8*	2.3

* Includes six crossmends enumerated in both structures

Summary

The emerging picture of site development and use over time suggests that Structures One and Two were built first, probably by Robert Campbell and his family, during the early to mid-1780's. Structure One was a substantial dwelling house and Structure Two was a somewhat less imposing workshop and warehouse. Both buildings were in use up until and, likely beyond the time of Campbell's death in 1808. Robert Campbell's son, John, occupied the site and cut hay there after his father's death, until the property was sold to Michael Dousman in 1819.

It appears likely that Structures One and Two had ceased to be useful by the time of Dousman's purchase of the site, for they contained few artifacts which could clearly post-date the change in ownership. Structure Three, on the other hand, has a significant number of objects

dating after 1819 and was likely either erected by Dousman or, at least, improved and used by him.

Structure Three evidently functioned as both a dwelling and a smithy and/or a cooperage. The artifact assemblage reflects both types of functions and clearly indicates an occupation extending well beyond Structures One and Two in time, into the 1840's.

No structural evidence of a mill was located, despite extensive exploration. The ruins of a dam were investigated and offer indirect evidence for the use of the site as a mill seat, as do the mill-related artifacts recovered; the large saw-set, saw blade, and mill bill (Figure 29 a, b, h).

Subsequent to the major occupation of the site, limestone quarrying was done in the vicinity. This activity at least partially altered the earlier remains, as in the case of the heavy fill deposit on the west bank at the dam, and may well have obliterated other elements of the historic site.

CHAPTER V
PATTERN VALIDATION AND ANALYSIS

Introduction

The preceding description and discussion of archaeological data from the Filbert Site illustrates some of the ways that South's classification scheme can be utilized. As a consistent system of functional artifact categories, the scheme is useful for intra-site comparisons and the discovery of functional variability between structures and/or activity areas. It provides a convenient format for data organization and quantitative analysis.

The Pattern concept, however, is also intended for broader inter-site comparison and generalization. In essence, South's Patterns are offered as normative models of segments of British Colonial American material culture. The intent of the models is not simply to provide pigeonholes for individual assemblages, but rather to facilitate and stimulate the explanation of the cultural processes that make assemblages alike and/or different from one another. To those ends, it is important to examine critically the structure of the models, to explore their strengths and weaknesses, and to refine the models in the light of new insights and new data.

Up until this time, most of the characterizations and uses of the Patterns, by South and by others, though quantitative in the sense that they depend on numerical representations of artifact frequencies and proportions, have been essentially subjective and nonquantitative in nature. Researchers have pointed out the gross similarities and differences between the Patterns, suggesting that individual sites or contexts "fit" into one Pattern or another. Little effort has been made to measure differences between the Patterns, or to validate their existence as distinctive measures of cultural differences. Forsman and Gallo (1979) attempted to recognize the level of difference between the Patterns, but the use of ordinal-scale ranking of artifact Groups seriously restricted the utility of their conclusions. Drucker (1981) performed a Chi-squared test to measure the goodness-of-fit between the Spiers Landing site and the Carolina Pattern, but did not attempt to differentiate between the Patterns themselves.

The Three-Pattern Model

It is desirable, then, to examine the named Patterns as cultural models and to measure their validity and accuracy as distinct descriptive entities. Since these are quantitative models, characterizing cultural states in terms of artifact frequencies and proportions, quantitative statistical measures are the most appropriate means of assessing validity. The purpose of the analysis is to explore the internal homogeneity of the Patterns and the degree of difference between them. To this end, all of the original, unadjusted artifact frequencies from South's ten sites, Forsman's six sites, and Garrow's eight sites were coded and entered as a data file in the Univac 1100/80 system installed in Michigan Technological University's Academic Computing Service. South's unadjusted frequencies were used, but the shifts of Kitchen, Activities, and Pipe frequencies suggested by Ferguson (1978), Lees and Kimery-Lees (1979), and Garrow (1982) were incorporated. In addition, artifact data from the Filbert Site, Montgomery's Tavern (Martin 1977), Grand Portage (Woolworth 1975), and

Fort Watson (Ferguson 1975) were entered for comparative purposes. The raw data file may be found in Appendix B.

In most instances, entire site assemblages were entered as single cases, as total assemblages were reported in the published sources. In those instances where the data were readily available and comparison seemed desirable, contexts from within sites were entered as cases in addition to the total site assemblage. For instance, South's original study (1977) included considerable detail on artifact collections from individual structures and contexts at Brunswick Town, and differentiated between the major components at Fort Moultrie. In the present study, these contexts were retained as distinct cases. The Filbert Site data were also coded in separate structural and non-structural contexts, as well as the total site assemblage to facilitate intra-site comparison. As a result of these coding judgments, thirty-nine sites and contexts were made available for analysis. The redundancy inherent in coding both assemblages and sub-assemblages was recognized at the outset and judged acceptable for present purposes, since Pattern classification was generally based only on the total site assemblages.

The initial step of the validation process was an examination of the basic descriptive statistics for the data set. The subprogram CONDESCRIPTIVE of the Statistical Package for the Social Science (SPSS) was used to generate these statistics, results of which are illustrated in Table 34.

Since South's original work and virtually all subsequent published research using the Pattern concept relied on proportional data to characterize the Patterns, this study followed precedent. Raw

Table 34. Descriptive Statistics, 39 Sites and Contexts

	Mean	Standard Error	Standard Deviation	Variance	Kurtosis	Skewness
Kitchen	.441	.037	.232	.054	-.531	0.324
Architecture	.315	.028	.178	.032	-1.192	-.028
Furniture	.002	.000	.002	.000	16.921	3.692
Arms	.021	.005	.030	.001	3.326	2.010
Clothing	.136	.040	.252	.063	3.379	2.090
Personal	.014	.009	.058	.003	33.418	5.671
Tobacco Pipe	.048	.007	.041	.002	.263	1.208
Activities	.024	.004	.026	.001	7.370	2.357

frequencies were converted to percentages for all statistical analysis. The use of percentages, rather than simple artifact counts, aided in the process of comparison because gross differences in assemblage size were minimized. It was, after all, the proportional occurrences of artifact Types and Groups that characterized the Patterns, rather than the absolute number of objects. Concentrating on percentages prevented sites with large collections from overwhelming the variability expressed in the smaller sites.

There is, however, a potential problem inherent in the use of percentage data in statistical analyses. Proportional data tend to array themselves in a binomial distribution, rather than the normal distribution desired for parametric statistical testing (Zar 1974:185). One solution to this problem is to transform the variable values to create a distribution that more nearly approximates normality. Commonly used transformations include calculation of the arcsine, and various logarithmic transformations. Statistical and mathematical opinion remains divided on the issue of transformation; there are staunch supporters of each variety of transformation, and there are those who reject the concept outright.

Because of the special nature of percentage data and the relatively high kurtosis and skewness scores seen on the Furniture, Personal, and Activities Group variables in the initial descriptive statistics (Table 34) a natural logarithim transformation was applied to the data set. All descriptive and analytical statistics were calculated for both the untransformed and transformed versions of the data file and were compared for their relative interpretive value. It was decided that the transformations added no additional dimensions to the data set, but rather diminished some of the usefulness of the untransformed data, particularly in those cases where variable values were very small. In non-technical terms, the transformations seemed to manipulate and force the data. Therefore, untransformed values were used in all subsequent analysis.

The next step was a series of tests to determine the validity of the original Patterns. Questions asked of these data were: 1) how similar were the sites within the Patterns, 2) how different were the Patterns from one another, 3) what variables were responsible for the observed similarities and differences, 4) could additional sites be classified on the same variables in a meaningful way? It was decided that discriminant function analysis, using the SPSS subprogram DISCRIMINANT, was the most appropriate technique for this inquiry.

Discriminant analysis was designed to calculate the effects of a group of interval or ratio scale independent variables (in this instance, artifact Group percentages) on a nominal scale dependent variable (Pattern classification). Simply put, the technique measures the differences between groups of observations and points out the variables that contribute most significantly to determining the differences between the groups. In addition, the routine assigns unclassified observations to groups on the basis of those important variables.

In addition to the ability to answer the basic questions being asked of the data, discriminant analysis was considered particularly attractive because it has been described as a statistically robust technique. This quality allowed the researcher to relax the requirements of normality and random samples somewhat (Nie et al 1975:435 f2), requirements that were difficult to meet with the present data set. The selection of this technique also supported the decision to utilize the untransformed percentage values.

The subprogram DISCRIMINANT mathematically defines linear combinations of independent variables that maximize discrimination between cases (sites or contexts) within the categories of a dependent variable (Patterns). In so doing, DISCRIMINANT derives mathematical functions that maximize the statistical difference between the classified groups. Unless the researcher specifies a desired number of functions, the subprogram derives N-1 functions where N = the number of nominal-scale groups represented. The reason behind this might best be conceived by recognizing that one mathematical function is required to describe a line that explains the relationship between two points in geometrical space; two functions are required to describe a plane surface defined by three points in space, and so on. Therefore, two functions are required to explain the spatial dispersion of three groups of entities or cases.

The discriminant functions are derived in stepwise fashion, entering variables in order of their explanatory power in combination with those variables already selected. The selection process ends when additional variables fail to add explanatory power. The subprogram specifies the percentage of variance in the sample explained by each of the derived functions. In addition, standardized discriminant function coefficients are calculated for each variable on each function. Comparison of these coefficients allows the researcher to identify the relative contributions of each variable to the discriminating power of the functions.

Once the computation of the discriminant functions is complete, DISCRIMINANT calculates scores on the functions for each of the cases and a group mean, called the centroid, for each of the groups. These scores allow the cases and groups to be plotted in mathematical space. The subprogram depicts the boundaries between groups and the distribution of cases in relation to one another. Linear distances on the scatterplot of points printed by the routine represent the mathematical differences between the cases and groups. This graphical feature makes discriminant analysis particularly attractive, for it aids considerably in the interpretation of the statistical results.

DISCRIMINANT also classifies all grouped cases on the basis of the derived functions. The percentage of cases properly classified, that is, grouped mathematically in the same way that they were grouped on the dependent variable, provides a measure of the success of the functions in discriminating between groups. Limited spatial dispersion of cases within each group and limited overlap of groups indicates that the variables and functions used measure some similarities and differences among the groups effectively.

After the analysis and classification of grouped cases, it is possible to enter previously unclassified cases or cases that were not used in the derivation of the functions. DISCRIMINANT calculates scores for these "new" cases based on the functions and assigns them to appropriate groups. These cases are also plotted together with the classified cases, allowing both a visual and mathematical comparison of their similarities.

In the initial analysis, two functions were derived to explain the separation of three groups; the Carolina, Frontier, and Early Fur Trade Patterns. The variables selected in the stepwise analysis were the Kitchen, Architecture, Furniture, and Tobacco Pipe Groups. Characteristics of the discriminant functions are presented in Table 35, together with the descriptive statistics for the Three-Pattern model.

Of particular interest are the standardized canonical discriminant function coefficients, which show that the first function was most significantly affected by the Kitchen Group variable, while the second function was defined primarily by the Architecture Group. All the grouped cases were classified correctly by the functions, suggesting that these were relatively distinct groups and that they could be effectively discriminated by these variables and mathematical functions. In the classification stage, the twenty-three ungrouped sites and

Table 35. Descriptive Statistics and Results of Three-Pattern Model Discriminant Function Analysis

	Frontier		Fur Trade		Carolina	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Kitchen	37.26	8.83	4.64	5.28	59.98	6.87
Architecture	47.41	6.05	6.80	7.85	23.82	5.04
Furniture	0.20	0.10	0.05	0.06	0.20	0.22
Arms	2.65	3.69	4.53	3.37	0.86	1.07
Clothing	1.28	1.71	65.50	22.22	4.45	4.52
Personal	0.16	0.20	8.22	13.86	0.21	0.17
Tobacco Pipe	7.24	5.26	6.12	5.84	6.40	5.14
Activities	2.79	2.34	4.14	1.98	4.05	4.74

Results of Three-Pattern Model Discriminant Function Analysis

Function	Eigenvalue	Percent of Variance	Cumulative Percent	Canonical Correlation
1	25.54	84.49	84.49	.9810
2	4.69	15.51	100.00	.9079

Standardized Canonical Discriminant Function Coefficients

	Function 1	Function 2
Kitchen	1.00063	-.45838
Architecture	.52599	.96215
Furniture	.50248	-.32559
Tobacco Pipe	-.48305	-.16840

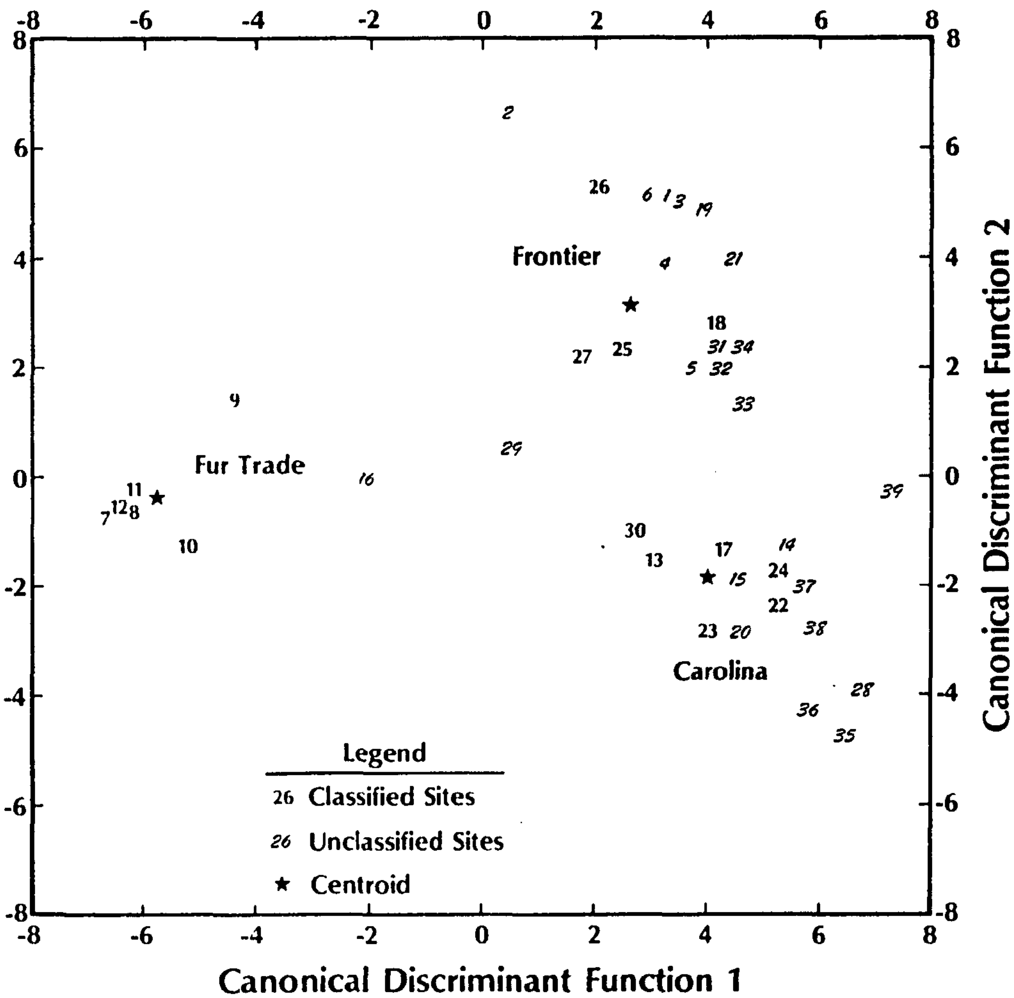
contexts were classified and the resultant scatterplot is presented in Figure 10. The scatterplot suggests that these are internally homogenous groups or sites and contexts, similar to one another within the groups despite their geographic and chronological differences.

The sites classified Early Fur Trade by Forsman appear to be most like one another and different from the bulk of sites in the sample. This may have particular significance in light of the fact that the Clothing and Arms Group variables, two of the most numerous categories of artifacts on these sites, were not used in either the analysis or classification stages of this study. The Early Fur Trade Pattern sites were discriminated without reference to these two variables, which made up an average of approximately 70% of the inventories from those sites. This may be explained by reference to the use of proportional data; high values on Clothing and Arms guarantee low values on other variables, such as Kitchen and Architecture. Therefore, even if DISCRIMINANT does not use Clothing and Arms in the derivation of functions or classification of sites, those variables have an indirect effect on the outcome of the analysis.

The single ungrouped case that was assigned to the Early Fur Trade Pattern group was the collection from inside Structure 25 at Brunswick Town, South Carolina. This context, which was characterized by South as a tailor shop, exhibited high proportions of tailoring items and correspondingly low proportions of Kitchen, Architecture, and other items. Therefore, it is not surprising that quantitative analysis should classify this context together with others displaying low Kitchen and Architecture values. It should be noted that on the scatterplot this

Figure 10. Scatterplot of Discriminant Scores, Three-Pattern Model

Scatterplot of Discriminant Scores, Three-Pattern Model



Sites and Contexts

1 20CN8 Structure I	14 Brunswick 25 Front	27 Spalding's Store
2 20CN8 Structure II	15 Brunswick 25 Rear	28 Bright's Post/Montgomery's Tavern
3 20CN8 Structure III	16 Brunswick 25 Inside	29 Grand Portage
4 20CN8 East Bank	17 Brunswick 10 Whole	30 Signal Hill
5 20CN8 West Bank	18 Brunswick 7 Whole	31 Delaware State House A
6 20CN8 Whole Site	19 Brunswick 7 Rear	32 Delaware State House B
7 Rocky Mountain House	20 Brunswick 7 Front	33 Delaware State House C
8 Fort George	21 Brunswick 7 Midden	34 Camden Toft 8
9 Buckingham House	22 Fort Moultrie A	35 Yaughan A
10 Edmonton House	23 Fort Moultrie B	36 Curiboo
11 Sturgeon Fort	24 Cambridge 96	37 Yaughan B
12 Francois LeBlanc Post	25 Fort Prince George	38 Spiers Landing
13 Brunswick 25 Whole	26 Fort Ligonier	39 Fort Watson

context was spatially separate from the relatively tight cluster of Early Fur Trade Pattern sites, in a marginal position. It should also be noted that several other sites that are known to have served as fur trade posts, such as Grand Portage, Fort Prince George, Bright's Post, and Spalding's Store, were not classified with these sites, nor do they lie nearby on the plot.

The discriminant functions failed to classify "properly" known fur trading sites because the variables measured did not allow such site functions to be differentiated. South's classification scheme did not include functional artifact categories that would measure or recognize this type of activity in an archaeological context. The artifact categories from this scheme that were most indicative of fur trading, the Arms and Clothing Groups, did not lend themselves to unambiguous interpretation. This situation was noted in the classification of the Brunswick Town tailoring shop context with the Early Fur Trade Patter sites.

An examination of raw artifact frequencies and excavation summaries from Forsman's (1979) original article offered a clue to a possible cause for the strong similarities noted among the Early Fur Trade Pattern sites, and to their significant differences from other fur trading sites in the sample. The dominance of the Clothing Group values in these sites was affected not only by high counts in that category, but also by very low counts on the Kitchen and Architecture Groups. Forsman's discussion of the original excavations suggested that considerable variation in collection and classification was evident in project reports. The sites were excavated over more that a decade, by different researchers and institutions, with no unifying objectives or procedures. Because at least some of the sites were excavated with identification of the fur trading company as the sole or primary goal, and quantitative data were not generally collected, it may well have been considered expedient not to collect or record quantities of such mundane items as nails, window glass, or plain, undecorated ceramics. Since the original excavation reports are not readily available, this suggestion is totally speculative, and therefore is offered only tentatively. However, such a bias in data collection, particularly during a time when much historical archaeology was done by prehistorians, would not be surprising. If such were the case, it might well account for the marked differences these sites exhibit in comparison with other known fur trading sites.

The Carolina Pattern is represented by a relatively tight cluster of cases displaying little spatial dispersion and no overlap with the other Patterns. In addition to the sites originally classified as Carolina by South, the subprogram assigned two additional contexts from Brunswick Town's Structure 25, one context from Brunswick Town's Structure 7, Bright's Post/Montgomery's Tavern, and the four documented slave domiciles, two components from Yaughan, and one each from Curiboo and Spier's Landing, to the Carolina Pattern group. All of the Carolina Pattern sites are distinguished by high scores on Function 1, defined primarily by the Kitchen Group variable, and low scores on Function 2, defined primarily by the Architecture Group variable. This relationship is not entirely a simple inverse ratio between these two variables, however, for the Furniture and Tobacco Pipe Groups also contribute to the discriminant functions, albeit to a more limited extent.

The Frontier Pattern, as defined on the discriminant functions, is slightly more diffuse than the other Patterns, with three scattered marginal sites. South's four Frontier sites are found relatively close together on the scatterplot, as are eleven of the additional sites and contexts classified by the subprogram. The three outliers, Grand Portage, Fort Watson, and Structure Two at the Filbert Site, are sufficiently close on the discriminant function scores to warrant classification as Frontier, yet are different enough to be placed at the margins of the Frontier Pattern range. Fort Watson, for instance, scored very high on Function I and relatively low on Function 2, placing it close to the Carolina Pattern range. Fort Watson's status as a Revolutionary outpost, occupied for a short time and containing only minimal, temporary structures, makes these scores understandable. It is somewhat striking, however, that the site should appear so "domestic" and close to the Carolina sites, despite its military use and frontier character. This situation will be explored in more detail below.

The second outlier, Grand Portage, scored relatively low on both functions, and was plotted at the margin of the Frontier range closest to the Early Fur Trade range. The documented historic function of Grand Portage as a fur trade _entrepot_ correlates with this position. However, it also raises the question of proper Pattern and cultural classification; why has the subprogram judged this documented fur trading post to be more like the Frontier Pattern sites than it is like contemporary and geographically proximal fur trading sites? This issue will also be pursued below.

The third outlier is Structure Two from the Filbert Site. The differences between Structure Two, the other structures, and the total site assemblage at Filbert have been discussed in the previous chapter. This structure displays relatively obvious functional differences in form and artifact assemblage, and it is those differences which cause it to score low on Function 1 and very high on Function2. The same characteristics that distinguish it from the remainder of the Filbert Site also distinguish it from the the other Frontier Pattern sites. The non-domestic functions of the structure, as workshop and/or warehouse, place it at the margin of the Frontier range, radically different from Fort Watson, for instance, with its higher proportion of Kitchen and other domestic artifacts, coupled with minimal Architecture or Furniture items.

In general, the Three-Pattern model appeared to be an effective means of describing variation among this sample of sites and contexts. The discriminant function analysis demonstrated that the three Patterns could be discriminated on the basis of four independent variables, the percentages of Kitchen, Architecture, Furniture and Tobacco Pipe artifacts in the assemblages. While the Three-Pattern model did not effectively distinguish all sites known to have served as fur trading stations, there were few other divergences from expected classifications. When such divergences did appear, the variables that contributed to the divergence were identified and will direct explanation of the variation. Furthermore, an interesting distribution of sites was noted on the scatterplot of discriminant scores (Figure 10), a roughly linear arrangement of sites ranging from the most extreme Frontier Pattern sites to the most extreme Carolina sites. In an intuitive, subjective assessment, this linear array appeared to represent and axis of domesticity, an interpretation that will be evaluated in the study.

The Four-Pattern Model

The same analytical exercise was performed using a modified Pattern scheme, proposed by Patrick Garrow (1982) and Cara Wise (1978). In this instance, the data set was analyzed after adding the modified classifications proposed by Garrow and Wise: Carolina, Slave, and Public Interaction Patterns. Classification of grouped sites was derived from Garrow's report on the Washington D.C. Civic Center Project (1982) and the discriminant functions were calculated on four Patterns, Garrow's plus the Early Fur Trade Pattern.

As noted in Chapter II, Garrow's modified Pattern scheme included revisions of South's original construct and additional site data. The Public Interaction Pattern he proposed incorporated South's Frontier Pattern and Wise's Public Structure Pattern. Garrow saw sufficient similarity among the assemblages of six sites originally included in these Patterns to justify classifying them together. The sites in question were Fort Prince George, Spalding's Store, Fort Watson, the Delaware State House, Camden Toft 8, and Structure 7 at Brunswick Town. Garrow suggested that the public functions served by all of these sites caused their similar artifact arrays. One should note that Garrow dropped Fort Ligonier from consideration when he incorporated South's

Frontier Pattern into this new Pattern. No explanation was offered, nor was the site reclassified into one of the other Patterns.

Garrow's Revised Carolina Pattern was based largely on shifts of Colono-ceramics from the Activities Group to the Kitchen Group. Signal Hill was dropped from South's original group of five Carolina Pattern sites because Garrow objected to the estimation of the number of nails originally present, a number not recorded by the excavators. Garrow also eliminated both contexts from Fort Moultrie because the shift of Colono-ceramics from Activities to Kitchen made too great a change in the overall artifact array. Therefore, these contexts were dropped from consideration, and not reclassified.

Dropping the extremes of variability in an exercise in classification and explanation is unjustified. If the assemblages from Fort Ligonier, Fort Moultrie, and Signal Hill were not to be considered because they did not fit the model as conceived, an alternative classification should have been offered. If the goal of the revision was explanation, the extremes of variation should have been included in the analysis, not simply dropped.

Three functions were derived in the discriminant analysis, because four Patterns were described. The characteristics of the functions are listed in Table 36, together with the descriptive statistics. Note that over 99% of the variance in the sample was explained by Functions 1 and 2; Function 3 added only minimal explanatory power. The Kitchen and Architecture Groups were the first two variables selected, as they were in the three-Pattern model. In the four-Pattern model analysis, the Tobacco Pipe Group was selected last. The standardized canonical

Table 36. Descriptive Statistics and Results of Four-Pattern Model Discriminant Function Analysis

	Fur Trade		Carolina		Public Interaction		Slave	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Kitchen	4.64	5.28	56.74	7.18	46.18	5.59	77.49	5.81
Architecture	6.80	7.85	26.40	4.50	43.68	2.11	17.74	6.12
Furniture	0.05	0.06	0.33	0.25	0.30	0.44	0.07	0.01
Arms	4.53	3.37	1.15	1.58	2.00	3.22	0.17	0.10
Clothing	65.50	22.22	6.35	6.34	1.53	1.62	0.49	0.22
Personal	8.22	13.86	0.29	0.22	0.07	0.07	0.05	0.03
Tobacco Pipe	6.12	5.84	7.50	6.06	4.61	4.51	3.53	1.31
Activities	4.14	1.98	1.25	0.45	1.64	1.62	0.48	0.28

Results of Four-Pattern Model Discriminant Function Analysis

Function	Eigenvalue	Percent of Variance	Cumulative Percent	Canonical Correlation
1	26.75	73.01	73.01	.9818
2	9.83	26.82	99.82	.9527
3	.06	.18	100.00	.2464

Standardized Canonical Discriminant Functions Coefficients

	Function 1	Function 2	Function 3
Kitchen	.93593	-.41706	.02628
Architecture	.28375	1.07925	.01379
Tobacco Pipe	-.00774	-.52028	.99772

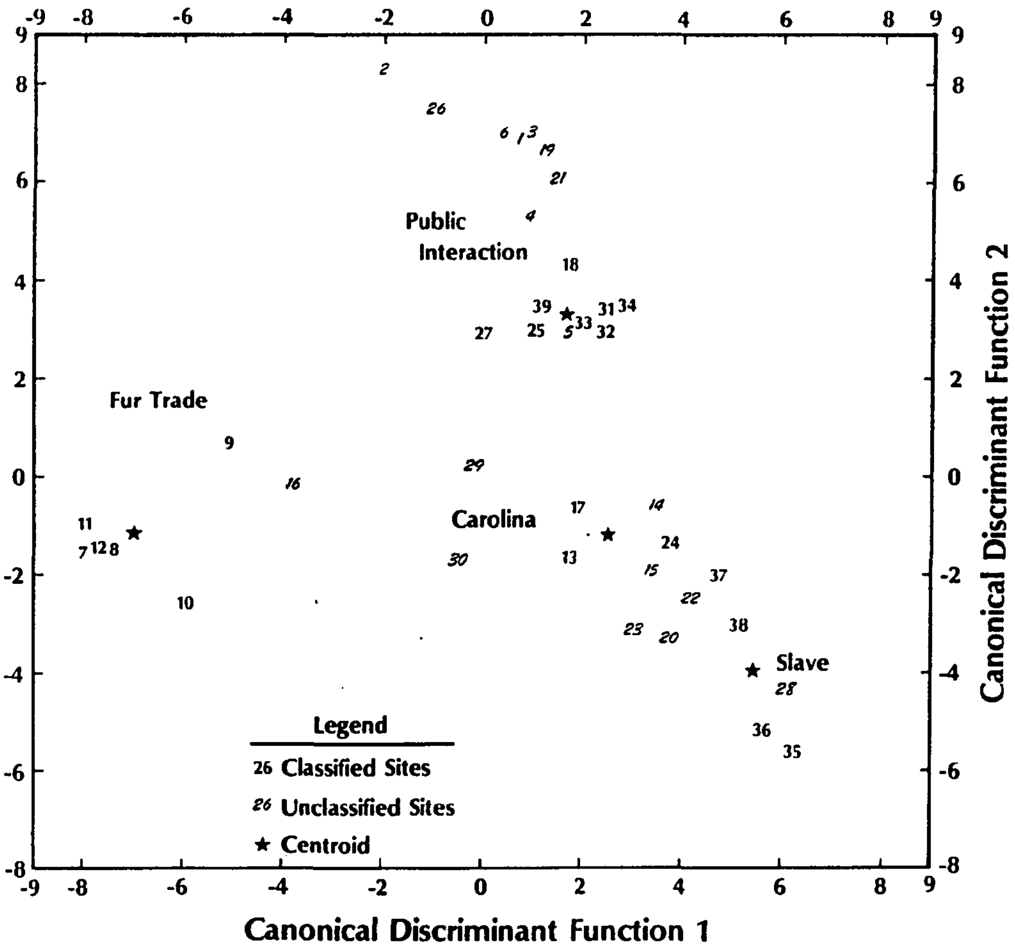
discriminant function coefficients show that the Kitchen Group was the dominant variable in Function 1, the Architecture Group was dominant in Function 2, and the Tobacco Pipe Group was dominant in Function 3. Though discriminant scores were calculated for all three functions, only the scores on the first two functions were used in generating the scatterplot of cases, since the graphical representation had only two dimensions (Figure 11).

The scatterplot of scores for the Four-Pattern model (Figure 11) resulted in a distribution of cases similar to that which was represented for the Three-Pattern model, with some significant differences. As was the case in the earlier analysis, the assemblage from within Structure 25 at Brunswick Town was classified with the Early Fur Trade Pattern group. As noted previously, this classification was not surprising, since the structure originally functioned as a tailoring shop and thus contained high proportions of glass beads and small lead shot.

Garrow's Revised Carolina Pattern also displayed relatively little difference from the Three-Pattern model results. Though Garrow considered Signal Hill overly "adjusted" by South, DISCRIMINANT classified it within the Carolina range, as it did Fort Moultrie, context B, two sites dropped from consideration by Garrow. On the discriminating variables in this analysis, these sites were evidently not significantly different from the other Carolina Pattern sites, but were rather very similar to them, judging by their positions not far removed from the Pattern centroid on the scatterplot (Figure 11). One further site classified as Carolina was Grand Portage. This classification was

Figure 11. Scatterplot of Discriminant Scores,
Four-Pattern Model

Scatterplot of Discriminant Scores, Four-Pattern Model



Sites and Contexts

1 20CN8 Structure I	14 Brunswick 25 Front	27 Spalding's Store
2 20CN8 Structure II	15 Brunswick 25 Rear	28 Bright's Post/Montgomery's Tavern
3 20CN8 Structure III	16 Brunswick 25 Inside	29 Grand Portage
4 20CN8 East Bank	17 Brunswick 10 Whole	30 Signal Hill
5 20CN8 West Bank	18 Brunswick 7 Whole	31 Delaware State House A
6 20CN8 Whole Site	19 Brunswick 7 Rear	32 Delaware State House B
7 Rocky Mountain House	20 Brunswick 7 Front	33 Delaware State House C
8 Fort George	21 Brunswick 7 Midden	34 Camden Toft 8
9 Buckingham House	22 Fort Moultrie A	35 Yaughan A
10 Edmonton House	23 Fort Moultrie B	36 Curiboo
11 Sturgeon Fort	24 Cambridge 96	37 Yaughan B
12 Francois LeBlanc Post	25 Fort Prince George	38 Spiers Landing
13 Brunswick 25 Whole	26 Fort Ligonier	39 Fort Watson

worthy of note, for the revision of Carolina Pattern attributes by Garrow resulted in the classification of this western Lake Superior fur trading station with the Carolina Pattern group, rather than with the Fur Trade sites or with the Frontier Pattern sites, as it was in the Three-Pattern model.

Garrow's Carolina Slave Pattern was defined with four documented slave domiciles as its type sites. This Pattern and its sites fell adjacent to the Carolina Pattern on the scatterplot and was not far removed from it on either discriminant function. Three ungrouped sites were classified with the Slave Pattern group; Fort Moultrie, context A, the front yard area of Structure 7 from Brunswick Town, and Bright's Post/Montgomery's Tavern at Arkansas Post.

Context A from Fort Moultrie represents the American midden deposit dating roughly 1775-1794 (South 1974). Judging by the simple proportions of artifacts in this assemblage, the context was not radically different from the Carolina Pattern sites, and its scores on the discriminant functions placed it near the boundary with that group. The front yard area from Brunswick Town's Structure 7 was labelled a "deviant" example by South (1977:154) and drew his attention. He explained the difference between this context and others associated with the structure primarily in terms of variability in refuse disposal, and characterized it as essentially Carolina Pattern in character. In the present analysis, the context lies adjacent to the Carolina/Slave Pattern boundary, but its discriminant functions scores categorize it solidly within the Slave Pattern group.

The last ungrouped site classified into this Pattern by the subprogram was Bright's Post/Montgomery's Tavern from Arkansas Post. Excavated by the author in 1971, this site assemblage was dominated by the early nineteenth century tavern component and might well be characterized as "super-domestic" (Martin 1978). The Kitchen Group artifacts made up 82% of the assemblage, while the Architecture Group accounted for only 16%. Food and beverage service was clearly the primary activity revealed in the artifactual record.

That these three contexts were classified within the Slave Pattern on the discriminating variables suggests more about the original Slave Pattern sites than about the sites added by DISCRIMINANT. It suggests that these sites served relatively limited domestic functions and that their inhabitants did not engage in other activities, such as craft specialization, manufacturing, or commerce within their places of residence. A satisfying explanation for this situation lies beyond the scope of the present investigation. It is clear, however, that the label Carolina Slave Pattern is inappropriate, since strong similarities have also been recognized on sites not inhabited by slaves. The observed differences between the Carolina and Slave Pattern sites were not caused by ethnic or social status differences, as the labels imply, but rather by some functional variation, perhaps the degree of physical separation of domestic and non-domestic activities within a settlement.

Garrow's Public Interaction Pattern, defined on revisions of South's Frontier Pattern sites and Wise's Public Structure Pattern, displayed a tight cluster of points on the scatterplot (Figure 11).

Classified within this Pattern by DISCRIMINANT, but lying somewhat separate on the plot, were Fort Ligonier (a site previously dropped by Garrow), the rear and midden areas from Brunswick Town Structure 7 and all of the contexts from the Filbert Site.

While it was clear that all of these sites and contexts share assemblage similarities, the attribution of cause to the service of public functions was at least unwarranted and certainly untested. That public functions were carried out in some of these locations cannot be denied. However, there has been no demonstrated relationship between the proportions of Kitchen and Architectural artifacts represented in an assemblage and the presence of public activities. On the contrary, if public functions were reflected in these variables, one would have expected the subprogram to have classified Montgomery's Tavern within this Pattern, since its documented uses included polling, and the muster of militia, as well as the expected housing and feeding of visitors (Martin 1978). Further, the classification of the Filbert Site contexts within this Pattern suggested that something other than public interaction made these assemblages similar, for the Filbert Site showed little evidence, either archaeological nor documentary, of intense public use.

Comparison of Alternative Models

Both the Three-Pattern model and Four-Pattern model represent clusters of sites and/or contexts that exhibit assemblage similarities. In both models, the clusters are relatively tight and homogeneous. Garrow's model results in denser, tighter clusters than does South's, but, as suggested above, the Four-Pattern model runs a somewhat higher risk of misclassifying sites, or at least of misrepresenting their functional characteristics. The proposed Public Interaction and Slave Patterns were judged to be inappropriate, the labels not effectively reflecting the cultural variability that was observed in the archaeological and documentary records.

South's choice of labels for his Patterns may be criticized, as well as may Forsman's, though South suggested from the start that the Pattern labels, like the Patterns themselves, were convenient devices to describe available data, to be modified or abandoned as new information made them obsolete. The Patterns were not intended as static models to be replicated or discovered, but rather as tools to facilitate comparison and explanation. The Three-Pattern model appears more attractive at this time, since it does not attempt to distinguish subcultural variants (as in the Slave Pattern) or gross behavioral generalities (as in the Public Interaction Pattern). Rather, it provides descriptive models of cultural variability over time and space which require explanation. The temptation to proliferate Patterns which describe the entire range of archaeological manifestations must be resisted. It is more fruitful to seek explanations for the regularities noted in South's original conceptions, explanations for the interrelations of the variables, and explanations for the observed variability.

The existence of regularly co-occurring ranges of values on functional artifact groups has been demonstrated. Stanley South's Patterns do, in fact, describe regularity in the archaeological record. The cause or causes of the observed regularity remains to be determined.

The Frontier Pattern: Hypotheses and Tests

Of particular interest for the present study is the Frontier Pattern. This is the broadest, most general of South's Patterns, describing sites from a relatively wide geographic and chronological range. The Filbert Site contexts were classified as Frontier by the discriminant function analysis, along with a number of other sites that do not exhibit any obvious shared similarities. They all display similar proportions of functional artifact categories, but share no other immediately apparent attributes. The discovery and explication of these characteristics should offer insights into the nature of frontier life and help to judge the degree to which frontier regions share distinctive cultural and behavioral adaptations.

In his original recognition of the Frontier Pattern, South proposed tentative explanations for the distinctive ratios between certain artifact categories, especially the relationship between the Kitchen and Architecture groups.

> It is the interplay of these two variables, sometimes resulting in the reversal of their positions as seen in the Carolina Pattern, that results in the Frontier Pattern. When we question the cause of this reversal, an increase in by-products associated with architecture in frontier situations can be suggested. This might result from a shorter occupation period for each architectural unit on the frontier than in the settlements not in the frontier, thus increasing the Architecture Group artifacts in relation to secondary midden deposits of Kitchen Group artifacts.

> An alternative can be postulated regarding a decrease in Kitchen Group artifacts in relation to Architecture Group artifacts resulting from the remoteness of the frontier from the source of supply (South 1977:146).

In a summary article published later, South further emphasized the importance of the Architecture Group.

> The Frontier Pattern could perhaps best be termed an Architectural Artifact Pattern to reflect the variable distinguishing it from the Carolina Pattern since a similar high architectural ratio is often found inside the area of a ruined structure compared with the Carolina Pattern usually seen to prevail in the yard around the structure (South 1978:230).

Though he proposed these alternative explanations, South did not attempt to refine or test them. The Patterns remained essentially descriptions with no explanatory power.

The tentative explanations proposed by South were evaluated by reference to the Filbert Site and, to some extent, the other sites and contexts in the data set used for the discriminant function analysis. Rephrased somewhat, these explanations were offered as hypotheses.

Length of Occupation

> Hypothesis 1. The distinctive artifact assemblages recognized as the Frontier, Fur Trade, and Carolina Patterns are a function of the length of time that the sites displaying the Patterns were occupied.

The examination and testing of this hypothesis began with the collection of data on the length of occupation for each of the sites and contexts in the sample. In most instances, published estimates were available, based on historical and/or archaeological evidence (Table 37). Filbert Site Structures One and Two were associated with the Campbell occupation of the site, and Structure Three was associated with the Dousman occupation. The non-structural contexts were assigned a value reflecting the entire historic occupation, as was the total site assemblage (Table 37).

After data collection, the examination of time as an important causal variable began with reanalysis using discriminant function analysis. An indication of the relative importance of occupation length in determining Pattern was noted when the SPSS subprogram DISCRIMINANT selected length of occupation along with the Kitchen and Architecture artifact groups as important discriminating variables. Length of occupation was selected last and the statistics generated suggest that it was not so powerful a discriminator as the Kitchen or Architecture Groups, but was nonetheless useful in distinguishing between the Patterns. In order to further test the hypothesis that Pattern membership was related to length of occupation, a one-way analysis of variance test was used to discover if a relationship existed and if it was statistically significant. The SPSS subprogram ONEWAY was used, a routine suitable for examining the relationship between a nominal-scale factor, such as Pattern, and a single interval-scale continuous variable, length of occupation. All sites in the sample were assigned Pattern membership on the basis of the earlier discriminant analysis, including both the sites classified by South and Forsman, and those classified mathematically by the analysis.

Table 37. Duration of Occupation, Site and Contexts Analyzed by DISCRIMINANT

Site/Context	Occupation Date	Duration of Occupation	Reference
20CN8 Structure I	ca. 1785-1819	34	Martin 1973-1975
20CN8 Strcuture II	ca. 1785-1819	34	Martin 1973-1975
20CN8 Structure III	ca. 1819-1845	26	Martin 1973-1975
20CN8 East Bank	ca. 1785-1845	60	Martin 1973-1975
20CN8 West Bank	ca. 1785-1845	60	Martin 1973-1975
20CN8 Whole Site	ca. 1785-1845	60	Martin 1973-1975
Rocky Mountain House	1799-1821	22	Forsman and Gallo 1979
Fort George	1792-1800	8	Forsman and Gallo 1979
Buckingham House	1792-1800	8	Forsman and Gallo 1979
Edmonton House	1810-1813	3	Forsman and Gallo 1979
Sturgeon Fort	1776-1780	4	Forsman and Gallo 1979
Francois LeBlanc Post	1769-1778	9	Forsman and Gallo 1979
Brunswick 25 Whole	1732-1776	44	South 1977
Brunswick 25 Front	1732-1776	44	South 1977
Brunswick 25 Rear	1732-1776	44	South 1977
Brunswick 25 Inside	1732-1776	44	South 1977
Brunswick 10 Whole	1728-1776	52	South 1977
Brunswick 7 Whole	1734-1776	42	South 1977
Brunswick 7 Rear	1734-1776	42	South 1977
Brunswick 7 Front	1734-1776	42	South 1977

Table 37. Continued

Site/Context	Occupation Date	Duration of Occupation	Reference
Brunswick 7 Midden	1734-1776	42	South 1977
Fort Moultrie A	1774-1794	19	South 1974
Fort Moultrie B	1780-1782	2	South 1974
Cambridge 96	1783-1820	37	South 1977
Fort Prince George	1753-1769	16	Combes no date
Fort Ligonier	1758-1766	8	Grimm 1970
Spalding' Store	1763-ca. 1783	20	Lewis 1969
Bright's Post/ Montgomery's Tavern	ca. 1805-1840	35	Martin 1977
Grand Portage	ca. 1769-1803	35	Woolworth 1975
Signal Hill	1800-1860	60	Jelks 1973
Delaware State House A	1788-1807	19	Wise 1978
Delaware State House B	1788	1	Wise 1978
Delaware State House C	1742-1788	46	Wise 1978
Camden Toft 8	ca. 1758-1819	61	Lewis 1976
Yaughan A	1745-1795	50	Garrow 1982
Curiboo	1745-1800	55	Garrow 1982
Yaughan B	1784-1826	40	Garrow 1982
Spiers Landing	1790-1830	40	Drucker 1981
Fort Watson	1780-1781	.3	Ferguson 1975a, 1975b

The test recognized a significant relationship between these variables; results are summarized in Table 38.

Table 38. Results of ONEWAY, Occupation Length with Pattern

Analysis of Variance

	Degrees of Freedom	Sum of Squares	Mean Square	F	Probability
Between Groups	2	4,189	2,094	6.921	.0029
Within Groups	36	10,895	303		
Total	38	15,084			

Descriptive Statistics, TIME

	Mean	Standard Deviation	Standard Error	Range	95% Confidence Limits
Frontier	30.6	20.4	5.3	.3-65.0	19.4-41.9
Fur Trade	14.0	14.6	5.5	3.0-44.0	.5-27.5
Carolina	42.6	15.4	3.7	2.0-65.0	34.7-50.6

These results suggest that length of occupation was at least a contributing factor to Pattern differentiation. A further test, known as least-significant difference, available with ONEWAY, was employed to compare each of the Patterns to one another on the basis of their length of occupation. This _a posteriori_ test suggested that the Fur Trade Pattern was significantly different from both the Frontier and Carolina Patterns at the .05 level of significance. It did not, however, recognize a significant difference between the Frontier and Carolina Patterns at that level. When the test was rerun using a .10 significance level, the Frontier and Carolina Patterns were judged significantly different based on lengths of occupation, as were each of the other pairs of Patterns.

While length of occupation is clearly an influential variable in distinguishing the artifact Patterns, it does not appear to provide a sufficient explanation by itself. The evidence that it is more effective in differentiating Fur Trade sites from the Frontier and Carolina Pattern sites is instructive, however. On that variable, Frontier and Carolina assemblages are difficult to distinguish and share overlapping ranges of values (Table 37). It should be recalled that the Carolina and Frontier assemblages were arrayed in close mathematical proximity by the discriminant analysis, seemingly along an axis. Variation in length of occupation might well contribute to the explanation of that array of assemblages, perhaps in combination with one or more additional variables. This possibility will be explored below, in subsequent analyses.

Selective Excavation

> Hypothesis 2. The distinctive artifact assemblages recognized as the Frontier, Fur Trade, and Carolina Patterns are a function of sampling error, brought about by biased and selective excavation of structural ruins and limited excavation of non-structural contexts.

It has been suggested by South (1978:230) and others that the Frontier Pattern might more appropriately be termed the Architectural Artifact Pattern, because it is characterized by such high proportions of architectural artifacts. The suggestion that this situation has been caused by selective excavation concentrating on structural remains was tested by reference to the sites and contexts previously discussed.

All the assemblages in the current sample were coded to indicate whether they represented a structural or a non-structural context of excavation. For the present analysis, whole site assemblages and strictly non-structural assemblages were combined in a single category to be compared with structural ruins. A Chi-squared test was run using the SPSS subprogram CROSSTABS, producing a two-by-two contingency table comparing context of excavation with Pattern (Table 39).

Table 39. Results of CROSSTABS, Context with Pattern

	Pattern			
Context	Frontier	Fur Trade	Carolina	Row Totals
Non-Structural	8 53.3%	6 85.7%	13 76.5%	27 69.2%
Structural	7 46.7%	1 14.3%	4 23.5%	12 30.8%
Column Totals	15 38.5%	7 17.9%	17 43.6%	39 100.0%

Raw Chi-Squared	3.09 with 2 degrees of freedom
Significance	.2132
Cramer's V	.2815

These results suggested that there was no significant relationship between the context of excavation (structural versus non-structural) and Pattern membership in this sample. The emphasis on structural ruins for excavation was not a sufficient explanation of the appearance of the distinctive Patterns.

Geographic Isolation

Hypothesis 3. The distinctive groups of artifact proportions recognized as the Frontier, Fur Trade, and Carolina Patterns are a function of the relative isolation of sites from cultural centers and sources of supply.

This hypothesis was difficult to test because the measure of relative isolation was an illusory concept. The assignment of values for isolation was complicated by such factors as change in transportation technology during a site's occupation, shifts of national boundaries, with concomitant restrictions on travel and commerce, and changes in corporate management that affected the flow of goods and services. For example, the Filbert Site was occupied both before and after the introduction of steamships into the Upper Great Lakes. A simple measure of straight line or water route distance between Mackinac and Detroit would not reflect the significant change in relative isolation of the site brought about by technological change. In other cases, the orientation of sites toward cultural centers changed from one city to another, and even from one nation to another, complicating the measurement of isolation.

To solve this problem, a simple ordinal-scale measure of isolation was devised. This measure recognized three levels of relative isolation: at or near a population center and/or source of supply; relatively isolated; very isolated. An admittedly subjective measure, this was nonetheless useful for testing the hypothesis that isolation was an important factor in the determination of Pattern membership.

A Chi-squared test was run in order to examine the relationship between isolation and Pattern membership. The resulting three-by-three contingency table and associated statistics are presented in Table 40.

Table 40. Results of CROSSTABS, Isolation with Pattern

	Pattern			
Isolation	Frontier	Fur Trade	Carolina	Row Totals
Close	6	1	8	15
	40.0%	6.7%	53.3%	40.5%
Medium	2	0	7	9
	22.2%	0	77.8%	24.3%
Far	5	6	2	13
	38.5%	46.2%	15.4%	35.1%
Column Totals	13	7	17	37*
	35.1%	18.9%	45.9%	100.0%

Raw Chi-squared 13.36 with degrees of freedom

Significance .0096

Cramer's V .42497

* two sites not coded due to insufficient data

It was evident that a significant relationship existed between relative isolation and Pattern membership, as indicated by the Chi-squared value. The strength of that relationship was estimated by Cramer's V, a measure that may vary in value between .0 and 1.0. The value resulting from this analysis, .42497, indicated a relatively weak, albeit significant, relationship between the categories of isolation and Pattern.

By reference to the contingency table (Table 40), it was noted that Fur Trade Pattern sites were nearly all judged to be far removed from sources of supply, while the Carolina Pattern sites tended to be found closer to centers of population. The most variable group of sites was the Frontier Pattern group, arrayed over the full range of relative isolation categories. These observations suggest that the difference between Carolina and Fur Trade sites might well be explained by differences in relative isolation, but that the Frontier Pattern sites could not be effectively characterized in such a way.

Summary

The preceding analyses have demonstrated that South's Pattern concept has substantial utility as a means of describing and comparing historical assemblages. They have further demonstrated that the Fur Trade, Frontier and Carolina Patterns are distinctive models of British-American material culture, and therefore reflect distinctively different patterns of behavior.

Three hypotheses offered to explain the existence of the Patterns have been tested by reference to a data base consisting of thirty-nine sites and contexts drawn from a variety of geographic and temporal contexts. The explanation related to selective excavation was solidly rejected. The explanation related to distance from sources of supply was tentatively accepted, with the understanding that it did not carry substantial explanatory power in the Frontier Pattern cases. The explanation based on length of occupation was clearly the strongest and most useful of the hypotheses examined, though it fails to stand alone in the opinion of this author.

CHAPTER VI
CONCLUSIONS

The Causes of Pattern Variation

Stanley South's Patterns have been shown to have utility for describing and comparing assemblages. The classification scheme has proved useful for presenting and analyzing data from the Filbert Site. The Patterns have further been validated as distinctive, patterned models of material culture.

Three alternative explanations for their distinctive character have been tested, and two of these explanations have received qualified support. Both length of occupation and distance from sources of supply appear to have significant effects on the patterned array of artifact proportions that characterize the Patterns.

To conclude this study, it seems appropriate to move beyond the relatively rigorous analysis and testing into a more general reflection on the causes of variation seen within and between the assemblages examined. The discriminant function analysis made it clear that variation in the relative proportions of Kitchen and Architecture Group artifacts had a significant effect on the clustering of assemblages into Patterns. The one way analysis of variance test and its associated statistics offered convincing evidence of the influence of occupation length on that same Pattern clustering. Less compelling, but influential support was given to the contention that isolation may have played a significant role in the differentiation of patterned groups of sites.

Beyond these results, however, this study has stimulated some more general impressions regarding the underlying causes for the observed variability and patterning in the archaeological record of these sites.

The marked differences of the Fur Trade Pattern sites have been evident in all analyses and tests. They were more geographically isolated, occupied for shorter times, and displayed radically divergent artifact assemblages. While either isolation or length of occupation might account for their differences, this author cannot rule out the potential influence of sampling error, discussed briefly in Chapter V. This observation is admittedly subjective, for the original excavation reports have not all been consulted. However, the exceedingly scant collections of Architecture Group artifacts such as nails and window glass reported by Forsman do not agree with some contemporary description of fur trade posts in western Canada. The conclusion that some items were simply not collected cannot be ruled out at this time.

Though the Frontier and Carolina Patterns did appear to be distinctive in the discriminant function analysis, there was overlap between these groups on both the length of occupation and isolation measures, suggesting that these Patterns were not so different from one another as they were different from the Fur Trade Pattern. The array of discriminant scores on the Three-Pattern model scatterplot (Figure 10) is also suggestive, for it places the sites and contexts in mathematical space to portray their similarities and differences. The Carolina and Frontier Pattern sites appear to be arranged in a linear alignment, and the centroids of those two Patterns are closer to one another than either is to the Fur Trade centroid. When one looks at the cases at the opposite ends of this linear array, some interesting relationships become evident. The four most extreme cases in the Carolina group are three of the documented slave domiciles and a trading house/tavern. These sites share a dominantly domestic function. Though commerce was certainly carried on at Bright's Post, the domestic orientation of Montgomery's Tavern dominates the assemblage, with Kitchen Group artifacts making up 82% of the assemblage, and thus it has been characterized as "super domestic."

At the opposite pole of this alignment are found such collections as all of the Filbert Site contexts, with Structure Two as the most extreme, Fort Ligonier, and two of the contexts from the Hepburn-Reonalds House (Structure Seven) from Brunswick Town. In contrast with the extremes at the other pole of the array, these sites and contexts can be characterized as reflecting broader, more varied functions. While some domestic artifacts appeared in Structure Two at the Filbert Site, their proportions were significantly lower than in the Carolina Pattern sites. Even the obvious domiciles, such as Structure One at Filbert, contained enough non-domestic objects to make the assemblage take on a different character.

It appears to this author that site function, or perhaps diversity of functions, is a more critical factor in determining assemblage characteristics. Though duration of occupation and isolation have been recognized as influential factors, the range of activities carried out at the site may be more important.

The Filbert Site was occupied as long as the longest-occupied Carolina Pattern site, yet its assemblage is more like that from Spalding's Store, Fort Ligonier, and Fort Prince George than it is like other long-occupied sites. The Filbert Site was occupied both before and after the arrival of steamships in the Upper Lakes, and both before and after the opening of the Erie Canal. These events caused profound changes in the degree of isolation that this site endured, yet the assemblages from the early part of the occupation, Structures One and Two, are not fundamentally different from that of the later context, Structure Three. For these reasons, diversity of function and degree of domesticity seem to be important causal variables in distinguishing the Frontier Pattern sites from the Carolina Pattern sites. The observed array of sites and contexts resulting from the discriminant function analysis is increasingly appealing as an axis of domesticity and remains to be explored in a systematic manner.

Suggestions for Further Research

Several potential lines of further inquiry have become apparent during the course of this study. The most obvious first step involves the expansion of the data base. Researchers from around the country are increasingly employing South's Pattern scheme and the possibilities for pursuing similar analysis with more sites are promising. An increase in sample size would allow for more reliable estimates of variability, as well as more dependable tests of causal hypotheses. Such an increase might also allow the recognition of heretofore "invisible" patterning in the archaeological record, caused by temporal, cultural, geographical or functional variation.

Another analytical approach of some potential value would require reclassification of selected artifact classes in order to reflect known cultural and/or functional variability more effectively. For example, glass beads might be classified in a Trade Goods Group, along with silver ornaments and other known trade items in an analysis that sought to maximize the segregation of sites with a known or suspected trading function. Artifacts presently treated in the Activities Group are particularly amenable to such reclassification to recognize specialized functions.

An approach that holds great potential for intrasite analysis is the increased use of the Pattern concept for distributional studies. Spatial analysis of variation from Pattern norms offers additional insights into functional differentiation, disposal practices, and the internal variation within and between contexts. The Pattern scheme offers a consistent format upon which to base such comparisons.

The most fruitful avenue for continued research, however, lies in the area of functional analyses. More is to be gained by framing testable hypotheses based on functional explanations for variability between historic archaeological contexts than will ever be learned from the proliferation of "new" Patterns based on subjective renderings of quantitative data. Leaning on the interplay and insights afforded through integration of historical and archaeological data, this type of study promises to inform archaeologists working in all temporal and geographic realms about the meaning and the utility of abstract descriptive models of cultural variability. It is here that historical archaeology will make its most important contribution to a science of culture.

APPENDIX A
ARTIFACT DESCRIPTIONS

APPENDIX A
ARTIFACT DESCRIPTIONS

The following is a descriptive catalog of artifacts recovered in excavations at the Filbert Site in the years 1972-1975. Stanley South's artifact classification scheme is used to provide consistent organization. The artifact collection and all site records are curated by the Mackinac Island State Park Commission, Lansing, Michigan, and a duplicate set of notes and records is maintained by the author.

Kitchen Group

Ceramics

Exceeded in number only by window glass fragments, the 9,853 ceramic sherds recovered in the 1972-1975 excavations were certainly the most variable group of artifacts collected. These artifacts were treated in Chapter IV as indicators of chronological differences between structural contexts (Tables 21-23), and as indicators of status and functional differentiation (Tables 30-32). In this section, the ceramic types and vessels represented were enumerated and described. Examples of the major types from Structures One and Three were illustrated, both to show the types and vessel forms, and to allow some visual comparison of the two sub-assemblages on the basis of ceramics.

The ceramic classification system used by South in the Mean Ceramic Date estimation was used here, even though neither the illustration layout nor the numbering of vessels followed this order. The ordering in the Figure layout was designed to maximize the space usage, while vessel numbering was strictly by chance, as groups of vessels were sorted in the laboratory.

For a general discussion of the temporal and morphological characteristics of the ceramic types, the reader should consult Noel Hume (1969:98-145).

Whiteware (South's Type #2)

No clearly distinguishable whiteware vessels were recognized, though 349 sherds were classified as whiteware. The difficulty of distinguishing this ware from the other cream-colored earthenwares was mentioned in Chapter IV, but bears repeating here. At the level of small sherds, these wares were extremely difficult, if not impossible, to sort. It is only because the presence or absence of whiteware has chronological significance that such sorting was attempted here.

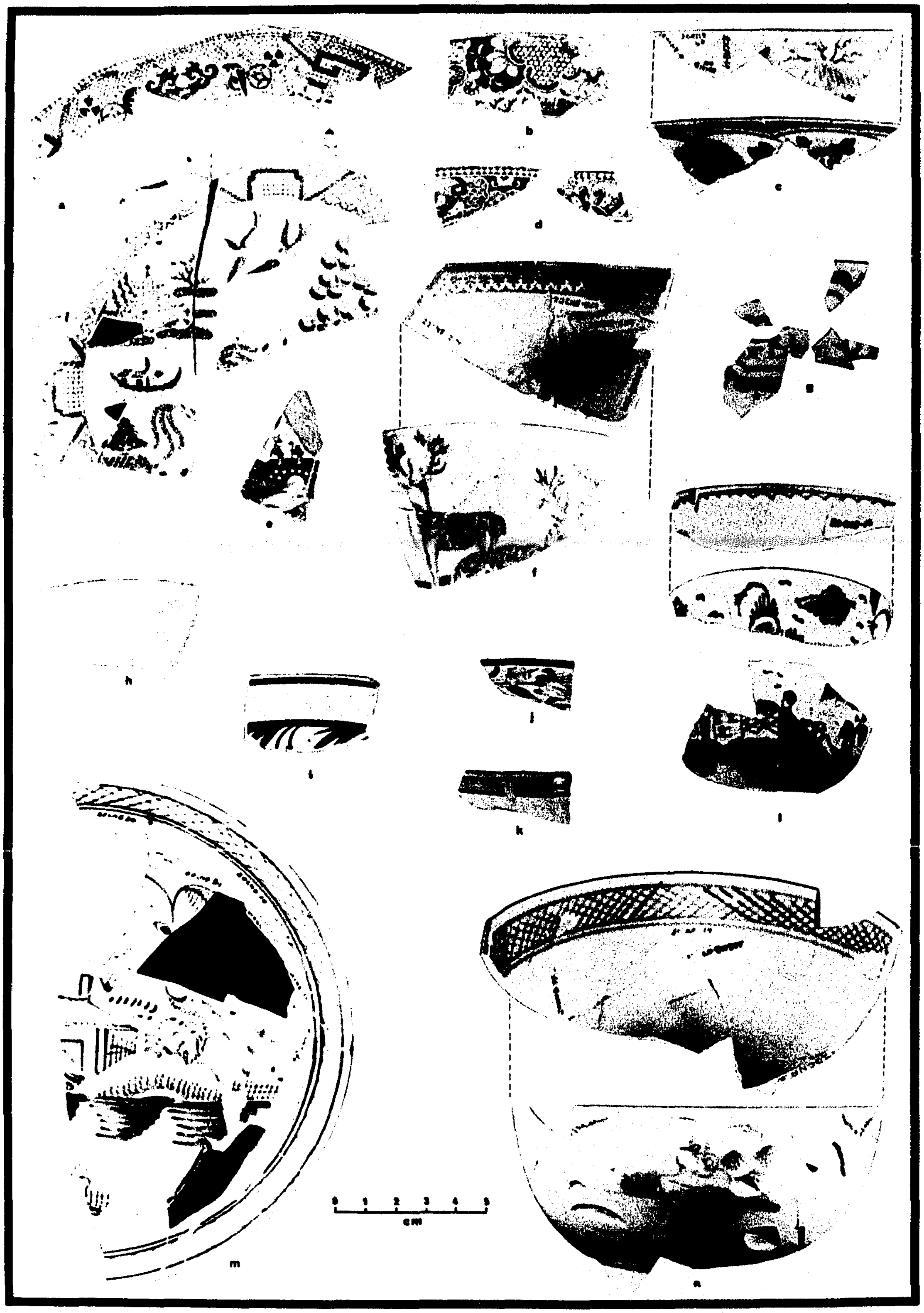
Ironstone (South's Type #3)

Seven ironstone vessels were recognized from a sample of 92 sherds. All were recovered on the west side of Mill Creek. Two ironstone vessels, a small saucer, and a luster-painted cream pitcher, represented by 72 sherds, were found in Structure Three. The remainder of the vessels including a small bowl marked "JOHNSON BROS" (Figure 13s), were recovered from the mixed fill deposits over the west end of the dam ruins. The other vessels were three saucers and a thick platter.

Porcelain (South's Type #5)

A minimum of ten blue-painted porcelain vessels were recognized. Of these, five were bowls (Figure 13f, g, i), one was a cup (Figure 13h), and four were either vases or, more likely, cream pitchers (Figure 13k).

Figure 12. Ceramics, Structure One



Overglaze Painted Porcelain (South's Type #7)

Two overglaze painted vessels were noted, one a bowl and the other a deep, handled mug or pitcher (Figure 13j). A total of 200 porcelain sherds was recovered from all contexts.

Transfer-Printed Pearlware (South's Types #10 and #11)

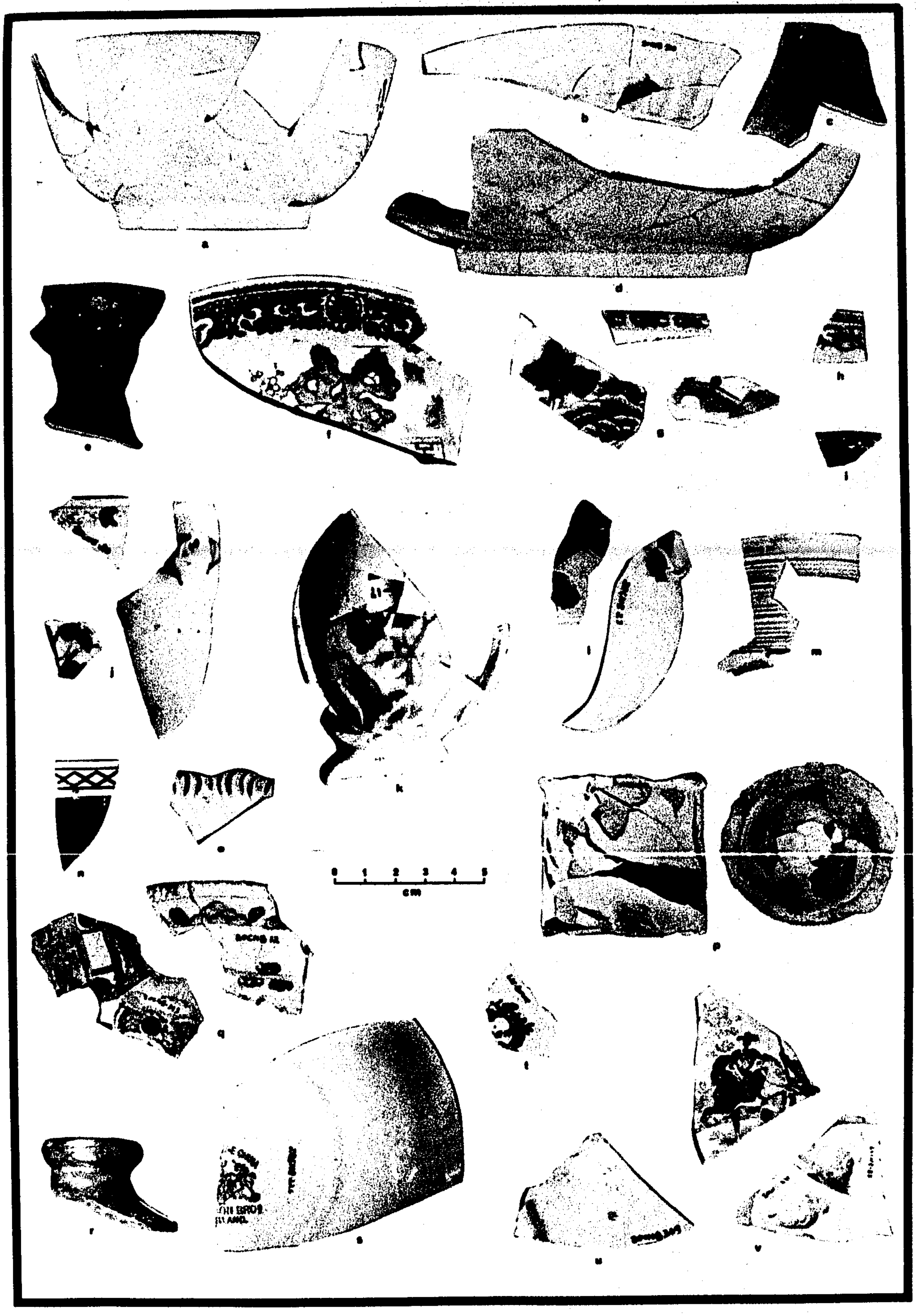
Fourteen hundred eighty-two sherds of transfer-printed pearlware represent a minimum of fifty-four vessels. The dominant color was blue, but black, red, green, brown and polychrome vessels were seen as well. The classic Willow Pattern was found primarily in Structure One, on a plate (Figure 12a) and on bowls (Figure 12e). Other blue transfer-printed vessels from Structure One included shallow bowls (Figure 12b, d), two deep bowls (Figure 12c, f), and a straight-sided mug (Figure 12g), which probably read "A Present for Edward."

Transfer-printed wares dominated the assemblage from Structure Three, comprising 38 of 71 identified vessels. Six patterns of blue transfer-printing are illustrated in Figure 14a-h and Figure 14k. Figures 14l, n, and q illustrate brown transfer-prints, and Figure 14o and p are black-printed designs. Figure 14s is printed in red with a green rim design.

Polychrome Painted Pearlware (South's Type #12)

Three hundred thirty three sherds, representing a minimum of sixteen vessels of this ware were recovered. Primarily bowls and cups, examples of these vessels from Structure One are illustrated in Figure 12i-k. Polychrome handpainted vessels from Structure Three are illustrated in Figure 14t-v and x. These vessels all exhibit floral motifs

Figure 13. Ceramics, Structure One and Marked Sherds



in brown, blue, green, yellow and black, except for one cup with a dot and crossed line design (Figure 14v).

Annular Pearlware (South's Type #13)

Five annular vessels were represented by 135 sherds. One example from Structure One, a dark brown cup with a cross-hatched rim, is illustrated in Figure 13n. A deep bowl with a marbled design from Structure Three is seen in Figure 14bb.

Light Yellow Creamware (South's Type #15)

Four thousand six hundred and ninety six undecorated creamware sherds represent a minimum of sixteen vessels, the most common of which were bowls. There were at least four deep bowls of the type illustrated in Figure 13a, and at least three plain shallow bowls (Figure 13c). There were two shallow bowls with a fluted design on the interior (Figure 13b, e) and a single cream pitcher with a Leeds-type beaded rim (Figure 13c). Two plates were represented by Royal Pattern rimsherds, and at least four small plain cups were noted. Virtually all of these vessels were recovered in or near Structure One.

Blue Painted Pearlware (South's Type #17)

Painted in cobalt blue under the glaze, this ware was seen on 460 sherds representing at least seven vessels, all bowls and cups. The examples from Structure One were primarily Chinese scenes on cups (Figure 12l), shallow bowls (Figure 12m), and a deep bowl Figure 12n). In Structure Three, the designs were more often floral, though seen on the same vessel forms (Figure 14w, y-aa).

Overglaze Painted Creamware (South's Type #18)

Expressed on only four sherds from a single shallow bowl, this ware was definitely a minor part of the ceramic assemblage. The vessel was recovered from Structures One and Two, and was originally painted with flowers in red, leaves in green. Only the "ghost" images of the painting remain, barely visible in Figure 12h.

Blue and Green-Edged Pearlware (South's Type #19)

Three hundred seventy seven sherds of edged ware were recognized. Obviously, this ware was underrepresented, for only the rim fragments bear the diagnostic designs. All plates, there were at least ten blue-edged vessels (Figure 14cc, dd) and five green-edged (Figure 13o).

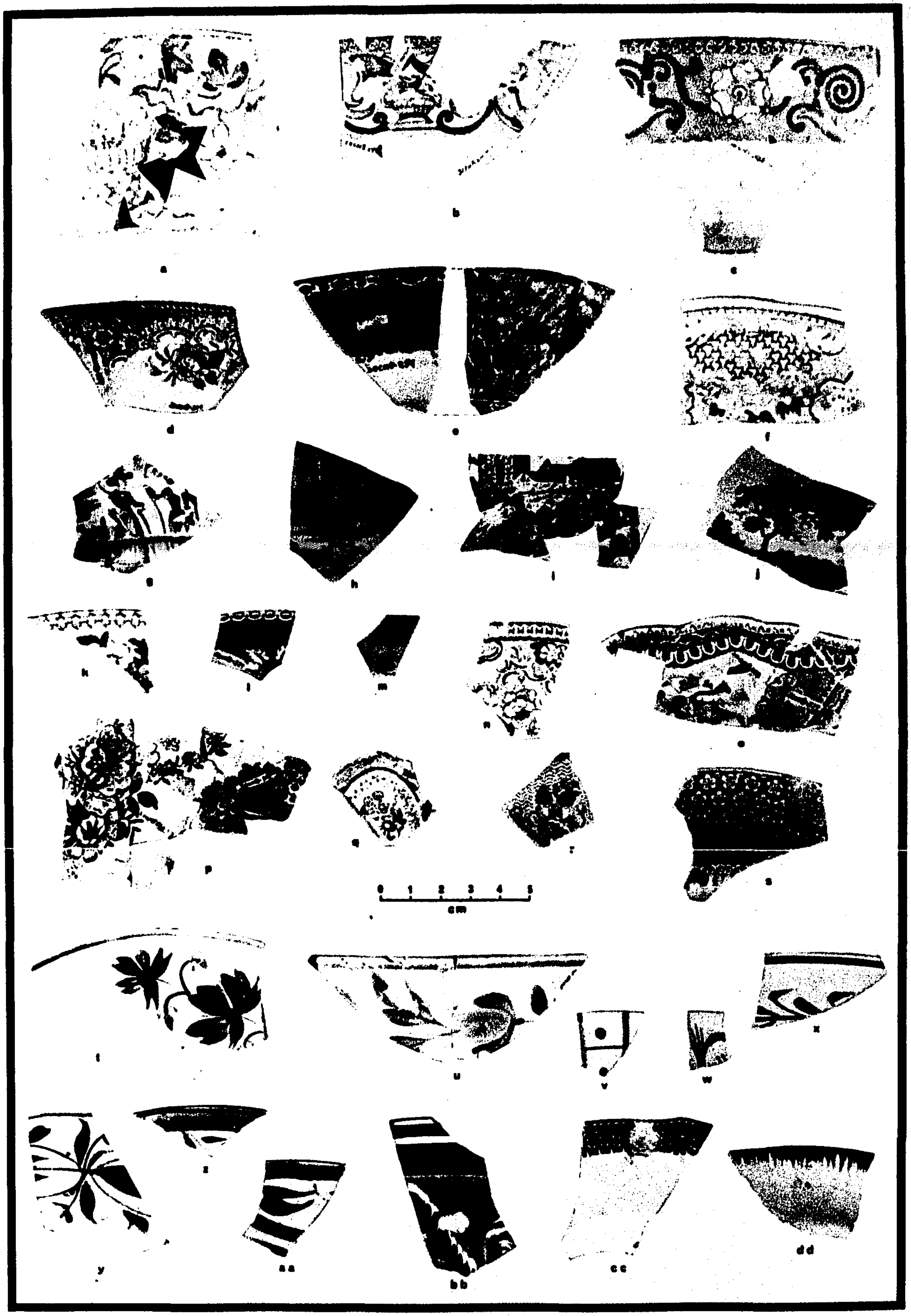
Undecorated Pearlware (South's Type #20)

Of 1,202 sherds, none could be clearly distinguished as a vessel separate from the pearlware types such as the edged wares. That is to say, there were no identifiable plain, undecorated pearlware vessels recognized.

Transfer-Printed Creamware (South's Type #23)

Only six sherds of this ware were recovered, representing two vessels. The first, recognized on three sherds from Structure One, was a cup with a brick-red print over a bright yellow opaque glaze. The second was a deep bowl from Structure Three with a dark red print over a clear glaze (Figure 14i, j).

Figure 14. Ceramics, Structure Three


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
0 1 2 3 4 5
cm
t
u
v
w
x
y
z
aa
bb
cc
dd

Debased "Scratch-Blue" Stoneware (South's Type #24)

Two vessels of this type were seen in 36 sherds, both from Structure One. Both vessels appear to be cream pitchers or vases (Figure 131 , m), though neither is restorable.

Decorated Delftware (South's Type #49)

Only two clearly identifiable delftware vessels were recognized in 105 sherds, both vessels from Structure One. The first was a restorable plain white mortar (Figure 13p). The second was an unusual vessel, apparently a flower bowl with a perforated top (Figure 13q). Painted in blue and yellow, this vessel was partly burned but enough of the design was apparent to have it identified as a mid-eighteenth century English piece.

Ninety-nine fine earthenware sherds were burned and unidentifiable. The remaining 277 sherds were derived primarily from saltglazed stoneware and clear lead-glazed redware vessels, largely unidentifiable. One stoneware bottle (Figure 13r) and a stoneware crock were recognized, as were two redware bowls, though no diagnostic features were noted. Two refined yellowware vessels were recorded from Structure Three as well; a mug and a salter, each represented by a single sherd.

Wine Bottles/Case Bottles

These two categories, treated separately by South, were combined in this study since both categories were generally used for wine and spirits, and the case bottle category was apparently represented by a single example.

Made of dark green glass, 1,171 fragments were recovered. Neither intact nor restorable examples were collected. The largest representative is illustrated in Figure 15a. Cylindrical, straight-sided and strong-shouldered, this bottle was manufactured using a sand pontil (Jones 1971:69). A variety of lip finishes were represented in this collection, all hand finished, and none particularly diagnostic (Figure 15b-g).

The single case bottle was seen in two fragments, a base and a shoulder (Figure h, i). With a square cross-section and flat sides, this type of bottle was packed into wooden boxes with square subdivisions for shipment, and characteristically contained gin.

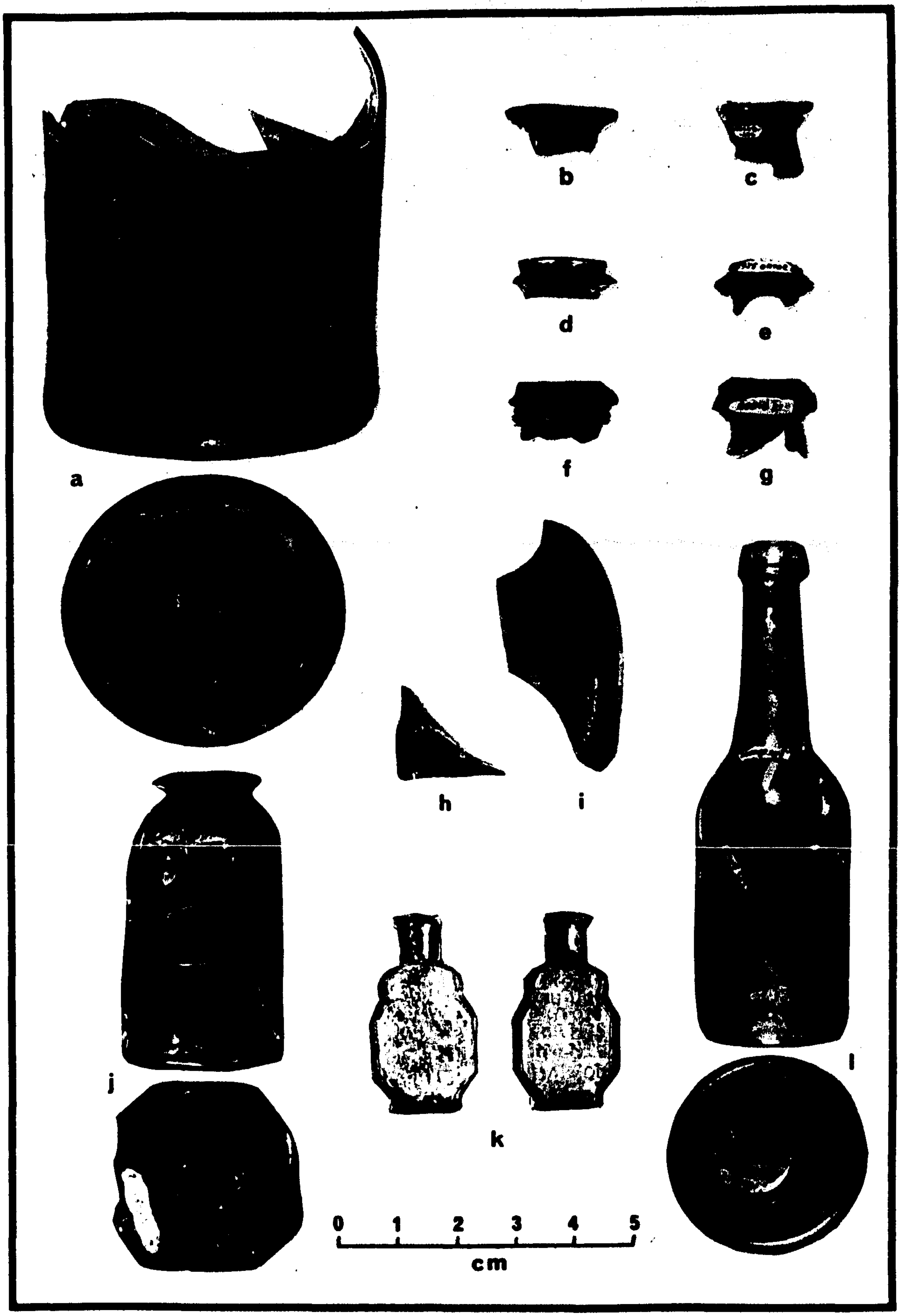
Tumblers

One hundred ten fragments of clear glass tumblers were recovered, approximately half rim fragments and half body fragments. These fragments were generally too small to allow for measurement of vessel size, and no bases were recovered. All were straight-sided, with a slight, fire-polished thickening at the rim. One example exhibited a ribbed cross-section and one other bore remnants of an engraved design.

Pharmaceutical Bottles

Five hundred one fragments of pharmaceutical type bottles were collected during excavation. Manufactured of clear, light green and aqua-colored glass, the forms of only three basic types were recognized. The first of these, illustrated in Figure 15j, may not properly be classed as pharmaceutical, for bottles of this wide-mouthed form were often used to preserve fruit, and may have seen other uses as well. Octagonal in shape and light green in color, this bottle exhibited the

Figure 15. Wine Bottles, Case Bottle, Pharmaceutical Bottles


a
b
c
d
e
f
g
h
i
j
k
l
0 1 2 3 4 5
cm

ring-shaped pontil mark characteristic of the use of a blow pipe as a pontil rod (Jones 1971:69-70). This specimen was found in Structure Three and was the only example of its type.

A second type of pharmaceutical bottle represented by a nearly complete specimen from Structure Two was the Turlington bottle, a container made for the archetypal patent medicine (Figure 15k). Described as "fiddle-shaped," this clear glass bottle was blown in a two-piece mold and bears the embossed label "BY THE KING'S ROYAL PATENT GRANTED TO" on one side, "ROBT TURLINGTON FOR HIS INVENTED BALSAM OF LIFE" on the other. Upon one edge was embossed the date "JAN 16 1754" and on the other "LONDON." Though this type of bottle was widely copied, this specimen appeared to have the requisite attributes of the original mid-eighteenth century article. Fragments of as many as five similar bottles were found as well.

A third type, represented by at least four bottles, was found only in the east hearth area of Structure Three. Cylindrical bottles with a long neck and weak shoulder, this type was also empontilled with a blowpipe (Figure 15l). The bottles of this type were all made of an aqua-colored glass, and have not been encountered in an exhaustive literature search.

Glassware

Only four objects recovered could be properly classified in the Glassware class. One fragment of a clear glass foot rim of a stemmed vessel was found in Structure Two. Three fragments of a pressed glass vessel of unknown form were recovered from Structure Three.

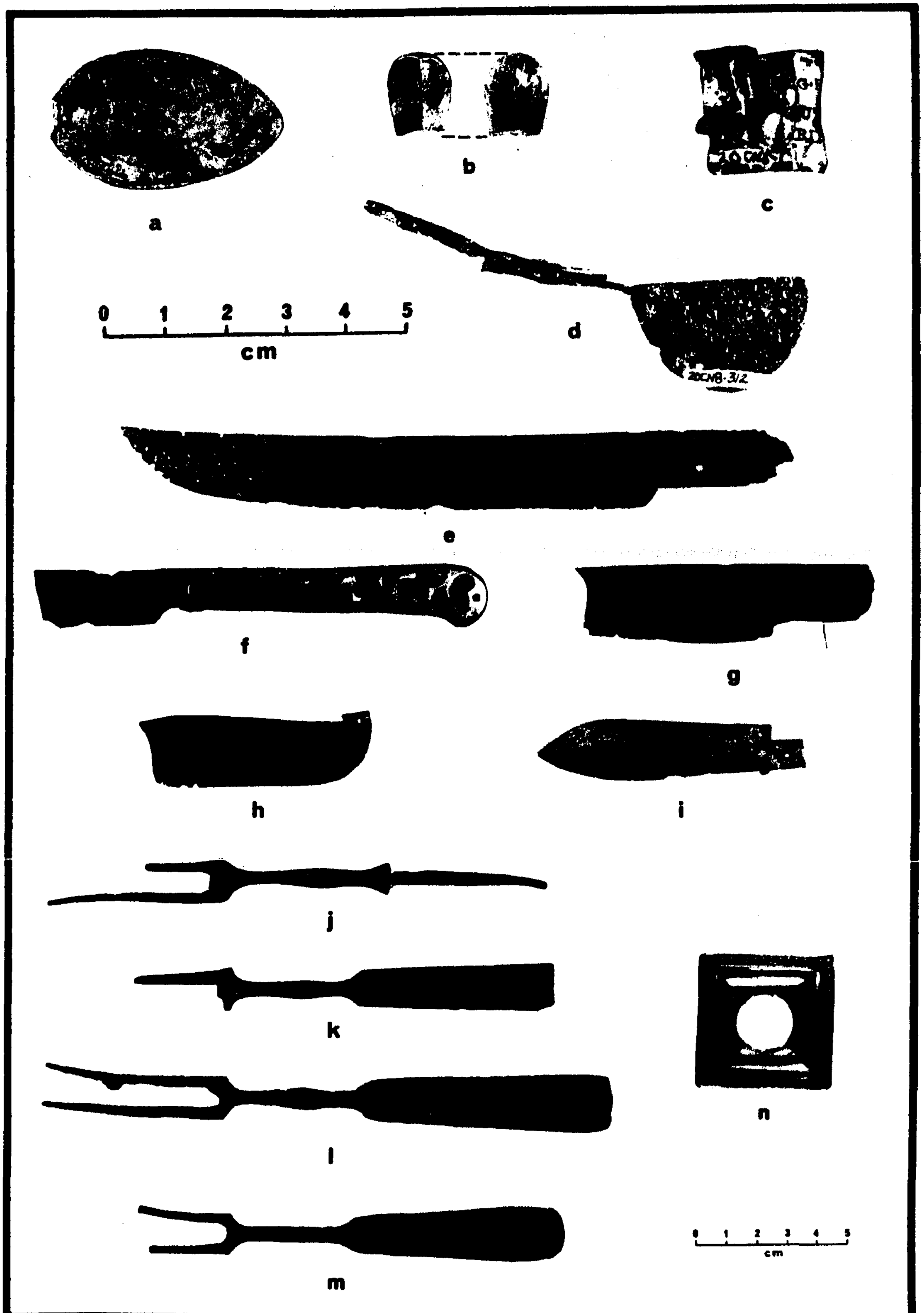
Tableware

The Tableware class included parts of two pewter and three silver spoons (Figure 16a, b). One small silver spoon handle found in Structure One bore the engraved initials "TAC", presumably owned by some member of the Campbell family, though no one with those initials is known to this author (Figure 16b). One rather enigmatic object was a thin sheet of silver with a brass wire eyelet and the engraved initial letters of three lines of words; "S & G.." "CUT..." and "BIR..." (Figure 16c). Though the object was unfamiliar, it appeared to be a sleeve or ferrule from a table utensil, and the letters may well refer to a cutlery company in Birmingham, England. A single part of an iron candle snuffer was also collected (Figure 16d).

Twenty-five knives of various types were found, scattered through all archaeological contexts. They were all classified as tableware, though it was extremely likely that many of them functioned as trade items. Three case knife types, one with a pierced brass handle, bear a maker's mark from Sheffield, England (Birk 1975:79-91), an "L" surmounted by a cross (Figure 16e-g). These straight-backed case knives were the most common types on the site. Two earred clasp knife fragments were present, a type often associated with French contact (Figure 16h). A single clasp knife was marked with the stamped name "ROWE" (Figure 16i).

Eight two-tined forks were collected from the site and display little variability in form. The only differences visible were in the handle type (tang or scale) and whether the shaft was straight or

Figure 16. Tableware


a
b
c
d
0 1 2 3 4 5
cm
20CN8-3/2
e
f
g
h
i
j
k
l
m
n
0 1 2 3 4 5
cm

bulging. A tang handle type is illustrated in Figure 16j; the scale type is illustrated in Figure 16k. Two examples retained their bone handle scales (Figure 16l, m).

Two final tableware items were portions of brass candlesticks. The first, unillustrated, was an unadorned circular base fragment, recovered in Structure One. The second was a square upper rim (Figure 16n).

Kitchenware

The most common artifact in this class were kettle lugs, the connection between a kettle and its bail. Two types were represented among the six lugs recovered; an ornamental iron type (Figure 17a), and a very simple folded sheet brass type (Figure 17b). Three pot hooks (Figure 17c) and a single flattened tin cup (Figure 17d) were recovered. The flattened main body of a tin tea kettle was found in Structure Three, near the western hearth (Figure 17e).

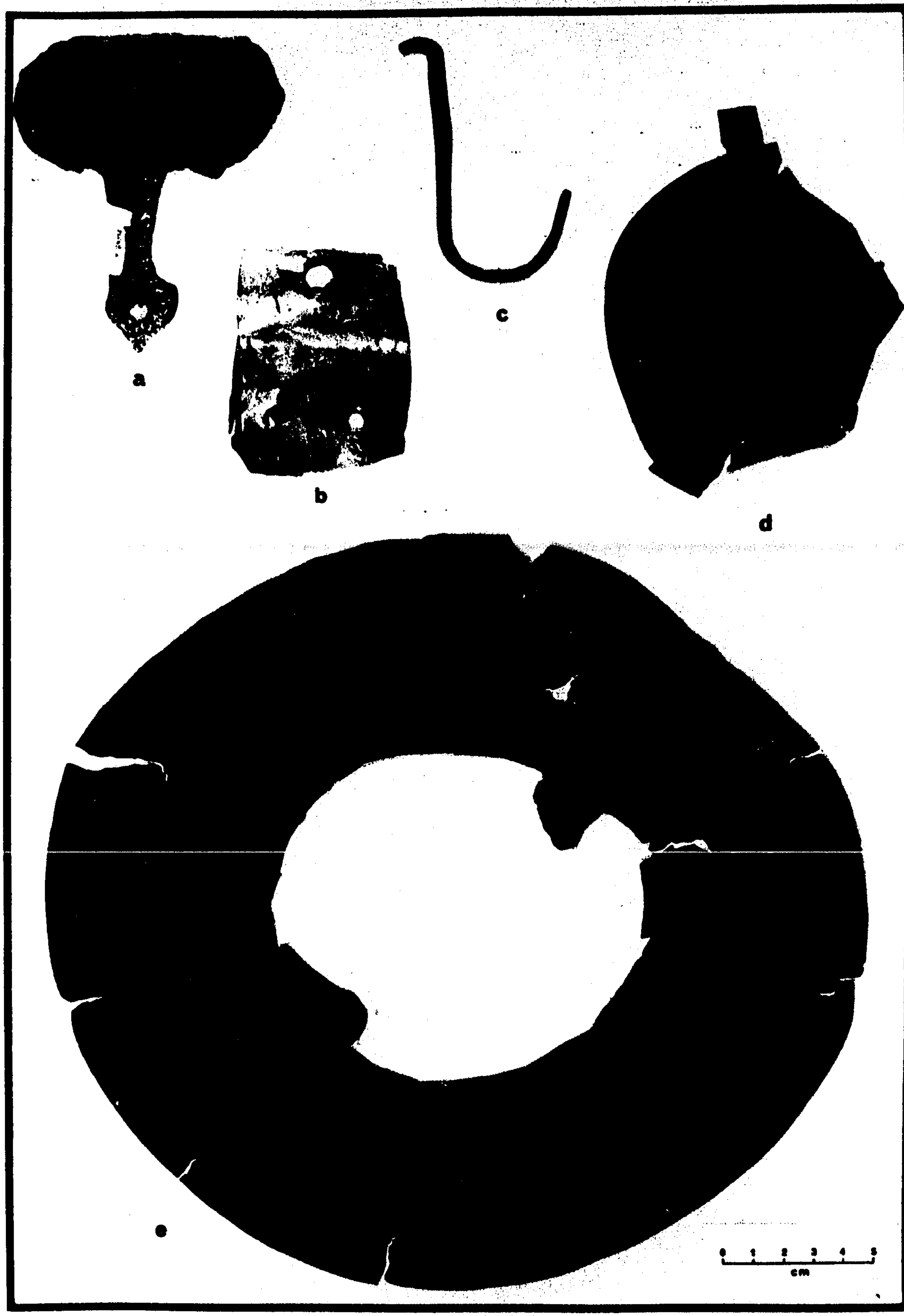
Additional kitchenware artifacts include a fragment of a cast iron kettle, two fragments of tin pot lids, a perforated tin sieve, a portion of a brass kettle rim, and a wire kettle bail.

Architecture Group

Window Glass

Window glass was treated as a chronological indicator in Chapter IV above and, as such, will receive only cursory attention here. Fourteen thousand six hundred and seven fragments were measured, ranging in thickness from .025 inches to .255 inches. By far the bulk of the collection measured between .030 and .099 inches. The distribution of thickness categories allowed for the temporal separation of the structural contexts on the site.

Figure 17. Kitchenware


a
b
c
d
e
0 1 2 3 4 5
cm

Nails and Spikes

These two categories, treated separately by South, were lumped together for this study, partly due to the heavy corrosion witnessed on most examples. Five thousand eighty four examples were collected. Only quantities have been noted; no further measurements were taken. All nails collected from the major historic component were of hand-wrought and early cut types.

Construction Hardware

Included in this category were thirteen hinges of various types. Most were heavy iron strap hinges, some with decorative finials (Figure 18a, d). There were three examples of "T-shaped" hinges (Figure 18b) and two "H-shaped" hinges (Figure 18c). These twelve hinges were all likely used on doors or shutters. One small rectangular hinge (Figure 18g) was of a size more appropriate for a cabinet.

Five iron pintles were recovered. All were "L-shaped" and made to be driven into a door jamb to support a door by the large strap hinges seen above (Figure 18e, f).

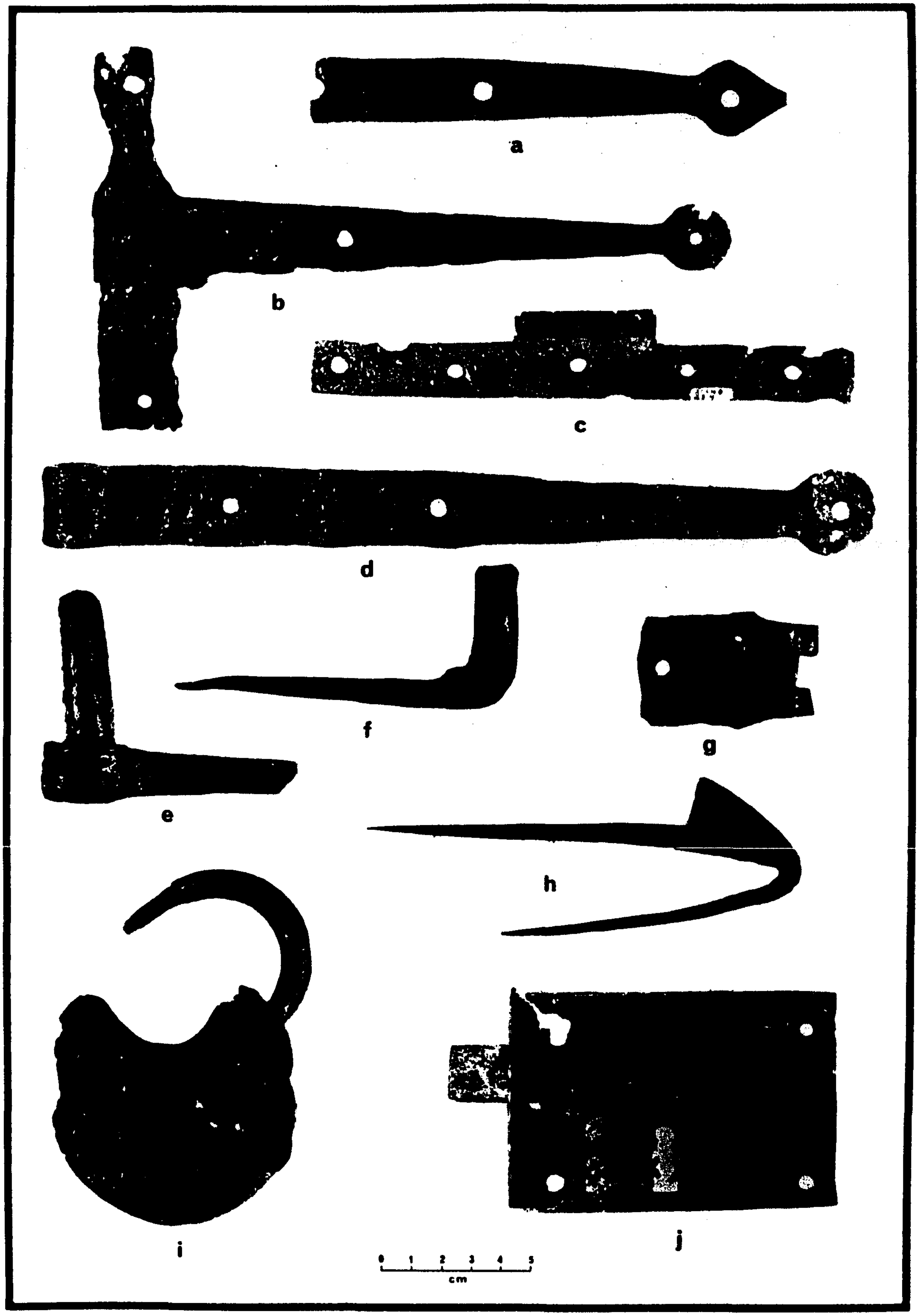
Three large screws for attaching hinges were recovered, as was a single iron keyhole plate, a large staple, and two fragments of lead window kames for holding glass panes in place.

Finally, four door catches were recovered. They were made to be driven into the jamb and catch the latch; an example is illustrated in Figure 18h.

Door Lock Parts

Portions of ten stock locks were collected. A complete example from outside Structure Three is illustrated in Figure 18j. Parts of two

Figure 18. Construction Hardware, Door Lock Parts


a
b
c
d
e
f
g
h
i
j
0 1 2 3 4 5
cm

large padlocks were recovered; a complete example from an exploratory unit near the creek below Structure Three is illustrated in Figure 18i.

Furniture Group

This collection is comprised largely of tacks, drawer pulls and escutcheon fragments. Portions of three brass drawer pulls and escutcheons were recovered (Figure 19c, d). Eighteen dome-headed decorative brass tacks and six small iron tacks were collected as well.

In addition, a single chest or cabinet lock was recovered (Figure 19a), as was a small padlock with a hinged door to cover the keyhole (Figure 19b).

Arms Group

Balls and Shot

A total of 543 lead balls and shot was recovered during excavation; 437 of these were considered whole and measurable. By far the majority, 428 specimens, were small bird shot measuring between .105 and .232 inches in diameter. A frequency distribution of sizes exhibits a major mode between .125 and .155 inches (Figure 20).

The nine larger cast lead balls range from .416 to .634 inches in diameter and some of them are slightly deformed through use (Table 41). Only the largest three of these balls are of a size appropriate for military use, the remainder more likely cast for use in small-bore rifles or fowling pieces.

Figure 19. Furniture, Gunflints

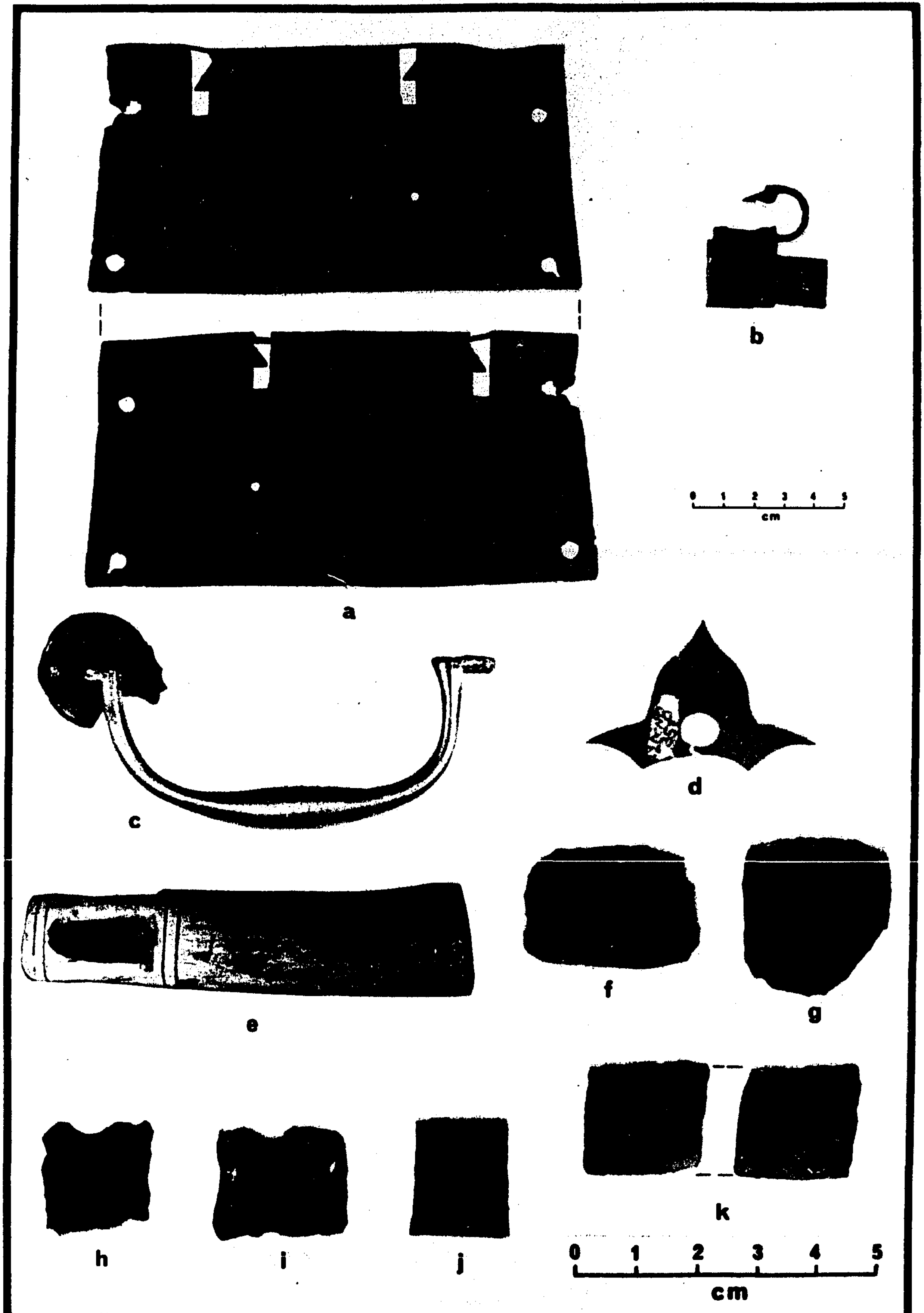

a
b
c
d
e
f
g
h
i
j
k
0 1 2 3 4 5
cm
cm

Figure 20. Frequency Distribution, Small Lead Shot

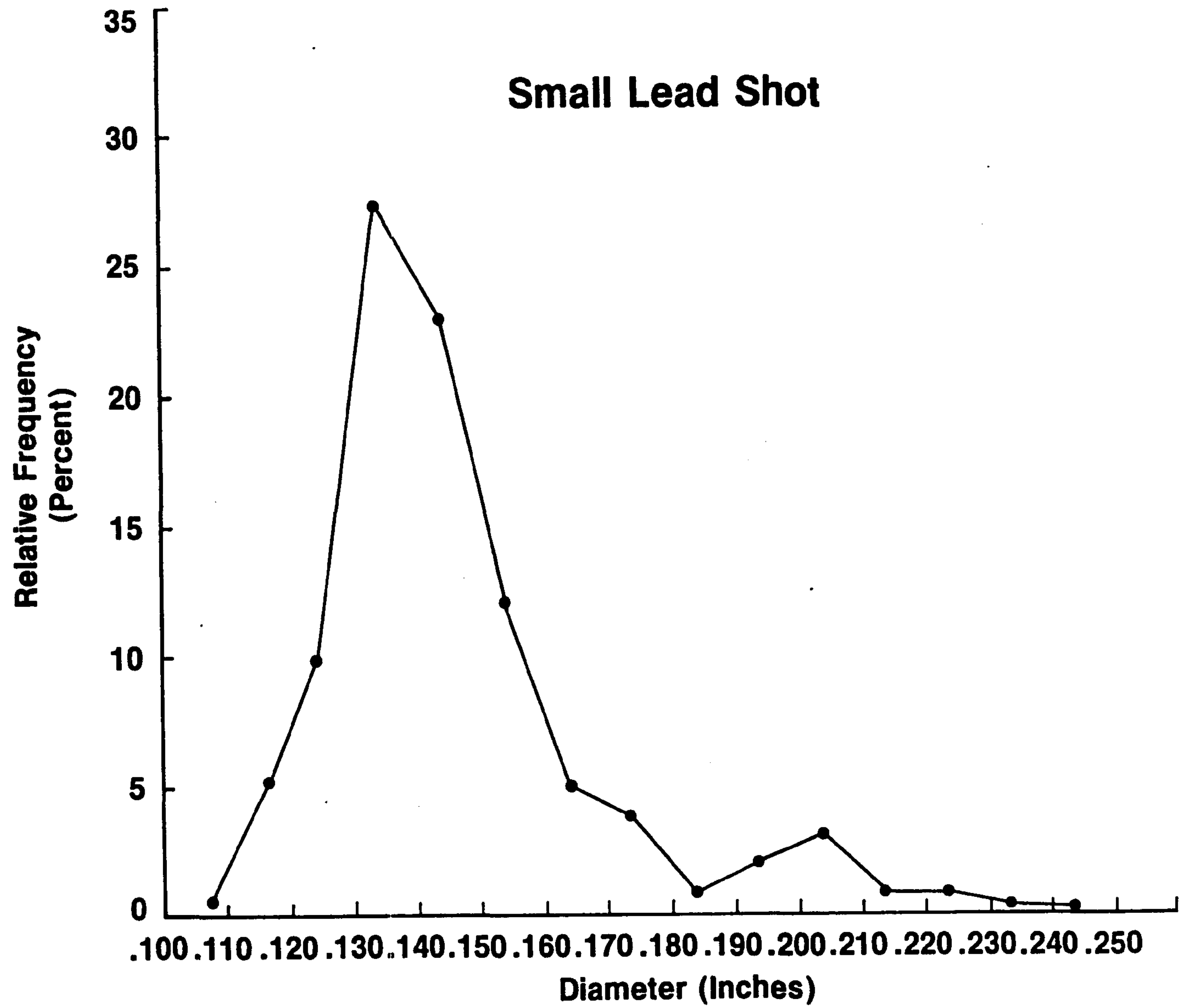

Small Lead Shot
35
30
25
20
15
10
5
0
Relative Frequency
(Percent)
.100 .110 .120 .130 .140 .150 .160 .170 .180 .190 .200 .210 .220 .230 .240 .250
Diameter (Inches)

Table 41. Lead Ball Diameters

Frequency	Diameter (inches)
1	.416
1	.424*
1	.479*
1	.497
1	.556
1	.559
1	.585*
1	.590
1	.635*

* deformed through use

Gunflints

Seventy-seven gunflints and gunflint fragments were recovered in excavation, 52 of which were measurable in at least one dimension. The gunflints were classified using the system devised by Stone for the Fort Michilimackinac collections (1974:247) and expanded by Martin to describe a collection from Arkansas Post (Martin 1977:58).

The Stone system recognized three Series of flints, based on physical characteristics that reflect method of manufacture: blade, blade-spall, and spall. These categories were useful in differentiating gunflints derived from early and middle eighteenth century contexts, but did not include the distinctive English blade gunflints introduced late in that century. The present author merely added a fourth Series designation to accommodate those English flints (Martin 1977) and that four-part system was utilized to describe the Filbert collection.

Series A French Blade Gunflints

These flints were manufactured using the distinctive honey-colored flint of the Seine and Cher river valleys, and were produced by striking long narrow blades from a core with a pointed iron hammer. The blades were broken into segments and trimmed to their final shape by means of secondary flaking.

Only one measurable example and one fragment of this Series were recovered. The measurable example exhibited heavy wear, but conforms to Stone's Type V, with a bevelled edge, a flat face parallel to the bed, no back flake, and a squared back edge. This specimen measured 15.9 mm in width, 16.6 mm in length, and 4.9 mm in thickness.

Series B Blade-Spall Gunflints (Figure 19g)

These flints are characterized by the presence of two distinct flake scars on the face, or upper surface, one scar oriented lengthwise and one oriented across the back edge. The main, longitudinal scar generally carries the bulb of percussion left by the blow that struck the single Clactonian style flake that is the gunflint. Witthoft (1970:47) has suggested that such flints represent the final few flakes struck from a core exhausted in the manufacture of English blade gunflints.

One example of this type was recovered, made of the characteristic dark English Brandon chert. It showed relatively heavy wear and use with a firesteel, and measured 25 mm in width, 27.5 mm in length, and 10.5 mm in thickness.

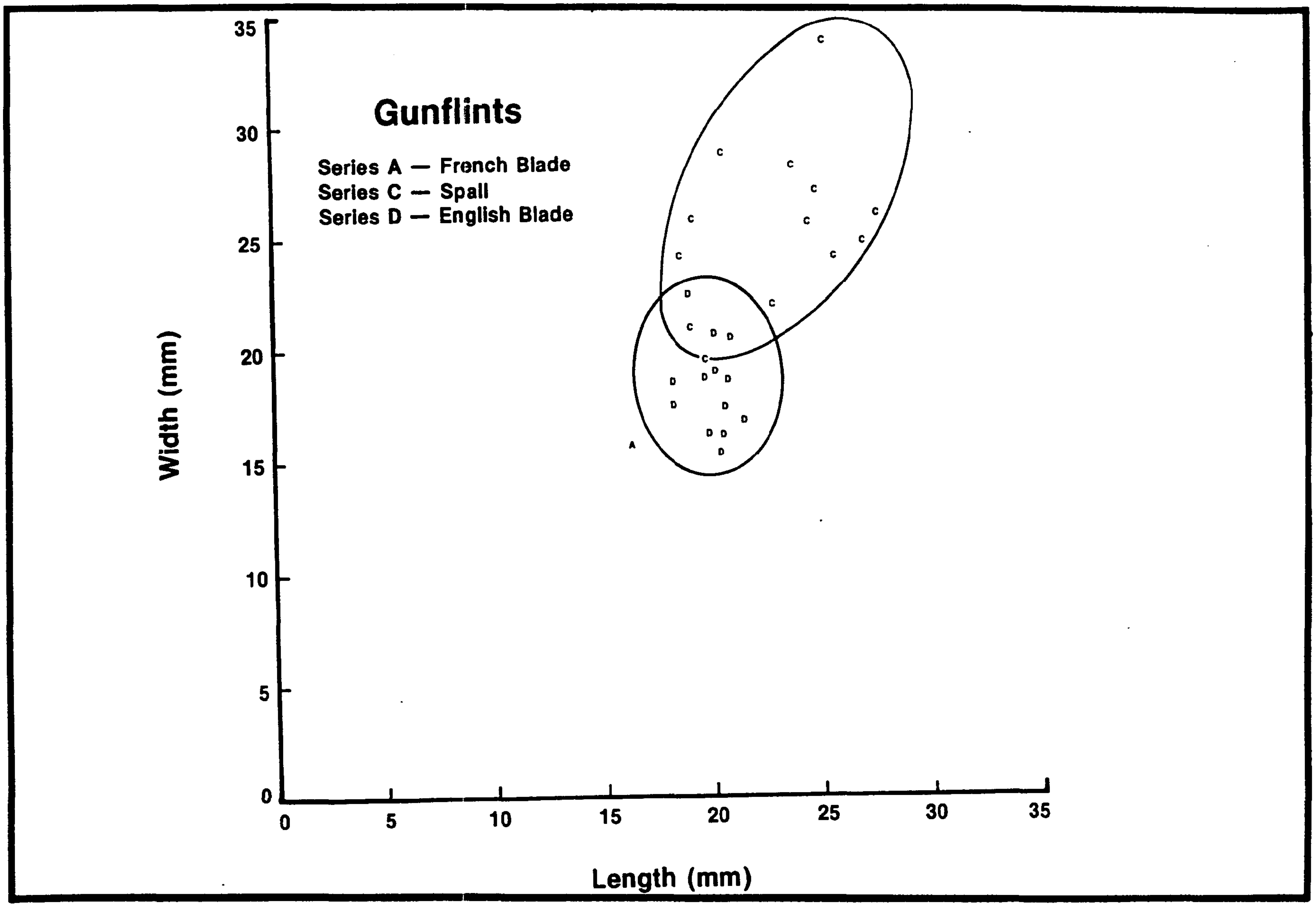
Series C Spall Gunflints (Figure 19 f, k)

These flints, like Series B, were formed from a single, wedge-shaped Clactonian style flake. They generally exhibit a smooth, slightly convex face and a flat bed and are thickest at the back edge, tapering to the thin front edge. There are no significant differences in form, so subdivisions of the Series are generally based on the color of the raw material. However, no convincing case has been made to attribute cultural or chronological significance to the color differences, some of which are extremely subtle and could conceivably co-occur within a single specimen. Size categories, on the other hand, may be used to differentiate categories of weapons. Therefore, an attempt was made to recognize size categories within the Series C and D gunflints.

Figure 21 displays the dimensions of those flints measurable in length and width. There are no readily apparent size categories within either Series. The Series C Spall flints are more variable in both length and width, as well as being generally larger. The Series D English blade flints exhibit a much tighter, more uniform distribution, and are generally smaller than the spall flints.

Most of the Series C flints are heavily worn and many show evidence of use with a strike-a-light or firesteel. Twenty-five recognizable examples were recovered that could be measured in at least one dimension. The Series C flints average 25.5 mm in width, 23.0 mm in length, and 7.7 mm in thickness.

Figure 21. Size Distribution, Gunflints


Gunflints
Series A — French Blade
Series C — Spall
Series D — English Blade
Width (mm)
Length (mm)
0
5
10
15
20
25
30
35

Series D English Blade Gunflint (Figure 19h, i, j)

This group of flints, added to Stone's original classification, includes flints manufactured by a technique developed in England and described by Witthoft (1970:46). These flints were made of dark grey to black flint and exhibit the "demi-cones" of percussion which resulted when the individual segments of the original blade were separated.

Twenty-four examples were measurable in at least one dimension. They average 19.4 mm in width, 20.3 mm in length, and 6.4 mm in thickness. The variation in size is more limited than in the Series C flints (Figure 21) and it is likely that all of the Series D flints were intended for use in small rifles or fowling pieces.

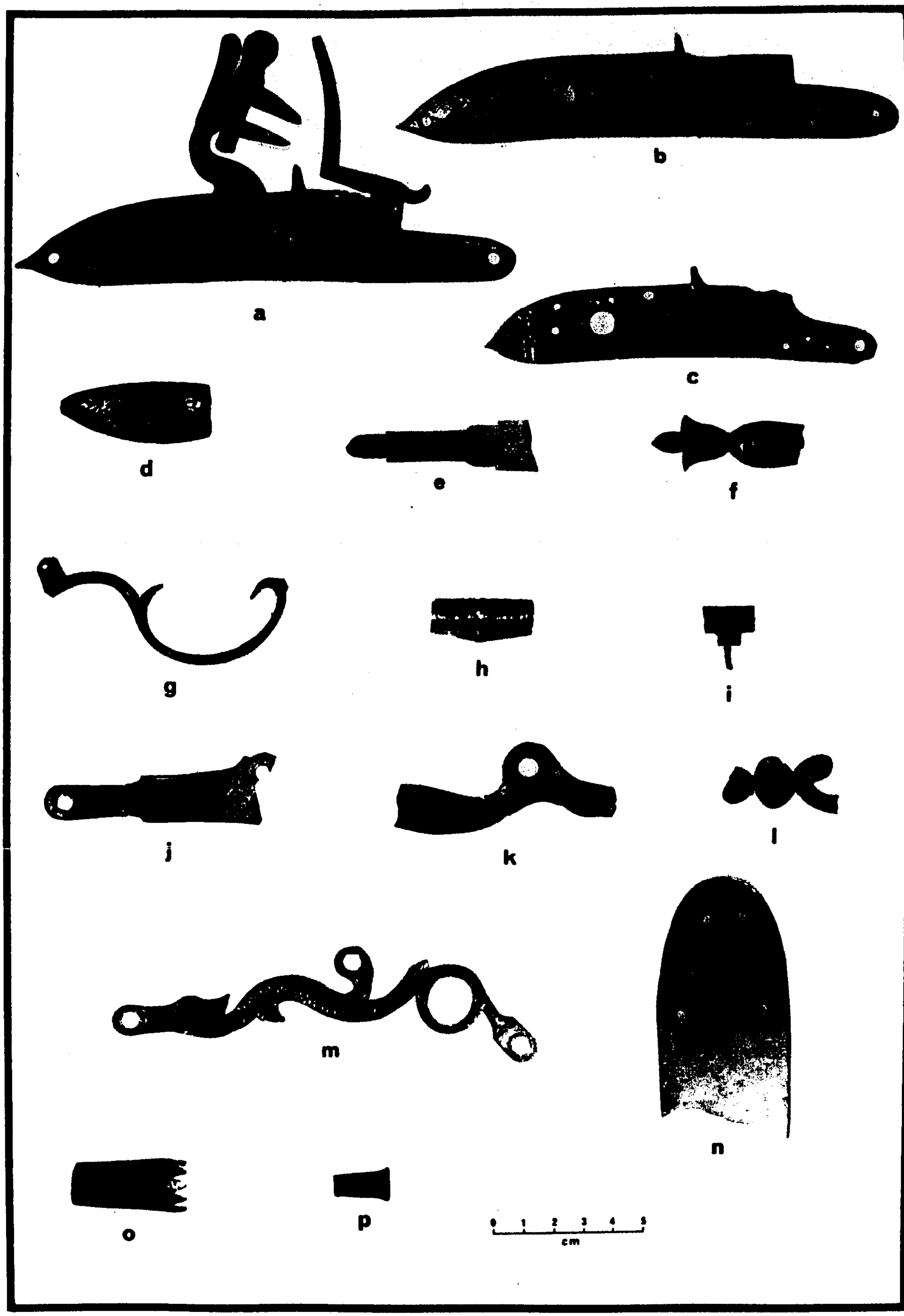
Gun Parts

Sixty-four identifiable gun parts and fragments were recovered in the 1972-1975 excavations and represent a wide range of the functional portions of muzzle-loading weapons. They have been described within their functional groups, with selected examples illustrated.

Locks and Lock Plates (Figure 22a, b, c)

Five gun locks were recovered, some represented only by the lock plate, one still largely assembled. This most intact example (Figure 22a) still carries the hammer, frizzen and springs. It is 169 mm long and carries the engraved mark "GRICE" in a curve on the lock plate behind the hammer. Charles Hanson illustrates a nearly identical example which he describes as a "Montreal trader's gun" (1970:65). His discussion of this gun suggests that it was made by William Grice of Birmingham, probably between 1770 and 1780, and is an early example of the Northwest gun, made for the fur trade (Hanson 1970:15-16).

Figure 22. Gun Parts


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
0 1 2 3 4 5
cm

The lock plate illustrated in Figure 22b is probably also from a Northwest gun, manufactured by the William Wilson Company of London sometime between 1731 and 1833 (Hanson 1970:17). Wilson was a major supplier of guns for the Hudson's Bay Company, and this lock plate bears the label "WILSON" below the flash pan, and is 170 mm long.

The third illustrated lock plate (Figure 22c) is considerably smaller (132 mm long) and was perhaps used on a pistol. It is unmarked and largely undecorated.

Two additional lock plates were recovered. The first of these was evidently also used on a small rifle or fowling piece, is 145 mm long and exhibits no visible decoration. The second example is somewhat larger, 166 mm long, and is more curved than any of the other lock plates recovered. There are no visible maker's marks or decorations on this specimen.

Lock Parts

Less diagnostic parts of gun locks recovered include two frizzens, three main springs, two frizzen springs, five triggers, five hammers and one sear.

Trigger Guards (Figure 22 d, e, f, g)

Parts of at least fourteen brass trigger guards were recovered. Some were heavily decorated with engraving (Figure 22d e, f) while some displayed decorative touches cast as integral parts of the functioning piece. Though few can be specifically identified as to maker or age, virtually all examples were types commonly found on trade guns, particularly the varieties known as Northwest guns. One example (Figure 22g) has an engraved snowflake on the bow of the guard, a design seen on eighteenth century trade guns made by the Wilson Company in London (Hamilton 1968:15,21)

Ramrod Guides (Figure 22h, i)

Four ramrod guides or tubes were found. These items functioned to store the wooden ramrod in place beneath the gun barrel when the ramrod was not in use. Three of the four examples were made of sheet brass with a ribbed surface, a distinctive characteristic of the Northwest gun (Figure 22h). The fourth example was smaller, cast of brass, and perhaps saw use on a pistol (Figure 22i).

Side Plates (Figure 22j, k, l, m)

Attached to the lock plate with bolts running through the wooden stock, metallic side plates helped to anchor and support the firing mechanism, and served decorative purposes as well. Parts of ten brass side plates were recovered in excavations. Some of these cast brass objects bore engraved designs (Figure 22j, l), while others were essentially unornamented. One identifiable side plate from a military weapon was recovered (Figure 22k). This fragment of a side plate has been burned, but shows clearly a convex outer surface and distinctive shape seen on a number of British military muskets of the eighteenth century (Darling 1970:38, Figure 30).

One intact side plate (Figure 22m) and three fragmentary examples are of a type known as "dragon" side plates. These serpentine forms commonly graced the stocks of Northwest guns during the early nineteenth century. The illustrated example displays a detailed surface cast in high relief, and the head of the serpent on the second example is also cast in relief. The serpent's tail on the third example is, however, engraved rather than cast, an attribute that may indicate manufacture before 1785 (Noel Hume 1969:218).

Butt Plates (Figure 22n)

Parts of two cast brass butt plates were recovered. These objects are plain and unadorned, with squared holes left by the small nails which evidently attached them to the wood gunstocks (Figure 22n).

Barrel Reamer (Figure 22o)

One unusual object made of tubular brass has been tentatively identified as a barrel reamer (Figure 22o). With a square hole in the blocked smaller end, this object tapers to a maximum diameter of approximately 18 mm. The large, open end terminates in a series of angular teeth cut with sharp beveled edges. The artifact has the look of individual construction, rather than that of a mass-produced item.

The identification of this object as a tool related to firearms is speculative, to be sure, but the finish and "feel" of the artifact are consistent with such a use, even though no similar examples are known to the author. The artifact could not withstand heavy use with hard materials, such as one might expect in drilling or cutting either wood or metal. Rather, it seems more suited to cleaning a cylindrical tube clogged with some relatively soft, yet resistant material.

Ramrod Tips (Figure 22p)

Three tubular brass ramrod tips were recovered, all originally mounted on wooden shafts. Two specimens contained fragments of the wooden shafts, preserved by the copper salts that leached from the brass. The wood samples were identified by staff members at the Forest Products Laboratory, Madison, Wisconsin, as beech (*Fagus grandifolia*) in the first specimen, and both white pine (*Pinus strobus*) and hard maple (*Acer* sp.) in the second.

All three tips flare from the open end that held the wooden shaft to a wider circular tip with a concave surface (Figure 22p). All measure 11.16 mm in diameter, or .44 caliber, and thus were used in relatively small bore weapons.

Barrels and Breech Plugs

Four fragmented gun barrels were recovered, along with three breech plugs. The bore of three of these specimens measures roughly 19 mm or .75 caliber. The fourth example is a double barreled muzzle loading percussion weapon 61 mm long. Down the midline between the barrels it is marked "REAL TWIST" and "MICH." with remnants of additional lettering now illegible. This piece obviously postdates the major occupation, and was found at the edge of the creek just below the dam ruins.

Thumb Plate Escutcheons

Parts of three brass thumb plate escutcheons were collected, none of them bearing any diagnostic attributes.

Gun Worms

Two small corkscrew gun worms were recovered. These objects were originally used to extract wadding from a weapon after a misfire.

Powder Measure (Figure 19e)

A single carved bone powder measure was recovered from Structure Three. It was approximately 76 mm long and has a conical hollow in the larger end. The smaller end is also hollowed out, with three rectangular openings spaced around the periphery and a small circular hole in the tip, presumably for suspension. The surface of the artifact was decorated with a series of engraved lines running around the circumference.

Clothing Group

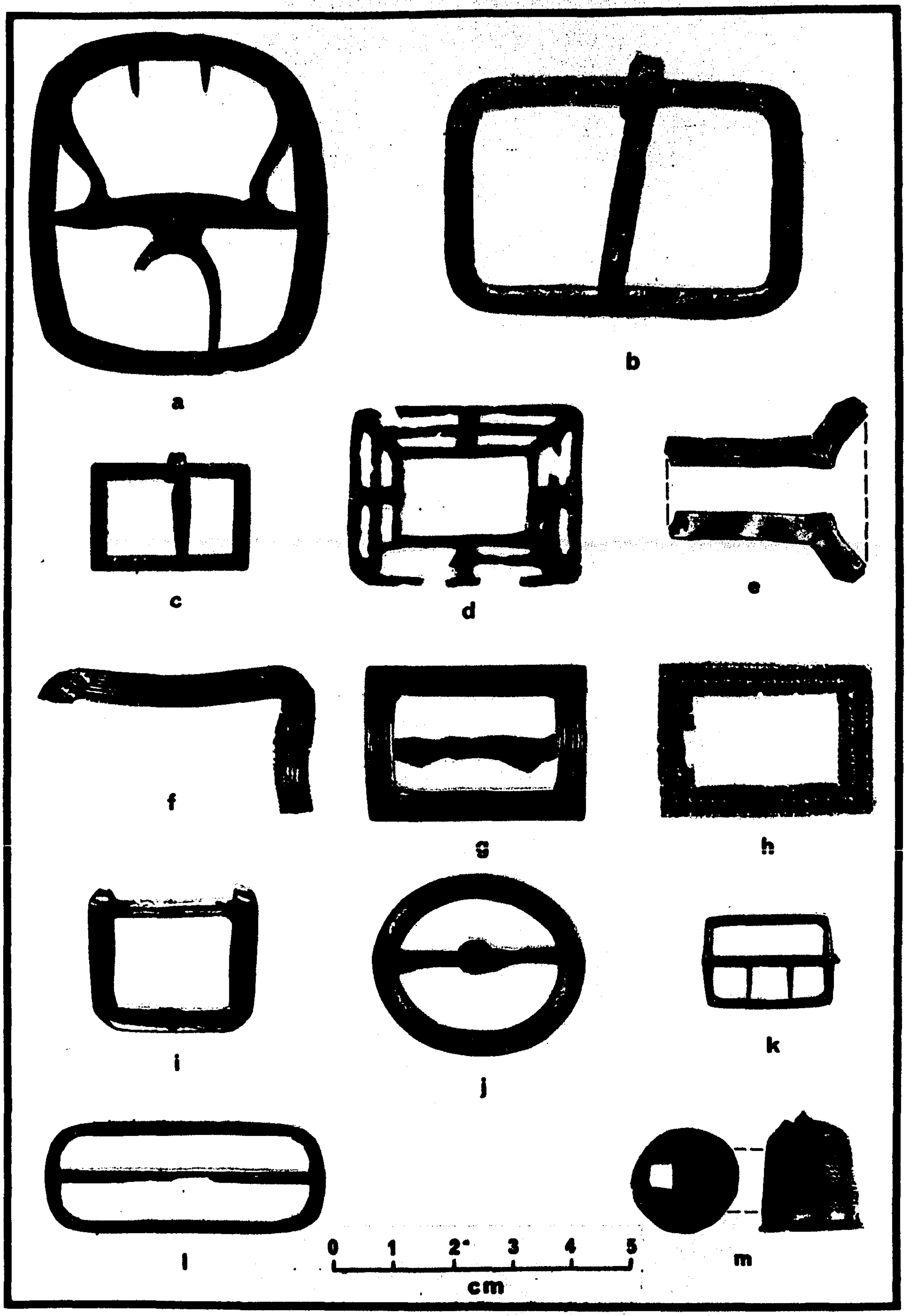
Buckles

Excavation yielded twenty-two buckles of a variety of shapes and sizes. Two large iron buckles exhibit a marked curve in cross section and have been identified as shoe buckles (Figure 23a). Another distinctive category is the plain "harness" buckle (Figure 23b, c); simple rectangular iron frames with a moveable iron tongue. These buckles may or may not have functioned as elements of horse tack. Their relative frequency of occurrence in domestic contexts at Filbert have led to their inclusion in the Clothing Group, rather than the Activities Group with identifiable harness and tack. Ten examples were recovered.

One medium-sized ornate iron buckle displayed remnants of silver plating (Figure 23d). Another appears to be either solid silver or a heavily plated alloy (Figure 23e). This buckle fragment bears an impressed maker's mark "TW" in a rectangle. The mark has not been conclusively identified, though a silversmith named Thomas Willmore of Birmingham, England used a similar mark in the 1780's and 1790's (Banister 1970:93).

Three medium-sized rectangular brass buckles, presumably for belts, also exhibit ornate surface decorations (Figure 23f, g, h). One simple cast brass specimen has a brass crossbar, unlike the other rectangular

Figure 23. Buckles, Thimble


a
b
c
d
e
f
g
h
i
j
k
l
m
0 1 2 3 4 5
cm

examples, which had iron crossbars (Figure 23i). A single oval cast brass buckle was recovered, with remnants of silver plating adhering to its surface (Figure 23j).

A single small white brass buckle, perhaps a knee buckle or small strap buckle, was recovered (Figure 23k). Two elongated iron rectangular buckles of unknown use were collected as well (Figure 23l).

Thimbles

All but one of the eight thimbles recovered were derived from structural contexts, five from Structure One. These items were all of one piece brass construction with circular indentations covering the main body of the object and rectangular indentations on the cap. One example has been perforated, probably with a nail or file, for suspension (Figure 23m). Thimbles altered in this way have been found in Native American burials and were evidently desirable trade goods (Cleland 1972:184-185; Mainfort 1979:363).

Buttons

At least 41 of the 232 buttons recovered were made for military use and have been discussed in Chapter IV. The remaining 181 buttons were manufactured of brass, white brass, pewter, bone, shell, and some combinations of those materials. The buttons are not accessible for classification and measurement, but a representative cross-section of the collection was photographed and offer sufficient information on this category of artifacts.

The bulk of the non-military buttons were manufactured of cast brass with a wire eye either cast in place or soldered on the back.

Approximately half of these brass buttons were undecorated, with a plain polished face (Figure 24g). Several bore stamped marks on the rear, such as stars, garlands, and slogans like "LONDON IMPERIAL" (Figure 24g) and "STANDARD COLOUR" (Figure 24h). Almost equally common as the plain brass buttons were those with embossed or impressed designs on the face (Figure 24a-f).

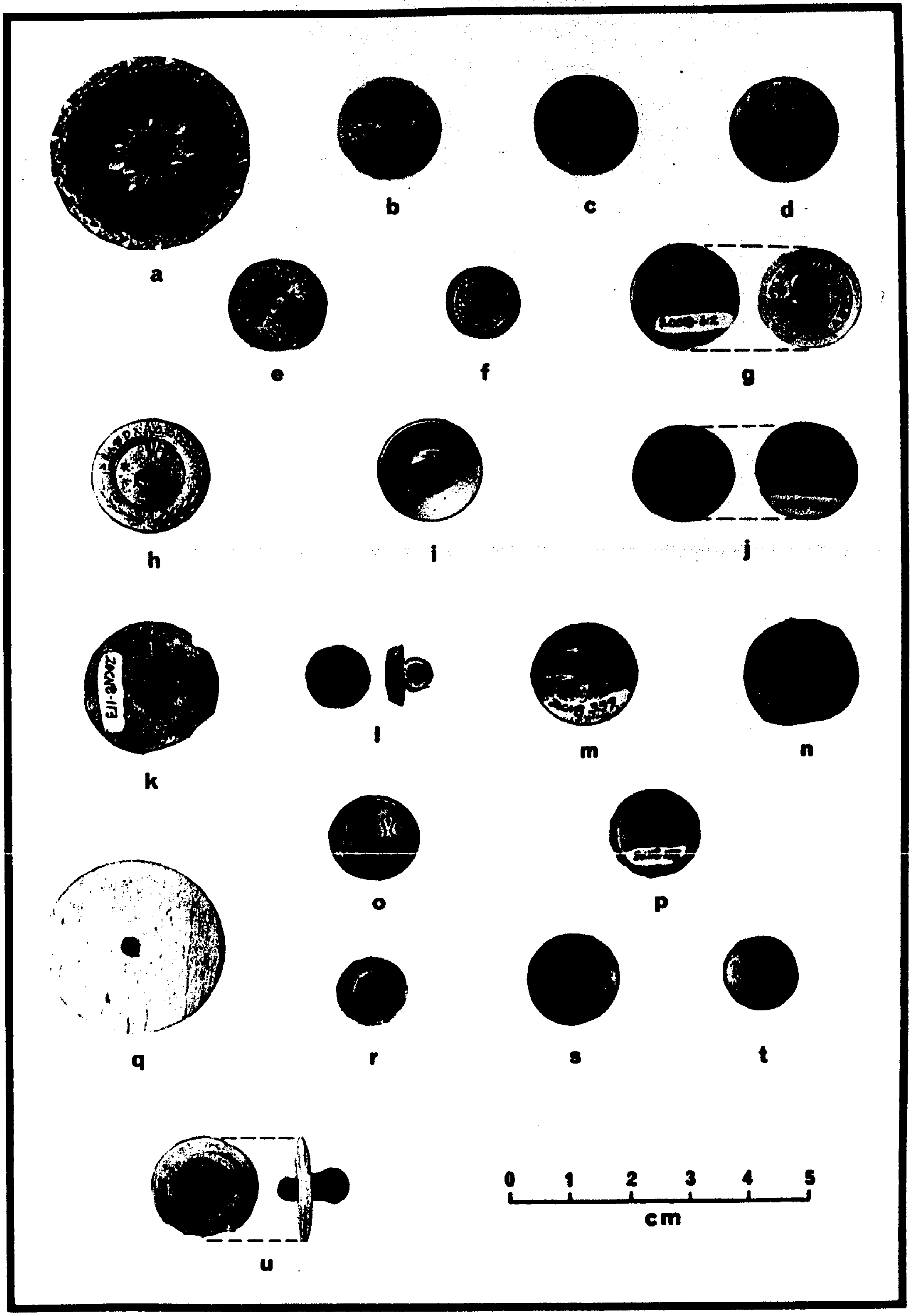
There was a smaller number of white brass buttons, uniformly undecorated, of only two types. The first had a wire eye cast in place (Figure 24i), and the second had four holes for attachment (Figure 24j).

Three types of pewter buttons were represented. The first was cast, eye and all, in one piece (Figure 24k, l). The second was also cast but had four holes for attachment (Figure 24m). The last was a simple pewter disk with a single hole in the center, and was probably covered in fabric when originally used (Figure 24n).

Of a form similar to this last pewter button were several simple bone disks with a single central perforation (Figure 24q). There was also a single bone button with a brass eye inserted into the central hole (Figure 24t), as well as turned bone buttons with four and five holes (Figure 24r, s). One four-hole bone button had a brass covering crimped over the face (Figure 24p).

The final two types were represented by single specimens. One was a shell disk with turned concentric rings decorating the face and a brass eye inserted through the central perforation (Figure 24u). The final type was found near the northern margin of the site and was worn by a worker on the Grand Rapids and Indianapolis Railroad. Made of two pieces of brass crimped together, this button dates to the later years of the nineteenth century (Figure 24o).

Figure 24. Buttons


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
0 1 2 3 4 5
cm

Scissors

Eight pairs of scissors are represented in the Filbert collection, ranging from 69 mm to 175 mm in length. Most are slightly ornamented and have oval fingerholes, while the largest example is devoid of decoration and has a circular fingerhole (Figure 25a-e). All have numerous parallels from eighteenth and early nineteenth century contexts.

Straight Pins

All of the thirty straight pins recovered were of tinned brass with a spiral-wound head. This artifact type was commonly made in the eighteenth and nineteenth century (Tylecote 1972). All but one example came from within the structural ruins.

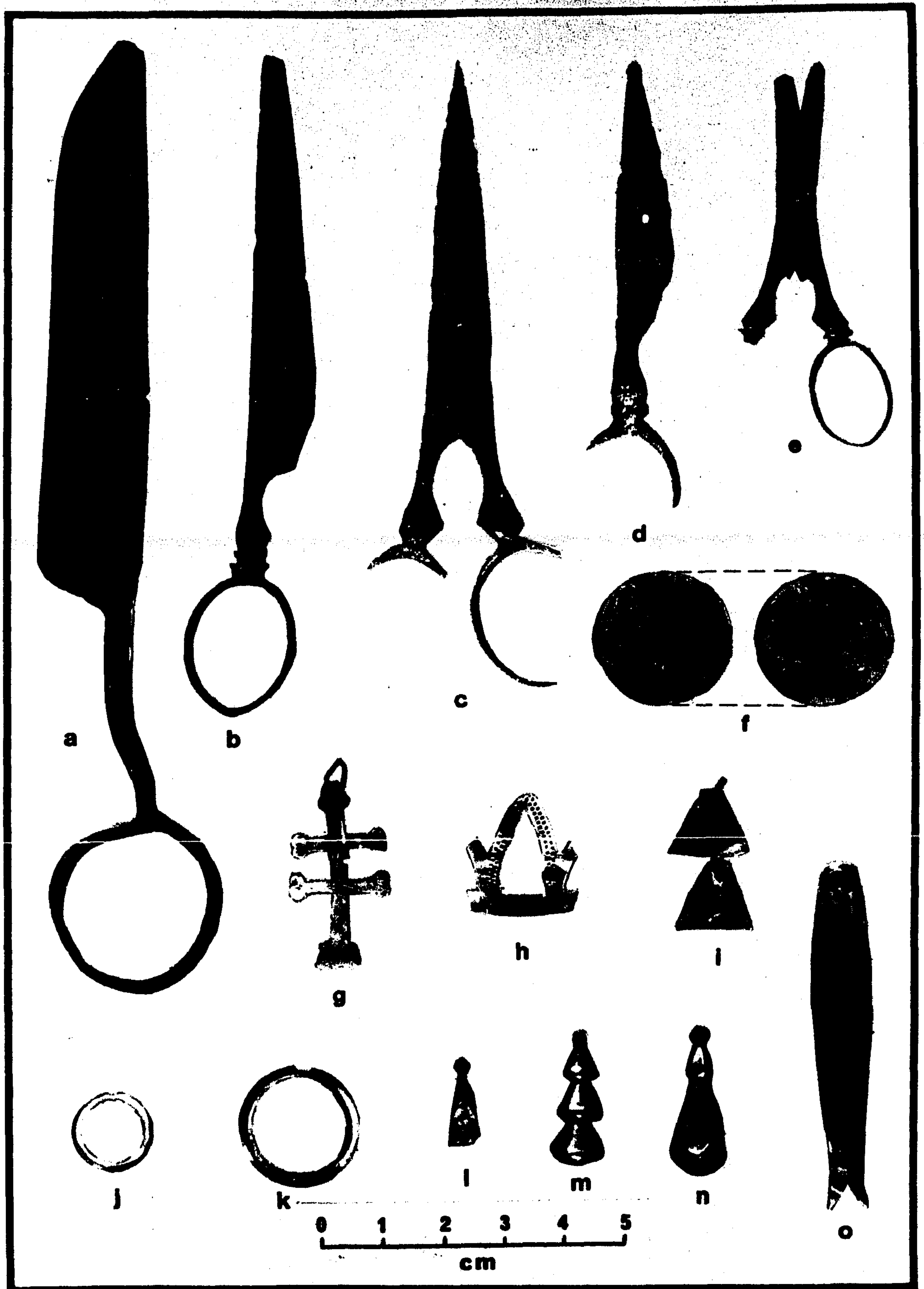
Hook and Eye

Eight fragments of brass wire have been identified as portions of hook and eye fasteners. No diagnostic attributes have been noted.

Bale Seal

A single bale seal was recovered from within Structure One. This object is a circular lead disk 23 mm in diameter and fits Stone's Series A, Type 1 class (Stone 1974:281). It is one half of a seal, cast in lead with a single knob or post, which was originally clamped to another disk with a hole that accepted the post. The face of the present specimen bears three roughly engraved numbers or letters, now undecipherable (Figure 25f). This artifact likely sealed a bundle or package of goods, such as a bale or bolt of cloth, and is commonly found on sites of the period in this region.

Figure 25. Scissors, Bale Seal, Silver Ornaments


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
0 1 2 3 4 5
cm

Beads

The bead classification system devised by Kenneth and Martha Kidd (1970) has been used to describe this group of artifacts. The Kidd system has a number of qualities that make it useful for this purpose, among them the use of transmitted light to detect colors, infinite expandability, and strong internal consistency. It has also been widely applied and thus has great comparative value.

The Kidd system classifies tubular and wire wound beads separately, subdividing each group into Classes based on manufacturing techniques, and further subdividing on the basis of color. For details of bead manufacture or the Kidd system of classification, the reader should consult Kidd and Kidd (1970).

Tube Beads

Class I - Simple Tube Beads

Bead Number Ia9 - Large, opaque, Brite Mint Green, one example

Bead Number Ia19 - Medium, clear, Brite Navy, 32 examples

Bead Number Ia22 - Small, translucent, Dark Rose Brown, 24 examples

Bead Number Ic9 - Small, clear, Apple Green, one example (flattened on two sides)

Bead Number If5 - Large, clear, Amethyst, six sides, two examples

Bead Number If6(?) - Large, clear, Light Gray, eight sides, forty facets, round, one example

Class II - Tube Beads, Reformed by Heating and Rolling

Bead Number IIa41 - Small, circular, opaque, Robin's Egg Blue, 641 examples

Bead Number IIa56 - Small, circular, clear, Brite Navy, five examples

Bead Number IIa61 - Small, circular, clear, Dark Rose Brown, four examples

Class III - Tube Beads, Multi-layered

Bead Number IIIa13(?) - Small, clear, Light Gray outside layer, translucent Oyster White core, ten examples

Bead Number IIIf1 - Large, clear, Light Gray outside layer, translucent Oyster White core, faceted, four examples

Bead Number IIIf2 - Large, clear, Ultramarine outside layer, translucent Light Aqua Blue core, faceted, three examples

Class IV - Tube Beads, Multi-layered, Reformed by Heating and Rolling

Bead Number IVa11 - Small, circular, clear Light Gray core, opaque Oyster White middle layer, ninety examples

Wire-wound Beads

Class I - Simple Monochrome Wire-wound Beads

Bead Number WIb7 - Large, round, clear, Amber, four examples

Bead Number WIb8 - Large, round, clear, Maple, one example

Bead Number WIb16 - Large, round, clear, Brite Navy, five examples

Bead Number WIb17(?) - Large, round, clear, Dark Rose Brown, one example

Bead Number WIc1 - Small, oval, opaque White, two examples

Bead Number WIc1 - Large, oval, opaque White, two examples

Bead Number WIc5 - Large, oval, clear, Maple, four examples

Bead Number WIc12(?) - Large, oval, opaque, Turquoise, two examples

Bead Number WIc13(?) - Large, oval, clear, Dark Rose Brown, one example

Bead Number WId4 - Large, donut, clear, Amethyst, one example

Class II - Shaped Monochrome Wire-wound Beads

Bead Number WIIc3 - Clear, Pale Blue, eight facets, one example

Bead Number WIIc12 - Clear, Brite Navy, eight facets, one example

Class III - Multi-layered Wire-wound Beads

Bead Number WIIIa3(?) - Large, round, clear, Ruby outside layer, opaque White core, one example

Personal Group

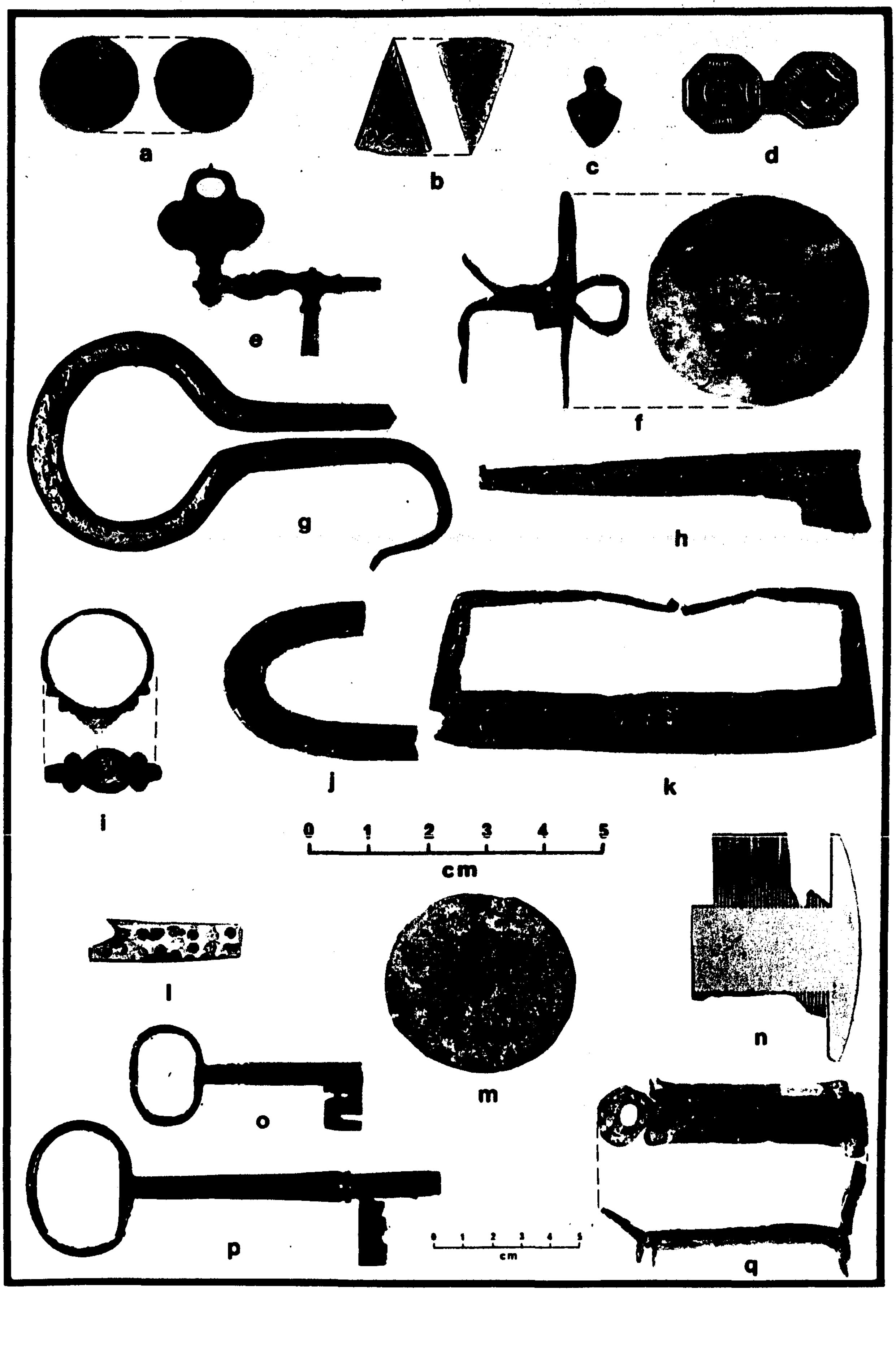
Coins (Figure 26a, b)

Four coins were recovered in the 1973-1975 excavations at the Filbert Site. Three of these are of Spanish colonial origin and date from the major historic occupation of the site, while the fourth is a modern American coin, probably lost by a fisherman.

The first two specimens are nearly identical, though one example is slightly more worn and thus partially unreadable. Both coins are Spanish colonial silver half real, minted in Mexico City. The most legible example was minted in 1790 (Figure 26a); the other coin's date is not readable. Both are 17 mm in diameter and bear a bust of Charles III below the legend "CAROLUS.III.DEI.GRATIA.", with the date below the bust. On the reverse side are the pillars of Hercules with the crowned shield of Castile and Leon, and the legend "HISPAN.ET.IND.R.M.F.M.".

The third specimen is a bit piece cut from an eight real coin also minted in Mexico City. The last two digits, "06", of the date are

Figure 26. Coins, Keys, Personal


a
b
c
d
e
f
g
h
i
j
k
0 1 2 3 4 5
cm
l
m
n
o
p
0 1 2 3 4 5
cm
q

visible (Figure 26b), as is a part of a bust of Charles IV, indicating that this coin was minted in 1806.

The presence of these Spanish silver coins is not surprising, considering the dominance of the Spanish mint system during the colonial and early Federal eras.

The final coin is a Mercury type United States dime, dated 1934.

Keys (Figure 26o, p)

Eight keys were recovered in excavation, all from within or near the structural ruins. These are heavy iron keys, largely undiagnostic, for use in door locks or large padlocks, such as those illustrated in Figure 18i and j.

Personal (Figure 26c-n, q)

South's descriptions of Personal class artifacts includes a wide variety of items, from the purely decorative and individual to the mundane and functional. Among the items so classified from the Filbert Site are a small pewter pendant (Figure 26c) and one side of a pair of brass cufflinks (Figure 26d). A two-piece cast brass watch key is ornamented with raised designs (Figure 26e). The item illustrated in Figure 26f has been tentatively identified as the bolster for a handle on a carrying case of some sort, and is formed from a brass disk with an iron loop projecting through it.

Six iron mouth harps were found, including the example illustrated in Figure 26g. This object had not been finished, as it has an obvious surplus of iron rod on one end. The presence of a likely forge and smith at the site, along with numerous riveted and welded objects, lends credence to the speculation that this mouth harp may have been manufactured, albeit incompletely, on the site.

A portion of a straight razor (Figure 26h) is one of three recovered from the site. The brass ring with paste "jewels" illustrated (Figure 26i) is one of two identical examples found, along with five other rings and fragments of slightly different design.

Four iron strike-a-lites or firesteels were recovered. Three examples were of the rounded or oval shape illustrated by the fragment in Figure 26j. The fourth and only intact example was rectangular (Figure 26k).

Portions of two bone toothbrushes were recovered. The example illustrated in Figure 26l shows the irregularly spaced drill holes that evidently held bristles.

A circular cast lead disk with a square cross-sectioned hole running through from edge to edge has been identified as a clock pendulum (Figure 26m).

Fourteen fragments of bone combs, such as the example illustrated in Figure 26n, were recovered. Three iron ice creepers were found, all similar in form (Figure 26q). These objects, designed to be strapped to a shoe for stable walking on ice, were made of iron bar stock.

Additional items categorized as personal included a small brass tube of unknown use, four mirror fragments, a shoe heel plate, a graphite pencil, a segment of small brass chain, several paste "jewels," and three small brass jewelry fragments.

Tobacco Pipe Group

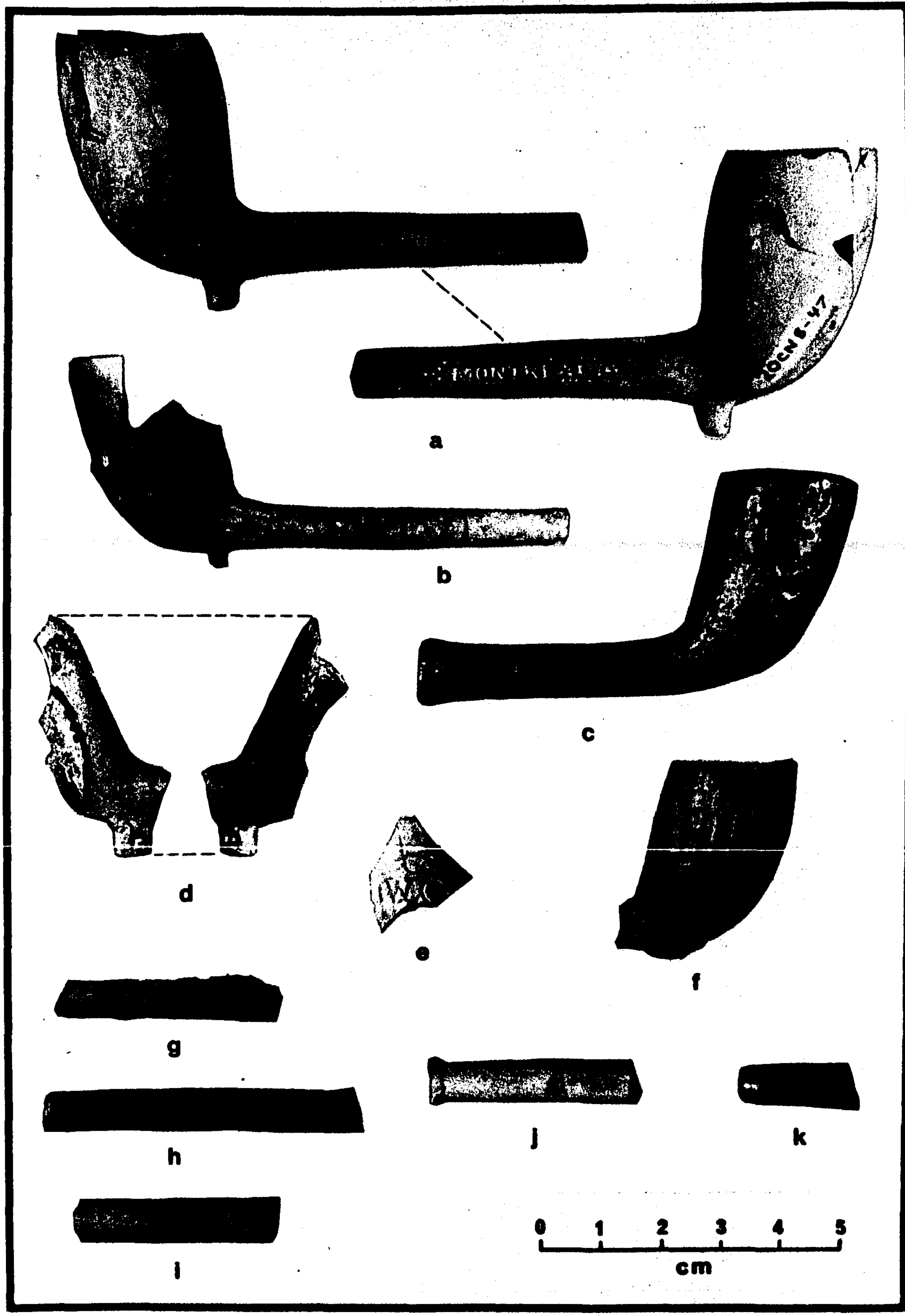
A total of 813 pipe fragments were recovered in the 1972-1975 excavations at the Filbert Site. All but six were made of white ball-clay. One intact (Figure 27c) and one fragmentary pewter pipe were collected, as was the heavily glazed bit end of a dark grey clay pipestem (Figure 27k). Two small fragments of carved and polished red catlinite pipes and a single fragment of a brown Micmac-type pipe were collected, as well.

Of the ball-clay pipes, only a small number were attributable to makers or specific period of manufacture. One notable exception was the pipe marked "BANNERMAN" "MONTREAL" (Figure 27a) on the stem and "TD" on the bowl. This pipe, found in an exploratory pit at the far southeastern edge of the site, was manufactured after 1858 (Walker 1971) and clearly postdates the major occupation of the site.

Other marked pipes include five examples with a raised "T" on one side of the spur, a raised "D" on the other, and "TD" within a cartouche on the bowl facing the smoker (Figure 27d). Two examples of the same form, but with letters "WG" were also recovered (Figure 27e). A single specimen marked "WM" was also collected. None of these latter examples can be attributed with any certainty to a maker, but all three types are regularly found in late eighteenth and early nineteenth century contexts.

A number of decorated pipes are included in this collection, the most common type illustrated in Figure 27b, with stem fragments shown in Figure 27g and h. A minimum of six examples of this type were recovered, nearly all of them from the western hearth of Structure Three.

Figure 27. Tobacco Pipes



a
b
c
d
e
f
g
h
i
j
k
0 1 2 3 4 5
cm

Other decorative designs include a combination of ribbing and stars (Figure 27f) and simple fluting. One stem fragment exhibits floral decoration (Figure 27i) and there are two bit ends of white ball-clay. One bit specimen has an expanded tip (Figure 27j), while the other tip has been dipped in a clear glaze.

<u>Activities Group</u>

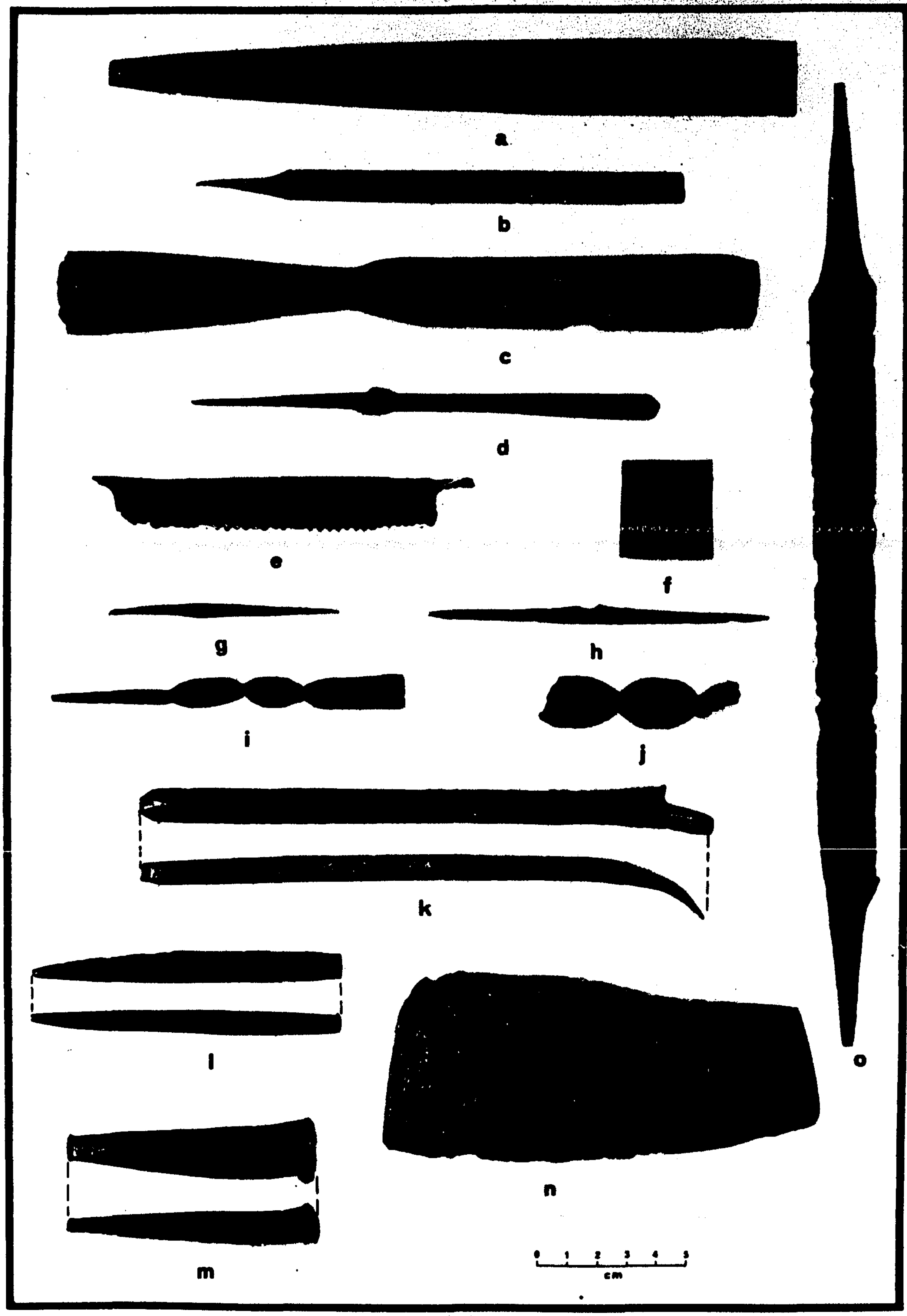
Construction Tools

Quite a variety of tools were classified in this Group. Included were eleven files, six of them flat bastard files (Figure 28a), two half round files (Figure 28b), and three triangular files. Two gouges were collected, one of them large with a socketed handle (Figure 28c) and one small with a rat-tailed handle (Figure 28d), both recovered from Structure Two. Two backsaw blades were excavated in Structure Three (Figure 28e). A single plane bit was recovered from Structure Two (Figure 28f). Five awls were collected from Structures One and Two (Figure 28g, h), and a single screwdriver with one-and-a-quarter twist was found in Structure Two (Figure 28i), as was a segment of a drill bit (Figure 28j).

A nail puller made from a file was found in Structure Three (Figure 28k), and another was recovered in Structure One. Two punches were found in Structure One (Figure 28l, m), as was a froe blade (Figure 28n), and a straight drawknife (Figure 28o).

Other construction tools included eight whetstones, two chisels, two wedges, a plumb bob (Figure 29j), and thirteen unidentified tools (Figure 29i, k-n).

Figure 28. Construction Tools


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
0 1 2 3 4 5
cm

A group of tools believed to be related to milling functions were also classified in this Group. Among them were a large saw set with socketed handle (Figure 29a), a smaller saw set fragment (Figure 29c), and a fragment of a large saw blade (Figure 29b). This toothed portion of a straight blade came from a reciprocating, up-and-down sawmill of the type common in the late eighteenth and early nineteenth centuries, prior to the widespread use of circular saws. The tool illustrated in Figure 29d was made of rod stock and was identified by an 86 year old miller as a tool used to lace together leather belts for transmitting power from the main shafts to auxiliary machines in the mill. Three tools made from rod stock and reworked strap iron were identified as tools for scraping out the valleys in a millstone when they became clogged (Figure 29e, f, g). The object illustrated in Figure 29h was tentatively identified as a mill bill, a wedge-shaped hammer used periodically to dress the face of the millstones.

Farm Tools

Among the farming tools represented were ten scythe blade fragments. Several showed evidence of repair, such as a riveted brass patch (Figure 30a), and a two-part riveted iron patch (Figure 30c). One fragment bore an impressed maker's mark, as yet unidentified, "HALL", at the corner of the attachment to the snath (Figure 30d). The single iron hoe recovered also showed evidence of riveted repair (Figure 30e). A single axe head was recovered from mixed deposits and was not illustrated.

Figure 29. Mill-Related Tools, Unidentified Tools

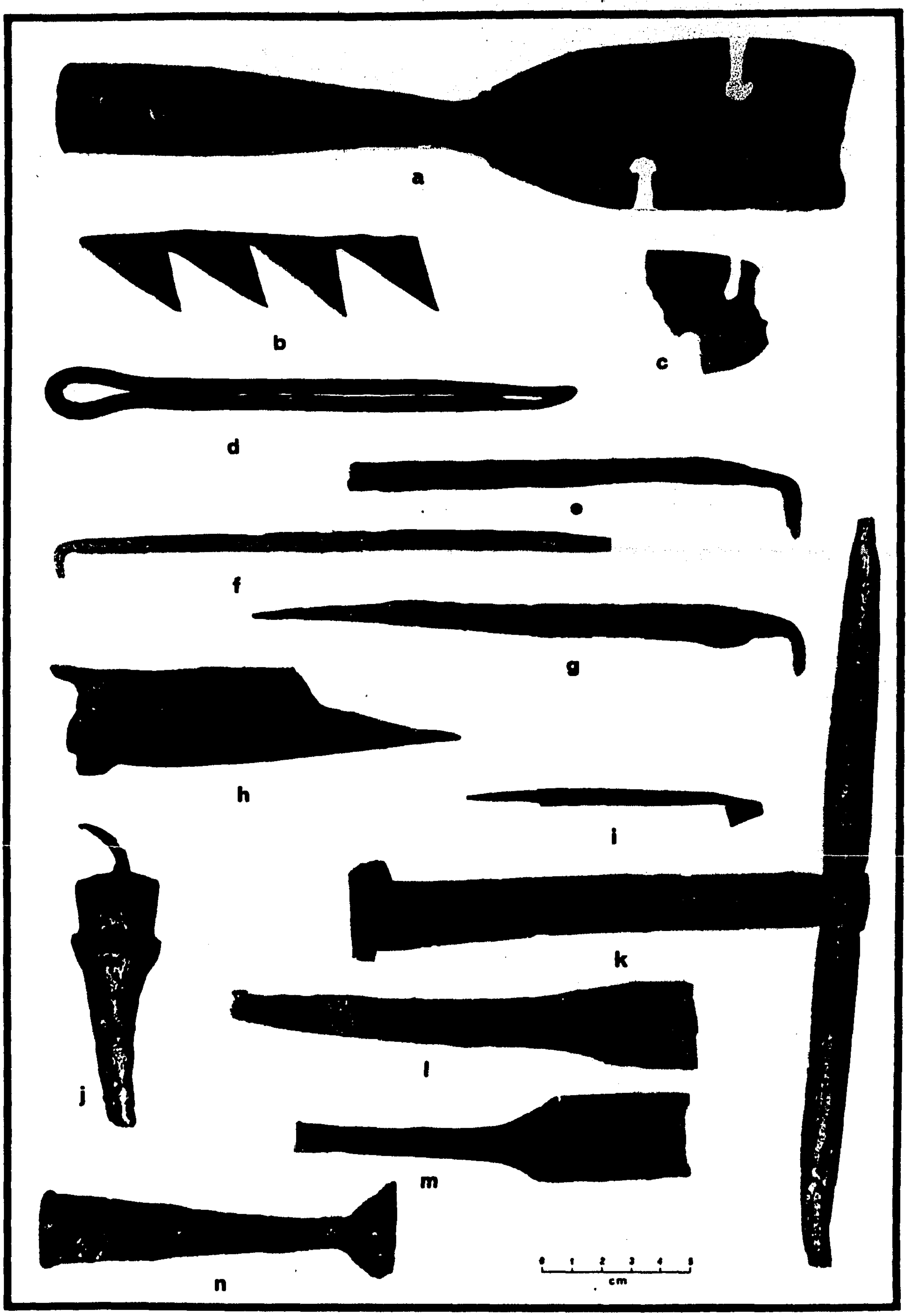
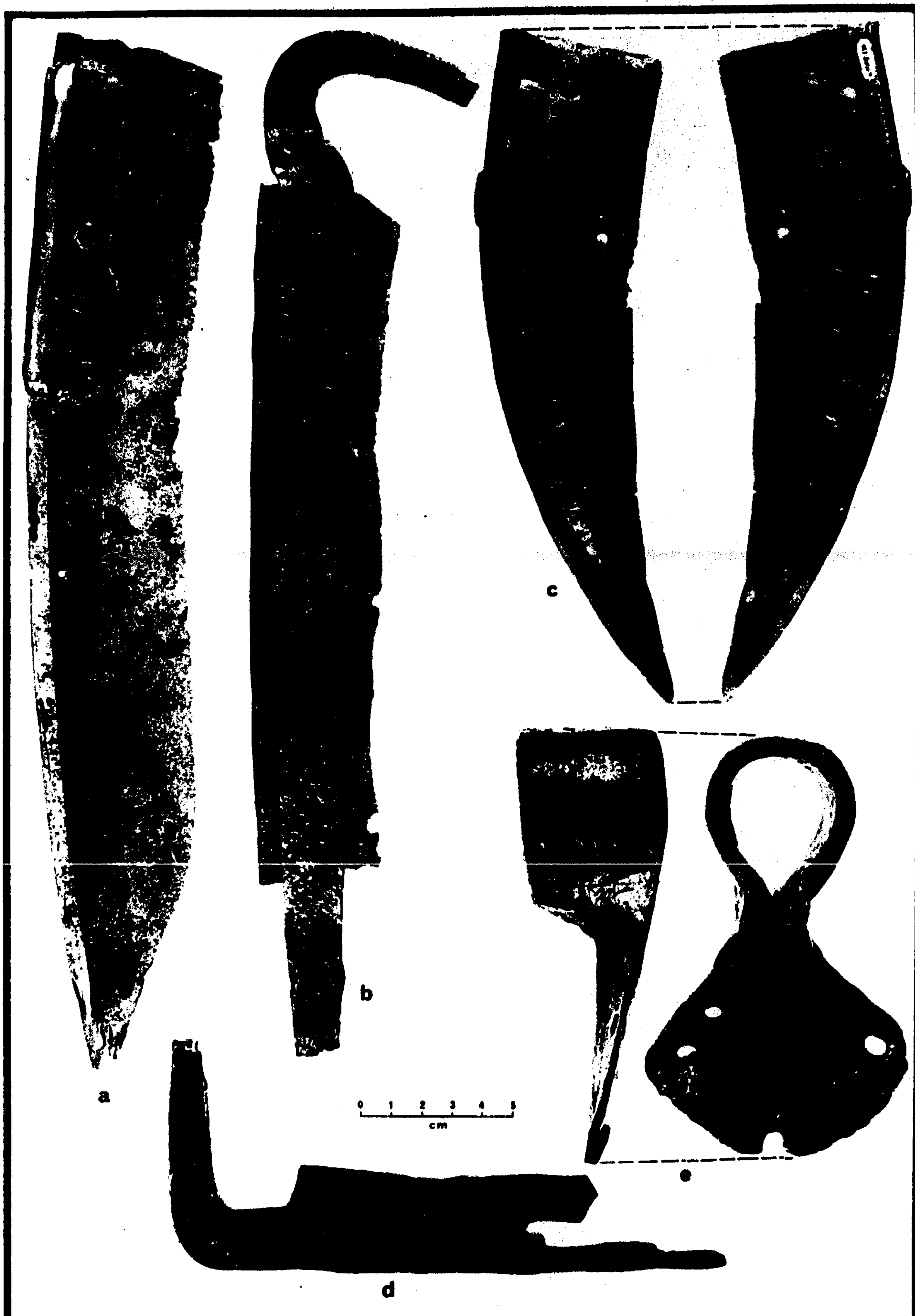

a
b
c
d
e
f
g
h
i
j
k
l
m
n
0 1 2 3 4 5
cm

Figure 30. Farm Tools


a
b
c
d
e
0 1 2 3 4 5
cm

Toys

A single lead whizzer was recovered from Structure One (Figure 31a), as were a stone marble (Figure 31b), and a clay marble (Figure 31c). Two other clay marbles were recovered from the east bank, outside the structural ruins. A small porcelain doll's teacup of modern vintage was recovered from mixed deposits on the east bank.

Fishing Gear

Among the fishing items recovered were a cylindrical lead weight, probably a net weight (Figure 31d), twenty hooks of various size (Figure 31e, f), and three harpoons (Figure 31g, h, i). These latter items may have originally functioned together as a leister spear, with the object illustrated in Figure 31i attached in the center and the other two harpoons flanking it on either side of a shaft. One of the two similar harpoons was made on rod stock, while the other was made on a file. These two were found together in Structure Two, and the third piece was recovered from Structure One.

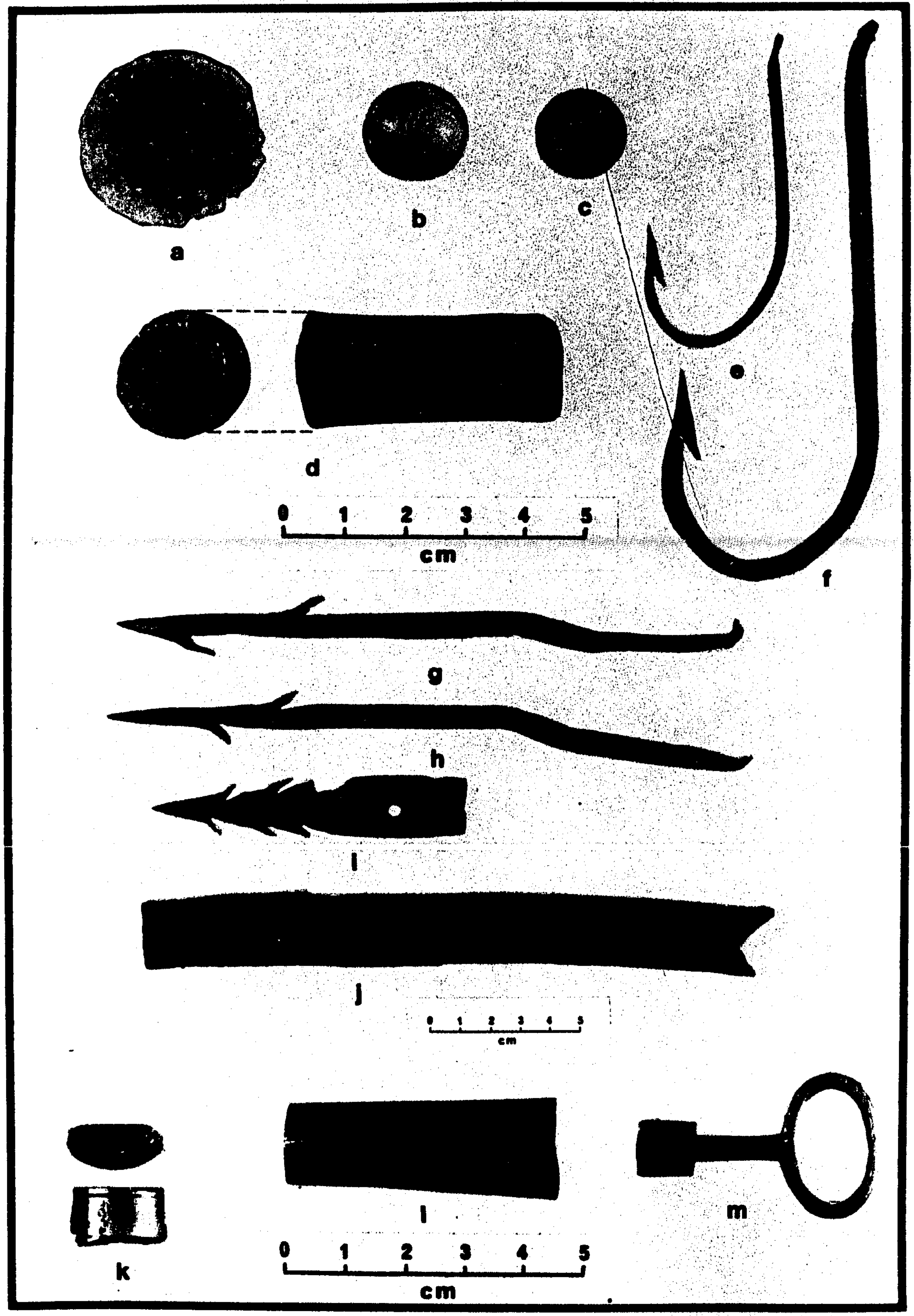
Stub-Stemmed Pipes

Treated separately by South, these pipes were grouped together with the other tobacco pipes.

Aboriginal Items

This class of artifacts was originally dubbed Colono-Indian Pottery by South, and was devised to recognize the important use of aboriginal and/or slave-manufactured pottery in the southern coastal colonies. Since Colono-wares were not of critical interest, or even present, at Filbert, this category was modified to include any aboriginal artifacts.

Figure 31. Toys, Fishing Gear, Storage


a
b
c
d
e
f
g
h
i
j
k
l
m
0 1 2 3 4 5
cm

A total of 103 chert flakes and core fragments was recovered, made largely on Eastport banded chert. Eleven aboriginal pottery sherds were found, seven exhibiting cord-marking. Three of these sherds bore decoration, such as drag-and jab impressions, and oblique twisted-cord marks that are diagnostic of Late Woodland cultural affiliations in this region, dating post A.D. 1300 (Holman 1977). That such materials should be present on this site is not surprising, since the Late Woodland Juntunen site was located but a few miles away on Bois Blanc Island, and aboriginal habitation of the coastal areas of the Straits is well-documented.

A final aboriginal item was a mat needle, made of bone, pointed at each end, with a perforation in the center (Figure 34j).

Storage Items

Something of a catchall category, this class of artifacts included over one hundred fragments of barrel hoops, many with rivets intact (Figure 31j). These items were extremely difficult to quantify because of their state of corrosion, and were found in virtually all archaeological contexts.

A fragment of a brass spigot lock (Figure 31k), the tubular portion of a spigot (Figure 31l) were found in Structure One. A brass spigot key (Figure 31m) was recovered in Structure Two.

Botanical

The only botanical specimens collected were wood samples from structural contexts, and a fragment of a ramrod. These samples were identified by the United States Forest Service Forest Products Laboratory in Madison, Wisconsin, and were discussed in the appropriate portions of the text. By and large, the structural remains were of white pine, cedar, spruce, and hemlock, while the ramrod fragments were of beech and hard maple.

Stable and Barn, or Horse Tack

Labelled both ways by South, this class of objects overlaps somewhat with the farm tools, but has been treated separately here.

Five horse shoes of varying sizes and conformation were recovered (Figure 32a-c). A sprung singletree eye marked "TH BAKER" was recovered by collectors with a metal detector (Figure 32d), as were most of the horseshoes, and no provenience was recorded. Two iron currycombs were also recovered from the east bank area (Figure 32e).

Miscellaneous Hardware

This artifact class included six screws, six iron rings, five chain links, six bolts (Figure 33g), three nuts, four washers, fifteen fragments of brass and iron wire, four unidentifiable cast iron fragments, two springs, two pieces of iron rod stock, two fragments of slate, one iron gear, and ten unidentified iron objects (Figure 33a, d-f).

Other

Described by South as a category reflecting specialized activities, this class of objects was the most difficult to quantify. For example,

Figure 32. Stable, Barn

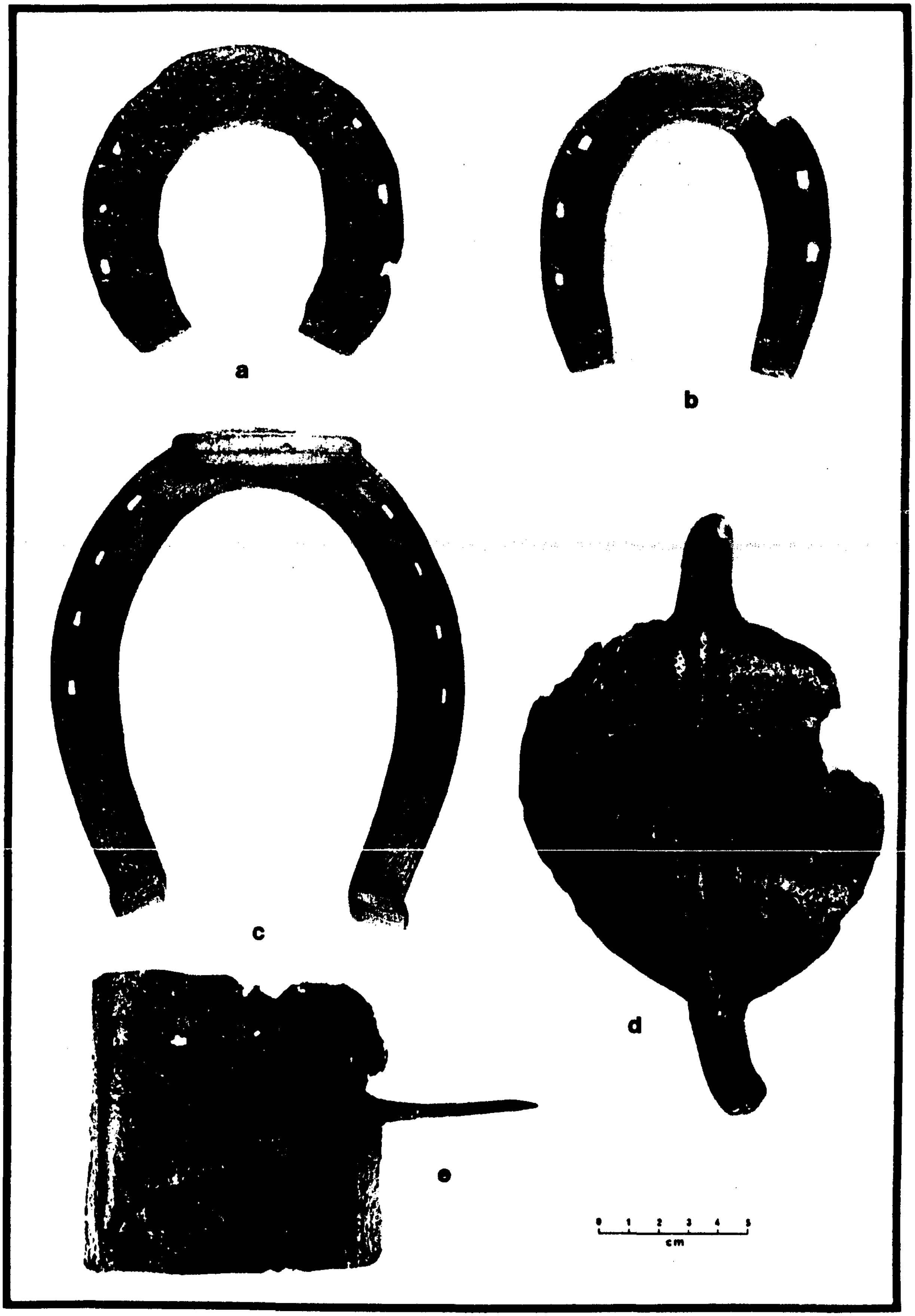
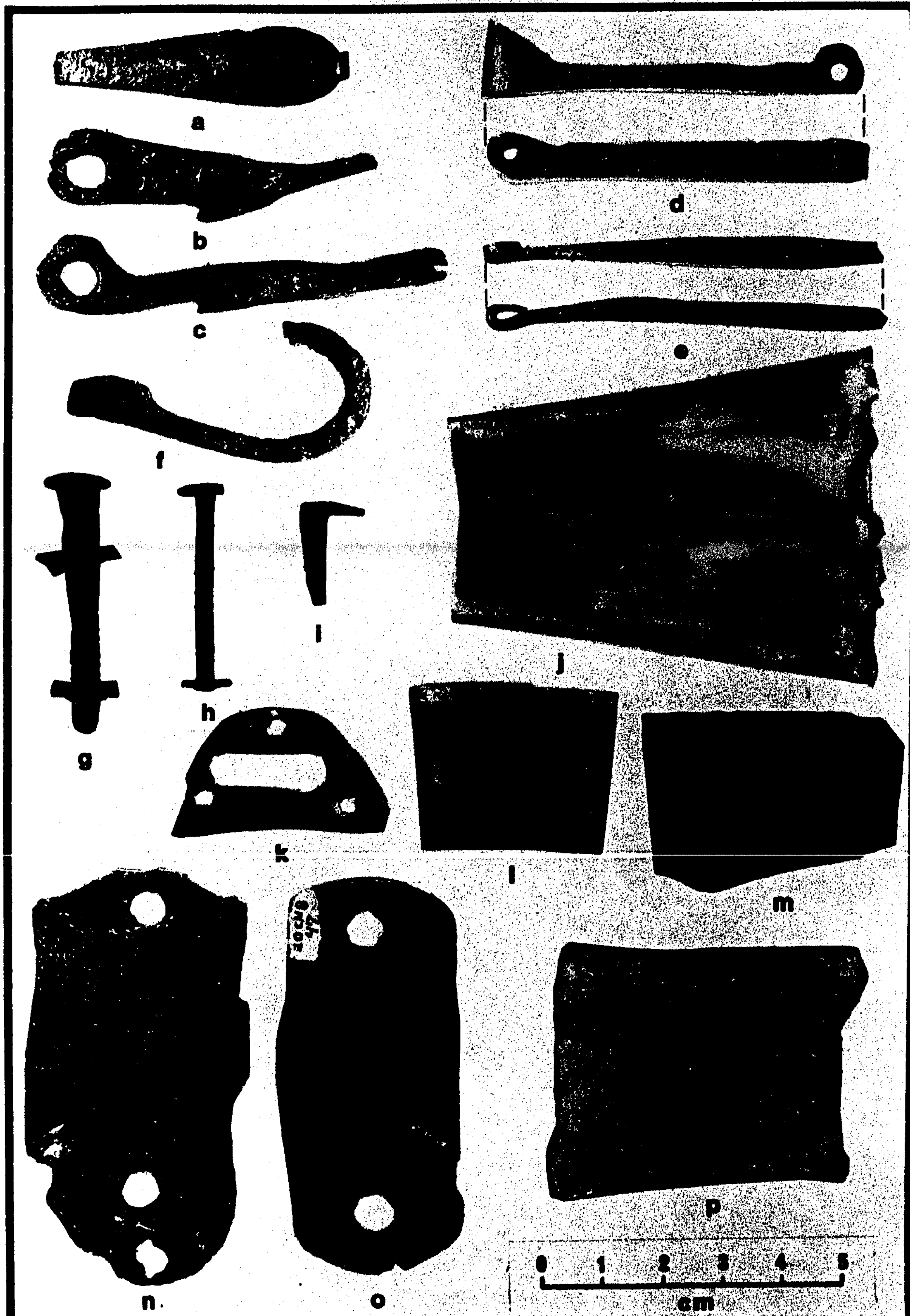

a
b
c
d
e
0 1 2 3 4 5
cm

Figure 33. Miscellaneous Hardware

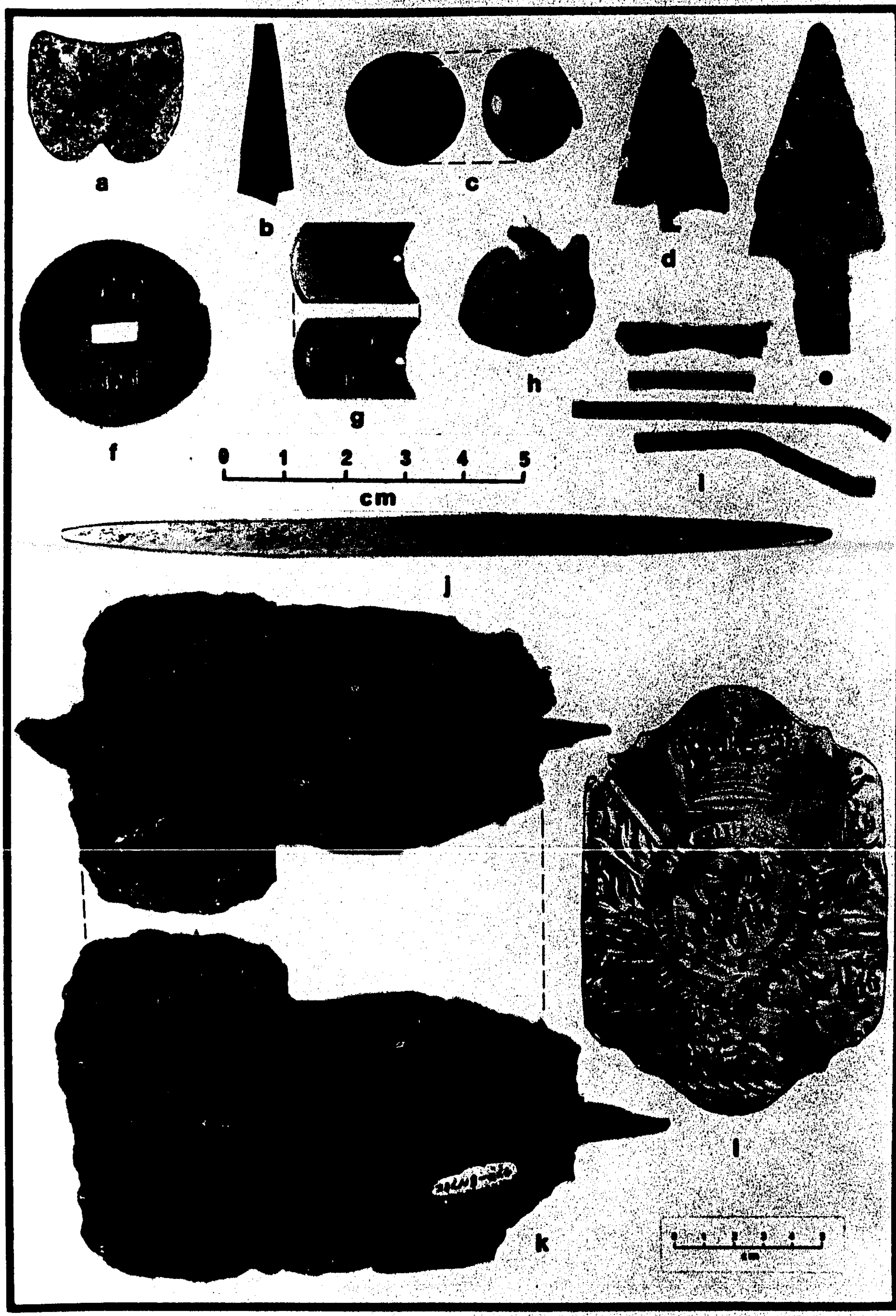

a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
0 1 2 3 4 5
cm

slag and clinkers were included, as artifactual evidence of smithing, but were noted on a presence/absence basis rather than being counted. Furthermore, it was not considered desirable to quantify such items as scrap brass and lead splatters, but rather note presence/absence.

A major component of this class of artifacts was items made for the fur trade. Included were eight brass tinkling cones (Figure 34b), a single brass bell (Figure 34c), and three iron arrowpoints (Figure 34d, e). In addition, eighteen silver objects related to the fur trade were collected, and were illustrated with the Clothing Group artifacts (Figure 25). Among these silver trade items was a small double-barred cross, hinged in the center with a piece of wire, which may represent a repair (Figure 25g). Part of a decorated brooch marked "NR" (Figure 25h) was made by Narcisse Roy in Montreal in the early years of the nineteenth century (Quimby 1966:99, 198). Two small silver triangles were evidently cut from a brooch, hinged together with strips of silver and were originally attached at top and bottom (Figure 25i). Several small circular ribbon brooches were recovered (Figure 25j, k), as were three types of earrings (Figure 25l-n). A single fish-shaped pendant, cut from an armband, was perforated for suspension (Figure 25o).

Four fragments of carved and polished catlinite probably also were related to fur trading activities, as were the two trap parts illustrated in Figure 33b and c.

Figure 34. Other, Military Objects


a
b
c
d
e
f
g
h
i
0 1 2 3 4 5
cm
j
k
l

Objects reflecting the smithing activities that took place on this site included slag and clinkers, iron rivets (Figure 33h), brass rivets (Figure 33i), and a quantity of brass scrap and artifacts (Figure 33 j-l). A single rectangular stick of chalk, commonly used by metal workers, was found in Structure Two. A single fragment of slate with concentric circles scribed into its surface served some unknown function (Figure 33m). A two-piece iron artifact was evidently a mold for casting a square object of some sort (Figure 33n, o). The general shape of the molded piece that would come from this mold was rather like that of a brass buckle found on the site and illustrated in Figure 23i, though the size was slightly different.

Quantities of scrap and splattered lead were found, probably resulting from shot manufacture. One fragment of bar lead, illustrated in Figure 33p, was also found.

Four additional items of unknown function were included in this class. A bi-lobed, perforated lead object is illustrated in Figure 34a. A brass disk with a rectangular central perforation and two sets of stamped letters reading "TT" is illustrated in Figure 34f. A small brass object that cannot be identified is illustrated in Figure 34g. A pointed iron object with a heavy deposit of slag material, found in mixed deposits near the dam ruins, is depicted in Figure 34k.

Military Artifacts

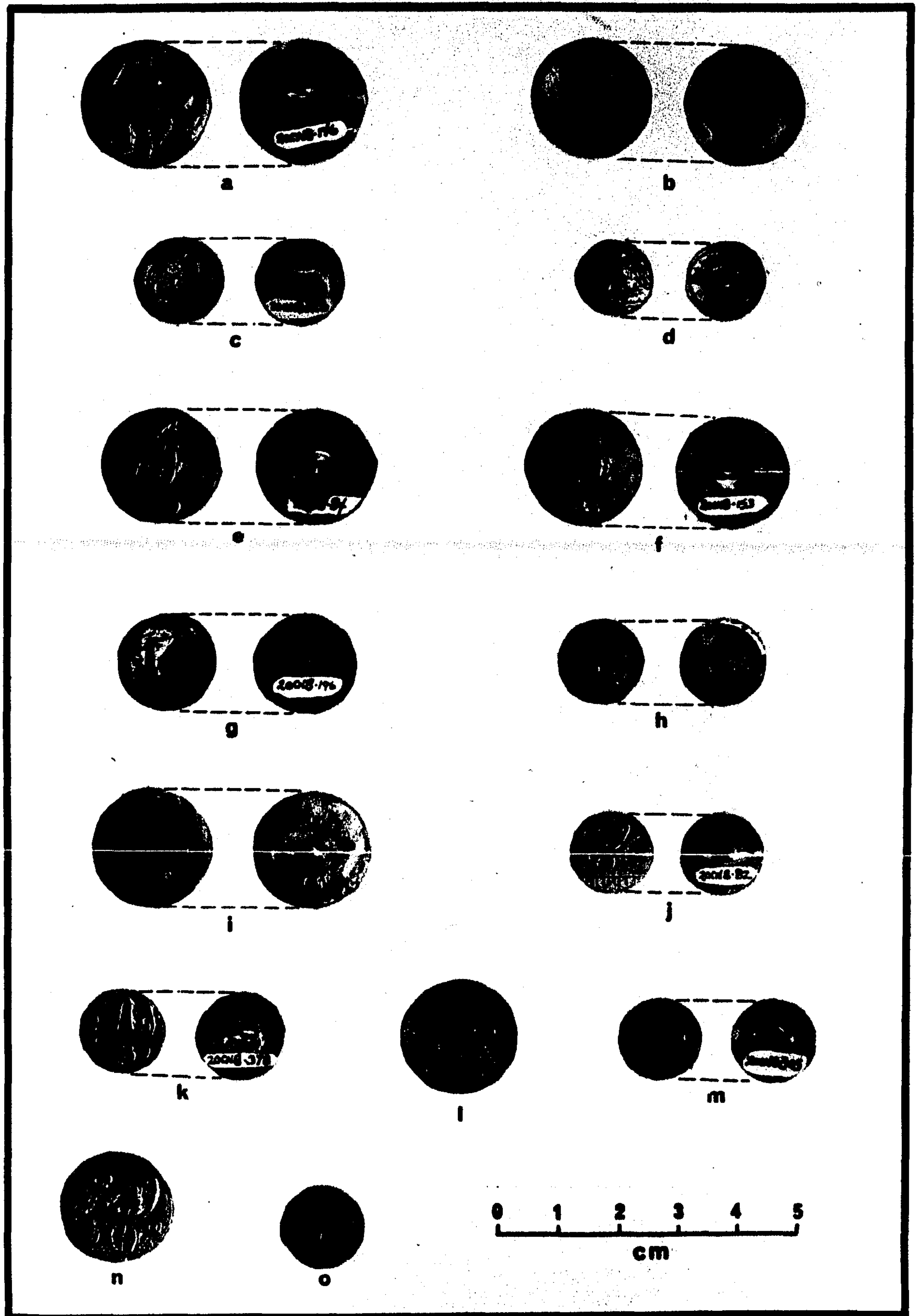
A brass hat plate was recovered on the east bank near Structure One by the local collectors who discovered the site. Bearing an ornate embossed design and a number of royal symbols and slogans, this hat plate originally adorned the headgear of a British soldier of the period

1800-1814 (Figure 34l). Military historian Brian Dunnigan has suggested that it belonged to a soldier of the 10th Royal Veteran Battalion, one of the units that captured Fort Mackinac in 1812 (Dunnigan 1975:10).

A gilded pewter eagle was recovered from the cellar fill of Structure One (Figure 34h). This object was originally mounted in the center of a leather rosette cockade on the hat of a U.S. Army regular or militia soldier during the period 1800-1821 (Campbell and Howell 1963:10). Found nearby, with fragments of leather adhering to their surface, were four lengths of tightly coiled brass spring (Figure 34i). These appear to have been part of a chin strap for a hat, probably the hat that bore the cockade eagle.

The most numerous military artifacts were uniform buttons. Discussed at length as chronological indicators in Chapter IV, examples of all the recognized types are illustrated in Figure 35.

Figure 35. Military Buttons


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
0 1 2 3 4 5
cm

APPENDIX B
DATA FILE

APPENDIX B

DATA FILE

Key

Column 1	Site/Context
Column 2	Structural Context (0 = Whole Site, 1 = Structural Ruin, 2 = Other)
Column 3	Kitchen Group
Column 4	Architecture Group
Column 5	Furniture Group
Column 6	Arms Group
Column 7	Clothing Group
Column 8	Personal Group
Column 9	Tobacco Pipe Group
Column 10	Activities Group
Column 11	Total Artifacts (less bone)
Column 12	Duration of Occupation
Column 13	Distance from Supply Center (0 = At or near, 1 = Medium, 2 = Isolated)

#1	#2	#3	#4	#5	#6
20CN8 Structure I	1	6,690	10,358	15	443
20CN8 Structure II	1	952	3,019	2	90
20CN8 Structure III	1	2,752	4,331	8	100
20CN8 East Bank	2	915	1,165	2	43
20CN8 West Bank	2	433	378	1	2
20CN8 Whole Site	0	11,739	19,251	28	684
Rocky Mountain House	0	56	146	1	235
Fort George	0	840	873	6	832
Buckingham House	0	163	326	0	77
Edmonton House	0	205	123	3	197
Sturgeon Fort	0	18	143	2	143
Francois LeBlanc Post	0	15	50	1	33
Brunswick 25 Whole	1	22,710	9,620	83	1,262
Brunswick 25 Front	2	686	332	4	2
Brunswick 25 Rear	2	8,427	3,423	35	43
Brunswick 25 Inside	1	1,537	1,206	10	804
Brunswick 10 Whole	1	6,795	4,116	82	45
Brunswick 7 Whole	1	3,702	3,953	18	12
Brunswick 7 Rear	2	1,582	2,300	6	4
Brunswick 7 Front	2	784	252	3	4
Brunswick 7 Midden	2	387	513	3	0
Fort Moultrie A	0	4,802	1,510	6	39
Fort Moultrie B	0	1,349	344	2	20
Cambridge 96	1	12,916	5,006	35	27
Fort Prince George	0	4,262	4,252	6	471
Fort Ligonier	0	5,566	12,112	44	1,820
Spalding's Store	0	5,956	7,222	51	227
Bright's Post/ Montgomery's Tavern	0	29,612	5,766	9	201
Grand Portage	0	4,299	3,045	0	44
Signal Hill	0	14,188	6,413	0	57
Delaware State House A	1	1,142	982	0	0
Delaware State House B	1	519	440	1	3
Delaware State House C	1	380	335	3	4
Camden Toft 8	1	966	824	0	1
Yaughan A	2	18,813	2,641	12	5
Curiboo	2	4,428	749	4	15
Yaughan B	2	4,476	1,567	5	11
Spiers Landing	2	2,275	631	2	6
Fort Watson	2	627	595	19	128

	#7	#8	#9	#10
20CN8 Structure I	277	45	287	187
20CN8 Structure II	745	3	244	97
20CN8 Structure III	114	15	192	47
20CN8 East Bank	19	8	69	100
20CN8 West Bank	6	7	21	63
20CN8 Whole Site	1,160	78	813	469
Rocky Mountain House	11,102	12	200	177
Fort George	21,018	217	759	1,404
Buckingham House	612	11	184	83
Edmonton House	739	170	252	102
Sturgeon Fort	2,352	1,518	12	75
Francois LeBlanc Post	1,126	35	72	67
Brunswick 25 Whole	5,574	71	2,830	347
Brunswick 25 Front	11	0	53	22
Brunswick 25 Rear	96	1	1,212	201
Brunswick 25 Inside	3,312	12	260	91
Brunswick 10 Whole	72	20	1,820	159
Brunswick 7 Whole	24	4	374	96
Brunswick 7 Rear	8	1	119	27
Brunswick 7 Front	3	0	130	5
Brunswick 7 Midden	4	1	25	11
Fort Moultrie A	136	4	167	299
Fort Moultrie B	69	4	50	284
Cambridge 96	1,069	108	379	340
Fort Prince George	70	9	851	50
Fort Ligonier	833	99	411	893
Spalding's Store	51	10	2,344	909
Bright's Post/ Montgomery's Tavern	121	14	76	29
Grand Portage	2,445	15	973	45
Signal Hill	652	36	2,762	720
Delaware State House A	32	4	40	23
Delaware State House B	34	0	24	6
Delaware State House C	36	0	28	6
Camden Toft 8	0	0	16	41
Yaughan A	66	8	751	52
Curiboo	20	1	300	17
Yaughan B	32	5	182	32
Spiers Landing	24	2	74	26
Fort Watson	23	2	18	20

	#11	#12	#13
20CN8 Structure I	18,302	34	2
20CN8 Structure II	6,158	34	2
20CN8 Structure III	7,559	26	2
20CN8 East Bank	2,321	65	2
20CN8 West Bank	911	65	2
20CN8 Whole Site	34,222	65	2
Rocky Mountain House	11,929	22	2
Fort George	25,949	8	2
Buckingham House	1,456	8	2
Edmonton House	1,791	3	2
Sturgeon Fort	4,263	4	2
Francois LeBlanc Post	1,399	9	2
Brunswick 25 Whole	42,497	44	0
Brunswick 25 Front	1,110	44	0
Brunswick 25 Rear	13,438	44	0
Brunswick 25 Inside	7,232	44	0
Brunswick 10 Whole	13,118	52	0
Brunswick 7 Whole	8,183	42	0
Brunswick 7 Rear	4,047	42	0
Brunswick 7 Front	1,181	42	0
Brunswick 7 Midden	944	42	0
Fort Moultrie A	6,963	19	0
Fort Moultrie B	2,122	2	0
Cambridge 96	19,880	37	1
Fort Prince George	9,971	16	1
Fort Ligonier	21,778	8	
Spalding's Store	16,770	20	
Bright's Post/ Montgomery's Tavern	35,828	35	1
Grand Portage	10,866	35	2
Signal Hill	24,828	60	0
Delaware State House A	2,223	19	0
Delaware State House B	1,027	1	0
Delaware State House C	792	46	0
Camden Toft 8	1,848	61	1
Yaughan A	22,348	50	1
Curiboo	5,534	55	1
Yaughan B	6,310	40	1
Spiers Landing	3,040	40	1
Fort Watson	1,432	.33	1

APPENDIX C
FAUNAL DATA

APPENDIX C
FAUNAL DATA

These data were analyzed by Henry M. Miller while he was a graduate student in Anthropology at Michigan State University and the results were presented in a paper at the 10th Annual Meeting of the Society for Historical Archaeology (1977). Excerpts from that paper are presented here.

Miller was able to identify 1,095 of the 8,020 bones recovered, or 13.6% of the collection. Sixty genera or species were presented. Table 42 lists the species, number of elements identified, percentage of the class, the minimum number of individuals represented for the total site and the east and west creek bank contexts. Both local wild species and domesticates were present, representing fishing, hunting, trapping, and husbandry subsistence practices.

Miller further calculated the available meat weights based on minimum number estimates (Table 43). Mammals provided the bulk of the meat diet, while a significant portion was derived from fish. Domestic mammals, particularly cattle and swine, contributed more than 60% of the available meat, while wild mammals offered over 23% and fish provided over 13%. Chickens, wild fowl and turtles combined make up the remaining 3%.

Miller pointed up differences in the assemblages derived from the two sides of Mill Creek and suggested that they reflected change over time, since the west bank area tended to be occupied later, and/or status differences, since the early occupants were owner/operators and the later occupants were tenants. Both assemblages contained over 60%

Table 42. Species Identified at the Filbert Site
(Source: Miller 1977)

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Mammal									
Bos taurus (Cow)	113	22.3	4	109	31.4	3	4	2.5	1
Sus scrofa (Pig)	100	19.8	8	77	22.1	6	23	14.5	2
Ovis aries (Sheep)	10	1.9	1	10	2.8	1			
Canis familiaris (Dog)	4	.7	1	4	1.1	1			
Felis domestica (Cat)	3	.5	1	3	.8	1			
Odocoileus virginianus (White-tailed Deer)	18	3.5	3	16	4.6	2	2	1.2	1
Ursus americanus (Black Bear)	9	1.7	2	9	2.5	2			
Castor canadensis (Beaver)	11	2.1	3	11	3.1	3			

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Mammal									
Lynx rufus (Bobcat)	2	.3	1	2	.5	1			
Procyon lotor (Racoon)	5	.9	2	4	1.1	1	1	.6	1
Vulpes fulva (Red Fox)	11	2.1	3	9	2.5	2	2	1.2	1
Martes pennanti (Fisher)	4	.7	1				4	.7	1
Martes americana (Marten)	22	4.3	4	17	4.8	2	5	3.1	2
Lepus americanus (Snowshoe Hare)	145	28.7	22	52	14.9	8	93	58.8	14
Ondatra zibethicus (Muskrat)	12	2.3	2	5	1.4	1	7	4.4	1
Mustela vision (Mink)	7	1.3	3	3	.8	1	4	2.5	2

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Mammal									
Marmota monax (Woodchuck)	3	.5	2	1	.2	1	2	1.2	1
Blarina brevicauda (Short-Tail Shrew)	4	.7	2				4	2.5	2
Citellus tridec (Ground Squirrel)	2	.3	1				2	1.2	1
Microtus pennsvlvanius (Meadow Vole)	1	.1	1	1	.2	1			
Synaptomys cooperi (Bog Lemming)	1	.1	1	1	.2	1			
Tamias striatus (Chipmunk)	18	3.5	3	13	3.7	2	5	3.1	1
Bird									
Gallus gallus (Chicken)	35	16.5	6	30	19.7	4	5	8.4	2
Anas acuta (Pintail Duck)	4	1.8	1	4	2.6	1			

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Bird									
<u>Anas discores</u> (Blue-Winged Teal)	2	.9	1	2	1.3	1			
<u>Anas platryhines*</u> (Mallard)	7	3.3	2	7	4.6	2			
<u>Anas</u> sp. (Duck)	35	16.5	3	22	14.4		13	22.0	3
<u>Anserformes</u> (Duck)	3	1.4					3	5.0	
<u>Aythya americana</u> (Redhead Duck)	3	1.4	2	3	1.9	2			
<u>Aythya affinis</u> (Ringnecked Duck)	1	.4	1	1	.6	1			
<u>Aix sponsa</u> (Wood Duck)	1	.4	1	1	.6	1			
<u>Lophodytos cucullatus</u> (Hooded Merganser)	1	.4	1	1	.6	1			

*possibly Black Duck

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Bird									
Mergus merganser (Common Merganser)	1	.4	1	1	.6	1			
Mareca americana (Widgeon)	2	.9	1	2	1.3	1			
Branta canadensis (Canadian Goose)	1	.4	1	1	.6	1			
Bonasa umbellus (Ruffed Grouse)	22	10.4	5	16	10.5	2	6	10.1	2
Ectopistes migratorius (Passenger Pigeon)	67	31.7	10	46	30.2	5	21	35.5	5
Gavia immer (Loon)	2	.9	2	1	.6	1	1	1.6	1
Accipiter gentilis (Goshawk)	1	.4	1	1	.6	1			
Haliaeetus leucocephalus (Bald Eagle)	3	1.4	1	3	1.9	1			

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Bird									
Buteo jamanicus (Red-Tailed Hawk)	5	2.3	2	3	1.9	1	2	3.3	1
Buteo sp. (Hawk)	1	.4	1				1	1.6	1
Bubo virginianus (Great Horned Owl)	1	1.4	1				1	1.6	1
Botarus lentiginosus (American Bittern)	1	.4	1	1	.6	1			
Podilymbus podiceps (Pied-Billed Grebe)	2	.9	2	1	.6	1	1	1.6	1
Megaceerle alcyon (Belted Kingfisher)	1	.4	1				1	1.6	1
Corvus corvus (Raven)	5	2.3	2	3	1.9	1	2	3.3	1
Hydropogne caspia (Caspian Tern)	1	.4	1	1	.6	1			

Table 42. Continued

	SITE TOTAL			EASTERN AREA			WESTERN AREA		
Species	N of Bones	% of Class	Min. N of Ind.	N of Bones	% of Class	Min. N of Ind.	N of Bones	% of Class	Min. N of Ind.
Bird									
Colaptes auratus (Yellow Shafted Flicker)	2	.9	2	1	.6	1	1	1.6	1
Rallidae sp. (Rail)	1	.4	1				1	1.6	1
Fish									
Coregonus sp. (Whitefish)	115	33.1	25	68	27.9	15	47	45.1	10
Stizostedion vitreum (Walleye)	125	36.0	14	94	38.6	9	31	29.8	5
Acipenser fulvescens (Sturgeon)	63	18.1	3	57	23.4	2	6	5.7	1
Salvelinus namaycush (Lake Trout)	13	3.7	4	10	4.1	3	3	2.8	1
Catostomus sp. (Sucker)	16	4.6	6	7	2.8	4	9	8.9	2

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Fish									
Moxostoma sp. (Redhorse Sucker)	3	.8	2	2	.8	1	1	.9	1
Micropterus dolomieui (Smallmouth Bass)	5	1.4	2	2	.8	1	3	2.8	1
Micropterus salmoides (Largemouth Bass)	7	2.0	2	3	1.2	1	4	3.8	1
Reptile									
Emys blandingi (Blandings Turtle)	15	48.3	2	12	52.1	1	3	37.5	1
Chrysemys picta (Painted Turtle)	14	45.1	3	11	47.8	2	3	37.5	1
Graptemys sp. (Map Turtle)	1	3.2	1				1	12.5	1

Table 42. Continued

Species	SITE TOTAL N of Bones	SITE TOTAL % of Class	SITE TOTAL Min. N of Ind.	EASTERN AREA N of Bones	EASTERN AREA % of Class	EASTERN AREA Min. N of Ind.	WESTERN AREA N of Bones	WESTERN AREA % of Class	WESTERN AREA Min. N of Ind.
Amphibian									
Rana sp. (Frog)	1	100.0	1				1	100.0	1
Mollusc									
Crassostrea virginica (Oyster)	1	100.0	1				1	100.0	1
Total number Identified bones	1,095			765			330		

Table 43. Total Meat Provided by Animal Groups by Area
(Source: Miller 1977)

	Total Site		Eastern Area		Western Area	
	Meat (lbs.)	% of Total	Meat (lbs.)	% of Total	Meat (lbs.)	% of Total
Domestic Mammals	2355.00	60.91	1755.00	60.59	600.00	61.85
Domestic Birds	13.44	.34	8.96	.30	4.48	.46
Total Domestic	2368.44	61.25	1763.96	60.89	604.48	62.31
Wild Mammals	897.1	23.20	747.3	25.81	149.80	15.44
Wild Birds	79.00	2.04	53.35	1.84	25.65	2.64
Fish	519.00	13.42	330.30	11.40	188.70	19.45
Turtle	2.70	.07	1.30	.04	1.40	.14
Total Wild	1497.80	38.73	1132.25	39.09	365.55	37.67
Total Meat	3866.24	99.98	2896.21	99.98	970.03	99.98

domestic animals, but differences appeared in the proportions of wild mammals and fish. Fish seemed to become increasingly important over time, as the west bank assemblage contained a greater proportion of fish remains (Table 43). This observation had particular significance to Miller, since the reliance on fish was even greater than either the French or British components at Fort Michilimackinac, analyzed by Cleland (1970). Miller's analysis suggested that a greater diversity of subsistence activities was practiced by the civilian inhabitants at Filbert, and that perhaps the Michilimackinac data represented a more specialized set of activities, practiced by a limited segment of the population.

Of additional interest were Miller's observations regarding the variation in presence and absence of selected body parts among certain species. Swine were represented by virtually all elements, while the cattle bones present were generally from low quality cuts such as skull and cervical vertebrae, metapodials and hoof elements. Though Miller was unaware of the documentary evidence at the time, this situation was perfectly consistent with Dousman's series of annual contracts to provide fresh beef for the garrison at Fort Mackinac, and Miller correctly hypothesized that beef was being sold.

REFERENCES CITED

REFERENCES CITED

Banister, Judith (editor)
1970 English silver hall marks. Wallace-Homestead, Des Moines, Iowa.

Barbeau, Marius
1945 The House that Mac built. The Beaver. December:10-13.

Bayfield, H.W.
1822 Lake Huron. Sheet 1. Surveyed by H.W. Bayfield, Royal Navy.

Binford, Lewis R.
1962 A New method of calculating dates from kaolin pipe stem samples. Newsletter of the Southeastern Archaeological Conference 9 (1):19-21.

1972 The "Binford" pipestem formula: a return from the grave. The Conference on Historic Site Archaeology Papers 6 (2): 230-253.

Birk, Douglas A.
1975 Recent underwater recoveries at Fort Charlotte, Grand Portage National Monument, Minnesota. International Journal of Nautical Archaeology and Underwater Exploration 4 (1):73-84.

Brehm, Diedrick
1886 The Haldimand papers. Letters of Haldimand, Brehm, and Sinclair. Michigan Pioneer Collections 9:534.

Buck, James S.
1890 Pioneer history of Milwaukee. Swain & Tate. Milwaukee, Wisconsin.

Campbell, J. Duncan
1965 Military buttons: long-lost heralds of Fort Mackinac's past. Mackinac History 1 (7).

Campbell, J. Duncan, and E.M. Howell
1963 American military insignia, 1800-1851. Museum of History and Technology, United States National Museum, Smithsonian Institution, Bulletin 235.

Campbell, Robert et al.
1888 The Haldimand Papers: pertaining to the year 1783. Michigan Pioneer and Historical Collections 11:319-619.

Carter, Clarence Edwin (compiler)

1934 Territorial papers of the United States. Northwest Territory. Volume 3. Government Printing Office, Washington, D.C.

1942 Territorial papers of the United States. Michigan Territory. Volume 10. Government Printing Office, Washington, D.C.

1943 Territorial papers of the United States. Michigan Territory. Volume 11. Government Printing Office, Washington, D.C.

1945 Territorial papers of the United States. Michigan Territory. Volume 12. Government Printing Office, Washington, D.C.

Chance, David H., and Jennifer V. Chance

1974 Exploratory excavations at Spalding Mission, 1973. University of Idaho Anthropological Research Manuscript Series 14.

Cheboygan County (Michigan) Register of Deeds

1811 Patent, from United States to the legal representatives of Robert Campbell, deceased. Cheboygan, Michigan. Liber B:147.

1819 Warranty deed, from John Campbell, his wife Elizabeth, Pierre Pyant and Mary, his wife, and James Stevens, legal representatives of Robert Campbell, deceased, to Michael Dousman, Mackinac Island. Cheboygan, Michigan. Liber 52:544.

1856 Warranty deed, executors of Michael Dousman, deceased, to William W. Wendell. Cheboygan, Michigan. Liber 52:549.

1902 Warranty deed, Thomas Quinlan and wife to Petoskey Mackinac Lime Company. Cheboygan, Michigan. Liber 24:374.

1912 Lease, Petoskey Mackinac Line Company, to Willis Y. Durrell, Cincinnati. Cheboygan, Michigan. Liber 52:561.

1916 Affadavit, Angeline Bennett. Cheboygan, Michigan. Liber 64:441.

Clarke, David L.

1968 Analytical archaeology. Methuen, London.

Cleland, Charles E.

1970 Comparison of the faunal remains from French and British refuse pits at Fort Michilimackinac: a study in changing subsistence patterns. Canadian Historic Sites: Occasional Papers in Archaeology and History 3:7-23.

1972 The Mathews site (20CL61), Clinton County, Michigan. Michigan Archaeologist 18 (4):175-208.

Doty, James Duane

1854 Doty to John J. Astor, August 22. J.D. Doty Papers, State Historical Society of Wisconsin. Original in Baker Library, Harvard University.

1895 Official journal, 1820- Of an expedition with Cass and Schoolcraft, to Lake Superior and the sources of the Mississippi. Wisconsin Historical Collections 13:163-219.

Dousman, John, and George Mitchell

1820 Construction contract with George Boyd, Indian Agent at Mackinac, November 29. Green Bay and Prairie du Chien Papers, Indian Affairs 72:Item 23.

Dousman, Michael

1815 Dousman to Sir G. Drummond, with supporting affadavits, August 8. Public Archives of Canada, Record Group 8, Volume 189.

1819a Dousman to John Lawe, Green Bay, June 11. John Lawe Papers, Chicago Historical Society.

1819b Dousman to Lewis Cass, Territorial Governor, October 30. Michigan Pioneer and Historical Collections of 1908 36: 416-419.

1819c Bill to Indian Department, Mackinac. Wisconsin Manuscripts C, Green Bay and Prairie du Chien Papers, Indian Affairs 72:13. State Historical Society of Wisconsin, Madison.

1821 Bill to Indian Department, Mackinac. Wisconsin Manusripts C, Green Bay and Priarie du Chien Papers, Indian Affairs 72:24. State Historical Society of Wisconsin, Madison.

1822 Dousman to John Lawe, Green Bay, November 20. John Lawe Papers, Chicago Historical Society.

1826 Dousman to John Lawe, Green Bay, June 12. John Lawe Papers, Chicago Historical Society.

1831 Dousman to John Lawe, Green Bay, August 25. John Lawe Papers, Chicago Historical Society.

1841 Dousman to William Woodbridge, November 13, 1841. William Woodbridge Papers, Burton Historical Collection, Detroit Public Library.

1843 Dousman to Hercules L. Dousman, May 7. Hercules L. Dousman Papers, Minnesota Historical Society.

1844 Dousman to Hercules L. Dousman, July 13. Hercules L. Dousman Papers, State Historical Society of Wisconsin.

1847a Dousman to Hercules L. Dousman, March 23. Hercules L. Dousman Papers, State Historical Society of Wisconsin.

1847b Dousman to Hercules L. Dousman, August 12. Hercules L. Dousman Papers, State Historical Society of Wisconsin.

1848a Last will and testament. Copy in the Milwaukee County Historical Society.

1848b Dousman to Hercules L. Dousman, May 29. Hercules L. Dousman Papers, Minnesota Historical Society.

1849 Dousman to Hercules L. Dousman, November 26. Hercules L. Dousman Papers, State Historical Society of Wisconsin.

Dousman, Talbot C.

1843 T.C. Dousman to Hercules L. Dousman, April 27. Hercules L. Dousman Papers, Minnesota Historical Society.

1844 T.C. Dousman to Hercules L. Dousman, February 18. Hercules L. Dousman Papers, Minnesota Historical Society.

Doyle, William

1887 Copies of papers on file in the Dominin Archives at Ottawa, Canada: Pertaining to the year 1793. Michigan Pioneer and Historical Collections 12:48-49.

1893 Copies of papers on file in the Canadian Archives at Ottawa. Michigan Pioneer and Historical Collections 23:381.

Drucker, Leslie

1981 Socioeconomic patterning at an undocumented late eighteenth century lowcounty site: Spiers Landing, South Carolina. Historical Archaeology 15 (2):58-68.

Dunnigan, Brian Leigh

1974 Personal communication.

1975 Milestones of the past: military buttons and insignia from Mackinac. Mackinac History 2 (3).

Durand, P.
1886 The Haldimand Papers: pertaining to the year 1779. Michigan Pioneer and Historical Collections 10:366.

Ellis, A.G.
1834 Surveys, of cessions by the Chippewas, near Michilimackinac, made at the Treaty of Greenville, in the year 1795. The Papers of Henry Rowe Schoolcraft, 1782-1878. Library of Congress, Washington, D.C.

Ferguson, Leland
1975 Archaeology at Scott's Lake, exploratory research, 1972, 1973. Institute of Archaeology and Anthropology, University of South Carolina, Research Manuscript Series 68.

1978 Looking for the "Afro" in Colono-Indian pottery. The Conference on Historic Sites Archaeology Papers 12:68-86

Forsman, Michael
1979 Artifact pattern recognition and comparison. Pattern and meaning: an idea leaflet of the Conference on Historic Site Archaeology 1 (3).

Forsman, Michael, and Joseph G. Gallo
1979 Approaches to fur trade archaeology. In Archaeology in Alberta, compiled by J.M. Hillerud. Archaeological Survey of Alberta, Occasional Paper 14:159-192.

Garrow, Patrick H.
1981 Investigations of Yaughan and Curiboo Plantations. Paper presented at the annual meeting of the Society for Historical Archaeology, January 1981. New Orleans, Louisiana.

Garrow, Patrick H., editor
1982 Archaeological investigations on the Washington, D.C. Civic Center site. Department of Housing and Community Development, Government of the District of Columbia, Washington, D.C.

Greeley, Aaron
1810 Survey of the Island of Michilimackinac (Mackinac) in August 1810...survey of the Island of Bois Blanc performed September 10th, 11th, & 12th, 1810...(and) survey of a tract on the main (land) including the old Fort Michilimackinac...Manuscript map, National Archives, Record Group 49, Michigan Number 10.

Grosscup, Gordon L., and George L. Miller
1969 Excavations at Walker Tavern, Cambridge State Historical Park, 1968. Ms. on file Michigan History Division, Department of State.

Gruet, James
1785 No. 1 register of the Post of Michilimackinac. Register of Deeds, Mackinac County, St. Ignace, Michigan.

Hamilton, T.M.
1968 Early Indian trade guns: 1625-1775. Contributions of the Museum of the Great Plains 3.

Hanson, Charles E.
1970 The Northwest gun. Nebraska State Historical Society Publications in Anthropology 2 (reprint of the 1955 edition).

Hanson, Lee H. Jr.
1971 Kaolin pipe stems---boring in on a fallacy. Conference on Historic Sites Archaeology Papers 4 (1):2-15.

Harrington, Jean C.
1955 Dating stem fragments of seventeenth and eighteenth century clay pipes. Archaeological Society of Virginia Quarterly Bulletin 9 (1).

Heighton, Robert F., and Kathleen A. Deagan
1972 A New formula for dating kaolin pipestems. Conference on Historic Site Archaeology Papers 6 (2):220-229.

Holman, Margaret
1977 Personal communication.

Holton, Edward D.
1906 Commercial history of Milwaukee. Wisconsin Historical Collections 4:253-289.

Irwin, Matthew
1876 Green Bay fur trade. Wisconsin Historical Collections 7:277-278.

Jones, Olive
1971 Glass bottle push-ups and pontil marks. Historical Archaeology 5:62-73.

Kappler, Charles J.
1972 Indian treaties 1778-1883. Interland, New York.

Kidd, K.E., and M.A. Kidd
1870 A Classification system for glass beads for the use of field archaeologists. Canadian Historic Sites, Occasional Papers in Archaeology and History 1:46-89.

King, J.P.
1843 King to Lt. J.W. Phelps, Sault Ste. Marie, January 5. Michael Dousman Papers, 1806-1852, Burton Historical Collection, Detroit Public Library.

Kearney, Lieutenant Colonel James, and Captain J.N. Macomb
1854 Straits of Mackinac. State Historical Society of Wisconsin, GX9088, M15, 1854, S.

LaRonde, John T. de
1908 Personal narrative. Wisconsin Historical Collections 7:345-365.

Lees, William, and Kathryn Kimery-Lees
1979 The Function of Colono-Indian ceramics: insights from Limerick Plantation, South Carolina. Historical Archaeology 13:1-13.

Lewis, Kenneth
1976 Camden: a frontier town in eighteenth century South Carolina. Institute of Archaeology and Anthropology, University of South Carolina Anthropological Studies 2.

Lockwood, James
1903 Early times and events in Wisconsin. Wisconsin Historical Collections 2:98-196.

Lowrie, Walter (editor)
1832a American state papers. Public lands 1:408-409. Gales and Seaton, Washington, D.C.

1832b American state papers. Public lands 5:222-223. Gales and Seaton, Washington, D.C.

Mackinac Impost Book
1802-1850 Manuscript register, port of Michilimackinac, L. Duncan, Collector. Michigan Historical Collections, Bentley Historical Library, Ann Arbor.

Macomb, Captain J.N., Lieutenant W.F. Reynolds, and J.A. Potter
1852 Round Island and Island of Mackinac. Copy in collection of the author.

Mainfort, Robert C.
1979 Indian social dynamics in the period of European contact. Publications of the Museum, Michigan State University, Anthropological Series 1 (4).

Martin, Patrick E.
1973 Preliminary report on excavations at the Filbert Site, 20CN8, Cheboygan County, Michigan. Ms. on file, Mackinac Island State Park Commission.

1974 Archaeological investigations of the Mill Creek Site (Filbert-20CN8), 1974. Ms. on file, Mackinac Island State Park Commission.

1975 Archaeological investigations of the Mill Creek Site (Filbert-20CN8), 1975. Ms. on file, Mackinac Island State Park Commission.

1977 An Inquiry into the locations and characteristics of Jacob Bright's trading house and William Montgomery's tavern. Arkansas Archaeological Survey Research Series 11.

Mathews, R.
1886 The Haldimand Papers: pertaining to the year 1781. Michigan Pioneer Collections 10:488.

Maxwell, Moreau S., and Lewis R. Binford
1961 Excavation at Fort Michilimackinac, Mackinaw City, Michigan, 1959 season. Publications of the Museum, Michigan State University, Cultural Series 1 (1).

Michilimackinac County
1820 Circuit Court records. Descriptions of brands for cattle as used by Michael Dousman Esquire. Record Group 71-116, Lot Number 1, B1, F1, State Archives of Michigan.

1823 Tax List. Record Group 71-116, B2, F13. State Archives of Michigan.

1824 List of persons, lands, chattles, effects, wild land and estates ratable in the year One Thousand Eight Hundred and Twenty Four in the County of Michilimackinac. Record Group 71-116, B2, F13. State Archives of Michigan.

1826 Tax List. Record Group 71-116, B2, F13. State Archives of Michigan.

1828 Circuit Court Records. Record Group 71-116, Lot 1, B1, F11. State Archives of Michigan.

1844 Circuit Court. Bond and testimony. Michael Dousman Papers. Burton Historical Collection, Detroit Public Library.

Miller, George L.
1980 Classification and economic scaling of nineteenth century ceramics. Historical Archaeology 14:1-41.

Miller, Henry M.
1977 Faunal remains, foodways, and the frontier: an analysis of subsistence practices at the Filbert site (20CN8). Paper presented to the annual meeting, Society for Historical Archaeology, Ottawa, Canada.

Moir, Randall
1983 Windows to our past: a chronological scheme for the thickness of pane fragments. Paper presented to the annual meeting, Society for Historical Archaeology, Denver.

Morison, Charles
1910 The Fur trade on the Upper Lakes. Wisconsin Historical Collections. 19:234-374.

Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner, and D.H. Bent
1975 Statistical package for the social sciences. McGraw-Hill, New York.

Noel Hume, Ivor
1969 A Guide to artifacts of colonial America. Knopf, New York.

Oliver, David D.
1862 Field notes of a survey of the Duncan, Alpena and AuSable River State Road. Copy in the collection of Ellis Olson, Cheboygan, Michigan.

H.R. Page & Co.
1884 The Traverse region, historical and descriptive, with illustrations of scenery and portraits and biographical sketches of some of its prominent men and pioneers. H.R. Page, Chicago.

Poole, Benjamin
1839 Survey of a road route from Saginaw to Mackinac M.T., executed by Lieut. Poole 3d. Arty. Photocopy in the collection of Ellis Olson, Cheboygan, Michigan.

Pratt, Alexander
1903 Reminiscences of Wisconsin. Wisconsin Historical Collection 1:27-145.

Prucha, Francis Paul
1967 Broadax and bayonet; the role of the United States Army in the development of the Northwest, 1815-1860. University of Nebraska, Lincoln.

Public Archives of Canada
1815 A Chart of the Straights of St. Mary's and Michilimackinac, containing the water communication between the great lakes of Superior, Huron and Michigan. Colonial Office Records, Q132.

Putnam, G.P.
1868 Mackinaw. Putnam's Magazine, 2 (n.s.). G.P. Putnam, New York.

Quimby, George I.
1966 Indian culture and European trade goods. University of Wisconsin, Madison.

Robertson, Daniel
1888 Haldimand Papers: pertaining to the year 1784. Michigan Pioneer and Historical Collections 11:420.

Roenke, Karl G.
1978 Flat glass: its use as a dating tool for nineteenth century archaeological sites in the Pacific Northwest and elsewhere. University of Idaho, Northwest Anthropological Research Notes, Memoir 4.

Sinclair, Patrick
1886a The Haldimand Papers. Letters of Haldimand, Brehm, and Sinclair. Michigan Pioneer and Historical Collections 9:532-533.

1886b The Haldimand Papers. Letters of Haldimand, Brehm, and Sinclair. Michigan Pioneer Collections 9:540.

1908 The British regime in Wisconsin. Wisconsin Historical Collections 18:432-434.

South, Stanley A.
1972 Evolution and horizon as revealed in ceramic analysis in historical archaeology. The Conference on Historic Site Archaeology Papers 6:71-116.

1974 Palmetto parapets. Institute of Archaeology and Anthropology, University of South Carolina, Anthropological Studies 1.

1977 Method and theory in historical archaeology. Academic Press, New York.

1978 Pattern recognition in historical archaeology. American Antiquity 43 (2):223-230.

Still, Bayrd
1948 Milwaukee, the history of a city. State Historical Society of Wisconsin, Madison.

St. Martin, Adhemar
1908 1725-1821: registry of marriages in the parish of Michilimackinac. Wisconsin Historical Collections 18:469-513.

1910 1695-1821: register of baptisms of the mission of St. Ignace de Michilimackinac. Wisconsin Historical Collections 19:1-148.

Tordoff, Jeffrey P.

1979 Some observations on the quantitative relations between Stanley South's artifact patterns and "primary de facto" refuse. Historical Archaeology 13:38-47.

U.S. Congress

1822 Executive Papers, Number 41, Seventeenth Congress, First Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1825 Executive Documents, Number 56, Eighteenth Congress, Second Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1827 Executive Papers, Number 131, Nineteenth Congress, Second Session, Volume 6. War Department Contracts. Government Printing Office, Washington, D.C.

1829 House Documents, Number 105, Twentieth Congress, Second Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1831 House Executive Documents, Number 73, Twenty-First Congress, Second Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1832 House Executive Documents, Number 89, Twenty-Second Congress, First Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1833 Executive Documents, Number 118, Twenty-Second Congress, Second Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1834 Executive Documents, Number 99, Twenty-Third Congress, Second Session, Volume 4. War Department Contracts. Government Printing Office, Washington, D.C.

1836 Executive Documents, Number 248, Twenty-Fourth Congress, First Session, Volume 6. War Department Contracts. Government Printing Office, Washington, D.C.

1842 House Documents, Number 34, Twenty-Seventh Congress, Second Session, Volume 2. War Department Contracts. Government Printing Office, Washington, D.C.

1843 House Documents, Number 68, Twenty-Seventh Congress, Third Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1844 House Documents, Number 42, Twenty-Eighth Congress, First Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1845 House Documents, Number 44, Twenty-Eighth Congress, Second Session, Volume 2. War Department Contracts. Government Printing Office, Washington, D.C.

1846 House Documents, Number 51, Twenty-Ninth Congress, First Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

1847 House Documents, Number 46, Twenty-Ninth Congress, Second Session, Volume 3. War Department Contracts. Government Printing Office, Washington, D.C.

U.S. Geological Survey
1974 Compilation of miscellaneous streamflow measurements in Michigan through September 1970. Water Information Series, Report 5.

Walker, Ian C.
1971 Nineteenth-century clay tobacco pipes in Canada. Ontario Archaeology 16:19-35.

Walker, John W.
1971 Excavations of the Arkansas Post Branch of the Bank of the State of Arkansas, Arkansas Post National Monument, Arkansas. Southeast Archaeology Center, National Park Service, U.S. Department of Interior, Government Printing Office, Washington, D.C.

Ware, W.H.
1876 Centennial history of Cheboygan County and village. Northern Tribune Printers, Cheboygan, Michigan.

Wentworth, Dennis L.
1979 Archaeological test excavations at Arryl House, Clermont, New York. Journal of Field Archaeology 6 (1):29-40.

Willey, Gordon R., and P. Phillips
1958 Method and theory in American archaeology. University of Chicago, Chicago.

Widder, Keith
1977 Personal communication.

Wise, Cara
1978 Excavations at Delaware's State House: a study in cultural patterning in eighteenth century Delaware. Unpublished M.A. thesis, Catholic University of America.

Witthoft, John
1966 A history of gunflints. Pennsylvania Archaeologist 36: 12-49.

Wood, Edwin O.
1918 Historic Mackinac. MacMillan, New York.

Woolworth, Alan R.
1975 Archaeological excavations at the Northwest Company's depot, Grand Portage, Minnesota, in 1970-71, by the Minnesota Historical Society. Ms. on file, Minnesota Historical Society.

Zar, Jerrold H.
1974 Biostatistical analysis. Prentice-Hall, Englewood Cliffs, New Jersey.