NEW SEVERN OR NIEU SAVANNE

NEW SEVERN OR NIEU SAVANNE: THE IDENTIFICATION OF AN EARLY HUDSON BAY FUR TRADE POST

By

DAVID JOHN CHRISTIANSON, B.A.

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AUTHOR: David John Christianson (Saint Mary's University)

SUPERVISOR: Dr. W.C. Noble

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ABSTRACT

This thesis examines problems inherent in identifying fur trade post archaeological sites dating to the early Hudson Bay trade period (1668-1713). Research focuses on a particular trade post site (GlIw-1) located near Fort Severn, Ontario. A re-evaluation of the area's early history indicated that New Severn (1685-1690) and Nieu Savanne (1700-1704) were the most probable candidates for the identity of this site.

Archaeological and historical data were used to identify the GlIw-1 site as the former Hudson's Bay Company post New Severn. Evidence for this conclusion included artifact and settlement analysis of the New Severn site and historical accounts from archival and secondary sources.

The presence of French material culture items within the New Severn assemblage in conjunction with historical evidence suggesting a dependence on French-Canadian fur trade expertise by the neophyte Hudson's Bay Company led to the advancement of a research hypothesis. It states that French and English fur trade posts extant on Hudson Bay between 1668-1713 should be characterized by strongly similar material culture remains.

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CHAPTER 1

INTRODUCTION

The early fur trade period on Hudson Bay, 1668-1713, was characterized by intense rivalry between English and French commercial interests. At stake was the rich sub-arctic fur trade previously controlled by the French through the Ottawa River and St. Lawrence River-Great Lakes transportation routes. The 1668 voyage to Hudson Bay by the vessel Nonsuch, and the subsequent incorporation of the Hudson's Bay Company in 1670, posed a serious threat to the continuation of French supremacy in the northern fur trade.

Competition resulting from these events led to the establishment of trade posts along the shores of Hudson Bay by both the Hudson's Bay Company, and its chief rival the Compagnie du Nord. This direct competition terminated with the signing of the Treaty of Utrecht in 1713.

Archaeological sites, or distinct site components, are traditionally identified by assigning ethnic affiliations to associated artifacts. This thesis argues that such identification procedures are erroneous when applied to fur trade post sites on Hudson Bay that date to the 1668-1713 period.

It is hypothesized that essentially the same material

culture items were used by English and French fur trade interests during this period. This similarity in associated material culture resulted partly from general European trade patterns extant at the time. A more direct factor, suggested within this thesis, was the purposeful adoption of French trade items by the neophyte Hudson's Bay Company.

Specifically, this thesis uses archaeological and historical evidence to: 1) identify a single occupation fur trade post site (GlIw-1) located near Fort Severn, Ontario; 2) present an analysis of the material culture items recovered through excavating a portion of this site, and 3) advance the hypothesis that English and French trading interests utilized a similar material culture during the 1668-1713 fur trade period on Hudson Bay.

Hudson Bay History (1668-1713)

The early European activities on Hudson Bay were principally feats of exploration accomplished by English navigators. Henry Hudson visited the area in 1610-11, Sir Thomas Button in 1612-13, and Thomas James and Luke Foxe in 1630 (Rich 1958:6-7). Foxe even wintered on Charlton Island in 1630-31. However, no permanent settlements were established during these initial years of exploration.

The subsequent events in Hudson Bay history were

directly linked to the fur trade. In the 1660's Pierre Espirit Radisson and Medart Chouart, Sieur des Groseillers sought English help in exploiting the northern fur trade (Rich 1958:28-34). Feeling cheated by rigid tax regulations in New France, the two famous entrepreneurs convinced English interests of the Hudson Bay fur trade potential.

In 1668 two English ships, the Nonsuch and the Eaglet, sailed for the Bay on a test voyage. Groseillers aboard the Nonsuch reached James Bay, but Radisson and the Eaglet were turned back by ice. Groseillers and Captain Zachariah Gillam initiated trade with Indians at the mouth of the Rupert River (Rich 1958:62). Their successful return to England the following spring laden with furs illustrated the feasibility of a maritime supplied trade organization.

On May 2, 1670 the Hudson's Bay Company was incorporated in London with a charter from Charles II granting exclusive trade rights to the vast area bounded by rivers flowing into Hudson Bay. Also in that year, two ships were outfitted and ordered to establish a permanent settlement. Aboard were Radisson, Groseillers, Gillam, and the first overseas governor of the Hudson's Bay Company, Charles Bayly (Rich 1958:66-67). Charles Fort at the mouth of the Rupert River was expanded and the company personnel wintered there. However, all returned to England the

following spring.

The next fifteen years saw continued expansion of Hudson's Bay Company posts on James Bay, or Bottom of the Bay, and to a lesser extent on Hudson Bay. This expansion led to the establishment of Fort Moose in 1673 and Fort Albany in 1679 (Rich 1958:81).

Port Nelson was established by the Hudson's Bay Company, with some difficulty, at the mouth of the Nelson River in 1682 (Rich 1958:133-143). Radisson and Groseillers had by this time changed their allegiance back to France and helped establish a post near the mouth of the Hays River for the newly formed Compagnie du Nord in the same year (Woodcock 1970:44-45). Matters were further complicated by an independent party of New England traders under Benjamin Gillam who had initiated trade near the mouth of the Nelson River above the position of the Hudson's Bay Company personnel (Woodcock 1970:44).

In the spring of 1683, Radisson and his men captured both English posts despite being outnumbered and having lost their vessel during spring break-up (Rich 1958:133-143). A cold reception from officials in Quebec upon his return with a captured vessel laden with furs caused him once again to revert to the English side (Woodcock 1970:47). This action severered his long standing friendship with Groseillers

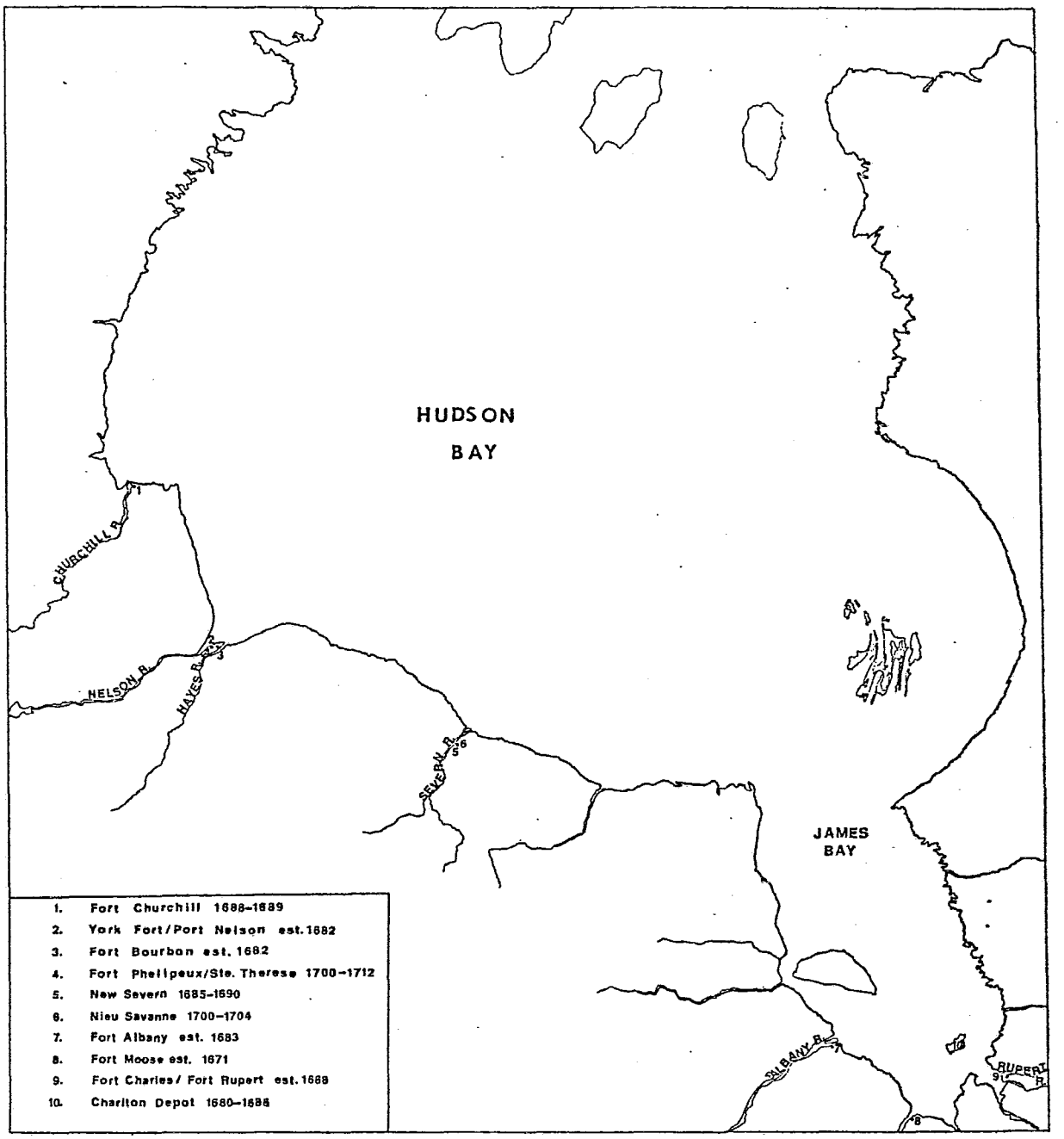

FIG. 1. Hudson Bay trade posts 1668–1713.

who remained loyal to France.

The Hudson's Bay Company thus managed to retain control of Port Nelson and the posts at the Bottom of the Bay. In 1685 they established the New Severn post near the mouth of the Severn River (Rich 1958:228), and in 1688 the first post at the mouth of the Churchill River was built (Rich 1958:235).

The French were not idle during this period of English expansion on Hudson Bay. As early as 1671, and again in 1674, the Jesuit priest Father Albanel had proven the feasibility of overland travel from Quebec to James Bay (Rich 1958:74,118). This difficult journey was repeated by Louis Jolliet in 1679 via the Saguenay River, Lake Mistassini, and the Marten and Rupert Rivers (Rich 1958:119). It was the James Bay posts, then, that were most vulnerable to French attack.

This fact was dramatically illustrated in 1686 when Pierre de Troyes led the famous overland expedition from Montreal in an attack of these posts (Kenyon and Turnbull 1971). Aided by thirty marines and seventy seasoned men, de Troyes dramatically captured all three Hudson's Bay Company posts (For Charles, Fort Moose, and Fort Albany) then situated at the Bottom of the Bay.

In 1686, only Port Nelson and the New Severn post

remained under English control. This situation was maintained until 1690 when Pierre le Moyne d'Iberville, formerly with the de Troyes expedition, failed in his attempt to capture Port Nelson. He then sailed to attack the smaller New Severn post only to find it destroyed by its inhabitants who had fled to Port Nelson after having been forewarned of an impending attack (Crouse 1954:65).

In 1693 James Knight's expedition recaptured the posts at the Bottom of the Bay for the Hudson's Bay Company (Rich 1958:303). This stategic gain was shortlived for in the following year d'Iberville captured York Fort (Woodcock 1970:54), the new English post in the Nelson River area. It was recaptured by the English in 1696, only to be lost to d'Iberville again in 1697 (Woodcock 1970:54).

The situation following d'Iberville's campaign in 1697 remained the status quo until 1713. At that time, the Hudson's Bay Company once again regained control of all posts on Hudson and James Bays through a provision of the Treaty of Utrecht.

Previous Research

Prior research on the early Hudson Bay fur trade has been principally concerned with historical inquiry. This is understandable due to the copious primary source material

contained in the Hudson's Bay Company archives. The result is that a number of important historical syntheses have included portions dealing with the early events of the Hudson Bay fur trade (eg. Innis 1930; Rich 1958).

Pertinent archaeological research on the other hand has lagged far behind. The notable exception is Walter Kenyon's multi-year Fort Albany research. Working in conjunction with historian J.R. Turnbull (Kenyon and Turnbull 1971), Kenyon uses archaeological and historical data to elucidate the events connected with de Troyes attack on Fort Albany in 1686. Unfortunately, a formal archaeological analysis of Fort Albany has yet to appear.

The site near Fort Severn, Ontario that is the focus of this thesis was previously surveyed by John Pollock and Donald MacLeod (1977). They briefly visited the site in August, 1975 in connection with a larger survey project entailing the examination of a number of northern Ontario fur trade post archaeological sites.

Designated GlIw-1 in the Borden system of Canadian site enumeration, the Fort Severn site was composed of two distinct, spatially separated features. Labelled A and B by Pollock and MacLeod (1977:80), these features respectively contained visible architectural evidence attributable to portions of a palisade, as well as a wooden beam presumably

associated with a building. The 1977 authors collected an artifact sample from back dirt deposited by previous looters. Based on this limited evidence, the authors were unable to make a positive site identification. However, they did suggest that the site might represent the remains of separate French and English trade activities (Pollock and MacLeod 1977:89).

The present author's subsequent archaeological field-work in the summer of 1978, additonal historical research, and the distance separating the two features (approximately 50 meters) described by Pollock and MacLeod indicates that two separate sites are actually represented. As such, they have been assigned different Borden designations. The GlIw-1 site in this thesis refers to Pollock and MacLeod's Feature A.

Thesis Summary

The complexity of events pertaining to the early Hudson Bay fur trade is manifest in the historical sketch presented for the 1668-1713 period. Multiple occupancy of trading posts by French and English personnel did occur, and therefore can be expected to be reflected in the archaeological record of architecture and artifacts. However, as will be seen, discerning ethnic affiliations of material culture

items for this period does not necessarily aid in identifying site occupations. It is contended in this thesis that the GlIw-1 site dates to the 1668-1713 period and reflects a single European occupation.

Chapter 2 of the thesis examines the early fur trade history in the area around the mouth of the Severn River during the late seventeenth and early eighteenth centuries. Published, archival, and cartographic sources are used to interpret a consistent sequence of historical events. This chapter concludes with the acknowledgement of two fur trade posts that are the most probable candidates for the identity of the GlIw-1 site.

Chapter 3 presents settlement pattern aspects of the GlIw-1 site. Architectural details and site features are described.

Chapter 4 analyses artifacts recovered during the excavation of the GlIw-1 site. A descriptive system of artifact patterning from Stanley South (1977) is used for this purpose.

Data from preceeding chapters are focused on the problem of identifying the GlIw-1 site in chapter 5. The ethnic and temporal affiliations of the site are determined using archaeological and historical lines of evidence, and former site activities are discussed.

Finally, Chapter 6 presents conclusions to the specific research objectives of this thesis.

CHAPTER 2

FORT SEVERN AREA HISTORY (1673-1713)

The history of the fur trade on Hudson Bay has received considerable attention. The importance of the fur trade to the development of Canada and the unique completeness of the Hudson's Bay Company records led to important historical syntheses in the initial decades of the twentieth century (eg. Innis 1930, Voorhis 1930). Subsequent authors have edited original historical documents pertaining to the Hudson Bay fur trade (eg. Rich 1948, Tyrrell 1931), and have written additional interpretative works (eg. Crouse 1954, Rich 1958). Yet, the historical sequence of events associated with particular locales on Hudson Bay have sometimes been confused or misinterpreted.

This chapter examines the, at times, contradictory evidence pertaining to events at the mouth of the Severn River between 1673-1713. Emphasis is placed on determining the correct chronological sequence of English and French interaction in the area. Of particular importance is the identification and dating of New Severn and Nieu Savanne. These two fur trade posts are the most probable candidates for the identity of the GlIw-1 site.

Events Prior to European Settlement

The Severn River was located by Captains Thomas James and Luke Foxe in 1631 (Pollock and MacLeod 1977:61). It does not appear to have further interested Europeans until shortly after the incorporation of the Hudson's Bay Company in 1670. In 1613 Samuel Cole was instructed by the Hudson's Bay Company to relocate the Severn River but reported that he was unable to do so (Rich 1948:361).

The following year Charles Bayly, the first overseas Governor of the Hudson's Bay Company, described Indians living at the mouth of the Severn River who were starving and had no furs to trade (Tyrrell 1931:392). It appears that Bayly did not visit the Severn River but based his account on the report of a Severn River Indian navigation pilot.

From Bayly's description it is reasonable to infer that Indians, probably Swampy Cree, were located at the mouth of the Severn River prior to the local inception of the fur trade. Residency was probably seasonal and as MacFie (1970) suggests oriented towards the hunting of waterfowl.

The next known reference to activity on the Severn River has led to some confusion. Louis Jolliet made an overland journey from Quebec to James Bay in 1679

(Rich 1958:119). He was received by Charles Bayly, the overseas Governor of the Hudson's Bay Company, who quite openly discussed the Company's activities on Hudson and James Bays (Rich 1958:119-120). Confusion arises, though, from the fact that although Jolliet only visited posts on James Bay in 1679, he included a Hudson's Bay Company post on the north bank of the Severn River on a map produced upon his return to Quebec (Burgess 1947:13). It appears that either he mistook future plans for accomplished fact, or was actually misled by an overzealous Bayly (Rich 1948: 361). There are no references in the Hudson's Bay Company documentary sources from the period suggesting that the Company had such a post by 1679.

By 1680, however, the Hudson's Bay Company was actively trying to establish a post on the Severn River. The following account is from a letter written to Governor John Nixon from the London Committee of the Hudson's Bay Company dated May 29, 1680 (Rich 1948:6).

> In the next place wee reccommend to your care the settling of Factories at Port Nelson and New Severn, and wee judge it to be of great moment to our security that it be suddenly put in execution. For we are informed there are designs already on foot of interloping.

The letter proceeds to identify the potential threat

of French development at the two locales. Nixon is further informed that Captain Draper, in command of the Company supply ship Albemarle, was directed to establish a post at New Severn (Rich 1948:6). Unfortunately, it is not known why Draper failed to carry out these orders for the Severn settlement.

Concern over the founding of a settlement at New Severn continued after Port Nelson was established in 1682. In 1683, the London Committee requested that John Bridgar build a post on the Severn River. In their letter to Bridgar dated May 29, 1683, the Committee stressed that Severn was the main objective of proposed French interlopement (Rich 1948:86).

Unfortunately, Bridgar had been captured during the French assault on Port Nelson the previous year, and the relief force to Port Nelson from London in 1683 found themselves too busy rebuilding the post to consider establishing a new post on the Severn River.

It is clear from the foregoing that the early attempts by the Hudson's Bay Company to establish a post on the Severn River reflected a firm belief in the area's potential for a viable trade. It is equally evident that they were concerned over the threat of French involvement at Severn.

New Severn Post 1685-1690

The next attempt by the Hudson's Bay Company finally brought results. In 1684 Governor John Abraham at Port Nelson received the by now familiar instructions to establish a post on the New Severn River. George Geyer was sent from London with supplies and building materials suitable for the task (Rich 1948:112); and in 1685 Geyer wrote the London Committee that the long sought after Severn post was an accomplished fact (Rich 1948:362). The new post was officially named Fort Churchill but commonly referred to as New Severn in the contemporary documents.

The primary documentation concerning early New Severn is sporadic; but it is known that a ship named the Abraham and Robert delivered supplies to New Severn in 1686 (Rich 1948:190). The resulting invoice of goods survives in the Hudson's Bay Company archives (PAC MG 20 357 A.24/1 fo. 41-44), and is reproduced here in Appendix 1. This ship was the only supply vessel from London to call directly at New Severn. From 1687 onwards supplies for New Severn were unloaded at Port Nelson for subsequent redistribution. A portion of a letter to Thomas Missenden, then Chief at New Severn, from the London Committee dated June 3, 1687, outlines this policy change (Rich 1948:241).

> We have this yeare consigned all our Cargoe to Yorke fort and Hays River from whence all Sorts of goods and provisions are to bee distributed to the Severall places and Factoryes as Occation requires.

The procedure may have resulted from concern over possible loss of vessels calling at the relatively unprotected New Severn post.

It is difficult to ascertain the actual physical structure of the New Severn post. Voorhis (1930:162) describes the fort as constructed "of logs with 4 bastions". However, Voorhis fails to provide a reference for this description so it is unreasonable to accept it as fact.

There are other textual indications that the post was fortified in come manner. On several occasions the London Committee requested that New Severn be strengthened. This concern became particularly acute following the loss of all the Hudson's Bay Company James Bay posts in the summer of 1686. Port Nelson and New Severn remained the Company's sole possessions on the Bay.

In the June 3, 1687 letter to Thomas Missenden from the London Committee it was stressed that he was to strenghten the defenses of New Severn (Rich 1948:241). Thomas Walsh replaced Missenden in 1688 as Chief at New Severn and the following passage from a letter to Governor Geyer at Port Nelson, dated June 2, 1688, illustrates the

principle concerns of the London Committee for Severn at this time: orders to increase the trade, and also to strengthen the fortifications (Rich 1957:8-9).

> ...and pray see that they want noe other useful hands at New Severn, that are able to promote the Trade as well as secure the place for wee expect a greater Trade from thence than wee have yett had, To which Wee Desire you to give him all the encouragement you can, and order what possible may be done to better fortifying of that place and that the men bee likewise kept there in Military Discipline.

Whatever strengthening of fortifications may have occurred, it did not protect the Hudson's Bay Company interests at New Severn. On August 15, 1690 (Rich 1957:116), d'Iberville sailed to attack the New Severn post after being repulsed at Port Nelson. Warned in advance of the impending attack by an Indian messenger, Walsh ordered the burning of New Severn to prevent its use by the French. This extra-ordinary action by Walsh was favourably viewed by the London Committee (Rich 1957:116). An employee serving under Walsh was even granted a gratuity for his participation in the act (PAC MG HBC 2 A.1/4 fo.8).

> Rich'd Liddiard his position being Read to the Board & ye Comittee considering his performings at New Severn in assisting Govern'r Walsh in burning of that factory were pleased to order him a gratuity of ten pounds for such his performing which the Secretary is to pay him...

Hiatus in European Residency

There is considerable confusion concerning activities at New Severn during the last decade of the seventeenth century. Voorhis (1930:162) states that the French constructed a fort on the right (north) bank of the Severn River in 1691. This fort was named Fort Ste. Therese or Neuve Savanne. The English, according to Voorhis, captured this post in 1693, and it was recaptured by the French in 1694. In 1701-02 the post was reconstructed on the south side of the river and held by the French until the Treaty of Utrecht granted control of the Hudson Bay trade to the English in 1713.

Pollock and MacLeod (1977:62,64,78) present a similar sequence of events and add that Fort Ste. Therese was also called Fort Phelipeaux. This post was supposedly sacked by starving Indians in 1712.

The principle error in both the Voorhis (1930) and Pollock and MacLeod (1977) chronologies is the placement of Fort Ste. Therese on the Severn River. This post, also called Fort Phelipeaux but not Neuve Savanne, was actually built by the French on the Ste. Therese (or Hays) River in 1700 or 1701.

Nicolas Jeremie who was resident at Fort Bourbon (Port Nelson) between 1697-1714, initially as second-in-

command and later as commander, provides crucial information concerning Fort Phelipeaux on the Ste. Therese River (Douglas and Wallace 1926:35).

> I shall now speak of Ste. Therese it will not take long to give the particulars. The river is not of great extent as its mouth where Fort Bourbon stands; it is not over half a league wide. In 1700 a fort called Fort Phelipeaux, was built at a place two leagues from the fort, on the south side, and also a large storeroom to serve as a retreat in case of a hostile attack.

In a later passage of his journal, Jeremie (Douglas and Wallace 1926:38-39) described an attack on a party of his men by starving Indians that culminated in the 1712 sacking of Fort Phelipeaux. It appears that activities associated with Fort Phelipeaux occurred on the Ste. Therese, or Hays, River and not on the Severn River.

The other possibility of French settlement on the Severn River between 1690-1700 is the Nieu Savanne post. Voorhis (1930:162) does not provide a refrence for his assertion that Nieu Savanne was in operation prior to 1700, and it has been noted previously that Voorhis confused events associated with Nieu Savanne and Fort Phelipeaux. Furthermore, there is no known period documentation pertaining to a pre-1700 Nieu Savanne.

The cartographic record does offer some evidence

that Nieu Savanne was in operation by 1697. A map dating from that year drawn by Depierre Rousselor illustrated a Fort Niansavanne on a river bearing the same name (Figure 2). However, a map dated October 23, 1699 drawn by a Monsieur Villebois contains no reference to a post on the Severn River, yet does include the Riviere Nieusavanne and four forts on Hudson and James Bays (Figure 3).

Faced with this conflicting cartographic evidence and lack of supporting documentation, it is most reasonable not to accept French activity on the Severn River at this time. A lack of similar evidence pertaining to Hudson's Bay Company activity suggests that the English were also absent from the Severn River area between 1690-1700.

Nieu Savanne 1700-1704

There is strong evidence to suggest that the French were established on the Severn River by 1701. In that year the following account appeared in the Minutes of a Council meeting of the Hudson's Bay Company held at Fort Albany (PAC MG 20 A.11/2 fo. 1-1d)

> Whereas the Company have sent so few hands from England this year, being ignorant of the French's new settlement of Seavern, and the nearness of those dangerous neighbours...

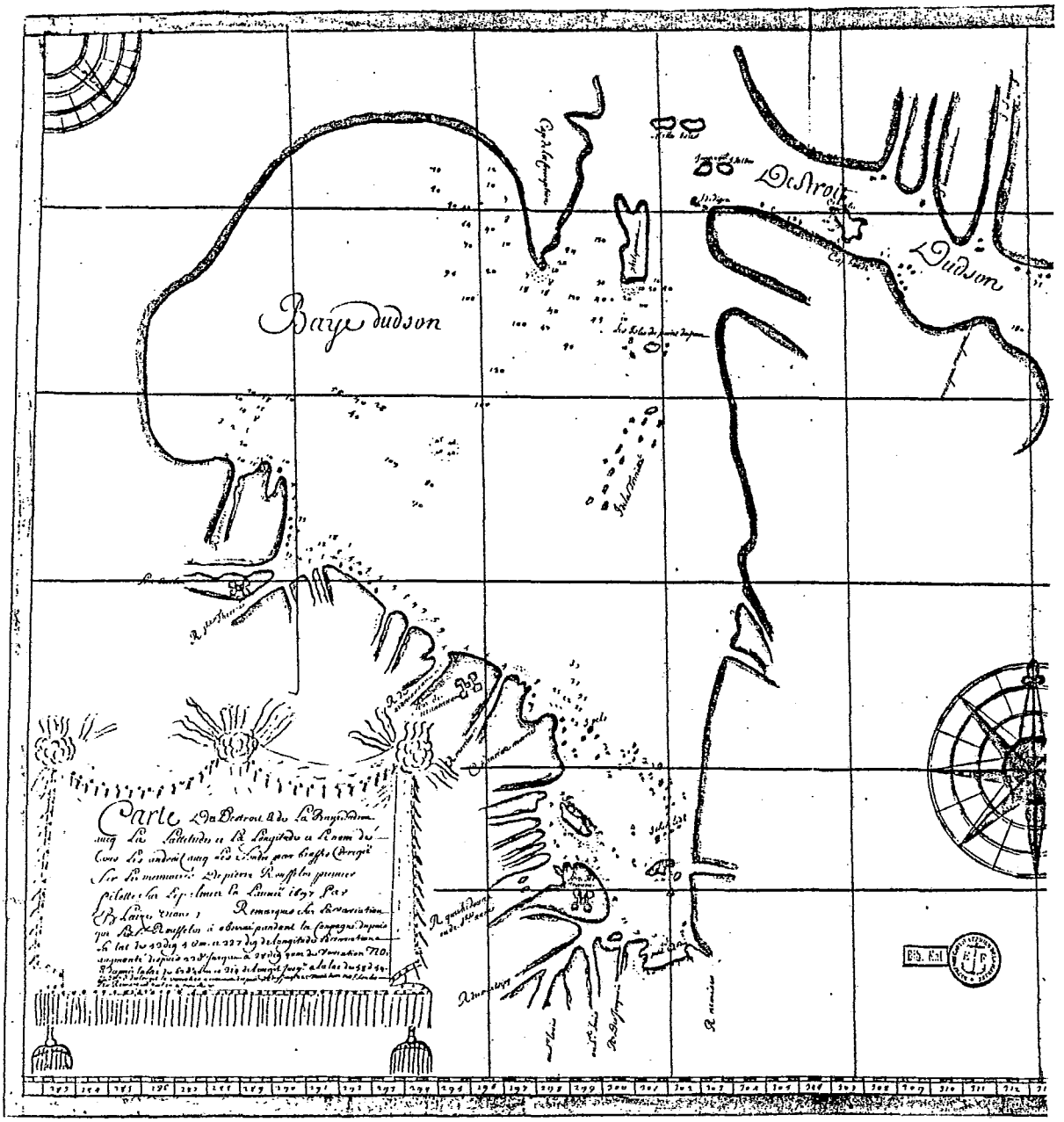

FIG. 2. Rousselor's 1697 map of forts on Hudson Bay (PAC NMC fo. 123-8-3).

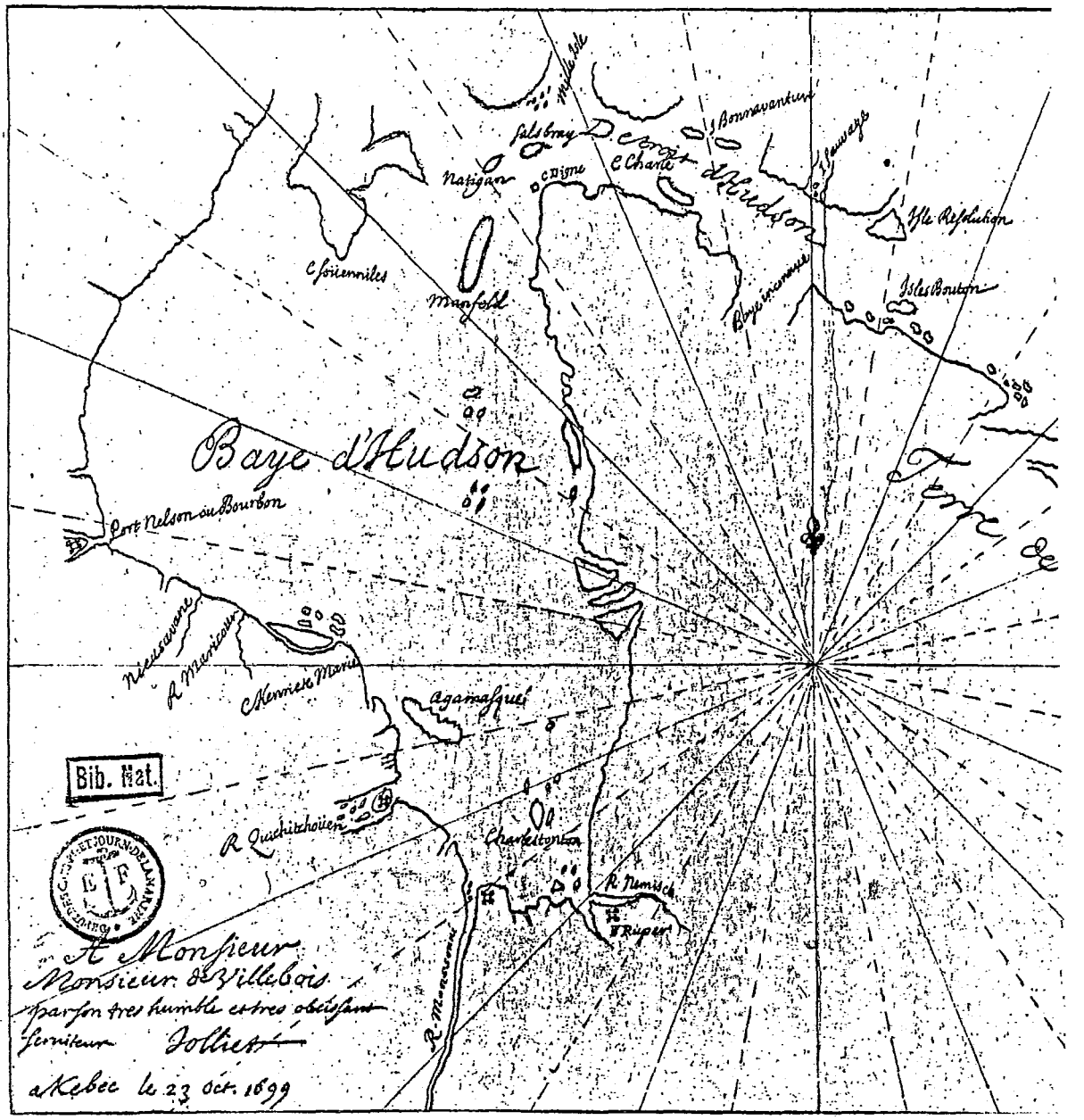

FIG. 3. Villebois's 1699 map of forts on Hudson Bay (PAC NMC fo. 123-8-5).

Henry Kelsey provides a further reference to the French post in a letter to the London Committee dated September 5, 1701 (Doughty and Martin 1929:100).

> ...& do not doubt but here may be a good trade next year if ye french setting at Severn this summer does not hinder it.

Jeremie (Douglas and Wallace 1926:36) states that the post was established in 1702 and only operated for two years because it was unprofitable. A further indication that the Nieu Savanne post was largely unsuccessful is found in a letter from James Bay to the London Committee in 1702 . Here it was stated that the French occupation at New Severn was only during the season of trade (Rich 1958: 379).

Cartographic evidence for a French post on the Severn River in the early years of the eighteenth century is clear and includes two maps of French origin. A map of unknown authorship dated 1700 (Figure 4) shows a Fort Nieu Savanne on the river of the same name also called the Riviere des Sainte Huiles. A further reference occurs on Del'Isle's 1703 map (Figure 5).

There are no descriptions of the physical construction of the Nieu Savanne post in the available documentary sources. It does appear, however, that the post was occupied

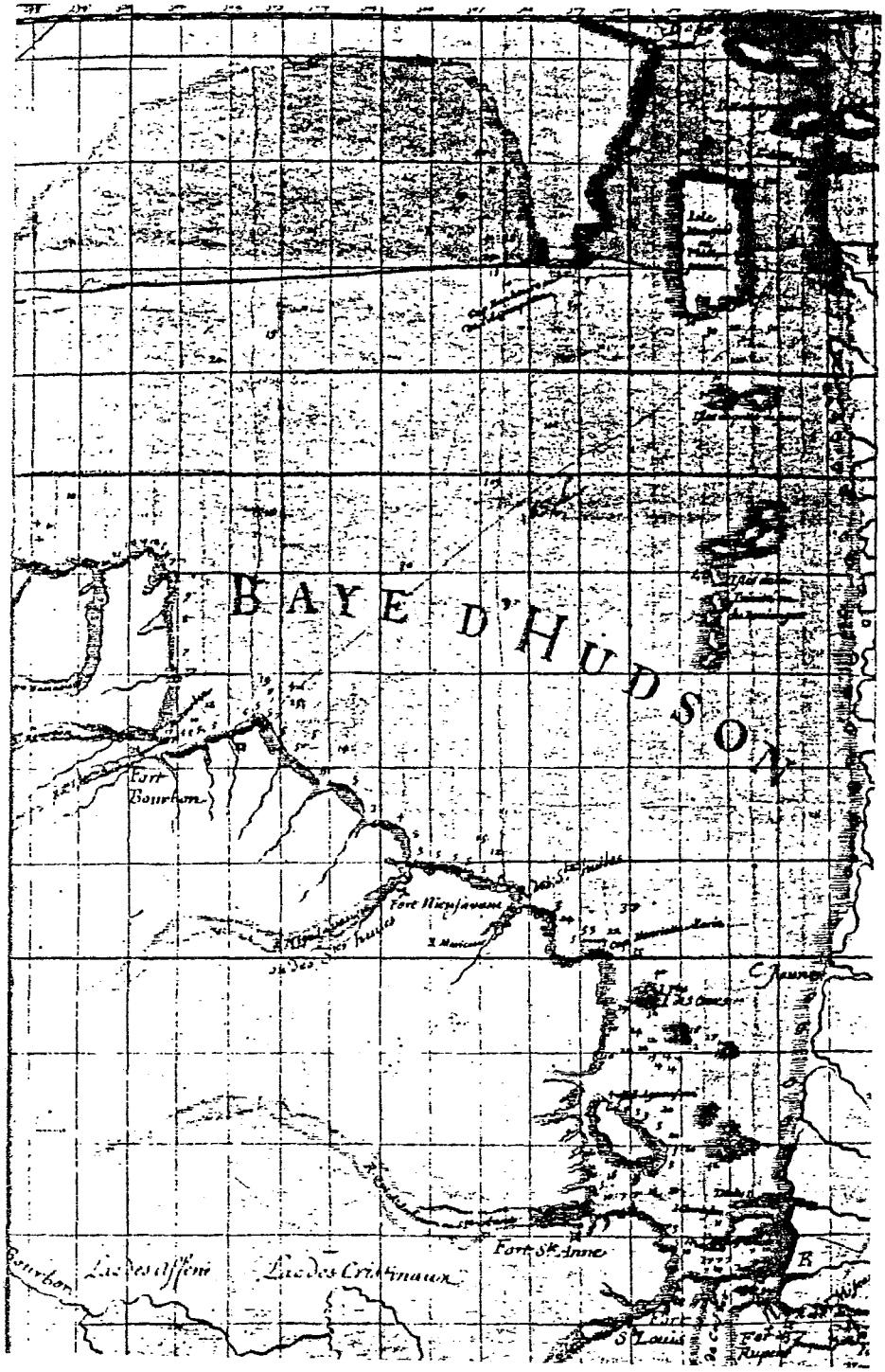

FIG. 4. Map of unknown authorship dated 1700 illustrating forts on Hudson Bay (PAC NMC 7296).

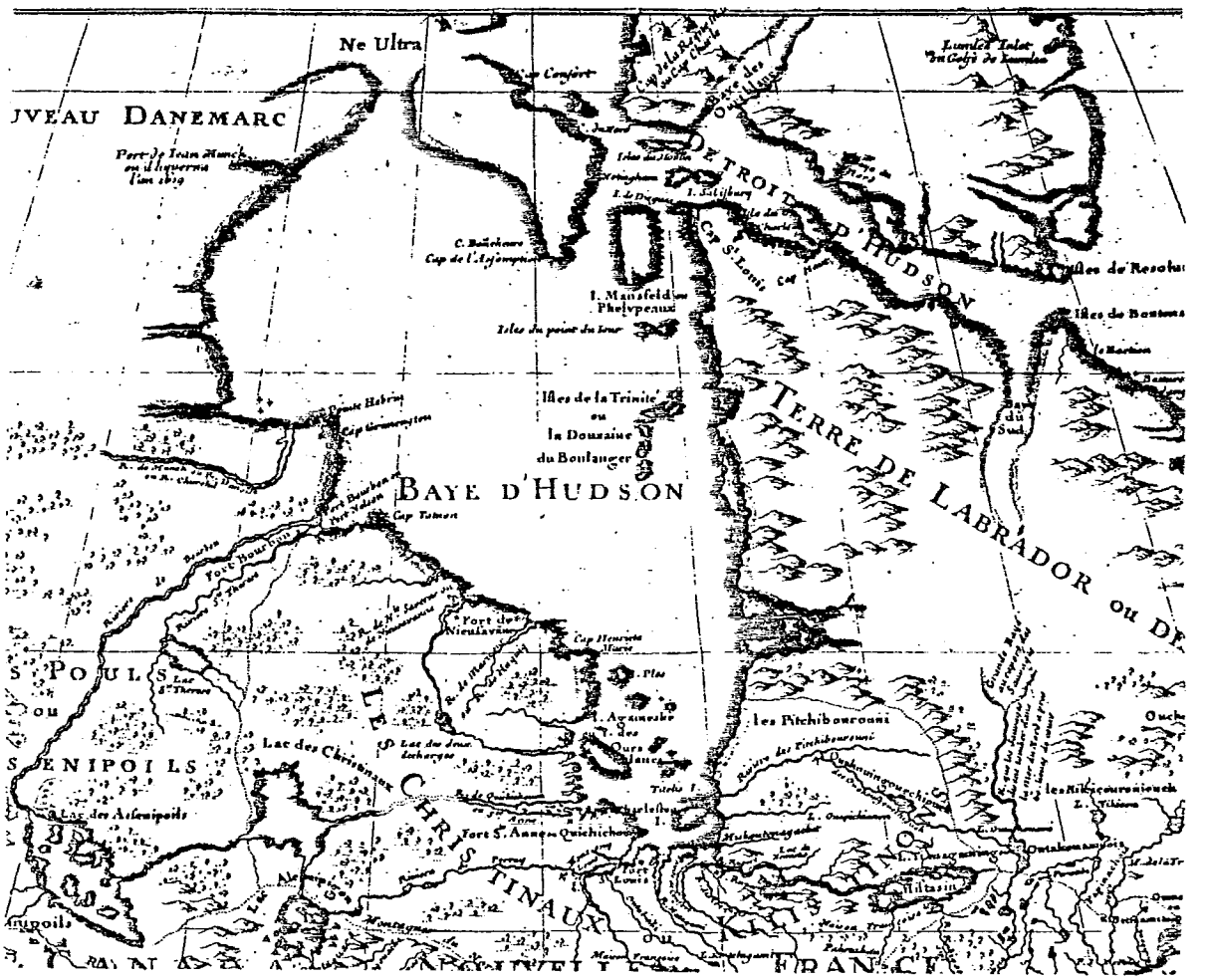

FIG. 5. Del'Isle's 1703 map of North America illustrating forts on Hudson Bay (PAC NMC 8458).

for only four years at most (1700-04), while Jeremie's account limits this residence to 1702-04. It is probable that the Nieu Savanne post was small in size and may only have been occupied during the summer trade season.

Post 1704 Trade

Accepting Jeremie's date of 1704 as the cessation of residency at Nieu Savanne does not necessarily mean the end of French trade in the area. The close proximity of the Nieu Savanne River to Fort Bourbon possibly encouraged sproadic trade in the area by the French. Such trade was necessarily minor and restricted for there was a serious lack of supplies and trade goods at Fort Bourbon (Douglas and Wallace 1926:39). With the 1713 Treaty of Utrecht, the French relinquished all their possessions on Hudson Bay to the Hudson's Bay Company and trade was resumed at the mouth of the Severn River with the construction of Fort James in 1759.

Summary of Events at Fort Severn between 1673-1713

This chapter has described the major events that occurred at the mouth of the Severn River between 1673-1713 (Table 1). Two fur trade posts, New Severn 1685-1690 (English)

and Nieu Savanne 1700 or 1701-1704 (French), were identified as the earliest trade establishments in the area.

Two other trade posts, previously reported as being on the Severn River, have been shown to be erroneously placed. The 1679 Hudson's Bay Company post reported by Jolliet never existed, and Fort Ste. Therese was actually located on the Ste. Therese or Hays River.

At no time during their respective short lived histories were New Severn and Nieu Savanne major trading establishments, but they do reflect a significant aspect of the English/ French rivalry for the control of the Hudson Bay trade during this incipient period of commercial interest.

TABLE 1. Sequence of Events at the Mouth of the Severn River 1631-1759.

1631	Captains James and Foxe locate the Severn River.
1674	Charles Bayly reports Indians facing starvation at the mouth of the Severn River.
1685	New Severn (Fort Churchill) founded on the south bank of the Severn River.
1686	New Severn and Port Nelson remain the only Hudson's Bay Company posts following d'Iberville's James Bay conquests.
1690	New Severn burnt by employees of the Hudson's Bay Company to prevent capture by d'Iberville.

TABLE 1 (cont.).

1700-1701	Nieu Savanne built by French on the south bank of the Severn River.
1704	Nieu Savanne is abandoned by the French.
1713	Treaty of Utrecht grants control of all French possessions on Hudson and James Bays to the Hudson's Bay Company.
1759	James Fort founded by the Hudson's Bay Company on the north bank of the Severn River near the present community of Fort Severn.

CHAPTER 3

SITE DESCRIPTION

Ecological Setting

A brief discussion of the physical setting of the GlIw-1 site serves to place this former fur trade post within a larger ecological setting.

Geologically, the area we are concerned with is underlain by Silurian formations of the Paleozoic (Canada. National Atlas:26). Surficial geology is predominantly composed of unconsolidated surface material (Canada. National Atlas:38), and the major soil type is a gleysol (Canada. National Atlas:42).

The GlIw-1 site is located within the Hudson Bay lowland physiographic region. This region consists of the drainage basins of rivers flowing into Hudson Bay and the area topography reflects its recent deglaciation. Drainage is generally poor, with the land surface featuring many small, shallow lakes, rivers and streams.

The flora in the site vicinity reflects transitional vegetation between the narrow belt of tundra surrounding Hudson Bay to the north and the boreal forest to the south. This bog-organic terrain zone (Canada. National Atlas:45)

consists of moss, sedges, black spruce and tamarack. The southern extremity of continuous perma-frost encompasses the site area (Canada. National Atlas:12).

Location

The early fur trade period on Hudson Bay featured an exclusively maritime settlement focus. Both Hudson's Bay Company and French trade posts were located near the mouths of major rivers flowing into Hudson and James Bays. This rigid patterning resulted, at least partly, from transportation realities of the fur trade. The Euro-Canadian commercial interests were dependent on the river transport of furs by Indian traders and the marine supply of vital subsistence and trade goods.

The location of the GlIw-1 site fits this early Hudson Bay settlement pattern well (Fig. 6). This former trade post is located on the south bank of the Severn River approximately 5 kilometers upriver from the present Cree community of Fort Severn. It lies 70 meters back from the erosional bank of the Severn River at an elevation of approximately 15 meters above summer water levels. The site appears to be resting on an ancient sand bar deposited by a former course of the river (Pollock and MacLeod 1977:78), for the underlying soil at the site is a fine-grained water deposited silt.

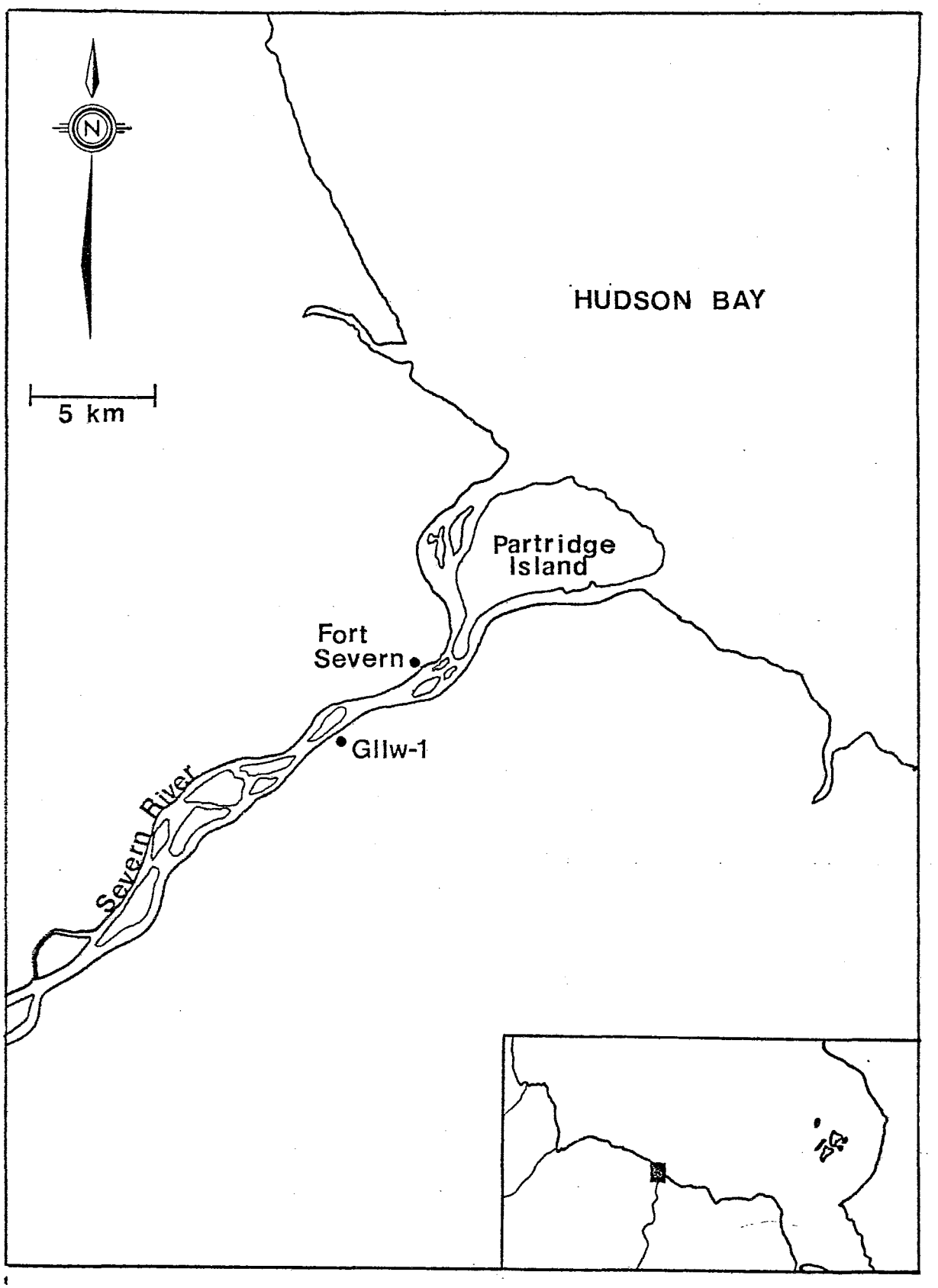

FIG. 6. GlIw-1 site location.

The specific location of the GlIw-1 site was both advantageous and a hindrance to fur trade operations. Its position on a height of land was a protection against the oftensevere spring flooding. The post was also far enough inland to provide access to trees suitable for construction materials and firewood. As noted previously by Pollock and MacLeod (1977:78), the favourable drainage conditions on the site are conducive to larger tree growth compared to the surrounding area, and this was probably a factor in attracting the early builders to the location.

A major disadvantage to the site location was its position so far up the Severn River. At this point the river becomes shallow and unnavigable to ocean-going wooden ships. Therefore, it would have been necessary to use smaller vessels in an intermediary capacity between the ships and the trade post.

Field Methods

The methodology employed in excavating an archaeological site must reflect the data requirements of a particular research design. As previously stated, the objectives of this thesis entail the identification of the GlIw-1 site and analysis of associated material culture. Time restraints, limited personnel, and the exigencies of northern

archaeology necessitated the adoption of a site sampling procedure. In total, the site covers approximately 320 square meters; of this area, 119 square meters were excavated. An additional 8 square meters were excavated outside of the defined site area.

Initially, the site was divided by a grid into 5 meter square units. This grid was projected from a base line and perpendicular extending from a defined horizontal datum. This datum is marked by a wooden post supported by stones and should be discernible for some time. The grid encompassed the area within the fur trade post palisade and additional area for a distance of approximately ten meters outside of the palisade. Intersecting points on the grid were used for mapping, and excavation units were delineated by triangulation from these points.

Excavation units on the site were established according to two criteria. First, it was felt necessary to extensively sample cultural features apparent on the site surface. Secondly, areas within the site grid absented from such excavation were tested through a series of 1 meter square test pits. Figure 7 is a schematic map of the site illustrating excavation units bounded by a solid line, palisade posts indicated by dots, and the apex of an earthwork prepared for the palisade designated by a dashed

line. Wooden, stone, and ceramic tile architectural elements are represnted by appropriate symbols as indicated in the map legend.

The contour lines evident in Figure 7 reflect 25 cm intervals measured from a vertical datum south of the palisade that was the highest elevation in the immediate site vicinity. It is noteworthy that the trade post was situated on reasonably flat ground, although a pronounced slope occurs immediately north of the post. This slope continues to the river bank in front of the site.

Unit A was a north-south exploratory trench 19 m long by 75 cm wide that bisected the interior of the former fur trade post. It served to delineate physical stratigraphy, indicate artifact concentrations, and reveal sub-surface architectural features.

Unit B, covering 32 square meters, tested a major portion of a sub-surface cellar. This feature was the most visible indicator of former cultural activity on the site, and had been noted previously by Pollock and MacLeod (1977:80). The cellar was located in the eastern half of the post's interior.

Unit C, situated west of test trench A, was initiated to sample a previously disturbed area of the site that exhibited a large charcoal concentration. As excavation proceeded, the floor of the former building was uncovered.

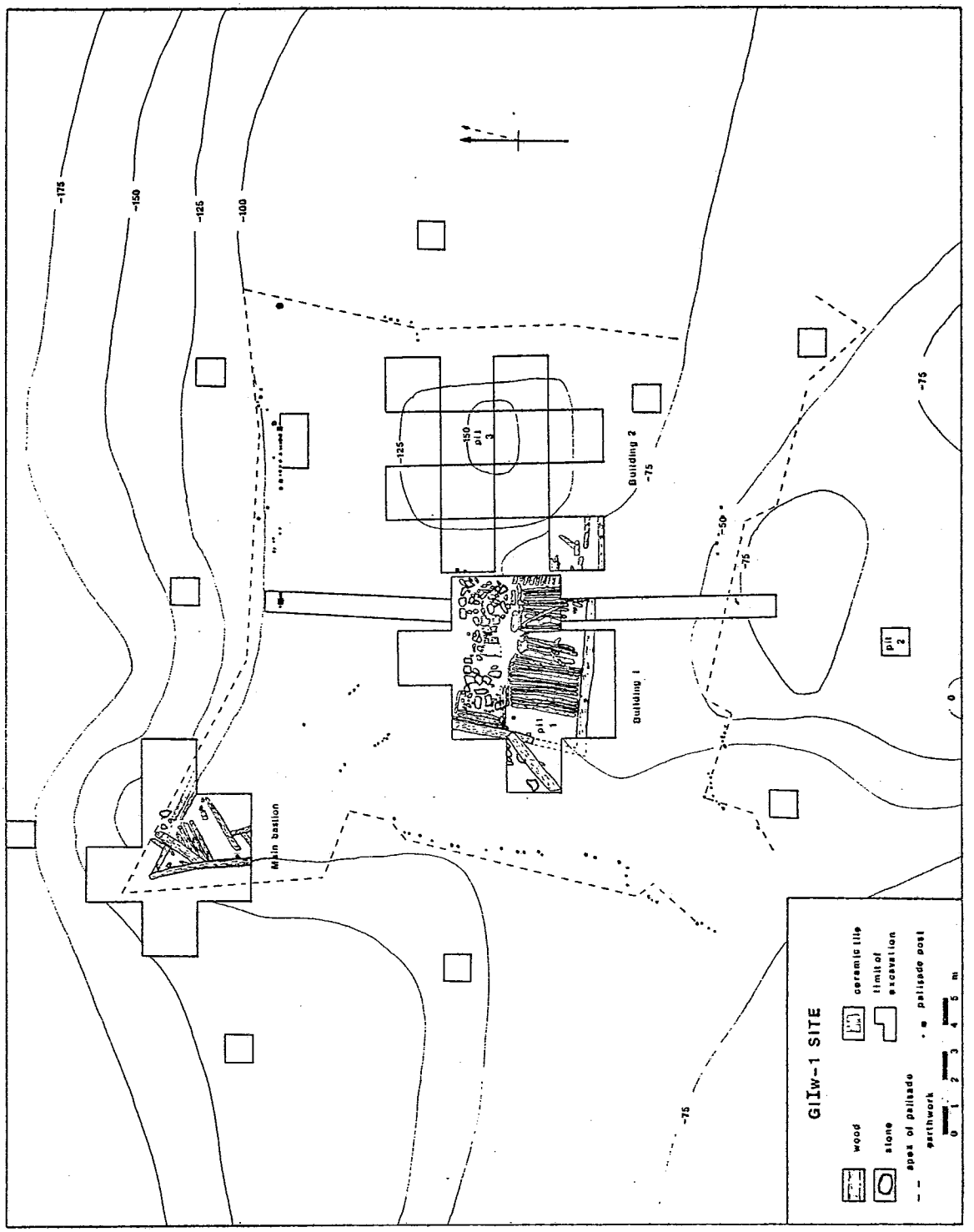

FIG. 7. Site map.

This structure, designated Building 1, was the most complex architectural feature located on the site. Unit C encompassed 40 square meters.

Unit D was designed to gather architectural and artifactual information relating to the construction and use of one of the corner bastions.

Finally, Unit E served to provide detailed data on the construction of a section of the north palisade wall. This information supplemented the palisade patterns noted on the site surface.

Following the removal of the spagnum moss covering most of the site, excavation proceeded with the use of trowels. The high concentration of artifacts, occasional perma-frost zones, and the fragility of wooden architectural features precluded the use of shovels. Arbitrary 5 cm levels were used during the excavation of the initial test trench. Thereafter, one half of the units were subjected to this vertical control procedure. This was done in order to determine whether multiple occupations were preserved stratigraphically on the site. No evidence for more than one European occupation was found.

Screening of soil removed from units took two forms. Much of the soil removed from the site was wet from the gradual melting of perma-frost areas. Consequently,

screening was difficult, time consuming, and generally not successful. However, approximately one-half of all excavated portions of the site were screened using 1/4 inch wire mesh. There was not significant differences in frequencies or types of artifacts recovered from the areas of the site that had been screened compared to areas that had not been screened. A notable exception to this observation concerns the recovery of especially small artifacts. When such items as lead shot or glass seed beads were located, all soil from the surrounding area was sifted through graduated cylinder screens culminating in window screening.

A ten percent sample of each excavated unit was extracted from the balks for flotation. The flotation results were generally poor, with few seeds recovered through this method. Some seeds, predominantly fruit pits and berries, were recovered through trowelling or screening operations.

Stratigraphy

Soil stratigraphy on the site varied among particular settlement pattern features. This differentiation reflects the sub-surface disturbance of soils during construction or other cultural activites. Figure 8 is a generalized soil profile derived from the initial test trench A. It appears

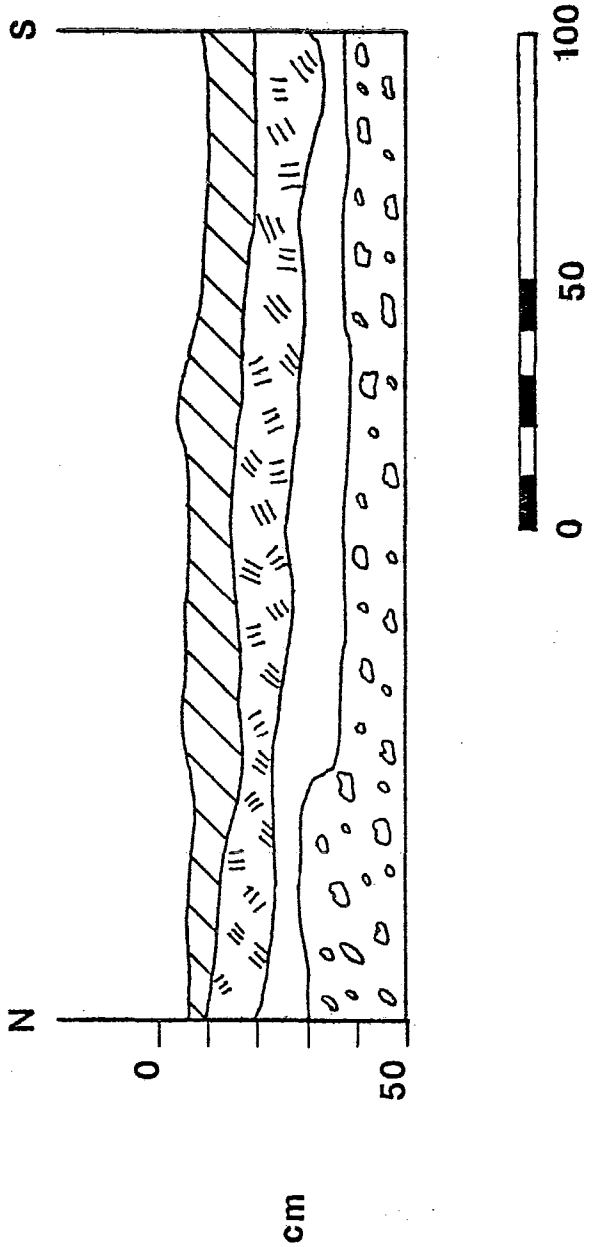

FIG. 8. Generalized soil profile.

to be representative of the relatively undisturbed portions of the site, and therefore, acts as a useful referent for comparison with the settlement features.

By way of explaining this generalized soil profile, it should first be noted that spagnum moss was the predominant surface vegetation over the site. A reddish-brown humus (Munsell 5YR 5/3) was present for a depth of 5 cm to 15 cm below the moss. Next, a fine grained clay (Munsell 10YR 2.5/2) varied between 10 cm to 25 cm in thickness. A waterlaid gravel layer underlay all of the above in the stratigraphic sequence.

Variations in this generalized natural stratigraphy are noted within the discussion of individual settlement features.

Settlement Features

Settlement features of GlIw-1 include architectural structures, storage areas, and a refuse pit. Each of these features is described separately within this chapter, and Figure 9 presents a key to symbols used in all floor plans and soil profiles.

Palisade

A single row of vertical palisade pickets enclosed the GlIw-1 fur trade post. This palisade consisted of four

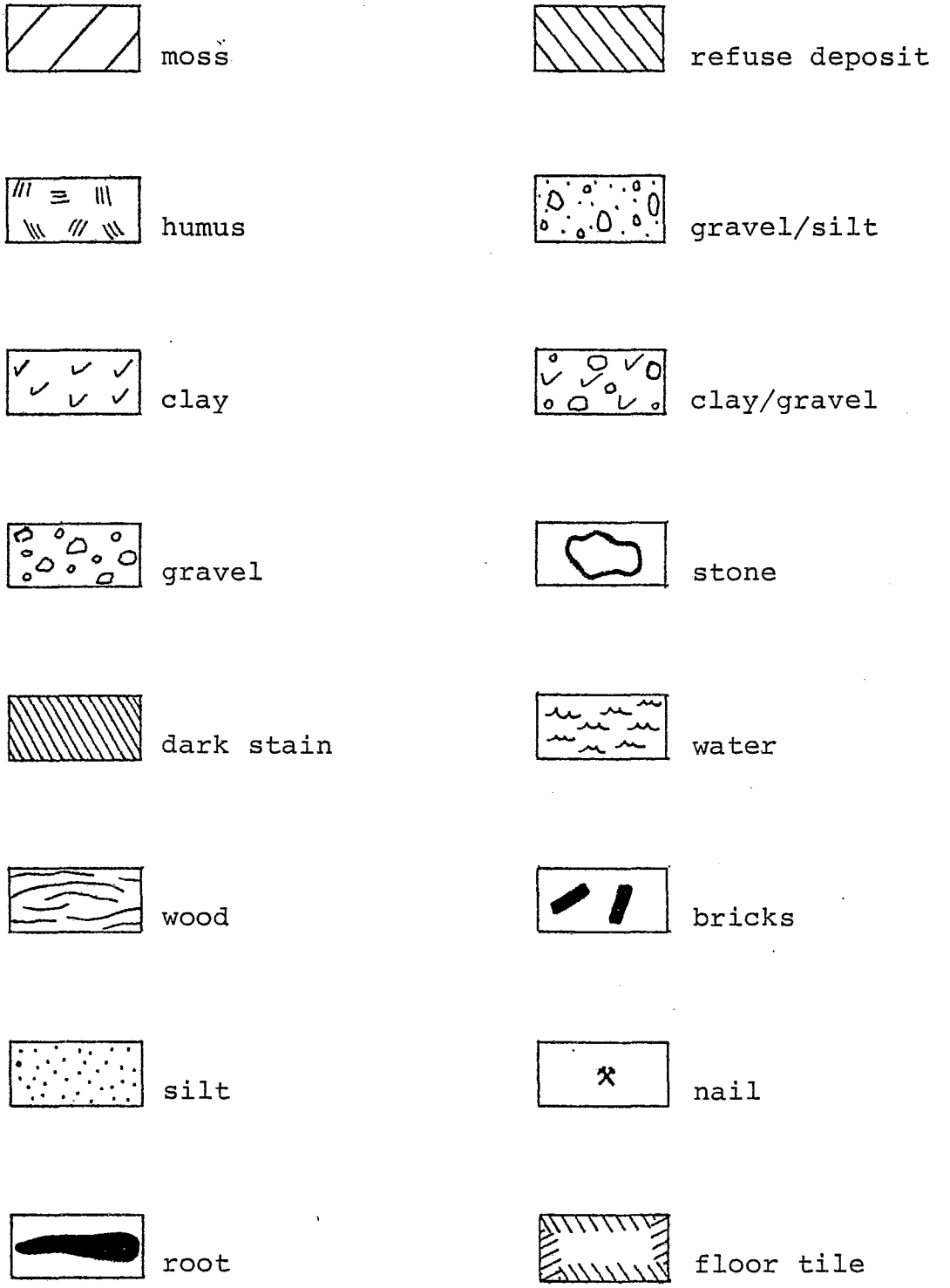

FIG. 9. Key to figure symbols.

walls laid out approximating the cardinal directions forming an 18 meter square interspersed with corner bastions. The northeast, southeast, and southwest bastions appear to have been constructed using vertical posts in a method analagous to the palisade wall construction. The northwest bastion, however, was considerably larger than the others and constructed differently. It has been designated the main bastion and is described separately.

Evidence pertaining to the GlIw-1 palisade was derived from two different field sources. Many actual palisade posts were visible on the site surface. The diameters of these items were measured and their relative positions plotted (Figure 7). The palisade posts located on the site ranged between 10 cm and 27 cm in diameter with a mean of 13.6 cm. They were generally positioned directly behind the apex of a low linear earthwork mound formed behind a shallow ditch or moat (Figure 10). This earthwork was most prominent along the north, or front, wall of the palisade.

Excavation of Unit E provided a more detailed examination of a portion of the northern palisade wall. Important structural details, as illustrated in Figure 11, were obtained from this unit. Here, posts were sunk to different depths below the surface, although usually the flat post bottoms rested within a gravel/silt or silt-soil

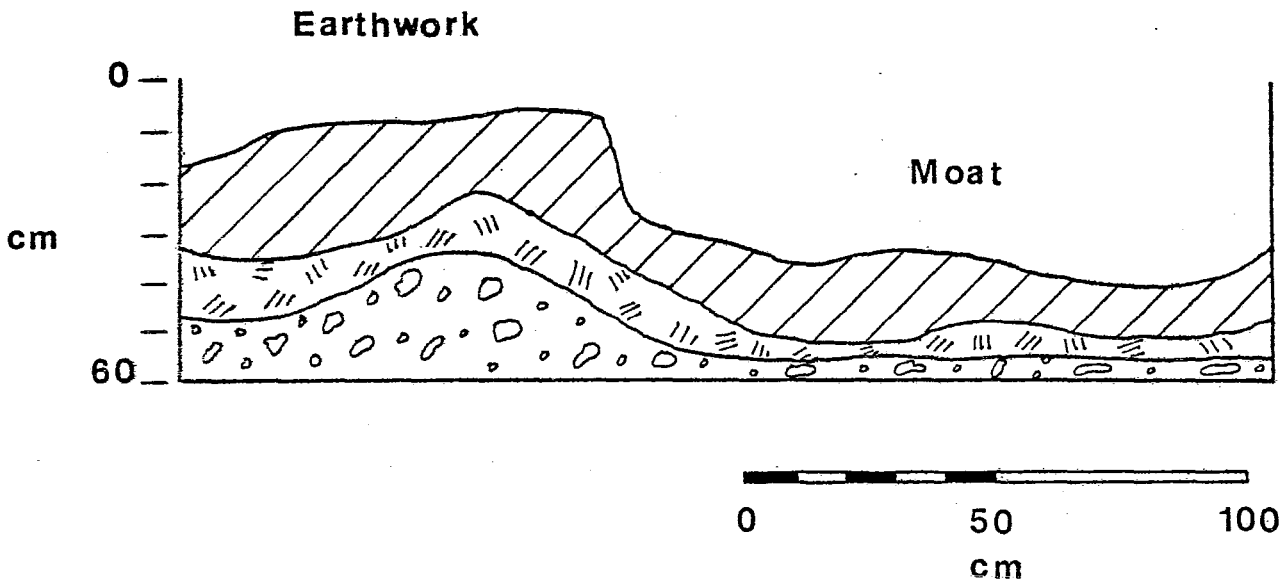

FIG. 10. Cross-section illustrating earthwork mound and shallow moat.

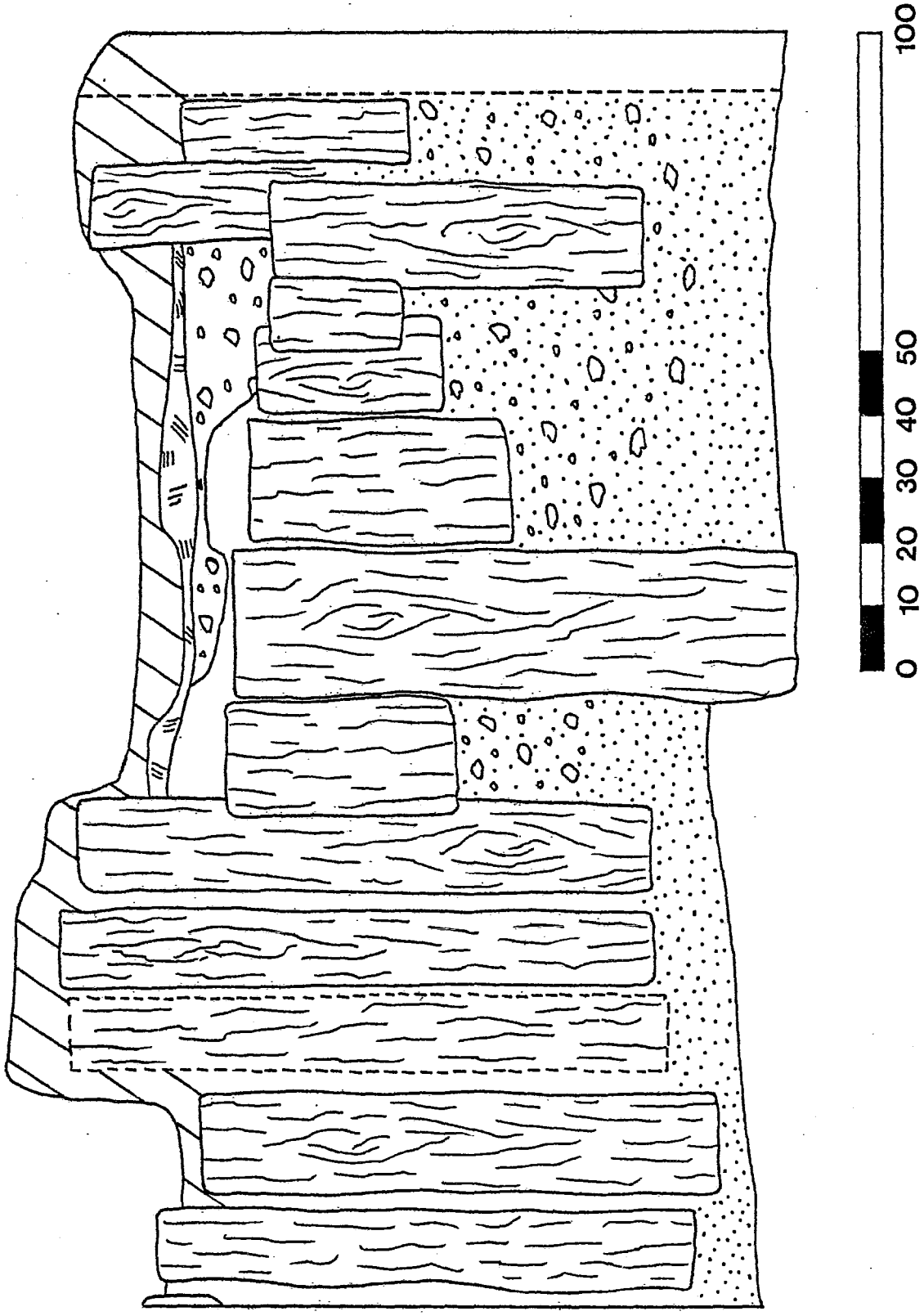

FIG. 11. Cross-section illustrating palisade construction.

matrix. Most posts were left naturally round with the bark removed, although one post within Unit E retained a portion of its bark cover.

Occasionally, a palisade post was squared; the post located in the middle of Figure 11 is an example. This particular specimen was set considerably deeper in the ground than were other posts in Unit E, and the actual final depth of this particular post was not determined. Perhaps such squared, well-anchored posts were positioned periodically throughout the palisade to provide extra strength and durability in counteracting the effects of frost action. A similar specimen was noted in the extreme northern portion of the Unit A test trench (Figure 7), where it intercepted the north palisade wall.

Figure 12 illustrates the soil profile evident in the west wall of Unit E which differs radically from the previously discussed general site soil stratigraphy (Figure 8). Disturbance due to palisade construction is noted in the relative positions of clay and gravel strata, and the superimposition of a clay/gravel layer over a clay stratum reinforces the suggestion of cultural disturbance. The intrusion of gravel throughout other soil strata along the north wall of the unit (Figure 11) reflects construction activities associated with the linear earthwork mounded up outside the palisade wall.

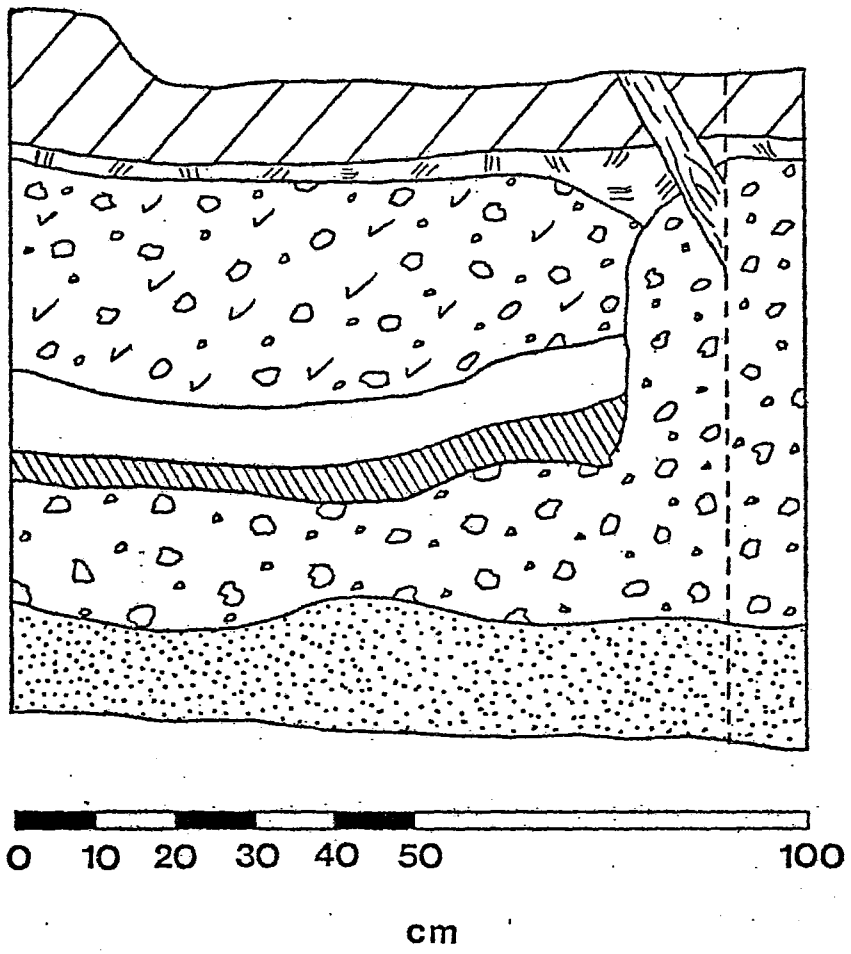

FIG. 12. Soil profile from west wall of unit E.

Few artifacts were located within Unit E. The most notable items were four large spikes, perhaps used in some capacity during palisade construction. The limited faunal material recovered from the unit may reflect a disposal practice during the period of palisade construction.

The extreme northern portion of Unit A exhibits features associated with the north wall of the palisade. Here, two squared posts, in conjunction with a horizontal beam, suggests an entranceway into the post (Figure 13). A relatively high frequency of artifacts recovered from the northernmost seven meters of Unit A suggests an association of activities near this doorway. Particularly prevalent were gunflints and clay pipe fragments.

Main bastion

Of the four corner bastions at GlIw-1, the northwest bastion was the largest and appeared most intact. The bastions forming the corners of the south palisade wall were substantially smaller than their north wall counterparts (Figure 7). The position of the north wall bastions facing the Severn River, and hence the probable direction of any attack, defined their role as important defensive structures.

The northwest bastion, designated main bastion in this analysis, was constructed of wood in combination with a substantial, prepared earthwork (Plate 2). Figure 14

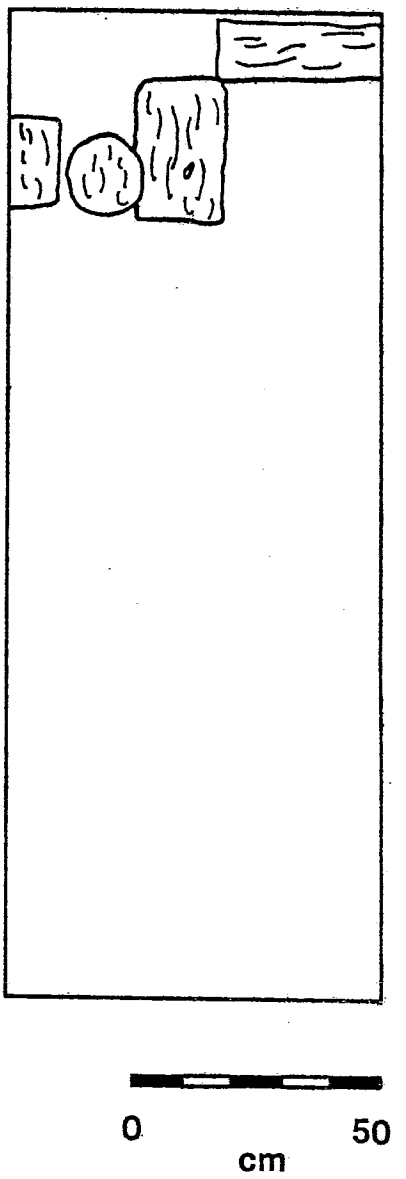

FIG. 13. Part of GIIw-1 front gate.

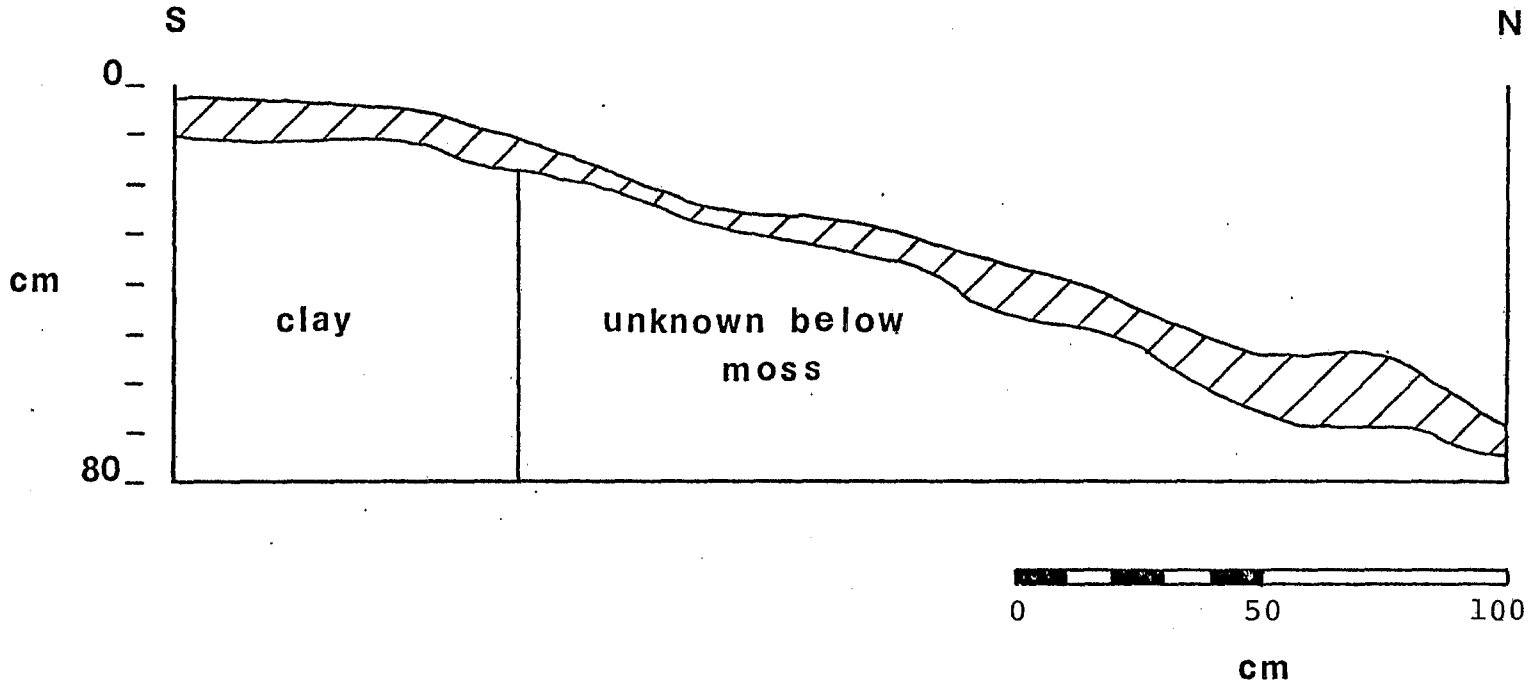

FIG. 14. Earthwork mound portion of main bastion.

illustrates a profile of a portion of this mounded earthwork indicating that soil was simply heaped up to a height of 80 cm. No ditch or moat was located in front of the bastion because of the natural slope towards the river bank from this point.

The actual construction of the main bastion differs markedly from that employed in the fabrication of the samller south wall bastions. These latter structures were made by placing posts vertically in picket fashion into a prepared trench. The main bastion, however, was constructed using squared, rough-cut planks placed horizontally. These planks, averaging 25 cm in width, were set at various depths in the prepared earthwork to form a wooden foundation and interior floor.

Figure 15 illustrates the relative vertical position of the various wooden elements used in constructing the main bastion. Squared wooden pickets were placed in a V-pattern near the earthwork surface (Figure 16). While badly deteriorated, their position suggests that they functioned as foundation sills. Three wooden cross-pieces were located 15 cm below the sills. Sections of six wooden planks, 5 cm to 10 cm thick, formed a partial floor 20 cm below the cross-pieces.

Significantly, other than the apparent foundation sills, no evidence was found to indicate that the main

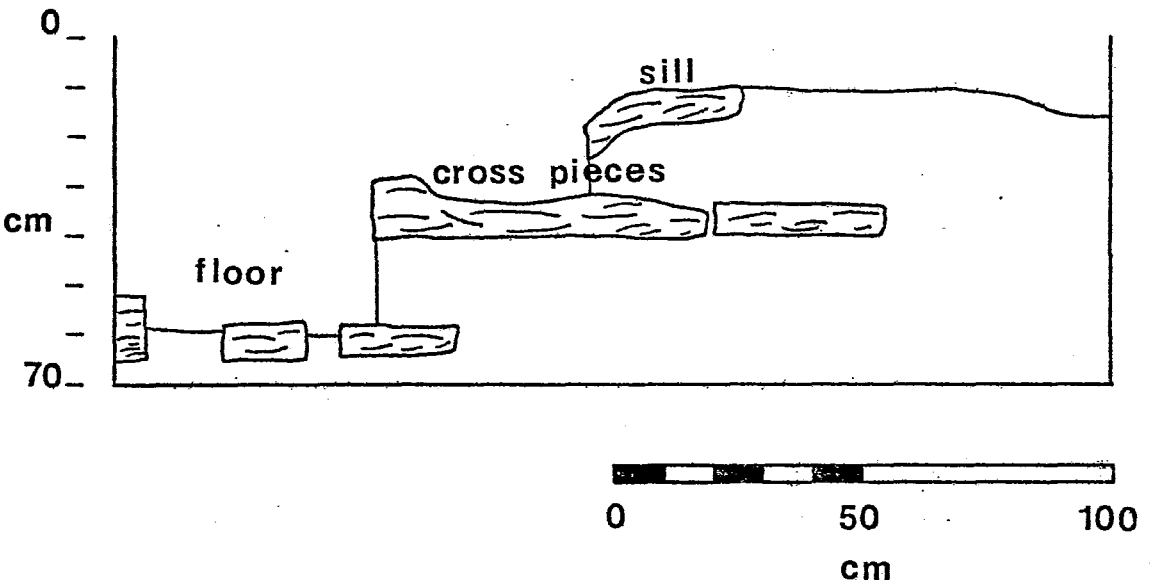

FIG. 15. Relative depths of wood elements used in the construction of the main bastion.

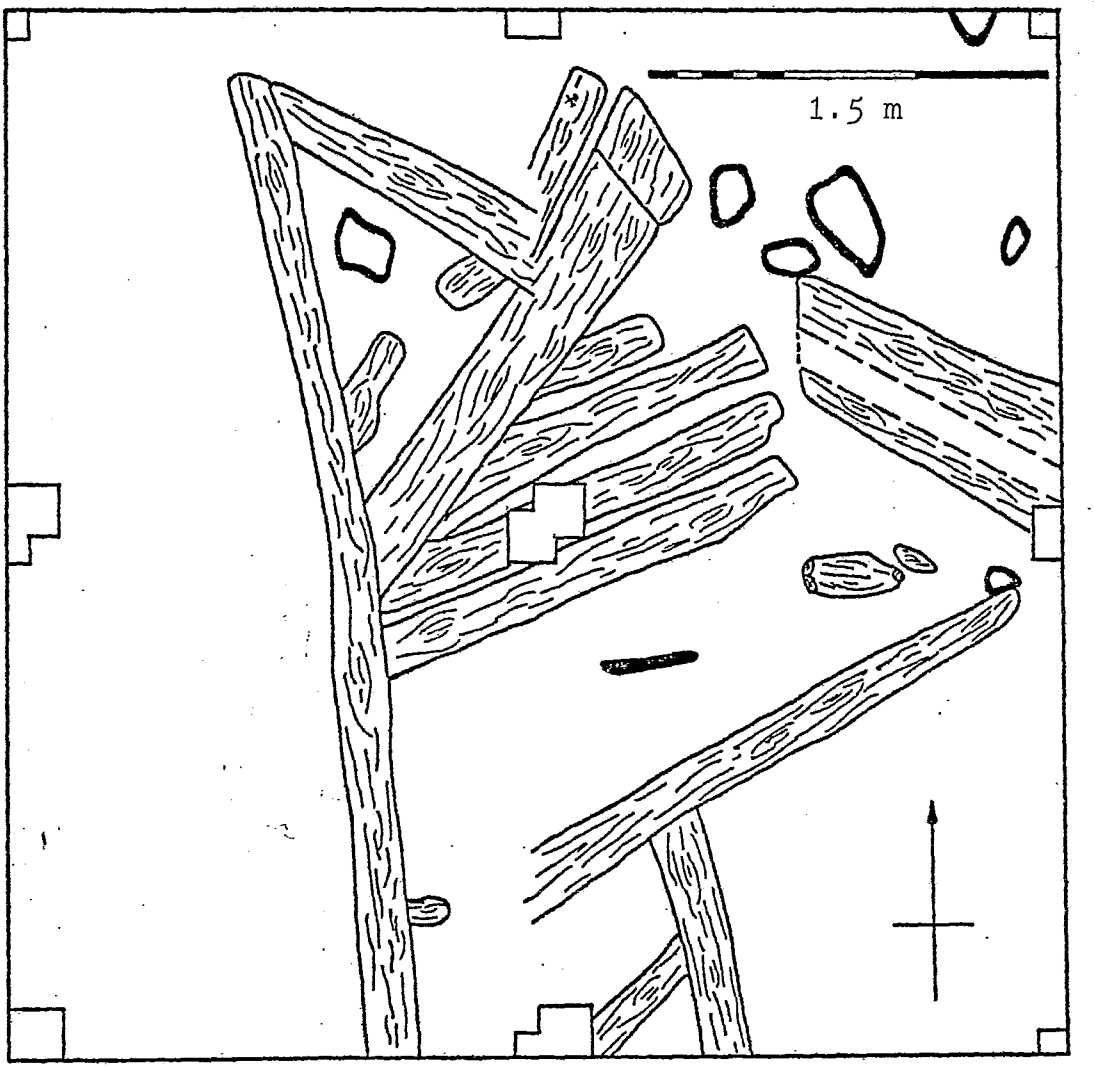

FIG. 16. Main bastion floor plan.

bastion supported an upper superstructure. Nails were located infrequently suggesting their limited use in the bastion construction, and it was noted previously that log pickets were absent. A possible analogy that generally coincides with the archaeological evidence for the GlIw-1 main bastion is found in a 1686 description of the Hudson's Bay Company post, Fort Charles. The account was written by Jacques le Moyne de Sainte Hélène who accompanied the de Troyes expedition to James Bay (Rich 1958:215).

> ...and the post itself was a square with four bastions, not unlike that at Moose River, but that there seemed to be no cannon except to pieces in each bastion and that the redoubt was not in the middle of the fort and had a flat roof instead of a sloping one. The bastions also were more insignificant, being made only of soil, held in by planks. The general impression confirmed reports that the fortifications were designed rather against Indians than against European attack...

The description Ste. Hélène provides of a square post with four bastions fits the GlIw-1 site evidence as well. Furthermore, his inclusion of Moose Fort within this pattern suggests a general design for period Hudson's Bay Company posts. The principal features of the design are similar to the starred-corner Vauban style military forts.

Ste. Hélène's description of the Fort Charles bastions is of special interest. Rather than the French picket style,

these bastions were constructed by piling up soil that was held in place by planks. While not a detailed description, it corresponds to the archaeological evidence from the GlIw-1 main bastion.

An entrance into the main bastion was defined by two parallel rows of posts located immediately southeast of the structure (Figure 7). These posts enclose an area 3.0 m by 2.3 m. The distance from this entrance to the northern termination of the main bastion indicates the comparatively large size of this structure compared to other bastions on the site. None of the other bastions featured an obvious, constructed entrance.

Artifacts associated with the main bastion suggest that the structure was used for several activities. Lead shot and musket balls were presumably stored within this structure. Of the shot recovered from the site, 91.3% was associated with the main bastion, and 32.1% of the site musket balls were located here. Most of the remaining musket balls were located within a storage facility (Pit 1).

Negative evidence suggests a related munitions storage function for the main bastion. Clay pipe fragments were an ubiquitous material culture item over most of the site, yet only four specimens constituting an inconsequential .9% of this artifact group, were located within the main

bastion. The presence of lead shot and musket balls in combination with the absence of expected smoking items, suggests that the main bastion was used as a storage area for munitions and gun powder.

Brass kettle portions and unidentified brass pieces were frequently recovered from within the main bastion. No evidence for a hearth suggesting a food preparation function for the structure was found. It seems reasonable that kettles were stored and perhaps repaired within the main bastion.

Building 1

Building 1 was the most complex architectural feature at the GlIw-1 site. While not completely excavated, 41 square meters were exposed to reveal most of this building (Figure 17, Plate 3). Construction materials included wood, two kinds of brick, local stone, and ceramic hearth tile.

Squared wooden foundation sills, ranging between 20 cm and 40 cm wide, were laid directly on the ground along the south and west perimiters of building 1. As these sills had been burned, reported measurements probably do not reflect their original condition. Presently, they measure between 10 cm to 20 cm thick.

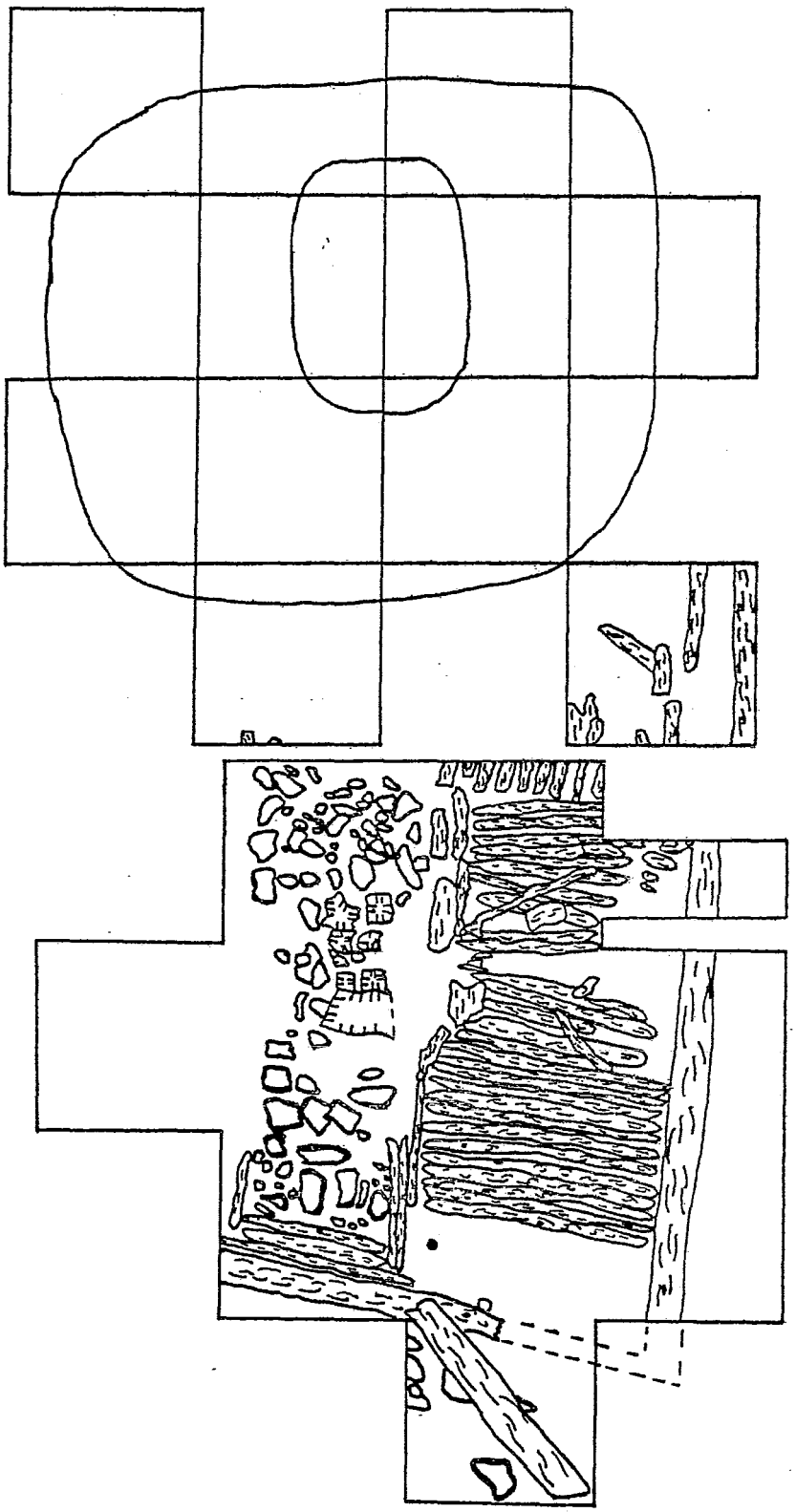

FIG. 17. GIIw-1 Building floor plans.

Wood planking was laid in a north-south orientation to form a floor in building 1. These planks were also extensively burned, and ranged between 1.5 m to 2.3 m long by approximately 15 cm wide and were 5 cm to 10 cm thick. The planks rested directly on the ground and were not attached to the foundation sills. This construction technique allowed the floor and walls to react independently in response to the underlying soil and frost conditions.

Most of the floored area within building 1 probably served as a general sleeping and eating quarters for the post personnel. Associated artifacts support this hypothesis. Kitchen artifacts, including wine bottle necks, a wide variety of ceramics, table knife blades, and 93.1% of the recovered melted glass and ceramics, were the predominant associated items. The melted glass and ceramics are further evidence that building 1 was destroyed by fire. Architectural artifacts such as nails and hinge elements, clothing artifacts, and clay pipe fragments were also present.

A stone fireplace foundation was located within the northern portion of building 1 (Figure 17, Plate 4). It was constructed primarily from local unmodified stones, although some had been shaped. The fireplace foundation measured 5.0 m long by 1.7 m to 2.0 m wide, and included

a series of broken 25.4 cm square red ceramic tiles that demarcated a hearth near the fireplace middle. It is apparent that the fireplace opened southward and was backed by stones along the north as evident in Plate 4. The absence of plank flooring or a foundation sill in the excavated unit north of the fireplace (Figure 17) suggests that the fireplace foundation was also the support for the north wall of building 1.

Another important element used in the fireplace construction were small, irregular, buff-coloured bricks. These imported bricks, often called Flemish, were between 15.5 cm-17.5 cm long, 6.0 cm-8.0 cm wide, and 3.0 cm-4.5 cm thick. They were concentrated in the eastern portion of the fireplace foundation and adjacent excavation units suggesting that the chimney fell eastward.

Large red bricks, 22 cm long, 10 cm wide, and 6.5 cm thick, were also interspersed along the east side of the fireplace and adjacent excavation units. No pattern of distribution was noted, but their proximity to the fireplace suggests that they were used for part of its construction.

The fireplace portion of building 1 was the most disturbed area on the site. This human alteration began in September of 1761 when Andrew Graham removed "bricks and clinkers" from the site for use in the construction of the

new Fort Severn located downriver (PAC MG 20 IM132 B/198/a/3 fo. 40). Unfortunately, modern looting has continued at the site. Most of the recent disturbance has been caused by visitors to Fort Severn seeking souvenirs. Local residents relate that a quantity of bricks were removed from the site by one person for use in a modern southern Ontario fireplace; such destructive acts have eradicated much of the interpretative value of this important site feature.

Artifacts associated with the fireplace include European ceramics, wine bottle glass, pharmaceutical bottles, and four of the eleven recovered fireflints. These latter objects were used in conjunction with iron strike-a-lites for starting fires. Additional artifacts were removed from the fireplace area by previous 'pot hunters'. Pollock and MacLeod (1977) noted that items located on the surface of the site during their 1975 visit probably reflected artifacts excavated, but not considered valuable enough to keep, by 'pot hunters'.

The east wall of building 1 is difficult to delineate. The south foundation sill does not continue eastward into the adjacent unit B, suggesting that building 1 does not include this cellar feature. Yet, there is no evident east wall foundation sill in building 1. It appears that the east wall of the building was supported by the fireplace

foundation and perhaps the apparent wooden planking.

Planks laid east-west meet the main flooring of building 1 southeast of the fireplace (Figure 17). These planks may have served as a walkway between buildings 1 and 2. They continue into an adjacent portion of unit B and were about 1 m in length.

No definite doorway can be delimited for building 1, but the high frequency of artifacts recovered from the northeastern section of the east wall area suggests a main thoroughfare. It is much easier to denote the location of a window in building 1. Window glass from the site was concentrated in the southeastern corner of this structure indicating the presence of a window along the eastern end of the south wall.

Building 2

A second building from GlIw-1 is known from the large cellar evident in unit B (Plate 5). Prior to excavation, this feature consisted of a moss-covered rectangular pit with gradually sloping walls. Measuring approximately 8.0 m by 7.0 m, this feature had a north-south long axis. The cellar depression had settled to a maximum depth of .7 m below ground surface.

The cellar retained these dimensions following excavation with one notable excaption. Figure 18 illustrates

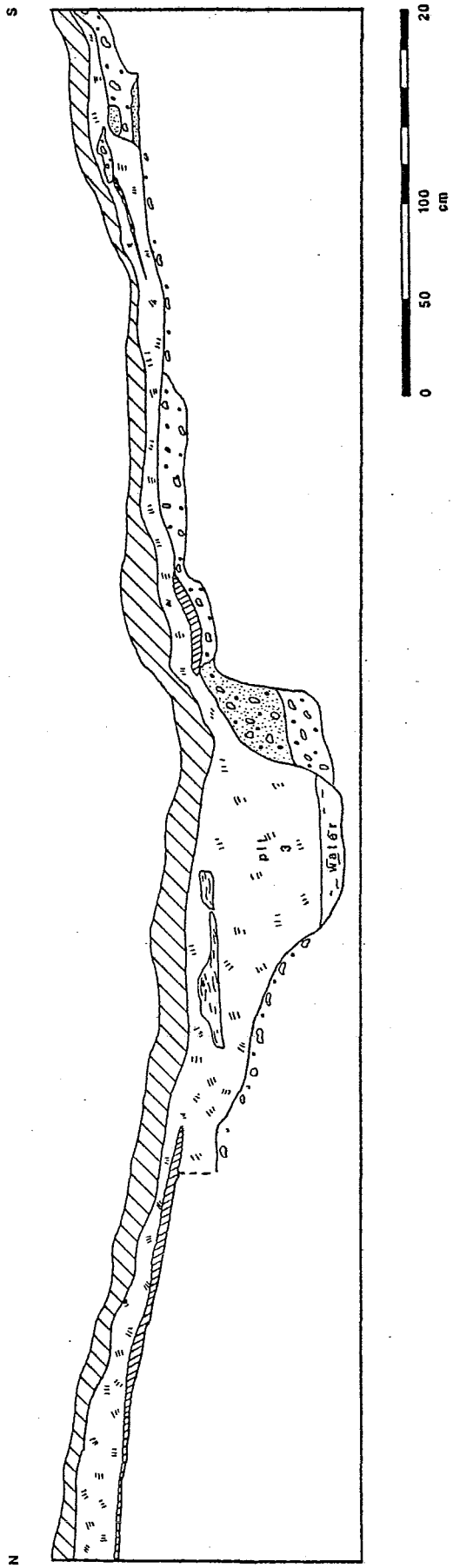

FIG. 18. Building 2 cellar profile.

the soil profile taken through the middle of the cellar. Generally flat-bottomed, the cellar was dug into basal gravels or gravel-silt. All artifacts were recovered from the humus pit fill. The cellar proved to have a maximum depth of 1.7 m below surface, but this depth was restricted to a small central area designated pit 3 (Figure 18).

Aside from the obvious excavated cellar, there was little structural evidence exposed defining building 2. A segment of what may be the south wall foundation sill was located in the south-west corner of the building (Figure 17). It did not continue into the next excavated unit, but may have passed just south of it. Several planks and wood fragments were noted beside this sill. All wood in building 2 was charred suggesting that this structure had also burned.

There was a related paucity of architectural artifacts recovered from building 2, further suggesting that it was essentially an insubstantial structure. Only 61 nails, or 8.5% of the site sample, were located within this building. There was a similar absence of related items such as hinge elements, spikes, and construction staples.

Building 2 probably consisted of an excavated cellar with some sort of simple covering. There is little evidence for a wooden floor, and the extent and form of the original structure cannot be ascertained at present. However, a

possible analogy for this structure is found in James Isham's description of log tents.

> Log tents or huts are us'd in these parts by the English only, these they make in Length and weddth according to the Quantity of men that is to Live in them, -the Logs are round Leaning one against another, with a Rig pole in the Midle, and set close together taking mawse or mudd to fill up the seams,-the fire being opposite the Door, in the middle one side of the tent,-one of these tents 14 foot Long 7 foot wide 3 foot high will conviently stove 14 men, they are not so subjected to smoak as the skin tents, and Reckon'd much warmer... (Rich 1949:90-91).

It should be noted that Isham's description refers to log tents constructed in the mid-eighteenth century, and that he makes no mention of an incorporated excavated cellar.

Assigning a function to building 2 is difficult. Few artifacts were recovered from this structure compared to building 1 or areas north of the buildings. Most of the items associated with building 2 were skeletal portions of caribou, with marten and beaver also represented. Artifacts included nails, waste lead, European ceramic sherds, and aboriginal artifacts. The latter class included most of the local lithic flakes, cores, and Selkirk ceramic sherds located on the site.

The relatively infrequent artifact occurrence within building 2, the presence of many animal bones, and the lack

of a discernible hearth feature suggests that the structure may have been used in a storage capacity. However, its use as a living quarters for a part of the trade post complement cannot be ruled out. The aboriginal artifacts may actually represent an occupation of the cellar following the abandonement of the trade post by its European builders rather than contemporaneous use.

Storage pit (pit 1)

A small rectangular pit was located in the southwestern corner of building 1 (Figure 17). This pit was defined on two sides by foundation sills, and on the remaining sides by sections of floor planking. A 22 cm diameter round charcoal feature surrounded by an iron oxide stain was present at a depth of 45 cm near the northern end of the pit. It continued in depth for 12 cm and may represent a post. No further interpretation can presently be offered for this object.

The predominant items associated with pit 1 were skeletal elements and fruit pits. Some of the faunal material suggested that the animals had not been eaten, as many of the skeletal elements were articulated. The fruit pits were usually complete further implying a storage rather than disposal function for this pit.

Bird and mammal species represented within pit 1

included ptarmigan, Canada goose, white-winged scooter, greater scaup, gray partridge, sand hill crane, caribou, red fox, arctic fox, marten, and mink. The great majority of the faunal remains represent birds (Appendix 2).

Artifacts located within the srorage pit included clay pipe fragments, nails, musket balls and lead shot, fireflints, beads, and European ceramic sherds. Most of these items were presumably deposited accidentally, perhaps through cleaning activities within building 1. The musket balls and lead shot may have fallen from fauna stored within this pit.

Refuse pit (pit 2)

This feature, located 7.0 m south of the palisaded portion of the site, was discovered during the last week of the field season. As such, it was only partially excavated through a 1 meter square test pit.

The actual dimensions of this refuse pit were not determined, although artifacts and bone were recovered to a depth of 70 cm below surface. Perma-frost conditions and the limited time available precluded more extensive testing.

The principal material recovered from the refuse pit were bird and mammal skeletal elements. Species represented were ptarmigan, Canada goose, snow goose, greater scaup,

caribou and marten (Appendix 2). Artifacts associated with the refuse pit included clay pipe fragments, European glass and ceramic sherds, nails, and a button. Sixty-one pipe fragments, or 13.4% of the site sample, were recovered from the 1 meter square test pit.

Pit 3

This pit (Figure 18) was located slightly to the back and north of the building 2 cellar. It was roughly rectangular in shape, and had a maximum depth of 1 m below the cellar floor. Artifacts were infrequent, although nails, bottle glass, and broken bricks were recovered. Interpretation of this pit is difficult; it may simply be part of the cellar contour, or an associated sub-cellar.

CHAPTER 4

ARTIFACT ANALYSIS

A major contribution of this thesis is the analysis of artifacts recovered from the GlIw-1 site. Apart from providing data necessary for fulfilling the previously stated research objectives, the assemblage represents a well defined vignette of a little understood period of the Hudson Bay fur trade.

It was indicated in Chapter 2 that the GlIw-1 site represents the remains of either the Hudson's Bay Company post New Severn (1685-1690), or the French trade post Nieu Savanne operated between 1700-1704. Both of these establishments were occupied for short periods of time. Artifacts associated with the site (Table 4), therefore, offer a good illustration of the material culture affiliated with small fur trade posts operated during the early period (1668-1713) of trade on Hudson Bay.

Historic archaeology has an inherent interpretative advantage over its prehistoric counterpart. Artifacts associated with historic sites can be identified and interpreted with the aid of written documentation. This crucial information source allows the historical archaeologist to

make the transition from strictly morphological explications of artifacts to more culturally relevant analyses.

The present analysis recognizes the benefits that documentation provides when examining historic site assemblages. Thus, emphasis is placed on determining functional artifact categories in relation to other culturally meaningful criteria. This bias is exemplified in research such as Ian Brown's (1977) study of brass trade bells, in contrast to studies such as Lyle Stone's (1974) formalistic analysis of the Fort Michilimackinac artifact sample.

Another feature of the present analysis is the quantitative treatment of the GlIw-1 artifact sample. Stanley South's (1977) methodology for determining artifact patterns is adopted herein. This scheme enables the determination of patterns characteristic of certain human activities by quantifying the relative frequencies of defined functional artifact groups.

South (1977:32-33) was influenced by prior research attempting to quantify certain aspects of human behavior reported by A.L. Kroeber (1919) and Kroeber and Richardson (1952). These studies examined the patterned changes in women's evening fashions over a period of three centuries.

The use of South's (1977) artifact pattern methodology enables archaeologists to characterize historic

sites using functional or ethnic criteria. As noted above, the individual artifact groups are indicative of particular kinds of human behavior. Apart from this useful classification procedure, the scheme allows comparison among sites representing different functional or ethnic activities. The following passages from South (1977) writing about the Carolina Artifact Pattern address this issue.

> This pattern will then be tested against data from other sites to provide clues for its use on such sites generally. The patterns contained within the data from historic sites can be related to the historical information known about the function of the sites, a situation not possible with sites where the function is not a given. Therefore, military sites, frontier sites, and industrial sites might be used as variables known from historical sources, against which archaeological patterning is projected (South 1977:83).

> From this perspective, therefore, the historical archaeologist concerned with pattern recognition has an advantage over his colleagues working with prehistoric patterning in that some of the information he seeks is available as a given. He can select a group of known domestic house ruins from varying areas and known cultures, such as those from British-American communities, German-American communities, French-American communities, and Spanish-American communities, and abstract the patterning from each group and make comparisons (South 1977:84).

There are nine artifact groups within South's (1977: 95-96) Carolina Artifact Pattern classification. Each of these individual kitchen, bone, architectural, furniture, arms, clothing, personal, tobacco pipe, and activities groups include artifacts associated with particular kinds of behavior. For example, the architectural group includes items used in the construction of buildings. The subsumed artifact classes are window glass, nails, spikes, construction hardware, and door lock parts.

It must be stressed that South's (1977) artifact pattern method was developed in response to eighteenth century British-American Carolinian sites. Consequently, the scheme has less utility for sites temporally, functionally, and perhaps ethnically, removed from the original Carolina example. The scheme does appear to be generally applicable to late seventeenth century Hudson Bay fur trade post sites, although some modifications were necessary. As previously mentioned, the artifact pattern method has the potential to allow valuable comparisons among sites. An alternate classification method, proposed by Gary Adams (1980) subsequent to the present analysis, may actually prove to have wider applicability than South's (1977) scheme.

The presence of artifacts in the GlIw-1 site sample not included in South's (1977) scheme led to alterations of

his artifact classification system. Extensive burning evident on the site caused the thermal distortion of many glass and ceramic sherds. Thus, these items could not be sufficiently identified to include them in the appropriate kitchen artifact category. These items have been assigned to an other category appended to the Kitchen Artifact group (Table 4) that also includes bottles not covered by other categories.

The specialized nature of bone refuse and faunal analysis excludes the bone group from the realtive frequency treatment accorded other artifacts in the GlIw-1 assemblage. A summary of the faunal analysis from the site is presented in Appendix 2. A more detailed report of the faunal sample and implications for the early diet of Hudson Bay residents is presented in a separate M.A. Thesis (Balcom n.d.).

The categories within the Architectural, Furniture, Personal, and Tobacco Pipe groups are adopted without modification. An additional category to include waste lead and graphite is added to the Arms group.

The major alteration to South's (1977) artifact pattern is within the Clothing group. Separate categories for textile fragments, hawk bells, needles and awls, and bangles are added to the original categories in the group (Table 4). Most of these items reflect specialized activities associated with fur trade post operations.

A final alteration is made to the Activities group. South (1977:97) indicates that the category colono-Indian pottery is kept separate from the Kitchen Artifact group because of associated specialized activity denoting Indian contact. This significance is appropriate and the class is expanded to include all artifacts manufactured by Native Peoples. Within the GlIw-1 sample, these items include ceramic, lithic, and bark objects.

Before proceeding to the actual analysis of artifacts, it is pertinent to denote that Table 2 illustrates symbols frequently used within tables throughout this chapter, while Table 4 presents the overall artifact inventory from the GlIw-1 site.

TABLE 2. Symbols Frequently Used Within Artifact Analysis Tables.

Symbol	Explanation
N	Frequency of occurrence
R	Range
$\overline{X}$	Mean
S	Standard deviation
mm	Millimeters
gm	Grams

TABLE 3. GlIw-1 Total Artifact Inventory.

Artifact class	N	%
Classified artifacts	3180	62.1
Bone fragments	1540	30.0
Unidentified artifacts	209	4.1
Ethno-botanical	195	3.8

TABLE 4. GlIw-1 Artifact Classification Scheme (based on South 1977:95-96).

Class no.	Class name	N	%
	Kitchen Artifact group		
1.	ceramics	145	
2.	wine bottles	286	
3.	case bottles	0	
4.	tumbler	0	
5.	pharmaceutical-type bottles	89	
6.	glassware	0	
7.	tableware	5	
8.	kitchenware	11	
9.	other	406	
	total	942	29.6

TABLE 4 (Continued).

Class no.	Class name	N	%
	*Bone group		
10.	bone fragments		
	Architectural group		
11.	window glass	278	
12.	nails	719	
13.	spikes	14	
14.	construction hardware	33	
15.	door lock parts	1	
	total	1045	32.9
	Furniture group		
16.	furniture hardware	13	
	total	13	.4
	Arms group		
17.	musket balls, shot, sprue	190	
18.	gunflints, gunspalls	256	
19.	gun parts, bullet moulds	33	
20.	waste lead, graphite	115	
	total	594	18.6

TABLE 4 (Continued)

Class no.	Class name	N	%
	Clothing group		
21.	buckles	4	
22.	thimbles	1	
23.	buttons	5	
24.	scissors	0	
25.	straight pins	0	
26.	hook and eye fasteners	0	
27.	bale seals (for cloth)	0	
28.	textile fragments	3	
29.	hawk bells	11	
30.	needles and awls	3	
31.	glass beads	20	
32.	brass bangles	11	
	total	58	1.8
	Personal Artifact group		
33.	coins	0	
34.	keys	1	
35.	personal items	27	
	total	28	1.0

TABLE 4 (Continued).

Class no.	Class name	N	%
	Tobacco Pipe group		
36.	European clay tobacco pipes	454	
	total	454	14.3
	Activities group		
37.	construction tools	6	
38.	farm tools	0	
39.	toys	0	
40.	fishing gear	0	
41.	stub-stemmed pipes	0	
42.	storage items	0	
43.	*ethno-botanical		
44.	stable and barn	0	
45.	miscellaneous hardware	3	
46.	hunting and trapping items	2	
47.	military objects	7	
48.	aboriginal artifacts	28	
	total	46	1.5
	Total	3180	100.1

* indicates artifacts not included in relative frequency total and percentages

Kitchen Artifact Group

The Kitchen Artifact Group includes items used in the preparation, storage, or consumption of food. Kitchen artifacts from the GlIw-1 site generally support the expected temporal and functional aspects of an early fur trade post on Hudson Bay. Bottle fragments and European ceramic sherds predominate in the sample (Table 4).

European Ceramics

A total of 145 sherds representing a minimum of 24 separate vessels constitute the European ceramic class (Table 5). Each identified vessel is described separately within the larger context of major ceramic type (i.e. refined earthenware, coarse earthenware, stoneware, and Chinese export porcelain). The number in brackets following the sub-headings denotes the vessel count for that particular ceramic type.

Refined earthenware (9)

Earthenware is an English term referring to non-vitrified ceramics (Savage and Newman 1974:103). Coarse earthenwares are made from unrefined clays and are more porous than the relatively smoothly textured refined earthenwares.

TABLE 5. GlIw-1 European Ceramic Vessels.

Vessel no. and type	Vessel description	Sherd count
Refined earthenware		
1. tin glazed (grey)	apothecary jar	1
2. tin glazed (grey)	apothecary jar	2
3. tin glazed (white)	apothecary jar	23
4. French faience	unidentified	2
5. English	jar	4
6. English	jar	6
7. English	jar	14
8. English delftware	unidentified	1
9. unidentified	unidentified	4
Coarse earthenware		
10. red lead glaze	large bowl or pan	8
11. English	tankard	2
12. French Beauvet	large bowl or pan	8
13. French Beauvet	bowl	2
14. unidentified	bowl	2
15. unidentified	plate	1
16. unidentified	unidentified	9
17. unidentified	jar	1
18. unidentified	jar	1
19. unidentified	jar	2
Stoneware		
20. Westerwald	unidentified	1
21. unidentified	small cup	1
22. coarse stoneware	posset cup	2
23. coarse stoneware	bowl	2

TABLE 5 (Continued)

Vessel no. and type	Vessel description	Sherd count
Chinese export porcelain		
24. oriental blue	teacup	9
Unidentified	N/A	37
Total		145

Vessels 1, 2, and 3 (Figure 19) are incomplete apothecary or druggists jars. Noel-Hume (1969:204) indicates that, although apothecary jars were originally used exclusively by druggists, they came into general use during the seventeenth century. Apothecary jars were usually decorated during the sixteenth century; by 1650 they generally featured a plain white tin glaze. The site specimens range from white to light grey.

Vessel 4 consists of two small but distinctive body sherds. The fabric is the buff colour usually associated with refined earthenware. A white tin glaze decorated with two shades of cobalt blue covers the body. The sherds may be French faience, but are not large enough to allow a definite identification.

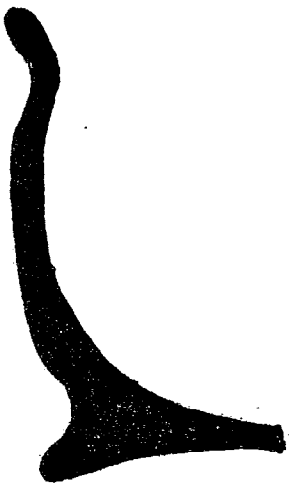

FIG. 19. Apothecary jar profile (vessel no. 1).

Vessels 5 (Figure 20), 6, and 7 are all examples of the same English refined earthenware. They feature a buff coloured fabric covered by a white tin glaze decorated with manganese purple lines. No vessel is sufficiently complete to discern a pattern. The vessels appear to represent portions of three different size jars, and were located in association with building 1 and the adjacent building 2. Based on sherd and vessel count (Table 5), they are the most frequent ceramics on the site. Several of the sherds were discoloured from exposure to fire.

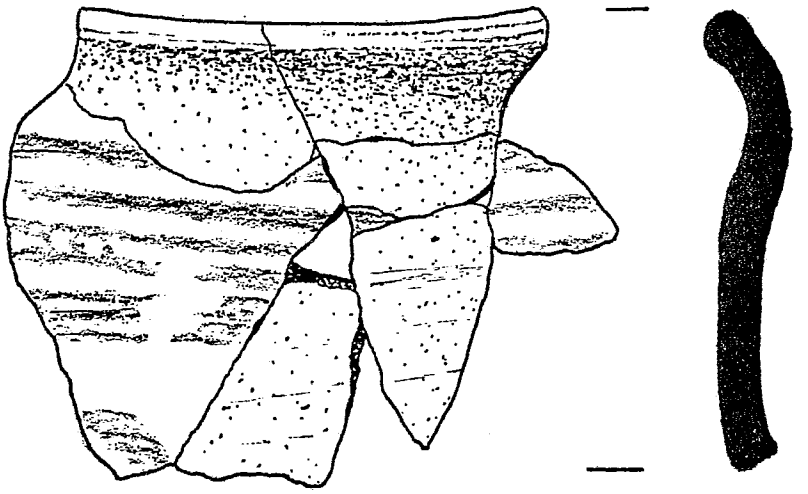

FIG. 20. English refined earthenware jar (vessel no. 5).

Vessel 8 is represented by a single body sherd. It appears to be an example of English delftware and features a buff coloured fabric decorated with cobalt blue against a white tin glaze background.

Vessel 9 consists of a rim and 4 body sherds. It was located within building 1 and the burnt glaze and fabric present further evidence of the fire that destroyed this structure.

Coarse earthenware (10)

Vessel 10 is a large bowl or pan represented by 1

base and 7 body sherds. The fabric is a porous red clay and is overlain by a reddish-brown (Munsell 5YR 3/3) lead glaze. Most of the sherds were recovered from within building 1.

Vessel 11 consists of a basal portion from a tankard. This item was located in the small storage pit (pit 1) within building 1. The exterior glaze has been discoloured by fire.

Vessels 12 and 13 (Figure 21) are two bowls that feature a green lead glaze over a cream coloured fabric. Vessel 12 consists of a rim sherd and 7 body sherds and was located near the north palisade wall. Vessel 13 is represented by two large sherds that form a substantial portion of a base from a large bowl; it was located in the main bastion. The green lead glaze on these vessels resembles that found on French Beauvet products and they are tentatively identified as such.

Vessels 14 through 19 are unidentified beyond their coarse earthenware designation. Associated functional categories are indicated in Table 5.

Stoneware (4)

Stoneware is a ceramic manufactured from clay and a crushed fusible stone. It is partially vitrified by firing, and the process generally makes these vessels impervious to liquids. Glazes were usually added to stoneware vessels for

appearance (Savage and Newman 1974:275).

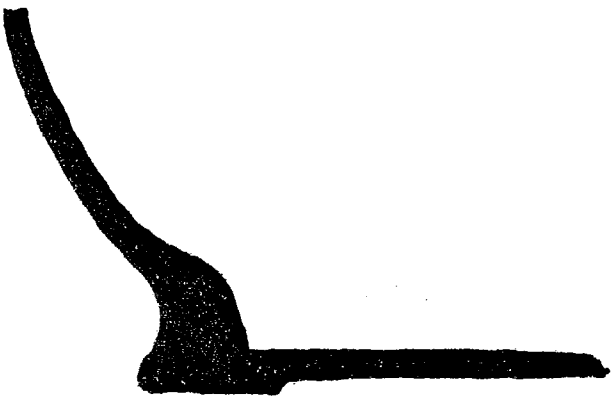

FIG. 21. Basal profile of a Beauvet bowl (vessel no. 13).

Vessel 20 consists of a small sherd that is distinctively Westerwald. This classification is given to a wide variety of stoneware ceramics manufactured at Grenzau, Grenzhausen, and Hohr in the district of Westerwald, Germany (Savage and Newman 1974:313). The principal characteristics of this ware are a light grey fabric with the addition of a cobalt blue design against a white background.

Vessel 21 is represented by a single large sherd with a curvature that suggests it is a portion of a cup body. It has a light grey glaze.

Vessel 22 is an unidentified coarse stoneware object that may be a segment from a posset cup. It consists of two rim sherd fragments that feature a medium grey glaze. The larger fragment exhibits an oval fabric scar where a handle was formerly attached.

Vessel 23 consists of two base sherds from a stoneware plate. The exterior (bottom) surface is plain, while the interior is covered by a light green lead glaze. The vessel was recovered from a test pit outside of the west palisade wall and may not be associated with the fur trade post occupation.

Chinese export porcelain (1)

Chinese export porcelain initially achieved widespread popularity in Europe during the latter part of the seventeenth century (Jolliffe 1973:3). The designation oriental blue refers to any porcelain decorated with cobalt blue (Whate n.d.:6). This technique was developed in China toward the end of the T'ang dynasty which existed from 625 A.D. to 925 A.D. (Gardner 1964:1). Oriental blue became the principal decorative technique applied to export porcelain during the ensuing centuries.

Chinese porcelain exhibits a remarkable translucent quality. This property is the result of the use of naturally decayed feldspar clays in combination with a felspathic glaze.

The natural kinship of these materials causes a union of paste (fabric) and glaze upon firing (Gardner 1964:4).

Vessel 24 (Figure 22) is an example of oriental blue Chinese export porcelain. It consists of 9 sherds, 5 of which have been reconstructed to form a complete vessel profile. This object was located within building 1, and consequently the teacup's exterior surface was partially distorted by heat from the fire that destroyed the structure. As such, the cobalt blue design cannot be identified.

This artifact is an incongruous item within an assemblage from an early Hudson Bay fur trade post. Presumably, the porcelain teacup was the valued personal property of an individual residing at the post.

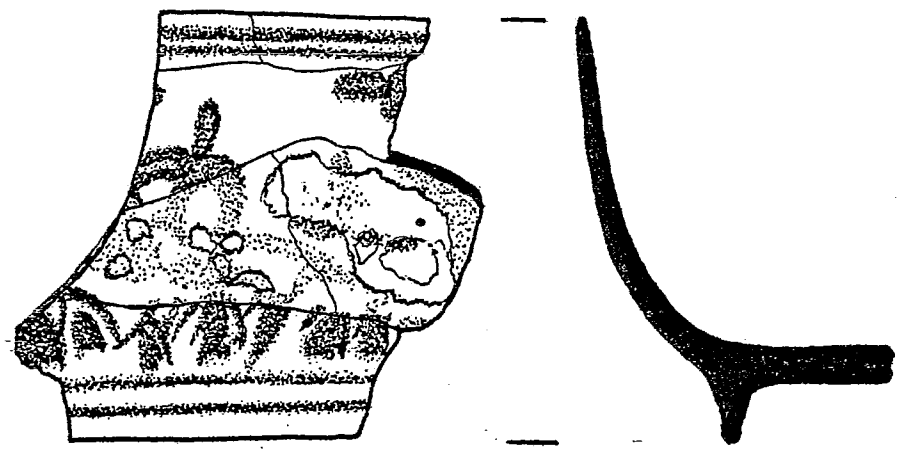

FIG. 22. Chinese export porcelain teacup (vessel no. 24).

Unidentified ceramics

A total of 37 sherds were recognizably ceramic, but too distorted by fire to identify. The majority of these sherds, 28 or 75.7%, were associated with building 1.

Wine Bottles

Thick glass wine bottle sherds are one of the more frequent artifact classes from the site. A total of 285 lip, neck, shoulder, and body fragments constitute the sample (Table 6). The wine bottle sherds were distributed throughout the site, but 7 of the 8 recovered bottle necks were associated with building 1.

TABLE 6. Wine Bottle Sherd Count.

	Neck/rim/lip	Shoulder/body	Base	Total
N	8	263	14	285
%	2.8	92.3	4.9	100

The bottle necks from the site have inside lip diameters ranging between 13 mm to 26 mm. Four specimens were sufficiently complete to have retained rims. These string rims were V-shaped in cross-section, well formed, and securely attached to the bottle neck. The distance from

neck to rim varied from 5 mm to 7 mm.

No intact, or even largely complete, bottles were recovered from the site. However, the bottle portions in the sample resemble bottle types manufactured in England during the latter part of the seventeenth century.

The fabrication of wine bottles in England began around 1650 (Hudson 1961:79). The early bottles had long necks and relatively shallow basal kicks. The trend between 1665 to 1700 was for wine bottles to become more squat with much shorter necks, while kicks gradually increased in prominence (Hudson 1961:80).

In contrast to the English situation, the French bottle industry was poorly developed during the seventeeth century. Paul Hanrahan (1978:52-74) indicates that few of the wine bottles in the French Place Royal site collection were made in France. The forms that do appear to be French are thin-walled, shaft and globe design bottles made of light-green glass. Noel-Hume (1969:69-70) adds that eighteenth century French bottles feature poorly applied string rims in contrast to the well tooled and applied English rims. The latter style is present on the GlIw-1 wine bottle necks.

Absolute dating of the wine bottle portions from the site is problematic. The general neck shape and rim forms

most closely resemble styles illustrated by Noel-Hume (1969:63) that date to the years 1686 and 1687. Robert McNulty (1972:146) notes that the string rims were moved to just below the neck sometime during the 1680-1690 period. This alteration was made to accomadate the innovation of corks being driven into bottle necks. Prior to this time, corks were tied to the tops of wine bottles with string attached to the rim.

Unfortunately, no comparative metric data are available with which to compare the previously noted lip/rim distances of the GlIw-1 specimens. Visual examination of wine bottle drawings presented by Noel-Hume (1963:63 and 1961:99) suggest that the site sample were corked with the older method. Figure 23 illustrates two bottle necks from the site.

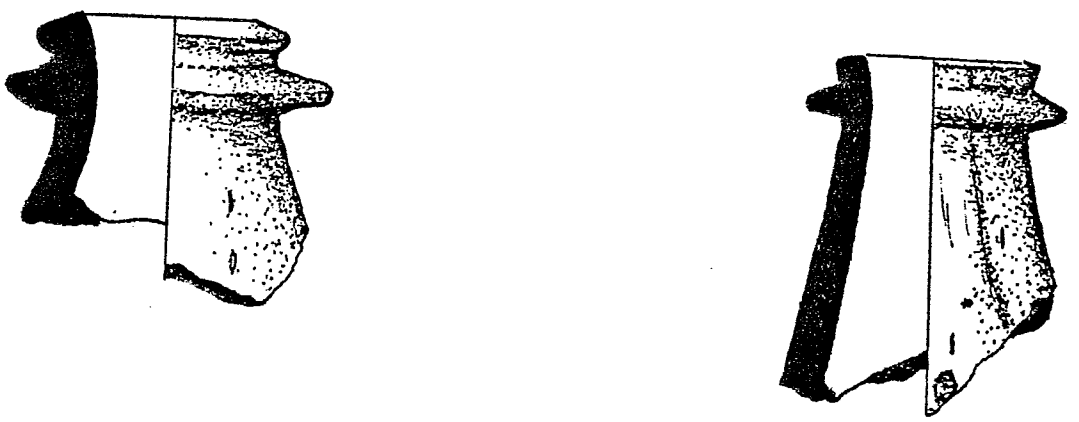

FIG. 23. GlIw-1 bottle necks with attached rims.

The one cork located on the site has a diameter of 21 mm, is 8 mm thick, and is also slightly tapered. The relative thinness of this item reinforces the hypothesis that the GlIw-1 wine bottles were corked with the string attached to the rim method.

The basal portions of bottles within the sample (Figure 24) suggest a comparatively shallow kick. This feature corresponds to illustrations of bottles (Noel-Hume 1969:63) from the pre-1700 period. Two bottle lips from the site are partially distorted as a result of thermal alteration (Figure 25); both were recovered from within the burned building 1.

The wine bottles used at the GlIw-1 site can be identified as English products with some certainty. Dating is more difficult, although most evidence suggests that the bottles were manufactured after 1680 and probably before 1690. The shallowness of the basal kicks indicates that the terminal fabrication date was before 1700.

Pharmaceutical Bottles

Pharmaceutical bottles were used for storing various patent medicines and herbal remedies. A total of 89 sherds constitute the present sample (Table 7). From this total, a minimum of 8 bottles are identified.

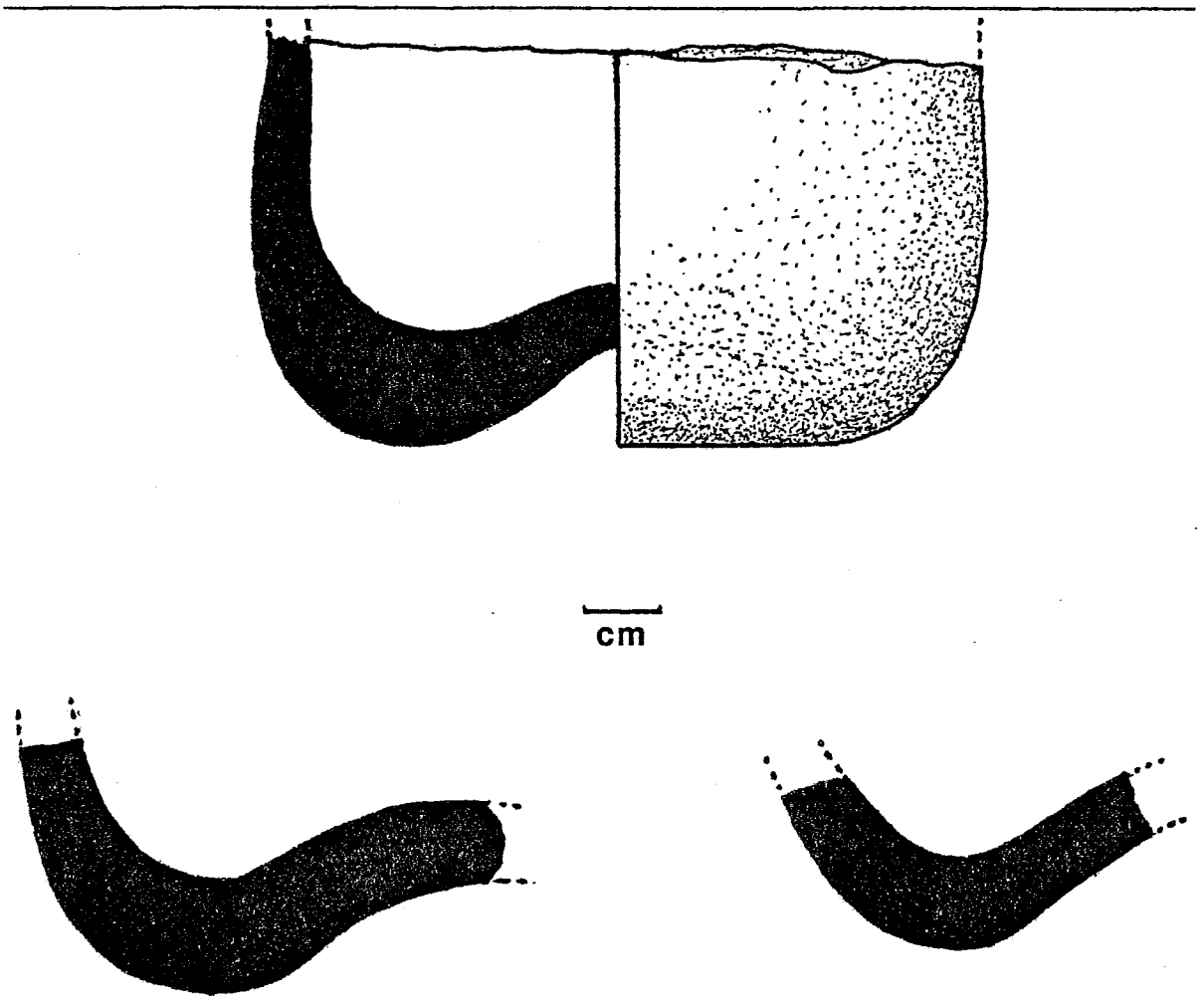

FIG. 24. Profiles of GlIw-1 wine bottle bases.

TABLE 7. GlIw-1 Pharmaceutical Bottle Sherd Count.

	Lip/neck/shoulder	Body	Base	Total
N	10	77	2	89
%	11.2	86.5	2.3	100

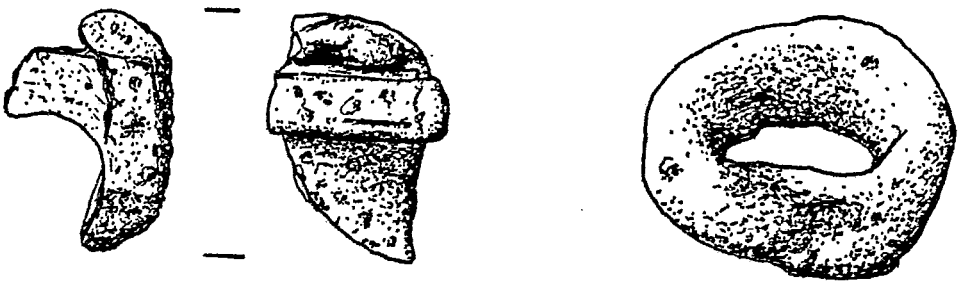

FIG. 25. GlIw-1 bottle lips distorted by fire.

Bottle 1 consists of the upper and lower extremities of a pharmaceutical bottle (Figure 26b). The bottle top features a moderately flared lip with an outside diameter of 23 mm, a well-defined neck, and gradually sloping shoulders. The bottle base consists of a prominent, slightly irregular kick. The exterior diameter of this pale green bottle is 49 mm.

Bottles 2 (Figure 26a), 3, and 4 are all represented by portions of strongly flared lips. Bottle 2, the most complete specimen in this group, features a poorly defined neck and weak shoulders.

Bottle 5 (Figure 27b) consists of a single sherd encompassing portions of a lip, neck, and shoulder. It has an exterior lip diameter of 32 mm.

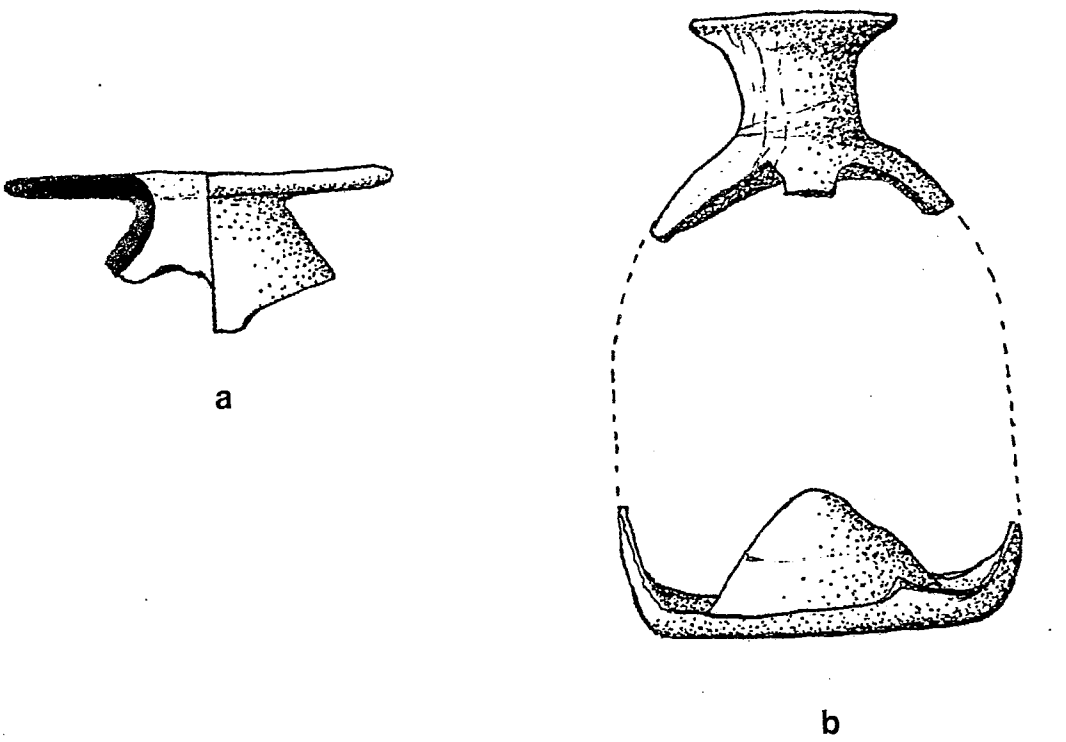

FIG. 26. GlIw-1 pharmaceutical bottles 1 and 2.

FIG. 27. GlIw-1 pharmaceutical bottles 5 and 6.

Bottle 6 (Figure 27a) is a clear glass specimen that features a flared lip with an exterior diameter of 29 mm. It too has weak shoulders flaring out from a poorly defined neck.

Bottle 7 (Figure 28b) is a small non-flaring bottle that has been distorted by heat. Bottle 8 (Figure 28a) consists of a blue-green base. The kick was covered with a second application of glass near its base that has subsequently been broken. This specimen has an exterior base diameter of 39 mm.

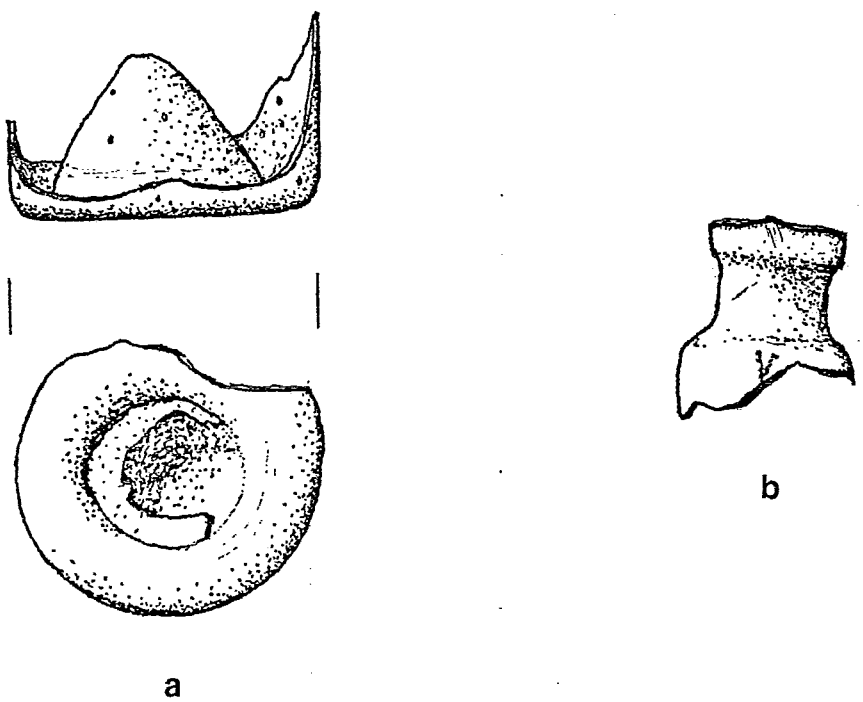

FIG. 28. GlIw-1 pharmaceutical bottles 7 and 8.

The GlIw-1 pharmaceutical bottles generally correspond to styles common during the mid-seventeenth to mid-eighteenth centuries as illustrated by Noel-Hume 1969:73). Precise dating or the ascertaining of origins is not possible at this time because of the lack of comparitive data.

Tableware

Comparitively few tableware items were recovered from the site. One complete table knife and 4 incomplete knife blades constitute the GlIw-1 sample. No spoons or forks were located. This paucity of tableware items may reflect the removal of these valued items by Native Peoples following the abandonment of the site by Europeans, or simply that such objects were not frequently used on early trade post sites.

The complete knife blade was recovered from a test pit adjacent to the outside east wall of the palisade. As such, it may not be associated with the fur trade post occupation. It is 280 mm long, 26 mm wide, and has the V cross-section characteristic of knife blades.

Of particular interest is the association of the four table knife blade fragments with building 1. This relationship is expected as the building has been interpreted

as the principal sleeping and living quarters for the post occupants. These knife blade segments all had a V cross-section and featured blade widths between 21 mm and 28 mm with a 25 mm mean.

Kitchenware

Eleven portions of brass kettles constitute the kitchenware sample from the site. Kettles were an important trade item (Appendix 4), and presumably were also used by the post personnel. Six of the kettle portions were associated with the main bastion. This disproportionate distribution suggests a special function for the structure. It may have served as a food preparation center, although there is no evidence of a hearth. Alternative hypotheses are that kettles were stored or repaired in the main bastion.

Broken bail fasterners were the most common kettle segments in the assemblage (Table 8). These elements served to attach the handle to the kettle body. As they projected above the body, they were often broken.

Only 2 of the GlIw-1 kettle bail fasteners were sufficiently complete to allow measurement. Specimen D1-20 (Figure 29b) consists of the bottom half of a bail 51 mm wide still attached to a kettle body segment. The other measurable bail fastener

specimen B6-72 (Figure 29a), is 46 mm wide. This object was broken at the juncture with the kettle rim, and the distance from this point to the bail top is 31 mm. It has a handle hole diameter of 16 mm.

TABLE 8. GlIw-1 Brass Kettle Fragments.

	Bails	Rim portions	Body portions
N	7	3	1
%	63.6	27.3	9.1

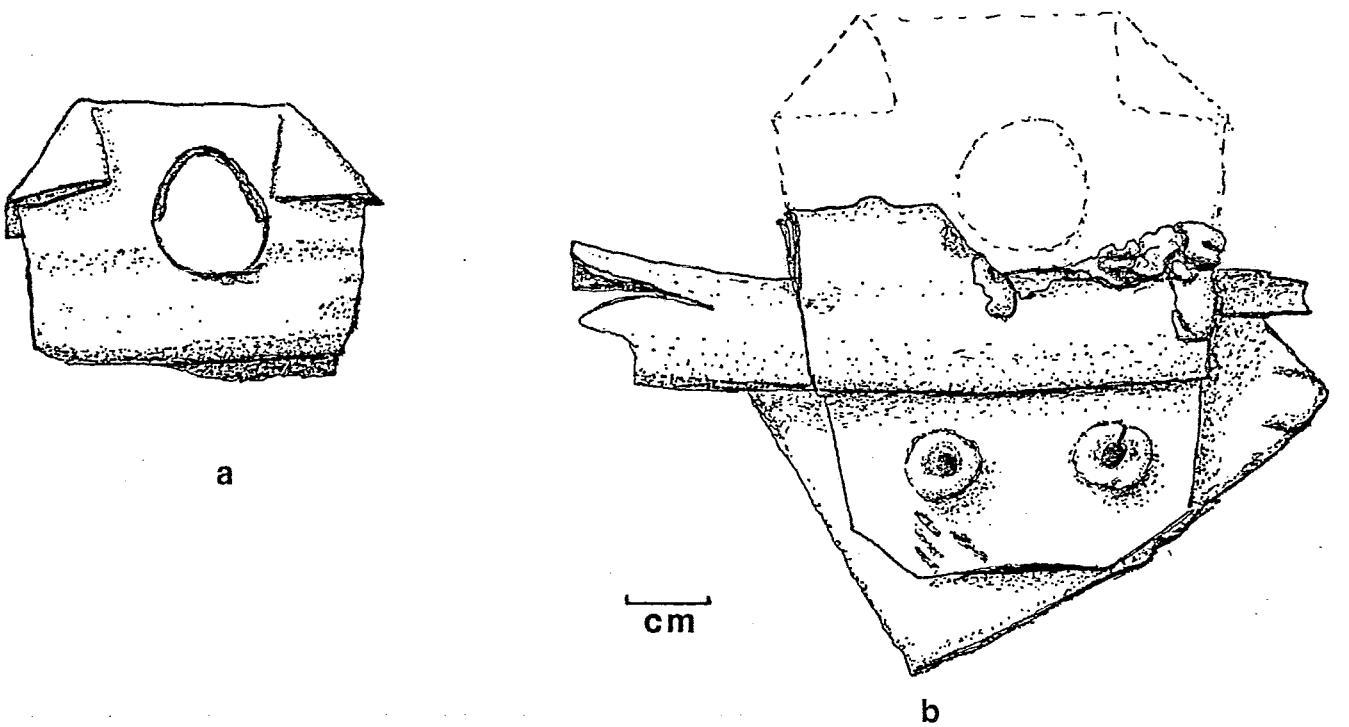

FIG. 29. GlIw-1 brass kettle bail fasteners.

The GlIw-1 bail fasteners were all constructed in the same manner. William Noble (1973:151) provides the following description of North-West Company and French construction.

> They utilized two small flat rectangular plates fastened on either side of the pail top. These plates were cut from short lengths of sheet copper or brass, folded in half and then inserted over the sides of the pail rim. Two large headed rivets were driven through the base of each outside plate, through the pail wall and finally through the interior plate half, where the rivets were flattened to hold the plate fast to the pail. The upper portion of each plate projected above the kettle rim as high as an inch. The two upper projecting corners of each were then folded as small triangular ears toward the exterior of the pail and flattened. Finally, a circular hole for insertion of a wire bail handle was punched through each plate above the kettle rim.

This detailed description accurately depicts the bails recovered from the GlIw-1 site. However, this conformity raises an interpretative problem.

Noble (1973:151) asserts that only North-West Company kettles were manufactured in the manner just described. Hudson's Bay Company kettles are portrayed as having handles attached to a single large lug. An illustration in an article by Arthur Woodward (1948:3) is cited as an example of a Hudson's Bay Company kettle.

The illustration in question, however, portrays a

copper kettle. These items were manufactured in an entirely different way than brass trade kettles. The noted discrepancy in kettle bail fastener style, therefore, appears to reflect differences between brass and copper kettles and not fur trade company preferences.

Other

This category serves to incorporate kitchen artifacts from the site not included in South's (1977) Carolina Artifact Pattern. Specifically, these items are bottles apart from the previously mentioned wine and pharmaceutical varieties, and fragments of melted glass and ceramics. This latter group includes objects too distorted through thermal alteration to be distinguished into separate glass and ceramic categories.

A total of 14 sherds of bottle glass are included in this category. Of this total, 6 sherds resemble glass from pickling jars. The glass is pale blue-green and includes 2 bases. Two clear glass body sherds are from bottles of an unidentified type. The remaining 6 fragments are partially melted and cannot be described further.

The severely melted glass and ceramic fragments number 392 items. Of this total, 365 fragments, or 93.1% of the sample, were associated with building 1.

Architectural Group

Architectural artifacts are those objects used in building construction. The specific artifact classes discussed are indicated in Table 9. Wood logs, planks, bricks, and floor tiles were described within the preceeding chapter on site settlement pattern

TABLE 9. GlIw-1 Architectural Artifact Class Frequency.

Artifact class	N	%
Window glass	278	26.6
Nails	719	68.8
Spikes	14	1.3
Construction hardware	33	3.2
Door lock parts	1	0.1
Total	1045	100.0

Window glass

The window glass from the site is thin (1 mm-2mm), light green, and exhibits occasional small (less than 1 mm diameter) round bubbles. The lack of curving bubbles and stress lines indicates that this product is broad glass

rather than spun glass (Noel-Hume 1969:234-235). The latter type was a French method introduced into England about 1690.

Most of the recovered window glass was associated with building 1 (Table 10) indicating the presence of a window in the southeast corner of this structure. Turned lead fragments, often erroneously called cames (Noel-Hume 1969:233), were located in conjunction with building 1 and are described within the building hardware section of this chapter.

TABLE 10. Distribution of Window Glass at GlIw-1.

Site area	N	%
Building 1	213	76.6
Building 2	8	2.9
Main bastion	4	1.4
Area north of buildings	37	13.3
Area south of buildings	6	2.2
Other	10	3.6
Total	278	100.0

Nails

Nails are the largest single artifact class represented in the assemblage. A total of 719 specimens

constituting 22.6% of the total artifact sample were recovered. Before presenting the nail analysis, it is useful to briefly review the development of wrought nails. Although a common object familiar to most people, the following nail definition is an appropriate commencement point.

> Few things we examine are in less need of definition but, this being a good way to open discussion, we shall define nails. They are slender shafts of metal with one sharp and one lumpy end, most often made of steel and used to hold two pieces of wood together by being driven through one into the other (Cunningham and Price 1976:107).

Nails are present as early as Roman times (Alan Dove: personal communication). These early nails were completely hand wrought and this technique remained the dominant method of nail manufacture until the advent of cut nails in the early nineteenth century (Noble 1973:47).

However, a point often overlooked in wrought nail analysis is that some of these items were not actually completely hand wrought. Instead, many so called wrought nails were first cut from prepared nail stock and then finished by hand. Alan Dove (personal communication), a research scientist with the Steel Company of Canada, initially suggested that the GlIw-1 nails were fabricated using this technique. Robert Cunningham and John Price (1976:109)

describe the adoption of this process by the British.

> Up to about 1700, nails of all sizes and shapes were completely hand forged. This trade in medieval England left us the surnames 'Naylor' and 'Horsnall' (Horsenail). About the end of the 17th century the rolling and slitting of iron into nailstock or rod was introduced to Britain and the making of nails was simplified. Nail rods were cut to length, pointed and headed by hand, but the time consuming requirement of beating iron or steel into nail shape had been eliminated.

The GlIw-1 nail sample consists of 719 complete and broken specimens. Table 11 indicates the frequency and distribution of defined nail types. Spikes are described separately in the section following nail analysis.

Most of the excavated nails, 64.5% (Table 11), were recovered from building 1. In fact, the relative distributions of nails remains virtually unchanged when only specimens with intact points are considered (Table 12). This method of nail analysis is analagous to minimum vessel count in ceramic description.

From Table 12 it is apparent that nails with drawn points (Figure 30c) constitute most of the sample. Wedge pointed nails (Figure 30b) actually form less than one third of the nail sample. The relative prominence of drawn over wedge nails was greatest in building 1 where 72% (Table 12) of associated nails had drawn points.

TABLE 11. GlIw-1 Nail Type Frequencies and Distribution.

Site Area \ Nail Type	Complete					Incomplete					Total	
	Wedge A	Cinched Wedge B	Drawn C	Cinched Drawn D	Iron Tacks E	Cinched No Points F	Heads Only G	Shaft Fragments H	Wedge No Heads I	Drawn No Heads J	F	%
Building 1	36	21	163	48	6	14	98	40	28	10	464	64.5
Storage cellar	12	2	24	3	0	1	8	4	6	1	61	8.5
Main bastion	3	1	16	6	0	6	8	2	6	1	49	6.8
North of building 1	13	2	29	10	0	3	16	3	8	0	84	11.7
South of building 1	5	0	11	1	0	1	5	3	3	1	30	4.2
North palisade	0	1	2	0	0	0	1	0	0	0	4	.6
Other	4	0	4	5	0	1	7	3	3	0	27	3.8
Total F	73	27	249	73	6	26	143	55	54	13	719	
Total %	10.2	3.8	34.6	10.2	.8	3.6	19.9	7.7	7.5	1.8		100

TABLE 12. Relative Frequencies and Distribution of Nail Point Types at GlIw-1.

Site area	Drawn point	Wedge point	N	%
Building 1	221	85	306	62.6
Building 2	28	20	48	9.8
Main bastion	23	10	33	6.8
Area north of buildings	39	23	62	12.6
Area south of buildings	13	8	21	4.3
North wall of palisade	2	1	3	.6
Other	9	7	16	3.3
N	335	154	489	
%	68.9	31.5		100.0

Another feature of the GlIw-1 nail sample was the exclusive presence of roseheads except on several hinges. Headed nails and headed portions of nails total 591 specimens (columns A, B, C, D, F, and G of Table 11). All of these nails have the characteristic multi-faceted rosehead.

The sizing of nails into meaningful categories presents a problem. Many analyses divide nails into d, or pennyweight, groups. This system refers to the cost per pound of different nail sizes (Noel-Hume 1969:252). This classification is open to different interpretations as the cost of nails changed during its period of usage.

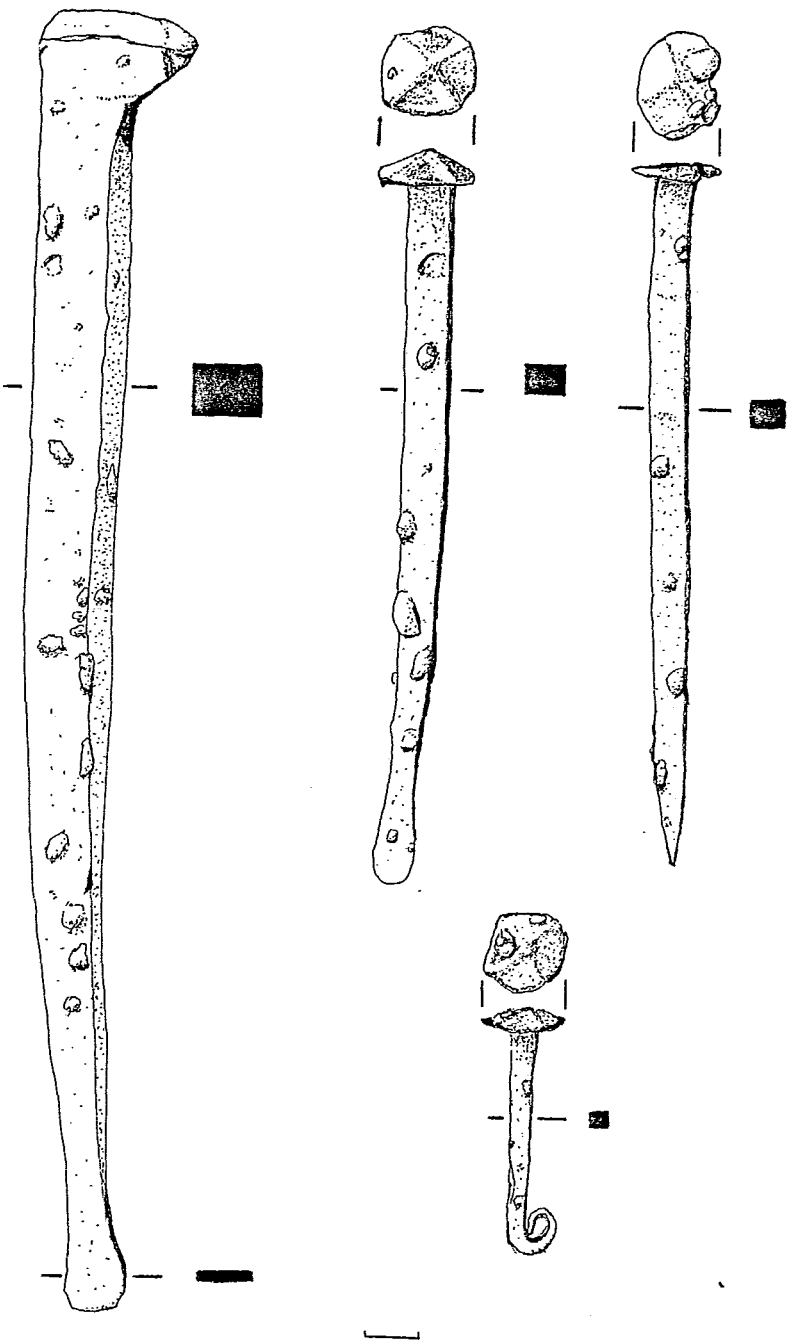

FIG. 30. G1Iw-1 spike and nail types.

For present purposes nails complete and undistorted enough to measure were classified in specified length ranges (Table 13). These approximate d-groups were derived by comparing Dove's (Noble 1973:127-134) categories to the actual reported length measurements for Rocky Mountain House nails.

A total of 126 nails were clinched (columns B, D, and F in Table 11). Clinching served to prevent a nail from pulling out from a piece of wood and is generally associated with door construction. However, no meaningful association with possible door area was ascertained.

A particularly meaningful association was found in the distribution of fire-reddened nails over the site. This staining, actually iron oxide, is produced when nails are in contact with high heat, as in a building fire. Of the 29 nails and 1 spike exhibiting the red staining, 25 were associated with building 1, providing further evidence that this structure was destroyed by fire.

Finally, 6 iron tacks were located within building 1. Iron tacks were utilized for both exterior and interior functions. The tacks from the site are between 18 mm and 22 mm long, and feature plate thicknesses ranging from 3 mm to 4mm. All of the tacks had shallow rose heads. The exclusive presence of these tacks within building 1 suggests that they were used on or within the structure.

TABLE 13. GlIw-1 Nail Length Classification.

d-group	Length range mm	Point type drawn	wedge	N	%
2d	15-30	18	2	20	4.9
3d	31-35	14	1	15	3.7
4d	36-40	9	2	11	2.7
5d	41-45	11	2	13	3.2
6d	46-50	12	6	18	4.4
7d	51-55	7	6	13	3.2
8d	56-62	28	10	38	9.4
9d	63-70	35	9	44	10.9
10d	71-80	34	11	45	11.1
16d	81-95	43	18	61	15.1
20d	96-107	12	6	18	4.4
30d	108-121	41	29	70	17.3
40d	122-132	5	29	34	8.4
50d	133-140	3	2	5	1.2
	N	272	133	405	
	%	67.1	32.8		99.9

Spikes

Simply stated, spikes resemble nails in form, but are substantially larger. Whereas the largest nail in the collection is less than 140 mm long, the spike sample ranges from 177 mm to 285 mm in length.

The distribution of spikes over the site suggests different functions and use areas for these items than those observed for nails (Table 14). Only 4, or 28.6%, of the 14 spikes recovered were located within building 1. This figure contrasts with 64.5% for the total nail sample. Eight spikes, comprising 57.1% of the sample, were associated with the palisade. This relatively high number appears significant, especially when only 5 square meters of palisade was excavated. This disparity in spike distribution indicates that these items were not generally used in building construction, but were frequently utilized in the erection of palisades. Finally, all of the complete spikes had L-heads and wedge points

Construction hardware

This artifact class constitutes all hardware items connected with architectural structures. Table 15 indicates the relative frequencies of hardware items on the site.

TABLE 14. GIIw-1 Spike Attributes and Distribution.

Site area	Specimen	Length mm	Plate mm	Head	Point
Building 1	C9-10	-	16	L	-
	A6-32	177	17	L	wedge
	C5-3	-	16	L	-
	C7-74	285	17	L	wedge
Building 2	B4-4	232	17	L	wedge
	B6-54	-	16	-	-
Palisade	A9-4	-	-	-	wedge
	E1-7	210	13	L	wedge
	E1-8	225	15	L	-
	E1-9	-	15	L	-
	E1-13	283	18	L	wedge
	R47-1	197	12	L	wedge
	R47-2	281	14	L	wedge
	R47-3	222	14	L	wedge

Pintle hinge elements are the most common items within the construction hardware class (Table 15). Stone (1974:217) provides the following description of pintle hinges.

This hinge consists of two separate parts which work in conjunction with each other. One part, the pintle, is a solid iron shank with a right angle protrusion (hinge pin) which serves to mount the second part, the hinge strap element. The pintle shank is secured to a stationary object, either through insertion or an extension screw attachment, and is placed so that the hinge pin is offset from the stationary object. The hinge strap element, consisting of an iron strap with a loop at one end, is then fastened to a moveable object by screws or nails. The loop end of the hinge strap element which projects from the moveable object is then passed over and mounted to the pintle.

TABLE 15. GlIw-1 Construction Hardware Artifacts.

Construction hardware item	N	%
Pintle hinge elements	15	43.8
Self-contained hinges	1	3.1
Construction staples	6	18.8
Construction straps	4	12.5
Turned lead fragments	3	9.4
Miscellaneous items	4	12.5
Total	33	100.1

There are 10 pintles and 5 strap hinges (Table 16) within the present sample. Figure 31 illustrates two of these elements functionally articulated. Both pintles

and strap hinges are necessary for a functional pintle hinge. Therefore, it was expected that these separate elements would be located contiguous to each other. Table 17 indicates that this expected distribution was not present. This unexpected incongruity may reflect the removal of iron objects by Native People after the site was abandoned by Europeans

TABLE 16. GlIw-1 Pintle Hinge Element Attributes

Pintles				Strap hinges		
Item	Shank length mm	Pin length mm	Plate mm	Item	Length mm	Width mm
C4-54	92	-	12	C4-17	170	21
A5-20	88	50	12	D5-7	-	21
C7-67	62	25	10	D1-13	97	36
C1-25	111	84	18	A7-17	71	46
B6-118	98	55	14	A8-5	38	21
A8-21	69	35	10			
A8-22	84	52	11			
A7-20	60	32	7			
A3-135	91	58	12			
X-	84	58	12			

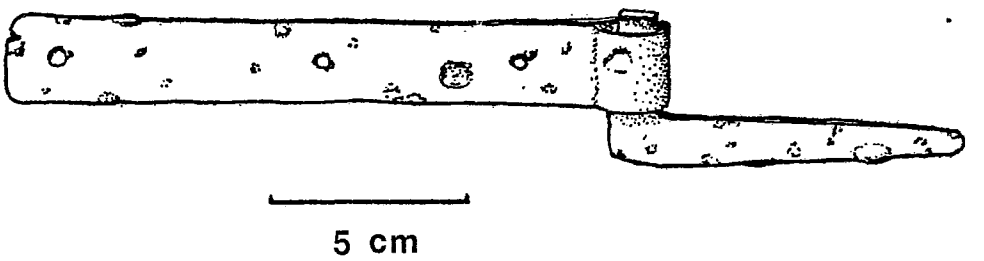

FIG. 31. GlIw-1 articulated pintle hinge.

TABLE 17. GlIw-1 Pintle Hinge Element Distribution.

Site area	Pintle	Strap hinge
Building 1	4	1
Building 2	1	0
Main bastion	0	2
Area north of buildings	1	0
Area south of buildings	3	2
Other	1	0

Pintles, although varying in size (table 16), share the same diagnostic features. Strap hinges, however, do vary in style. Specimen C4-17 (Figure 31) is the largest strap hinge in the collection. It has three nail holes

along its length and a pin diameter of 15 mm. Two small flat headed nails were attached to the hinge. This head form differs from the exclusive rose head configuration noted on other site nails.

Specimens D5-7 (Figure 32a) and D1-13 (Figure 32b) were located within the main bastion. The former item is incomplete, but has a pin diameter of 20 mm. Specimen D1-13 is 97 mm long and 36 mm wide. It features four nail holes aligned in two parallel rows. Three nails still attached to this hinge had drawn points and flat heads.

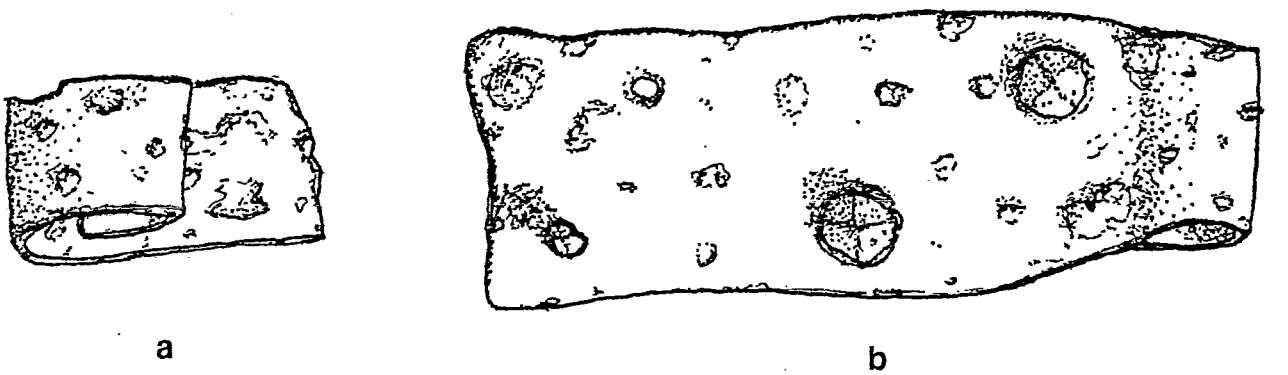

FIG. 32. GlIw-1 strap hinges D5-7 and D1-13.

Specimen A7-17 (Figure 33a) resembles one half of a butterfly hinge. The splayed portion of this object is 71 mm long and has four nail holes to allow attachment to a moveable object. The pin hole diameter is 10 mm and overall width is 46 mm.

The final strap hinge from the site (Figure 33b) is smaller than the preceeding specimen measuring 38 mm long by 21 mm wide. It has an 8 mm pin hole diameter. Two indentations near the strap extremity and a separate perforation probably served as nail holes.

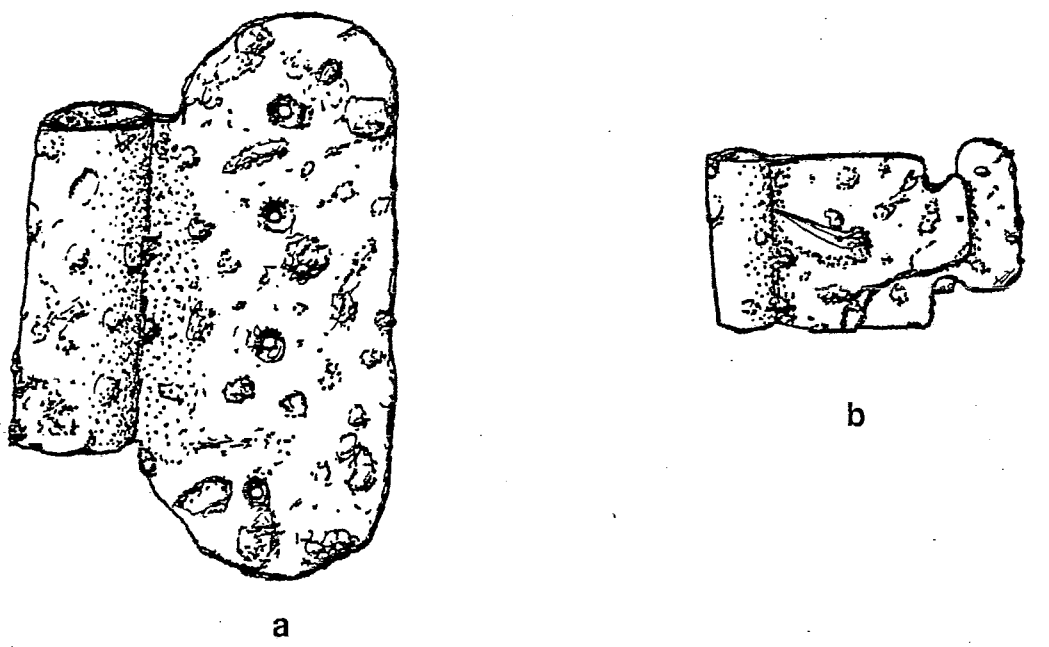

FIG. 33. GlIw-1 strap hinges.

Self-contained hinge

The second type of hinge present on the site is described by Stone (1974:217) as follows.

> This hinge is composed of three elements: two iron hinge strap elements, one of which is attached to a moveable object such as a shutter or gate; another element is attached to a stationary object such as a window frame or gate post; the third element is an iron hinge pin which passes between and joins the first two interlocking elements.

Only one self-contained hinge was located on the site. Specimen A5-19 (Figure 34) is 350 mm in total length. The strap hinge element that was attached to a stationary object is 115 mm by 30 mm and features 3 perforations for nails. The other strap element is 320 mm long and also has 3 nail holes. This segment of the hinge measures 45 mm wide at the juncture with the other element, and gradually tapers to a width of 22 mm before flaring to form a rams head motif that is partially broken. The pin juncture between the two strap elements is 50 mm long.

Construction staples

The staples within the collection are for the most part quite distorted (Figure 35a). Four of these items were associated with building 1, while the remaining two staples were located immediately to the south and north of the structure.

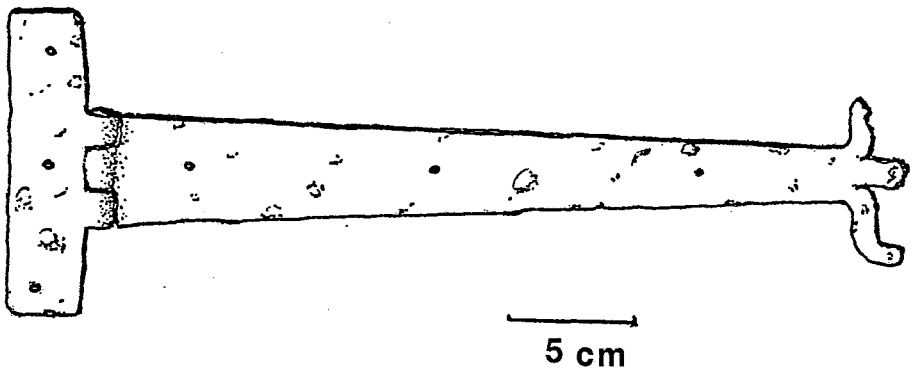

FIG. 34. GlIw-1 self-contained hinge.

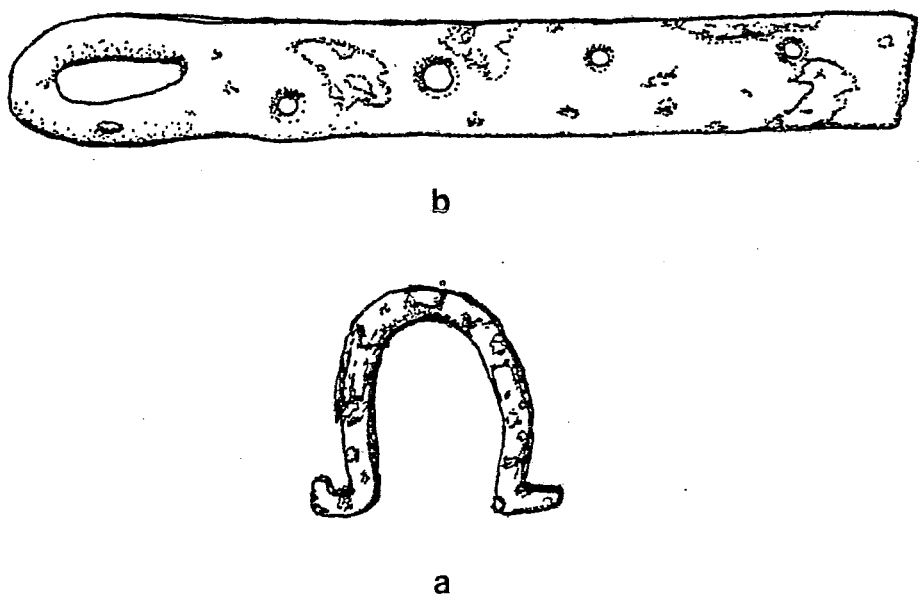

FIG. 35. GlIw-1 construction staple and miscellaneous construction hardware item.

Construction straps

Four items appear to have served as construction reinforcement straps. Specimen C4-47 is made from brass sheeting and is 92 mm long and varies between 18 mm and 42 mm in width. It has a large center perforation and several smaller holes along its exterior edge.

Specimens D1-22 and D1-23 were both associated with the main bastion. The former reinforcement strap is broken along its length, but is 30 mm wide. Specimen D1-23 is apparently complete with a length of 165 mm and a width between 11 mm and 36 mm. It is bent at an angle of 35° along the longitudinal center. Specimen B3-61 is from building 2 and appears to be largely incomplete.

Turned lead fragments

These objects were used to attach window glass to wooden frames. All three specimens in the sample (Figure 36) were associated with the east side of building 1. They are made from lead and feature an H-shaped cross-section. Window glass panes were fitted into the opposing sides of the H-configuration.

Miscellaneous items

The four remaining construction hardware artifacts cannot be identified beyond their apparent use in construction

activity. Specimen B4-4 (Figure 35b) is an iron bar measuring 172 mm long and varying between 21 mm and 25 mm in width. It features a 20 mm by 5 mm aperture near its widest end and has four 7 mm diameter holes along its length. It was associated with building 1.

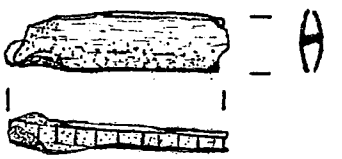

FIG. 36. GlIw-1 turned lead fragment.

Specimens A5-3 and C5-25 were both associated with building 1. These items are incomplete but feature nail holes. They may be portions of strap hinges, although no diagnostic attributes remain intact.

Specimen C1-47 (Figure 37) appears to be part of a door latch handle. It is quite distorted, but has an approximate length of 130 mm and varies between 3 mm to 22 mm in width.

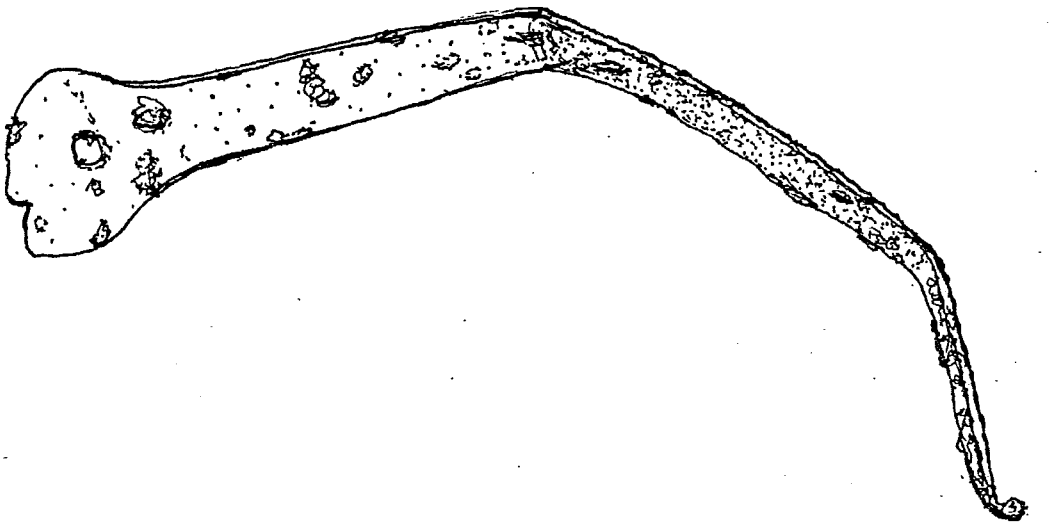

FIG. 37. GlIw-1 door latch handle.

Door lock parts

The only door lock part recovered from the site is a portion from a padlock (Figure 38). It was located within the fireplace section along the east wall of building 1. The padlock is approximately one third complete and consists of part of the external plate with the internal bar mechanism still attached. The lock measures 75 mm wide.

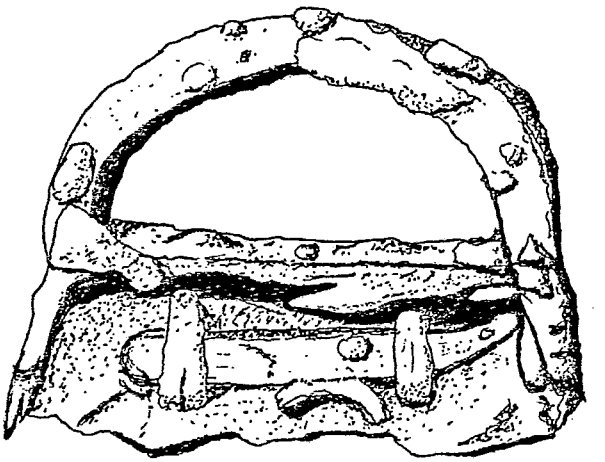

FIG. 38. GlIw-1 padlock portion.

Furniture Artifact Group

This artifact group comprises objects related to household furnishings including furniture pieces, furniture hardware, and miscellaneous associated items. Due to preservation factors, only furniture hardware items usually survive on archaeological sites. The GlIw-1 site presents additional problems for the recovery of furniture artifacts. The former trade post was destroyed by fire thus reducing

the chances of furniture recovery. Secondly, elaborate and extensive furnishings would not be expected at a frontier fur trade post.

TABLE 18. GlIw-1 furniture artifacts.

Furniture artifact	N
Brass tacks	3
Furniture hinges	4
Reinforcement strap	1
Furniture hasp	1
Drawer pulls	2
Clothing hook	1
Candlestick	1
Total	13

Brass tacks

Brass tacks were used as decorative fasteners, especially for leather covering on furniture. The 3 tacks in the collection all have round heads and drawn points. The two complete specimens are 18 mm and 23 mm long.

Furniture hinges

One iron and three brass furniture hinges were recovered from the site. The iron hinge was broken and is

heavily corroded. The specimen is butterfly shaped and measures 20 mm wide. Each half of the hinge has two small nail holes.

Two of the brass hinges were manufactured using a casting technique. Specimen B5-59 (Figure 39a) is a finely ornamented hinge featuring a rams horn configuration. The hinge is broken but has a width of 58 mm. The other cast brass hinge is a small broken butterfly hinge 21 mm wide.

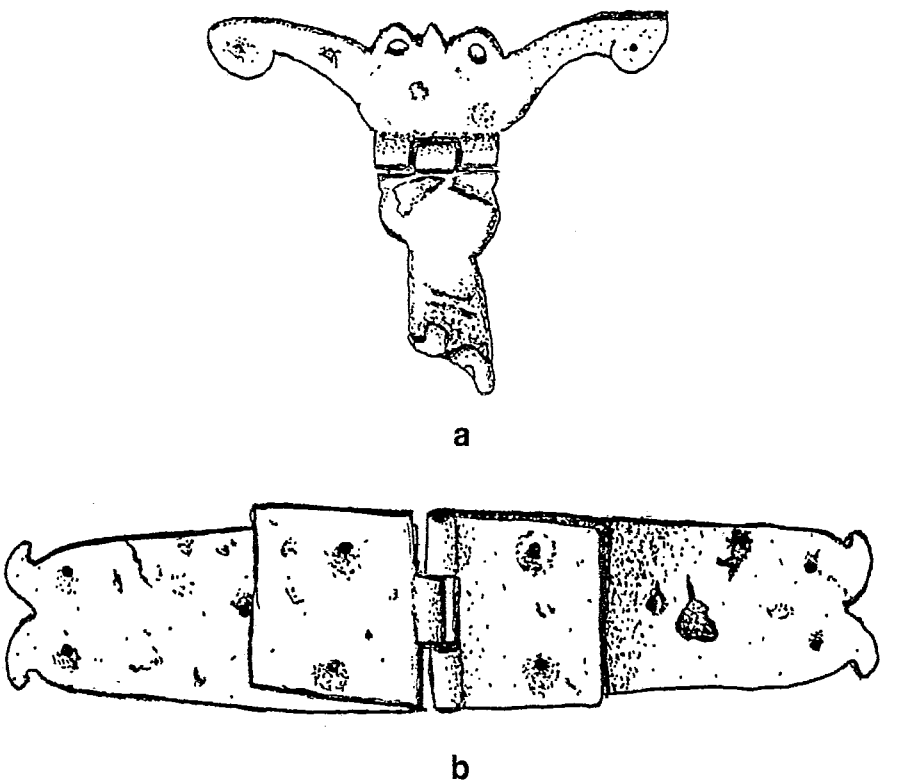

FIG. 39. GlIw-1 furniture hinges.

The final furniture hinge was recovered as two separate items that were subsequently joined during analysis. This specimen (Figure 39b) is 106 mm long and ranges from 15 mm to 25 mm in width. It is roughly cut from .5 mm thick sheet brass and probably was made by an individual for personal use. Two perforations for tacks or small nails are present on each half of this 'home-made' hinge.

Reinforcement strap

Specimen A6-26 is a rectangular artifact made from .5 mm thick sheet brass measuring 75 mm long by 27 wide. The item is bent at a 40° angle and has three small perforations along its length. These holes and the distortion of the item suggest that it served as a reinforcement strap on a wooden box or other furniture piece.

Furniture hasp

Specimen C4-20 (Figure 40a) is an iron object that apparently served as a fastening device similar to a door hasp. It is broken along its length and varies from 10 mm to 29 mm in width. This furniture hasp consists of two separate pieces hinged with a pin.

Clothing hook

Specimen C8-60 (Figure 40b) consists of a rounded iron strap 66 mm long. One end is clinched to form a curl

and measures 7 mm wide, while the other end has an attached nail and is 16 mm wide. The item resembles modern clothing hooks.

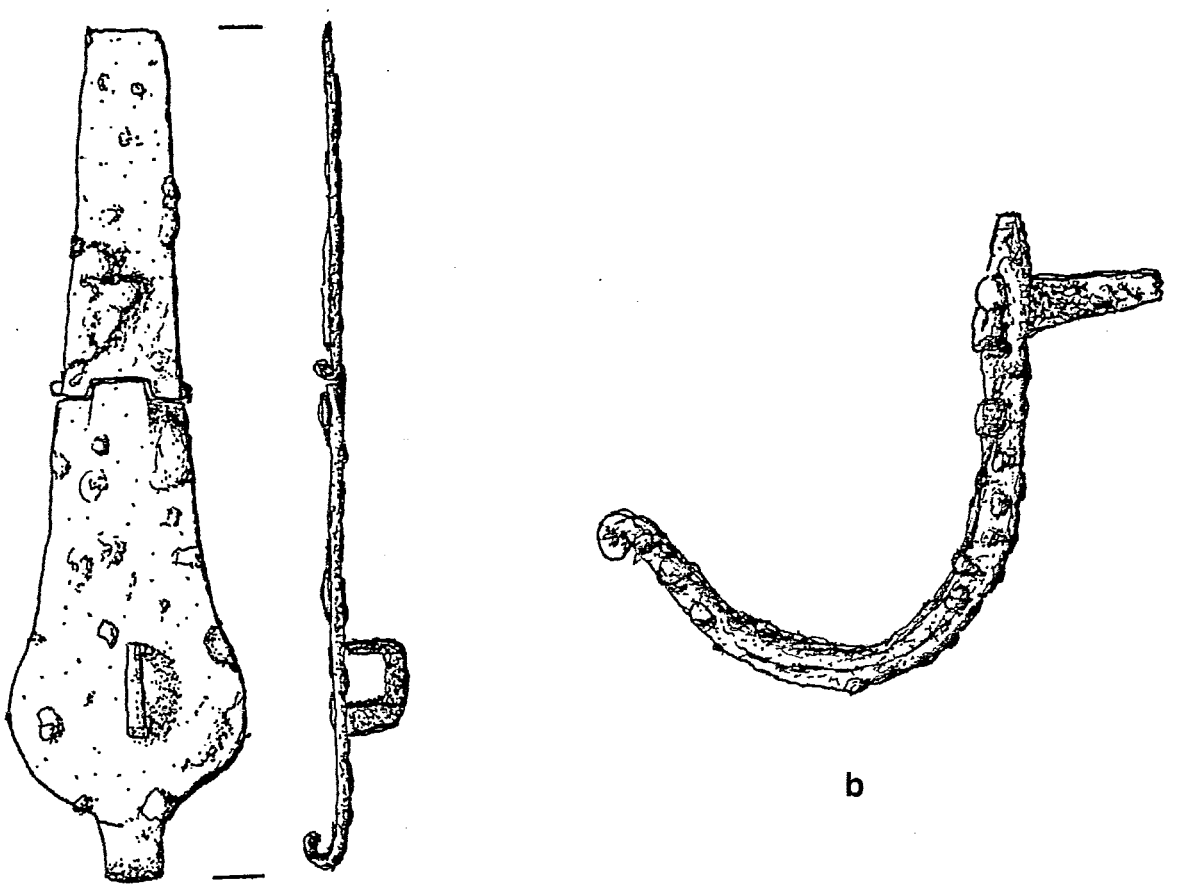

FIG. 40. GlIw-1 furniture hasp and clothing hook.

Drawer pulls

Two iron drawer pulls were recovered from within building 1. Specimen C4-19 (Figure 41a) is 132 mm long, while specimen C2-81 measures 77 mm in length. These pulls were joined to small iron plates or directly to a drawer.

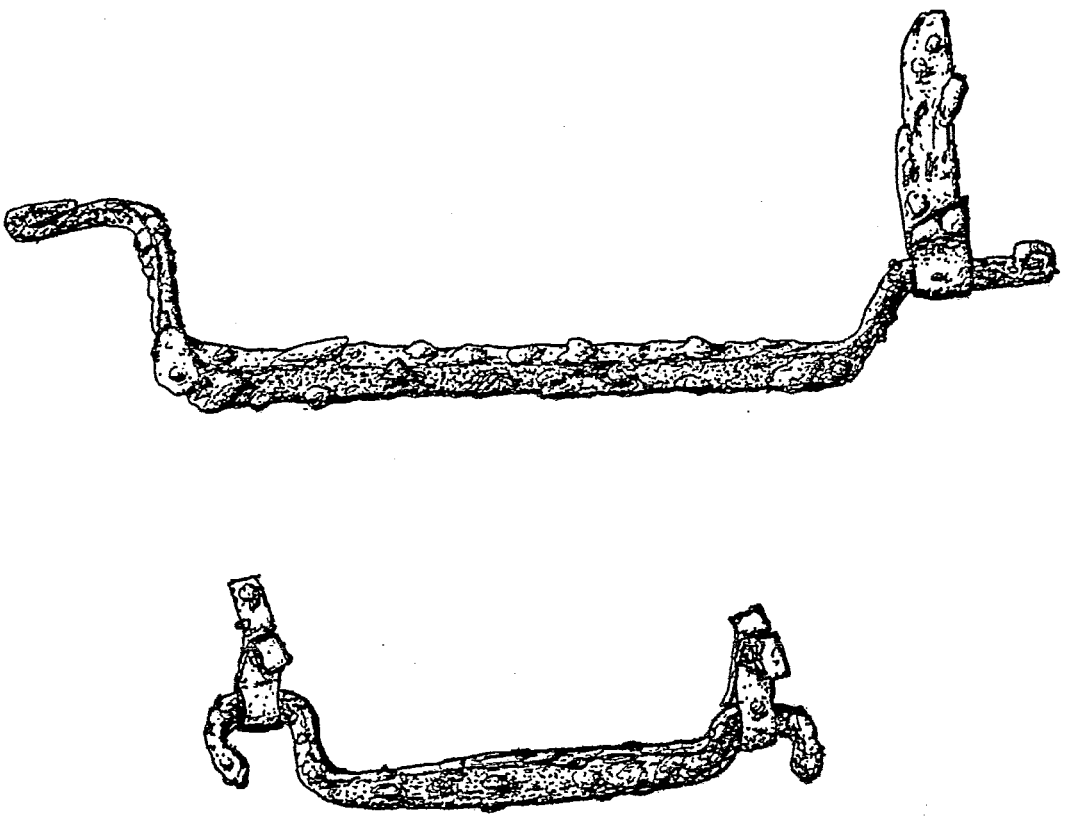

FIG. 41. GlIw-1 drawer pulls.

Candlestick

The final item within the furniture hardware group is a brass candlestick. The object is broken but measures

151 mm in diameter at its base. This candlestick (Figure 42) is useful in determining an approximate occupation date for the site. Prior to about 1700, brass candlesticks were cast in one piece, but from 1700 onward a two piece casting method was used in an effort to save brass Grove 1967:39). The GlIw-1 specimen is one piece and may have been broken just below the drip pan common on candlesticks from the period.

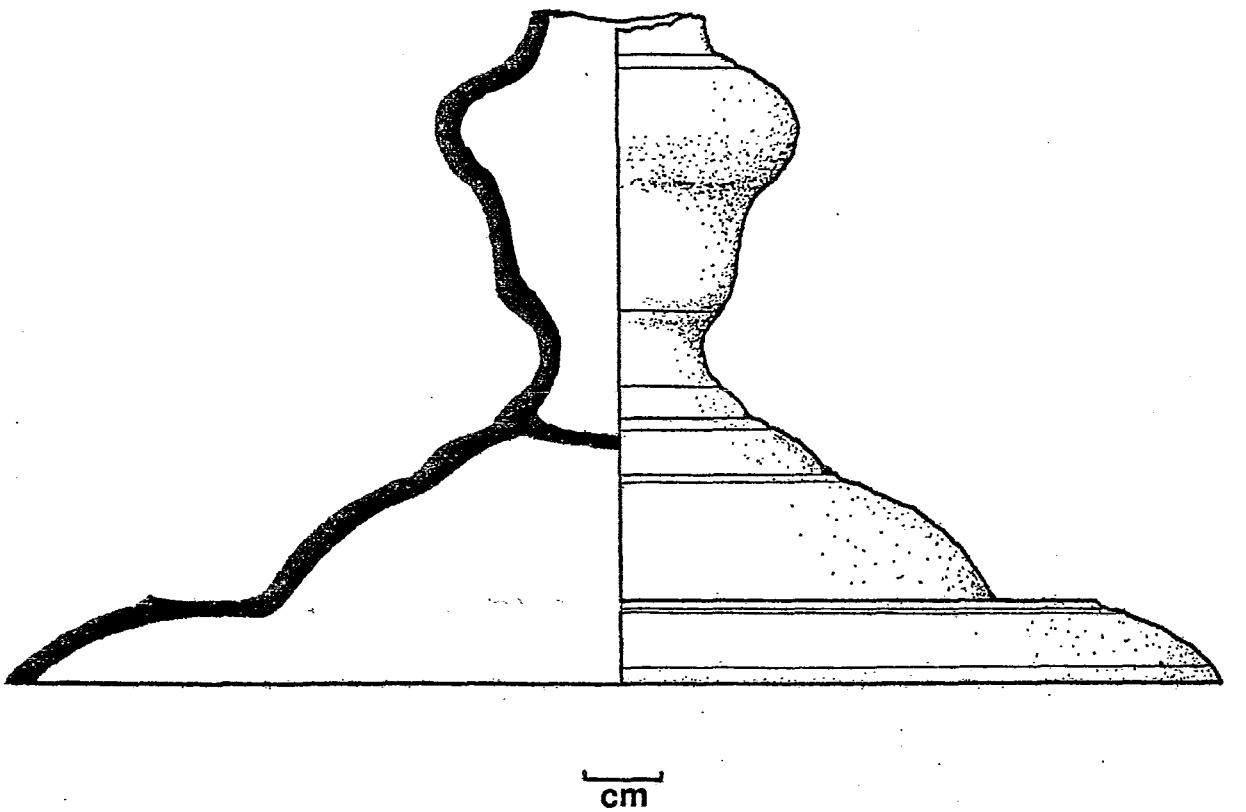

FIG. 42. GlIw-1 brass candlestick.

Arms Artifact Group

Arms artifacts include firearms and items used in their maintenance and operation. All arms artifacts from the GlIw-1 site are associated with smooth bore flintlock weapons. Table 19 indicates the relative frequencies of the artifact classes constituting the Arms Artifact Group.

TABLE 19. GlIw-1 Arms Group Artifacts.

Arms artifact class	N	%
Musket balls, shot, and sprue	190	32.0
Gunspalls	256	43.1
Gun parts	33	5.6
Waste lead, graphite	115	19.4
Total	594	100.1

Musket balls, shot, and sprue

Lead balls and shot were used as ammunition in smooth bore muskets, while sprue is the waste by-product resulting from the manufacture of lead musket balls. Twenty-eight musket balls, 160 lead shot, and two sprue fragments were located on the site.

The musket balls from the site were all manufactured using a mould process, and most feature the nipple scar indicative of the procedure. Two general musket ball size categories were determined (Figure 43). Sixteen musket balls ranged from 7 mm to 10 mm in diameter, while 10 specimens had diameters between 13 mm and 16 mm. Two specimens were too distorted to measure.

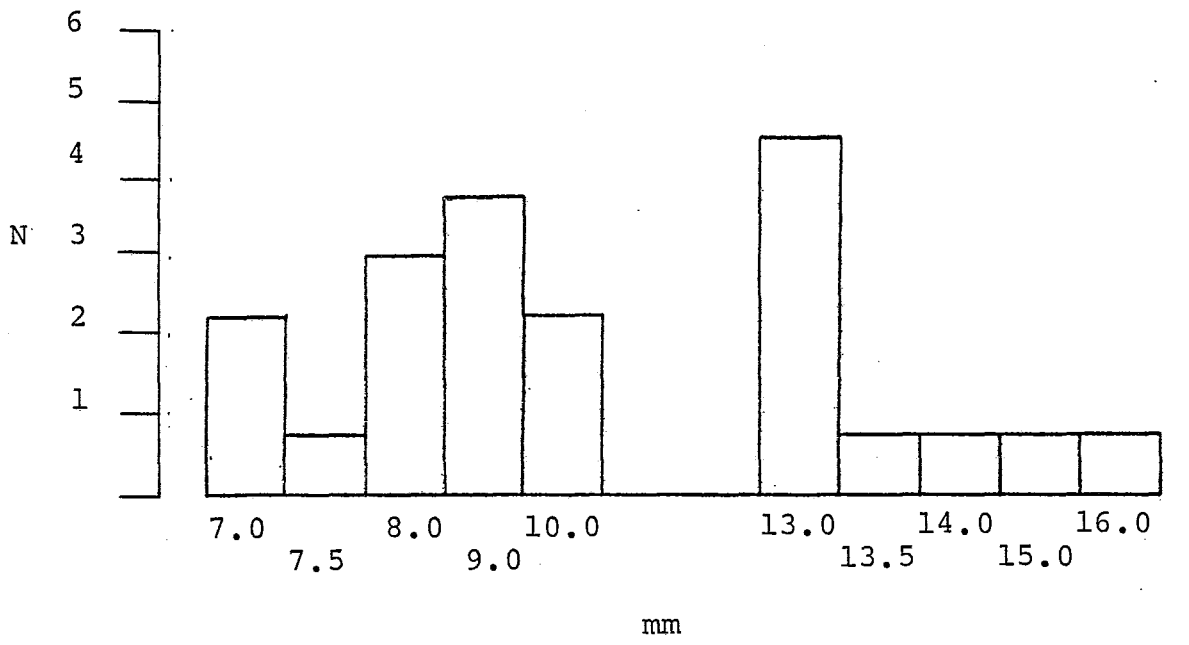

FIG. 43. Histogram of the GlIw-1 musket ball diameters.

An examination of the spatial distribution of musket balls on the site indicates two concentration areas.

Seventeen musket balls were associated with building 1, with fifteen of these items restricted to the small storage pit (pit 1) within the structure.

The next highest concentration of musket balls was from the main bastion. Nine specimens with diameters between 7 mm and 10 mm were recovered from this locale. This size grouping contrasts to that associated with building 1. Eight of the seventeen musket balls from this structure were larger than 12 mm. The two remaining musket balls were located within the test trench between building 1 and the north palisade wall.

The lead shot from the site ranged between 2 mm and 5.5 mm in diameter. Figure 44 illustrates the approximate normal distribution of lead shot size category frequencies. The histogram is divided into .5 mm increments. If the 2.0, 2.5, and 5.5 mm categories are removed from the sample, the remaining lead shot constitute 96.9% of the total. The relatively limited numbers of the discarded categories suggests that these shot may be irregularly formed and not representative of period size categories.

The distribution of lead shot on the site forms an inverse relationship with the location of musket balls. The greatest percentage of lead shot (91.3%) was associated with the main bastion suggesting its use as a storage facility.

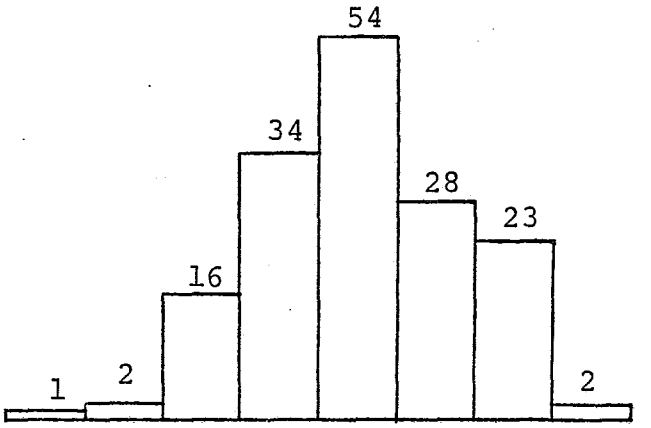

FIG. 44. Histogram of GlIw-1 lead shot category frequencies.

Only two sprue fragments were recovered. One specimen was located in building 1 and is 24 mm long with one nipple. The other sprue fragment, located in the main bastion, was devoid of a nipple.

Gunflints

There are 69 gunflints in the present sample sufficiently complete to measure length and width attributes. In addition, there are incomplete gunflints, flakes from gunflints, and European lithic cores (Table 20).

TABLE 20. GlIw-1 Gunflint Sample.

Complete gunflints	Incomplete gunflints	Flakes	Discarded cores	Total
69	150	35	2	256

All of the recognizable gunflints from the site can be classified as gunspalls. The term originates with Hamilton (1960:73-79) and denotes gunflints manufactured from spalls struck from flint nodules. Gunspalls are wedge-shaped in cross-section and feature retouch along the sides and heel of the top face which is slightly convex and usually contains a percussion bulb. The bottom face is flat or slightly concave (Figure 45).

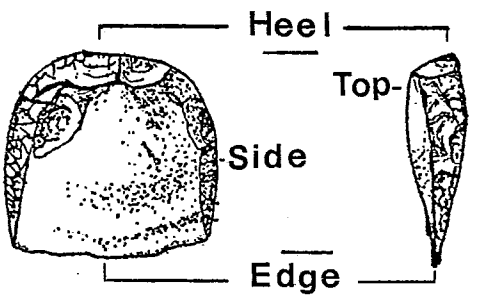

FIG. 45. Gunspall nomeclature.

Gunspalls are easily differentiated from Nordic type gunflints, such as those located on seventeenth century Seneca sites (Witthoft 1966:22). Nordic gunflints are bifacially worked and generally crude in appearance. French and English blade gunflints are also readily distinguished from gunspalls. Blade gunflints were made by sectioning blades from prepared lithic cores and generally feature a bevel along the top face. French blade gunflints were not in widespread civilian use until after 1740 (Witthoft 1966:28), whereas English blade, or prismatic, gunflints were not common until the latter part of the eighteenth century (Witthoft 1966:36).

Witthoft (1966) and Stone (1974) propose alternative classifications for gunflints. Witthoft (1966:25-28) prefers the expression Dutch gunflint, reflecting his belief that gunspalls were principally manufactured in the Nerherlands. More recently, White (1975:65-68) illustrates that Witthoft's assertion of Dutch manufacture is based on a mistranslation of a geographical term. He proceeds to argue that most gunspalls were manufactured in England. These refutations of Witthoft's Dutch origin hypothesis for gunspalls leads to the rejection of the term Dutch gunflint in this analysis.

Stone (1974:247-261) adopts the term gunspall but introduces a tri-partite classification scheme that is

essentially morphological. Gunflints are classified according to technique of manufacture (series), shape (type), and color (variety). The resulting descriptions are useful for comparitive purposes, but in at least one aspect lack cultural relevancy. Although color is the sole determinant of the variety category, it has yet to be illustrated that color was a meaningful attribute in the minds of gunflint users. For this reason, only the larger classification unit of gunspall (comparable to Stone's series) is adopted in the present analysis.

Attribute analysis

The GlIw-1 gunspalls comprise a markedly uniform sample. Except for one specimen, the sample corresponds to Stone's (1974:247-261) series C, type 1 Fort Michilimackinac gunflints. The unique specimen is described separately following the analysis of the principal portion of the sample.

The GlIw-1 sample is internally homogeneous with respect to size attributes. The length and width variables feature similar means and standard deviations about the neans (Table 21). Definitions of length and width follow Stone (1974) and concur with most other gunflint studies. Length is the distance between the heel and edge of a gunspall, while width is the distance between the sides (Figure 45).

The relationship between the length and width values in the present sample is expressed in a ratio of approximately 1.00 unit of length to 1.00 unit of width. This ratio is determined by dividing the mean of the length variable by the width variable mean.

TABLE 21. GlIw-1 Gunflint Attributes.

	Length mm	Width mm	Thickness mm
N	69	69	55*
$\bar{X}$	24.5	24.6	6.9
R	19-31	14-31	4-12
S	2.69	2.82	3.14

*only gunspalls with complete thickness

The apparent relationship between the length and width variables of the GlIw-1 gunspalls is explicitly defined when the sample is treated as a bivariate statistic. This method was introduced by Stone (1974:257) in order to estimate the length of broken gunflints when the width is kmown. A linear regression model was developed for each of the defined samples of Fort Michilimackinac gunflints. These formuli allowed Stone to obtain length estimates.

However, the exactness of the outcome is determined by the degree of correlation between the length and width

values of the complete gunflints in the sample. If the correlation coefficient is less than 1.00, then an error factor is introduced into the predicted lengths of broken gunflints when the linear regression formula is used. This error factor precludes the use of Stone's (1974) method for predicting the length of broken gunspalls in the GlIw-1 sample. However, the method is a useful tool for examining an apparent culturally relevant relationship between the length and width of gunspalls.

A relatively high correlation coeficient of .78 suggests that a linear relationship exists between the length (x) and width (y) variables of the GlIw-1 gunspall sample. This value squared indicates that 60.8% of the variation in one variable can be attributed to a change in the other.

A scattergram (Figure 46) illustrates this relationship and is useful in determining gunspall size groupings. It is to be stressed that these groupings (Table 22) are determined through the subjective analysis of Figure 46. Stone (1974:257) suggests that gunspall size groups determined by this method for the Fort Michilimackinac sample reflect broad categories recognized by the manufacturers of gunflints. For this present analysis, the derived size groupings (Table 22) are considered as approximations of actual seventeenth century categories.

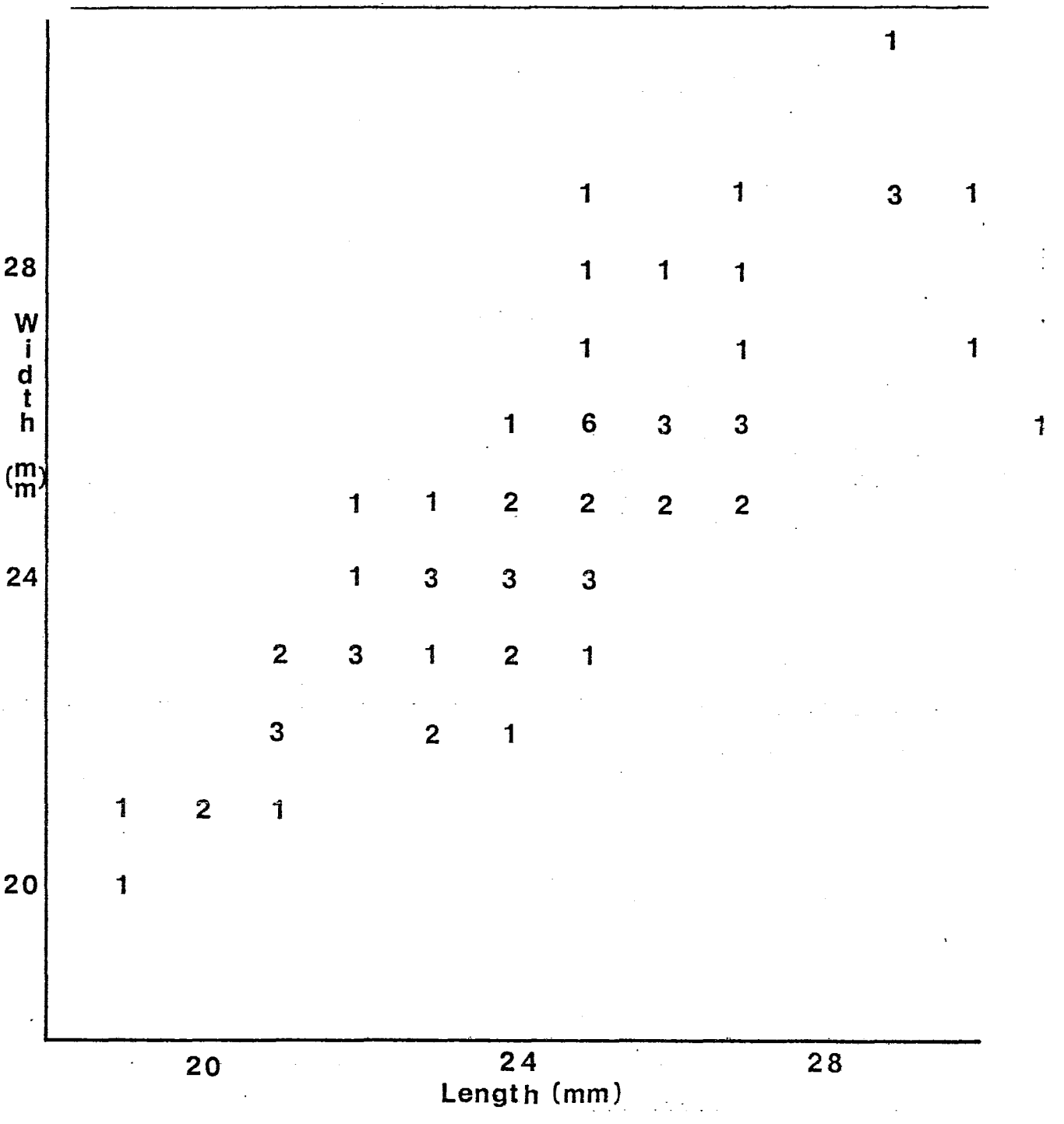

FIG. 46. Scattergram of GlIw-1 size attributes.

TABLE 22. Approximate GlIw-1 Gunspall Size Groups (mm).

	Category		
	1	2	3
Length	19-22	23-27	29-30
Width	21-23	24-26	29

The thickness range of the GlIw-1 gunspalls is between 4 mm and 12 mm with a standard deviation of 3.14 (Table 21). This value is substantially greater than the standard deviations of the length and width variables, an aberation that may be explained by the presence of fireflints in the sample. These specialized gunspalls are discussed later in this chapter.

The color of gunspalls is only useful as a descriptive device. There is as yet insufficient information on the distribution of the European flint sources used to make gunspalls. Secondly, as previously mentioned, it has not yet been demonstrated that color was a meaningful attribute to gunspall users.

There are three colors of flint in the GlIw-1 gunspall sample. The majority of these items are made from a non-translucent mottled grey-white flint. The second most

prominent lithic material ranges in color from charcoal gray to black and exhibits a translucent quality. Finally, two specimens are made from a blond flint (Table 23).

TABLE 23. GlIw-1 Gunspall Color Categories.

	Grey white	Black	Blond	Total
N*	185	32	2	219
%	84.5	14.6	.9	100

*complete and incomplete gunspalls

The predominance of grey white gunspalls is of particular interest. These flints exhibit pot lids and their color is the result of having been exposed to fire (William Fox: personal communication). The widespread distribution of these items on the site further indicates that the former trade post was destroyed by fire. Similar grey white gunspalls were observed by this author in the collection from the British frigate Sapphire sunk off Newfoundland in 1690. Part of this collection is stored at the National Historic Sites (Parks Canada) facilities in Ottawa.

Gunspall distribution

Most of the excavated gunspalls were located in an area between the two buildings and the north palisade wall.

This concentration suggests that the area was one of frequent use, particularly in association with the use and servicing of firearms. The low frequency of gunspalls associated with building 2 (Table 24) supports the hypothesis that this structure was a storage area.

TABLE 24. GlIw-1 Gunspall Distribution.

Site area	N	%
Building 1	28	12.8
Building 2	4	1.8
Main bastion	6	2.7
Area north of buildings	178	81.3
Area south of buildings	2	.9
Outside of palisade	1	.5
Total	219	100.0

Fireflints

Fireflints are gunflints that were used in conjunction with metal strike-a-lite's to start fires. This activity produced a distinctive lithic wear pattern that is easily discerned. The wear is characterized by the removal of relatively large flakes from the gunspall edge producing a crescent-shaped surface (Figure 47c).

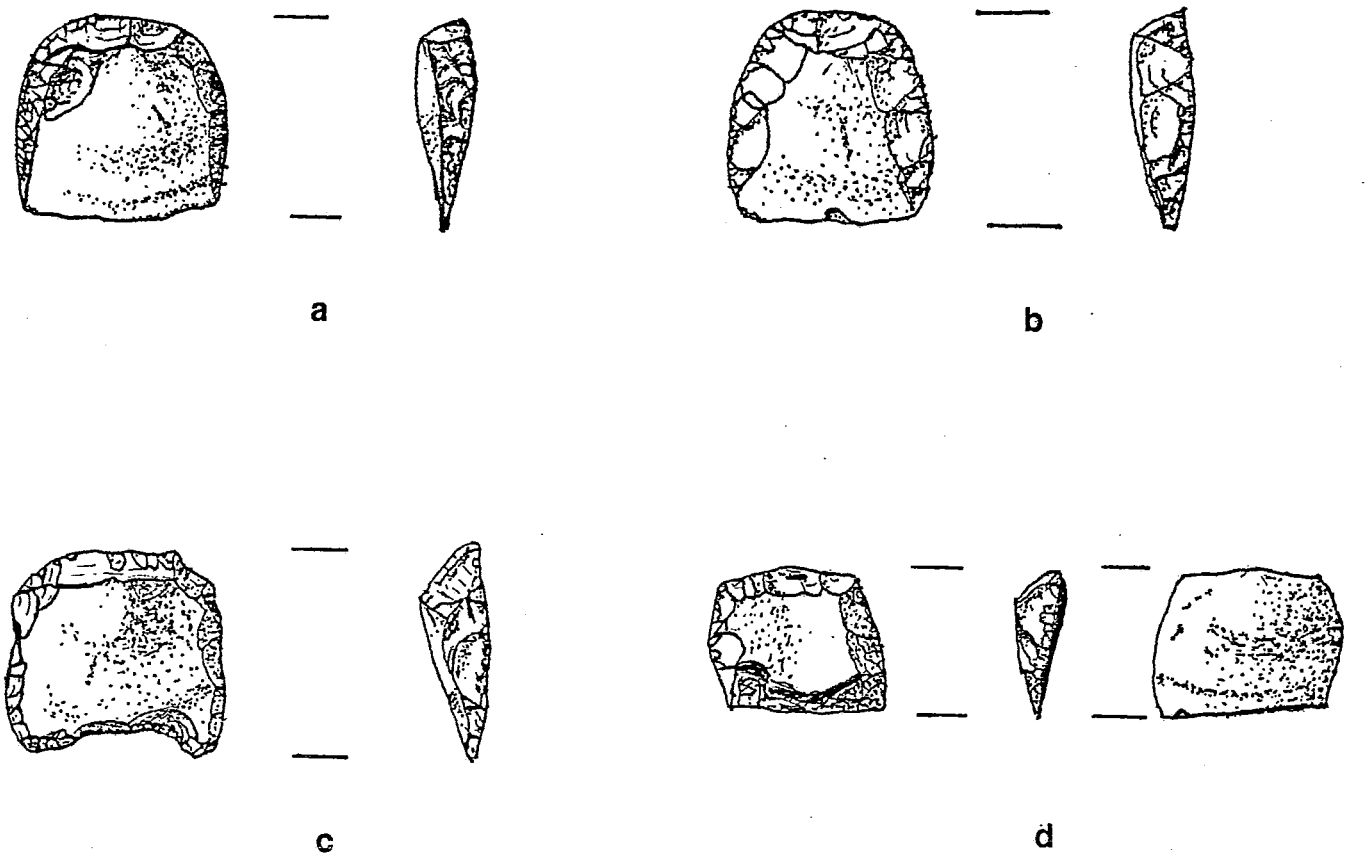

FIG. 47. GlIw-1 gunspalls.

Eleven gunspalls from the site were used as fireflints. The lengths and width attributes of these specimens produced ranges and means (Table 25) similar to those measurements

obtained for the total gunspall sample (Table 21). This congruity suggests that fireflints were chosen from within the acceptable size range of gunspalls in general. However, the standard deviation for fireflint width is only 1.38 mm, while the total gunspall sample features a width standard deviation of 2.67 mm. This disparity in sample standard deviations suggests that a width close to the fireflint mean of 2.67 mm was preferred for the tool.

TABLE 25. GlIw-1 Fireflint Attributes.

	Length mm	Width mm	Thickness mm
N	3	7	9
R	22-27	25-29	5-10
$\overline{X}$	24.7	26.7	7.4
S	2.52	1.38	1.42

Another aberration from the total gunspall sample is in the thickness of fireflints. The mean thickness of fireflints is 7.4 mm (Table 25). This dimension is almost twice the size of the gunspall sample mean (Table 21). Also, the standard deviation for fireflint thickness is only 1.42 mm suggesting that substantially thicker than ordinary gunspalls were used for fireflints.

In general, the gunspalls used as fireflints were approximately the same length as the larger gunspall sample. However, width was much more restricted and tended to approximate the fireflint mean of 26.7 mm (Table 25). Fireflint thickness was much greater than that of gunspalls. These attributes presumably resulted from a preference for larger and therefore more easily hand held flints. It is stressed that the sample size for fireflints is small. This problem was amplified by many of the fireflints being broken along their length dimension, presumably the result of use wear.

All of the fireflints were associated with building 1. Seven of the specimens were located within the small storage pit (pit 1), while the remaining four were recovered from the fireplace area of the building. Only two fireflints were mottled grey white indicative of thermal alteration. The fireflints within the storage pit may have escaped the fire generated heat because of soil and other overburden. Whatever the reason for their pristine condition, the fireflints may be a better representation of the flint types used for the site gunspalls. Eight of the fireflints were black to charcoal gray, while one was blond or caramel colored.

A unique gunspall

This incomplete specimen (Figure 47d) was located within the storage pit in building 1. It features flaking

flaking on the edge and sides of the face opposite the bulb of percussion. The manufacturing method is in strong contrast to all other gunspalls on the site. The lithic material used for this gunspall is the black translucent flint previously described.

Although unique within the present sample, this gunspall type has been reported elsewhere. Blanchette (1975:49) described similar gunspalls from the seventeenth century French Chicoutimi, Quebec site and also reported these items from several English-American colonial sites. In all cases reported by Blanchette (1975), these reverse flaked gunspalls occurred infrequently suggesting that they were the result of errors during manufacture.

Gun Parts

All gun parts located on the site are from flintlock firearms. These weapons succeeded the older snaphaunce lock arms about 1620 (Noel-Hume 1969:213), and continued in widespread use until the development of the percussion cap mechanism in the nineteenth century. Table 26 indicates the relative frequencies of gun parts and associated hardware in the present sample.

TABLE 26. GlIw-1 Gun Parts and Associated Hardware.

Item	N	%
Lockplates	2	6.1
Sideplates	1	3.0
Sideplate decoration fragments	2	6.1
Hammers	1	3.0
Frizzens	3	9.1
Frizzen springs	10	30.3
Pans	2	6.1
Sear catches	2	6.1
Triggers	2	6.1
Trigger guards	1	3.0
Trigger plates	1	3.0
Butt plates	2	6.1
Rod thimble	1	3.0
Gun worms	3	9.1
Total	33	100.1

Lockplates

Lockplates served to hold the various constituents of the gunlock together. Thus, a hammer, frizzen, pan, sideplate and other elements were all attached to the lockplate to form

a flintlock mechanism.

No complete gunlocks were located on the site. The most intact specimen recovered consists of a lock plate with an attached hammer spring and a square, threaded hammer attachment nut. The general size and shape of this lock conforms to locks attributed to the early Hudson's Bay Company (Gooding 1960). Beginning in 1682 (Gooding 1960:85), the Hudson's Bay Company specified oval lockplates on the guns they commissioned. This shift from previously ordered styles may have resulted from the marketing influence of Radisson and Groseillers (Gooding 1960:83). Certainly, these lockplates resemble earlier French styles (eg. Bouchard 1976:53).

The second lockplate from the site is incomplete, but features a rounded front section and a pentagonal shaped pan.

Sideplates

Only a single sideplate was recovered from the site. It is 136 mm long and has a maximum width of 26 mm. The sideplate features nine perforations that served to connect the flintlock mechanism to the gun stock.

Sideplate decoration fragments

These items are made from brass and served as decorative elements on sideplates. The two specimens in the

collection are incomplete and no motif could be ascertained, but the larger specimen features a broken attachment screw hole.

Hammer

The only hammer from the site (Figure 48a) is incomplete. The top screw and jaw that served to hold the gunflint in place is missing.

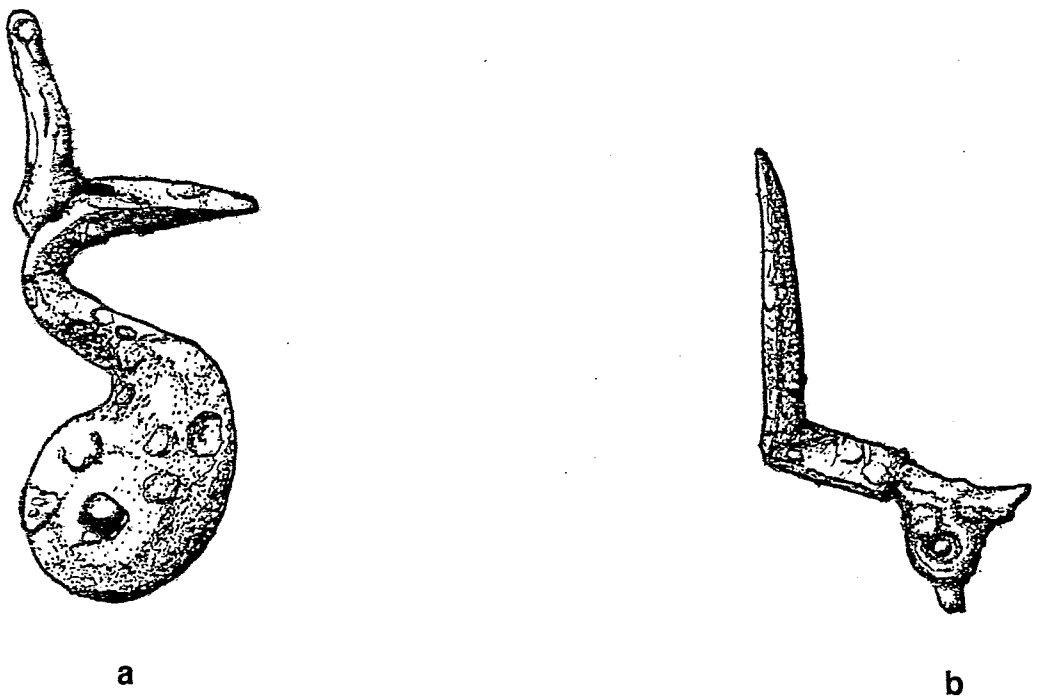

FIG. 48. GlIw-1 hammer and frizzen.

Frizzens

The three frizzens in the collection (Figure 48b) range between 50 mm to 56 mm in length and 26 mm to 28 mm in width. They were all located adjacent to the exterior north wall of building 1.

Frizzen springs

These objects (Figure 49b) were primarily concentrated within, and immediately adjacent to, building 1. The single exception in this sample of ten was recovered from the main bastion. The three complete specimens were between 77 mm and 83 mm long, 12 mm wide, and 3 mm thick.

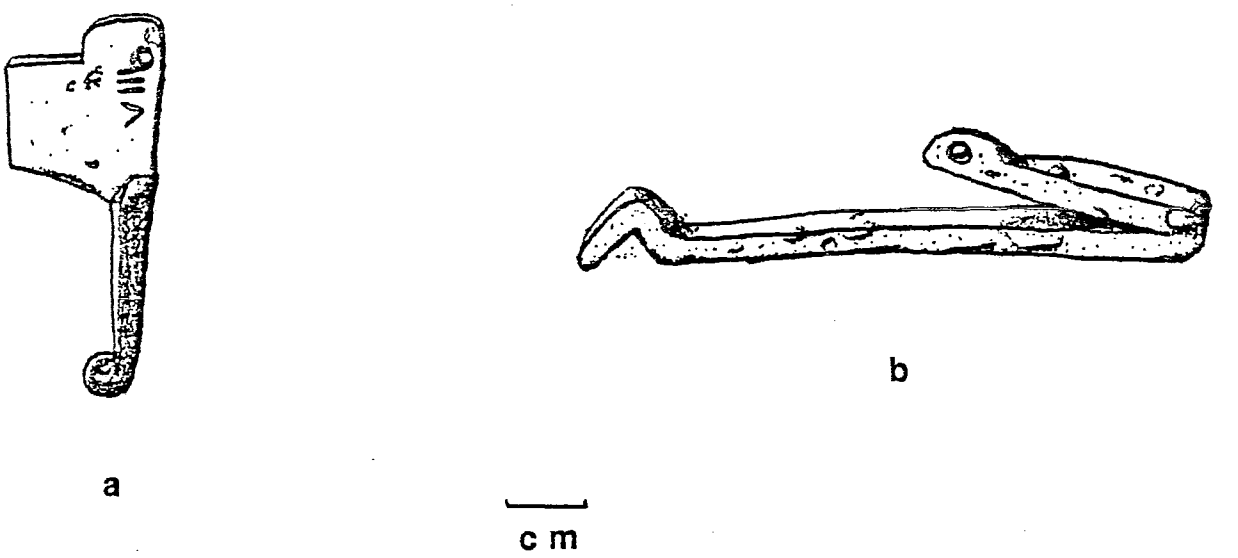

FIG. 49. GlIw-1 trigger and frizzen spring.

Pans

Powder, acting as a fuse, was held in shallow pans attached to the lockplate. The two pans in the GlIw-1 collection were both recovered from within building 1. They are heavily rust encrusted thereby masking their original size and shape.

Sear catches

Sear catches replaced dogs in the seventeenth century as a locking mechanism for flintlocks. The two sear catches recovered from the site were from building 1 and an area near the north wall of the palisade,

Triggers

Both triggers (Figure 49a) located are 46 mm long and feature one piece construction. The trigger top is flat with a maximum width of 17 mm, while the batten, or 'pull', segment is slightly curved.

Trigger guard

The only trigger guard from the site was associated with building 1. It is incomplete but intact enough to note the small size of the finger hole area. This characteristic is in marked contrast to the larger cold adapted guards introduced in 1740 (Gooding 1960:94).

Trigger plate

This item was placed over the trigger and attached to the gunstock and is 55 mm long, 40 mm wide, and 1 mm thick. It has four perforations for attachment to the gun stock and a 29 mm by 12 mm slit aperture to allow trigger movement.

Butt plates

The two recovered specimens were made from brass. The complete butt plate (Figure 50) features a short finial with a single small attachment hole. Three additional holes perforate the body of this item. The second butt plate is broken at a point contiguous with the two body perforations.

Rod thimble

This brass object measuring 54 mm long was located within building 1. It consists of a tubular portion 25 mm long with an 8 mm diameter that graduates into a flat, concave projection.

Gun worms

The three recovered gunworms were located adjacent to the east wall of building 1. Gun worms were used to remove wadding from smooth bore weapons; consequently they were a frequent item for trade. The present sample ranges between 30 mm to 32 mm in length and 10 mm to 12 mm in width.

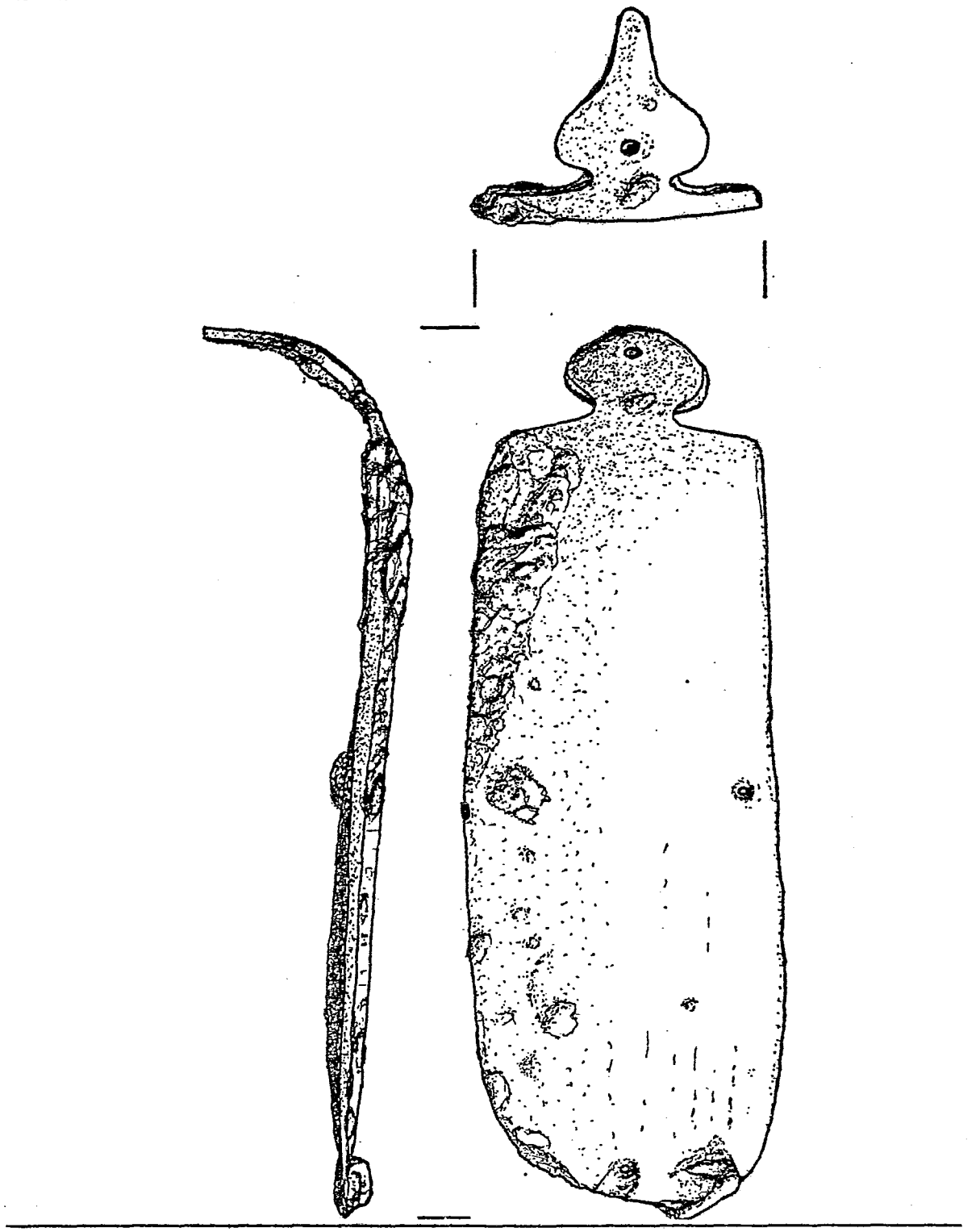

FIG. 50. GlIw-1 butt plate.

Waste Lead and Graphite

Lead was the raw product used for manufacturing musket balls and shot. The presence of the previously reported lead sprue supports the assumption that musket balls were made at the site. Waste lead was recovered from building 1, building 2, and the main bastion (Table 27).

TABLE 27. GlIw-1 Waste Lead Distribution.*

Site area	Weight gm	% of total weight	N	Mean unit weight
Building 1	250.1	17.3	5	50.02
Building 2	542.2	37.4	16	33.89
Main bastion	675.5	45.3	91	7.23
Total	1449.8	100.0	112	

* Does not include two lead pieces of unknown provience.

Graphite, referred to as black lead in period invoices (Appendix 1), was used as a lubricant for musket balls in guns. A single piece of graphite, associated with building 1, was located on the site.

Clothing Artifact Group

These artifacts were used as clothing adornments, garment fasteners, or mending devices. The relative frequency of clothing artifacts within the total collection is small with the group comprising only 1.8% of the assemblage. The frequencies of artifact classes within this group are presented in Table 28.

TABLE 28. GlIw-1 Clothing Artifacts.

Clothing artifact	N	%
Buckles	4	7.0
Thimbles	1	1.8
Buttons	5	8.8
Scissors	0	0.0
Straight pins	0	0.0
Hook and eye fasteners	0	0.0
Bale seals (for cloth)	0	0.0
Textile fragments	3	5.3
Hawk bells	11	19.3
Needles and awls	2	3.5
Glass beads	20	35.1
Brass bangles	11	19.3
Total	57	100.1

Buckles

Buckle analyses have tended to emphasize historical and functional factors (eg. Noel-Hume 1969:84-88) with the objects placed within temporal context and divided into functional categories such as belt, shoe, knee, harness, and spur buckles. This present analysis, while recognizing the utility of the approach, emphasizes morphological description. This procedure is necessitated by the general paucity of information on period buckles from North American historic sites.

All four buckles in the sample are made of brass and were associated with building 1. Specimen C4-18 (Figure 51a) is the most complete buckle in the collection; it was recovered from the fireplace area. It consists of a rectangular frame with slightly concave sides 29 mm long and 19 mm wide. A folded brass strip culminating in a stud extends from a pivot located in the center of the frame. This stud served as a fastener for a leather strap or belt.

A broken buckle was located in the small storage pit within building 1. It consists of approximately one half of a frame similar to the previously described buckle.

Specimen C5-34 (Figure 51b) is an oval buckle 31 mm long and 29 mm wide. It features a central pivot with some iron encrustation suggesting that it once had an iron tang.

This item was located within the fireplace feature of building 1.

The final buckle from the site (Figure 51 c) is a flat, circular specimen devoid of a pivot or strap. It most closely resembles shoe buckles, although these items tended to be slightly larger than the present specimen.

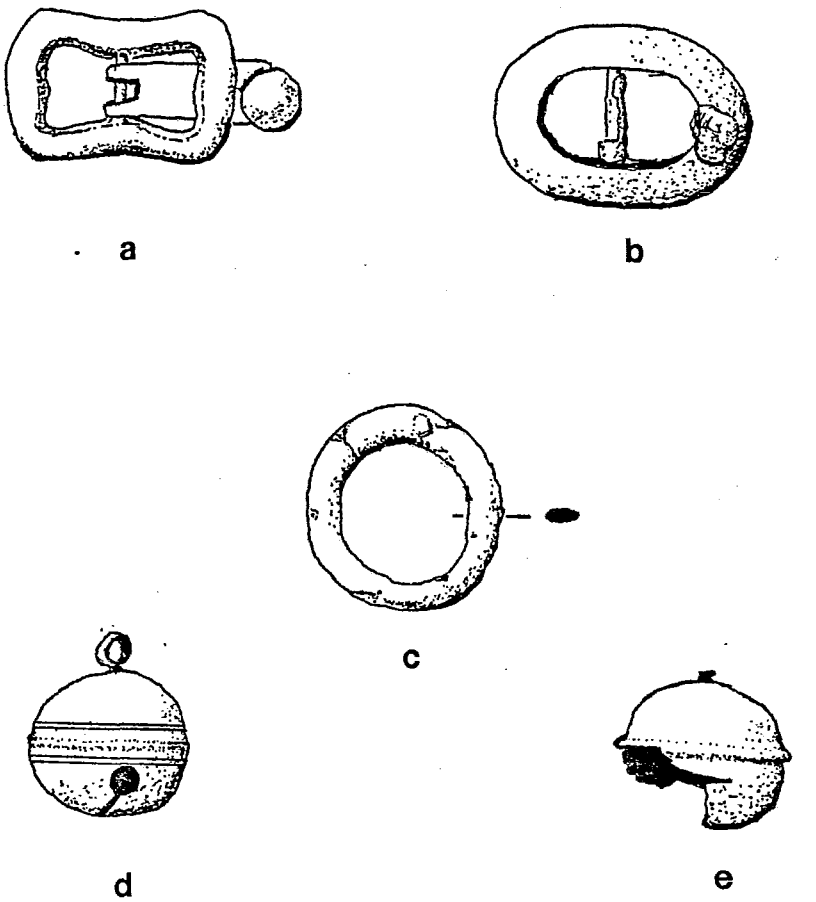

FIG. 51. GlIw-1 brass buckles and hawk bells.

Thimbles

A single brass thimble 24 mm long and between 15 mm and 19 mm in diameter was located adjacent to the fireplace in building 1. The thimble was made from two separate pieces with the sides formed from a single brass strip that had been rounded and brazed along a longitudinal joint. A separate convex top was then brazed to this unit. Noel-Hume (1969:256) indicates that this production technique began during the mid-seventeenth century.

Modification of the thimble's exterior surface consists of small indentations over most of this area. The regularity of these indentations suggests the use of a multi-toothed tool instead of a single stamp, a procedure also started in the mid-seventeenth century (Noel-Hume 1969: 256). A 2 mm wide plain collar borders the open end of the thimble.

Buttons

Two metal and three wooden buttons constitute the present sample. Specimen B6-62 (Figure 52d) is a white metal button made from four separate components. The bottom hemisphere is actually composed of two halves that encompass a separate wire shank that had previously been broken. This

portion of the button was then joined to the one piece top hemisphere. The bottom hemisphere has two perforations on each side of the broken wire shank. These holes may have served as release apertures for gases formed during the brazing process (Noël-Hume 1969:88). An alternative suggestion is that the holes were placed in the button after the shank broke (Tim Kenyon:personal communication). The implied function is that the holes served as an alternative fastening mechanism.

The three wooden buttons, although varying in size, share some common attributes. All have slightly convex fronts, flat backs, and a center hole between 2 mm and 3 mm in diameter. Specimen D5-22 (Figure 52b) with a diameter of 10 mm and specimen D5-21 (Figure 52c) with a diameter of 15 mm were associated with the main bastion. Specimen C3-27 (Figure 52a) had a diameter of 17 mm and was located within the small storage pit (pit 1) in building 1.

Gilbert Hagerty (1957:6-7) describes similar buttons from a mid-eighteenth century Onadaga burial. The site featured excellent preservation and consequently more complete wooden buttons were recovered. Hagerty (1957:6) presents the following description of these objects.

> Among the items that were salvaged were five wooden buttons. They were all dome-shaped with a flat circular base 5/8 of

> an inch (1.6 cm) in diameter. Through each button was a 1/8 inch (.3 cm) hole. Each button was covered with a fabric which extended over the whole button surface and was gathered at the hole in the back for fastening to the garment.

It is reasonable to speculate that the buttons from the GlIw-1 site were also fabric covered.

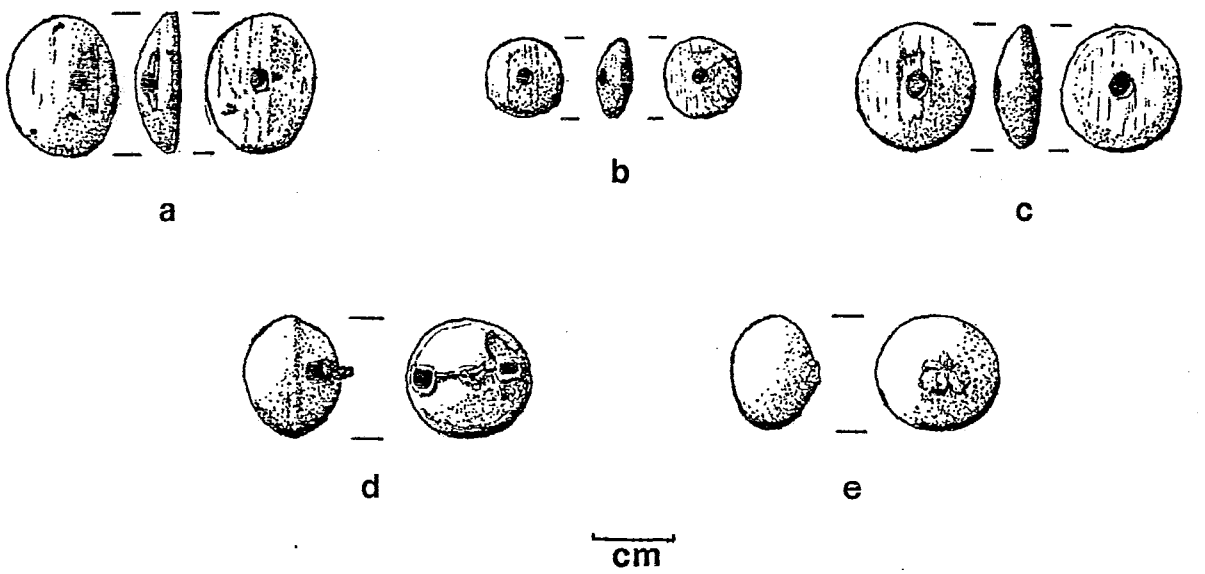

FIG. 52. GlIw-1 wooden and metal buttons.

Textile Fragments

The textile fragments were all associated with building 1. These three items were too small to allow the ascertation of function.

Hawk Bells

These objects, also called historic trade bells (Brown 1977:69), were a common European trade item throughout North America. Hawk bells were used as dress and personal adornments. Brown's (1977) classification of historic trade bells uses technological attributes to define class, type, and variety categories. The class determinant is whether trade bells were cast or made from sheet brass. Within each of these major classes, Brown identifies specific types, each including several trade bell varieties.

The bells from the GlIw-1 site are all manufactured from sheet brass. Of the eleven specimens in the sample, ten resemble Brown's (1977:75) Flushloop variety. Flushloop bells derive their name from having flush edges along the joint between the two constituent hemispheres (Figure 51d). The lower hemisphere has two perforations joined by a central slit. These bells also feature circumferential grooves on each bell half parallel to the brazed joint. An attachment handle was inserted into the top hemisphere and brazed to the inside of the bell. The two complete specimens had 20 mm diameters.

The remaining trade bell belongs to Brown's (1977:76) flanged edge type, and can be assigned to the Saturn bell

variety. This bell (Figure 51e) is incomplete, but portions of both hemispheres remain intact. It resembles the previously described Flushloop bells except it does not have a flanged equatorial joint. This specimen has a diameter of 22 mm.

A final note on sheet brass bells is that they are probably of French origin. Brown (1977:77-79) bases this hypothesis on his examination of assemblages from the Upper Mississippi Valley, Lower Mississippi Valley, and the Great Lakes area. Within the latter two zones, sheet brass bells are the only varieties found; whereas both sheet and cast brass varieties are located in the Lower Mississippi Valley. According to Brown (1977:79), this disparate distribution reflects English trade influences in the Lower Mississippi Valley.

Needles and Awls

Three iron off-set awls were recovered from within building 2. Two specimens (Figure 53) were 91 mm long and varied between 2 mm and 5 mm in thickness. The remaining awl was broken, but ranged between 3 mm and 1 mm in thickness.

Glass Beads

A single large blue bead and 19 white seed beads were

associated with building 1. The oval, medium blue bead is 13 mm long, 7 mm in diameter, and has a 1 mm diameter central hole. The 19 seed beads had diameters between 2.5 mm and 3.5 mm.

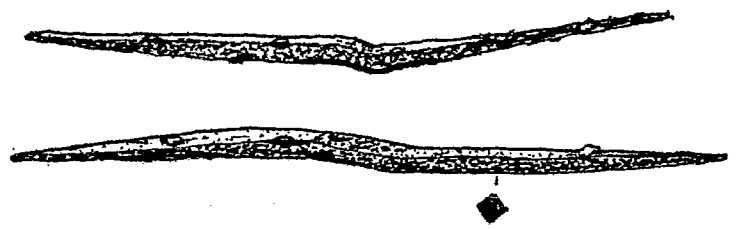

FIG. 53. GlIw-1 off-set awls.

Brass bangles

Bangles are cylindrical beads made from rolled sheet brass or copper and like hawk bells were a common trade item. The eleven bangles from the site are between 15 mm to 41 mm long with a mean length of 27 mm. Three brass bangles associated with building 1 still retain leather or twine fragments intact.

Personal Artifact Group

Personal artifacts are objects owned or principally used by individuals. This group contains only 31 artifacts constituting 1.0% of the assemblage. Rings are the most frequent artifact class within the Personal Artifact Group (Table 29).

TABLE 29. Relative Frequencies of GlIw-1 Personal Artifacts.

Personal artifacts	N	%
Keys	1	3.6
Rings	22	78.5
Clasp knives	1	3.6
Smoker's companions	1	3.6
Jew's harps	1	3.6
Lead pencils	1	3.6
Burning glasses	1	3.6
Total	28	100.1

Keys

The single key from the site (Figure 54) was located immediately south of building 1. It is 73 mm long and

and features a modified heart-shaped bow or handle. Noel-Hume (1969:245) indicates that heart-shaped bow interiors were common during the seventeenth century. The present key corresponds roughly to the simplified grenouille design reported by Dunton (1972:168) from Louisbourg; this design is thought to be of French origin.

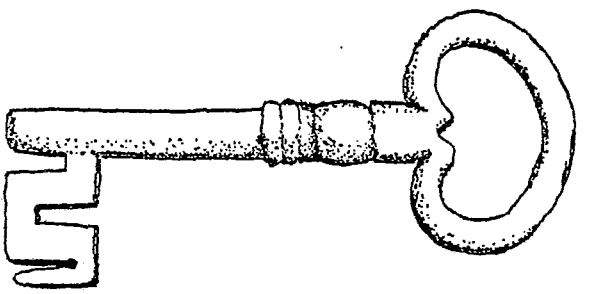

FIG. 54. GlIw-1 key.

Personal Artifacts

Several classes of artifacts relating to personal use functions are subsumed under this heading.

Rings

A total of 22 plain, inscribed, signet, and religious rings were recovered from the site (Table 30). The most

frequent rings in the collection are plain brass bands. These items have diameters ranging between 18 mm and 23 mm, and are 2.5 mm to 4 mm wide. Of the 15 plain rings in the sample, seven were located in building 1.

TABLE 30. GlIw-1 Ring Attributes.

Ring type		Diameter mm	Width mm	Comments
Plain	N=15			
	R	18-23	2.5-4.5	
	$\bar{X}$	20.2	2.9	
	S	1.35	.69	
Inscribed	N=1			
		22.5	4	LOVE TS inscribed on ring interior
Signet	N=3			
	R	20-22	-	
	$\bar{X}$	21	14	
	S	1.00	-	
Religious	N=3			
	$\bar{X}$	15	4.7	These rings all have the same diameter

A single inscribed, but otherwise plain, brass ring was located south of the buildings. This ring has a plain exterior surface, but inscribed on the interior are

the initials LOVE TS followed by three unidentified letters.

Three broad faced signet rings are also included in the collection. No motif was noted on the surfaces of these deteriorated specimens, but they conform in size and shape to period signet rings.

The final r ing category is composed of three religious rings with diameters of 15 mm. As such they are considerably smaller than other rings from the site and could only have been worn by children. Two of the rings feature the inscription IHS usually associated with the Jesuit Order. The remaining ring does nor bear any initials but features the clasped hands motif. Stone (1974:131) indicates that most Jesuit rings from Fort Michilimackinac were associated within French contexts although some of these items were located within British features.

Clasp knife

This object, associated with the main bastion, is 121 mm long and between 21 mm and 26 mm wide. It is heavily corroded and no maker's mark could be discerned (Figure 55).

Smoker's companion

The smoker's companion, or pipe tongs, was a multi-purpose tool closely associated with tobacco pipe smoking. One end of this object consisted of a pincer device that was used to place a burning coal within the pipe bowl to light

the tobacco. The other end of the object contained a pick for removing burnt tobacco, and a flattened end used for tamping. The GlIw-1 specimen is incomplete and badly rusted. Noel-Hume (1969:309) indicates that smoker's companions are common objects on colonial sites although often not identified as such.

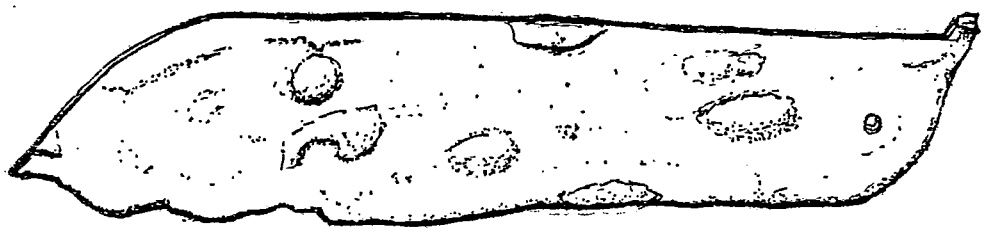

FIG. 55. GlIw-1 clasp knife blade.

Jew's harp

Jew's harps are common items throughout the historic period . The present specimen is badly distorted and heavily rust encrusted.

Lead pencil

The single pencil from the site was associated with

a test pit outside of the south wall of the palisade. This artifact is 69 mm long and whittled from a piece of lead with a diameter between 2 mm to 6.5 mm. Stone (1974:154) describes similar lead pencils from Fort Michilimackinac.

Burning glass

This item, located in building 2, has a 42 mm diameter, an edge thickness of 1 mm, and a center thickness of 2 mm. In cross-section the object appears convex/convex and features a roughly pecked circumferential edge. Burning glasses, presumably for starting fires, were included in the 1689 trade list at the New Severn post (Appendix 3). Alternatively, this object could be a spectacle lense.

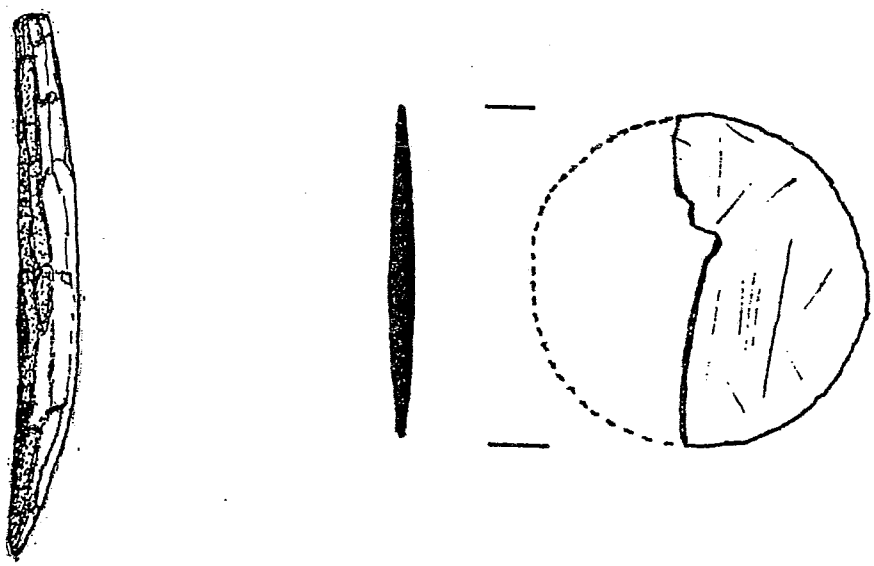

FIG. 56. GlIw-1 lead pencil and burning glass.

Smoking Pipe Group

European clay smoking pipes are often among the most frequent artifacts recovered from North American historic sites. They were a common item used by all social classes during a substantial portion of the fur trade and colonial periods. Iain Walker (1977:3) discusses reasons for the frequent occurrence of clay pipes on historic sites.

> The most important features about the clay pipe are its fragility and its ubiquity, the latter being in some degree related to the first. The clay pipe is a fragile, cheap, utilitarian object-its length of use is therefore short and its rate of replacement rapid, unlike items which lasted longer because they were stronger or more expensive to replace, or items of value or beauty, or items which were heirlooms.

Clay pipes are especially useful to archaeologists for two reasons. First, previous research by Oswald (1960, 1961), Atkinson and Oswald (1969), and Walker (1977) among others, has resulted in useful typologies of numerous styles of clay pipes. Such information allows the placement of excavated clay pipes within general temporal periods and it is often possible to ascertain place of origin.

The second use of clay pipes is their amenability to a particular statistically based dating method, thus

facilitating the dating of historic sites. The pioneer figure in this effort was John Harrington (1954) who noted that English clay pipe bore sizes became progressively smaller is a regular, measurable manner from the early seventeenth century to 1820 A.D. Not all clay pipes follow this trend; for example, Dutch pipes generally have smaller bores in a given time period than English pipes. Dates from such sample tend be skewed when using Harrington's methodology (Harrington 1954:3).

Briefly stated, Harrington's dating method is represented in a series of bar graphs (Figure 57) where the percentages of particular bore sizes are aligned within thirty to forty year periods. This scheme allows researchers to place clay pipe samples within the appropriate general chronological context.

Lewis Binford (1962) added to the utility of the method by subjecting Harrington's original data to a straight line regression curve that yielded the calculating formula $Y = 1931.85 - 38.26\ X$. Y is the date being sought; 1931.85 is the year that bore sizes of English clay pipes theoretically reach zero; 38.26 represents the slope of the line, or the interval between the means of each category; and X is the mean bore diameter of the sample being dated.

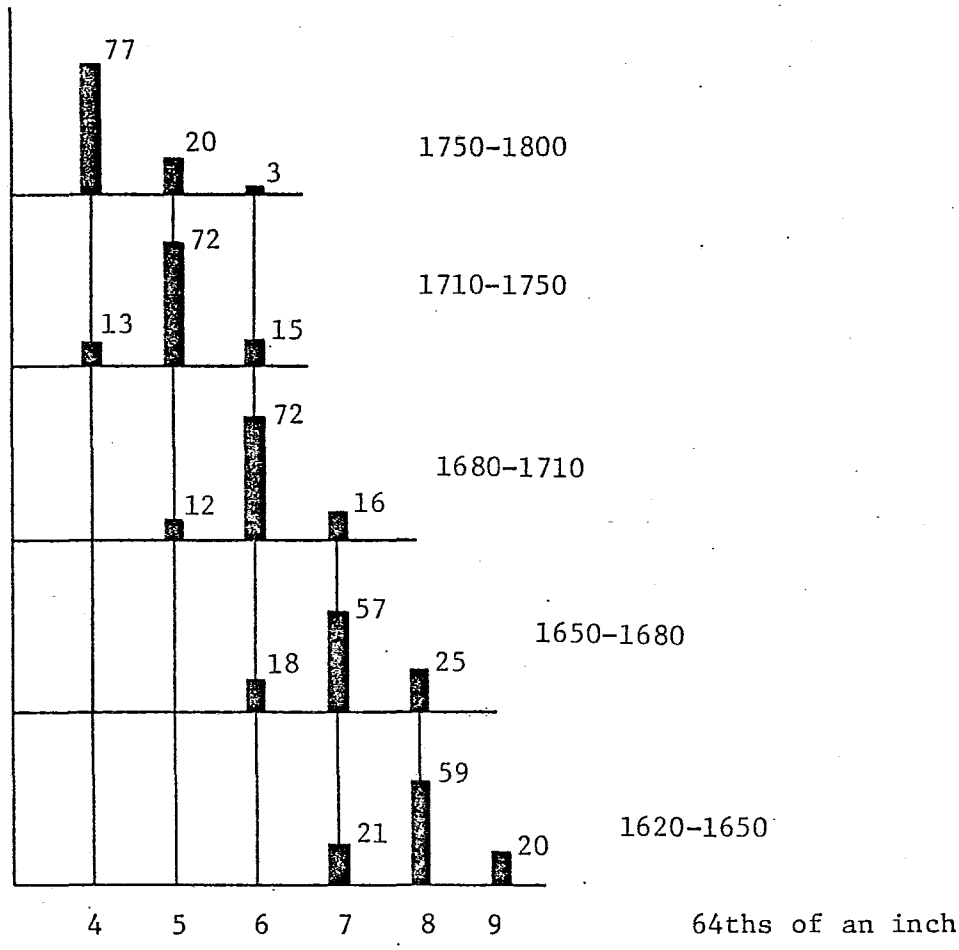

FIG. 57. Harrington's bar graphs indicating changes in the bore sizes of English clay pipes (after Walker 1977:1553).

Subsequent researchers have suggested that more accurate dates can be obtained by using a formula derived from a curved line regression. Omwake (1967:9) and Heighton and Deagan (1972) have derived such formuli. Presently however, Binford's formula is the most widely used and accepted. Perhaps, as Walker (1977:9) observed, a curved line regression formula might one day supercede Binford's (1962) method.

GlIw-1 Clay Pipe Sample

The present clay pipe sample consists of 17 pipe bowls, 73 bowl fragments, and 363 stem fragments (Table 31). No pipes are complete. For this analysis, those portions of pipe bowls that could be identified using Oswald's (1961) typology were labelled bowls. All other bowl portions were placed in a bowl fragment category. Stem sections with recognized bowl portions, including heels, were classified as pipe bowls or bowl fragments according to the above criteria. Stem fragments refer simply to those clay pipe sections without attached bowl portions.

All clay pipes recovered appear to be of English origin, with none of the sample fitting Atkinson's (1972) description of Dutch pipes. Additional evidence for

English origins, is the absence of the polished finish characteristic of many period Dutch pipes (Ian Walker: personal communication). However, there are no maker's marks on any pipes in the sample to indicate specific origins.

TABLE 31. Frequencies of GlIw-1 Clay Pipe Portions.

Pipe portion	N	%
Bowls	17	3.7
Bowl fragments	73	16.1
Stem fragments	364	80.2
Total	454	100.0

The objectives of the present clay pipe analysis are to: 1) typologically identify specimens within the sample, and, 2) determine a median date for the occupation of the GlIw-1 site based on the statistical analysis of the pipe stem bore sizes.

Typological Analysis

Seventeen relatively complete bowls allow typological identification based on Oswald's (1961:59-61) pipe bowl diagrams. In addition, four metric attributes are used to segregate the three Oswald (1961) pipe types

noted in the sample. The following attributes are used for this purpose.

Bowl length

This measurement extends from the point of discontinuity between the top of the stem and the bowl, to the rim of the bowl mouth (Figure 58).

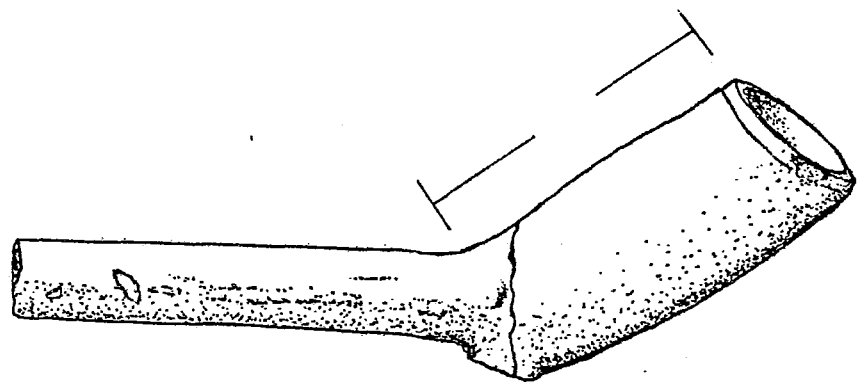

FIG. 58. Bowl length attribute measurement.

Bowl/stem angle

This attribute measures the articulation angle of the bowl to the stem. Measurement is made by placing a clear plastic protractor over a pipe bowl with an attached stem portion. The base line (Figure 59a) is defined as falling along a plane bisecting the pipe stem horizontally. The 90° intersection on the protractor is placed on the base line at

a point bisecting the heel of the clay pipe (Figure 59b). The desired angle is defined by the line bisecting the pipe bowl (Figure 59c).

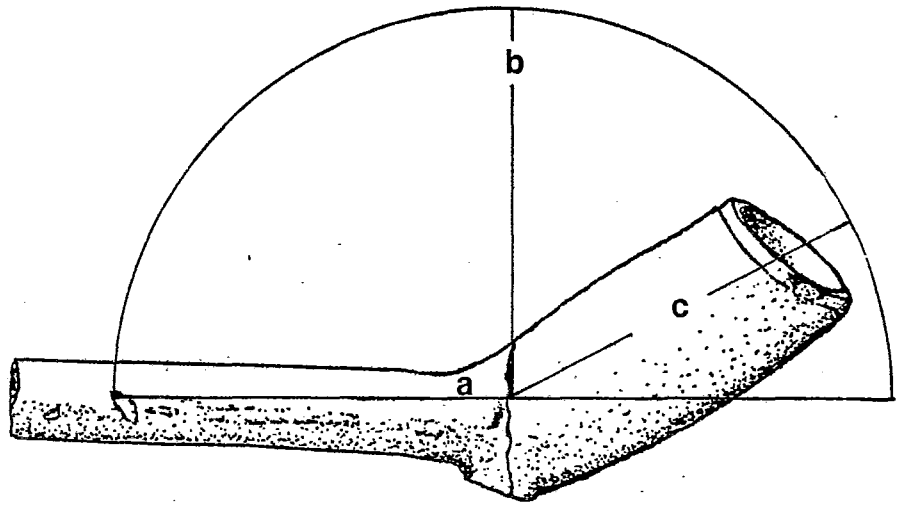

FIG. 59. Bowl/stem angle attribute.

Bowl radius at mouth

This measurement refers to the exterior radius of the pipe bowl mouth (Figure 60).

Base length

The base of the heel is measured longitudinally as in Figure 61.

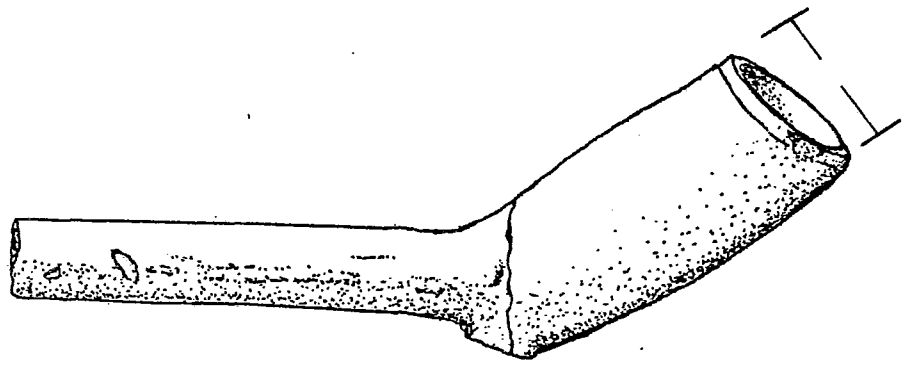

FIG. 60. Bowl radius at mouth attribute.

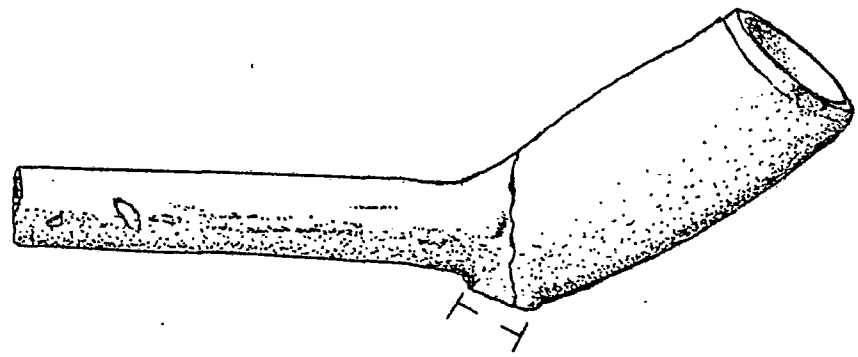

FIG. 61. Base length measurement attribute.

Eight pipes can be classified as Oswald (1961) type 8a (Table 32). These bowls feature a mean length of 36.8 mm, while the bowl/stem angles are all 140°. Bowl mouth radii measure 20.0 mm and the bases, all oval, have a mean length of 8.5 mm.

TABLE 32. Attributes Defining Oswald (1961) Type 8a Pipes.

Attribute	N	R	$\bar{X}$
Bowl length (mm)	4	36.0-37.0	36.8
Bowl/stem angle (°)	6	N/A	140
Bowl radius at mouth (mm)	2	N/A	2.0
Base length (mm)	6	8.0-10.0	8.5
Base shape	8	N/A	oval

Oswald type 8b pipes are represented by 8 specimens on the GlIw-1 site (Table 33). While generally similar to the type 8a pipe bowls, these specimens have a longer bowl lenght with a mean of 39.5 mm, and feature a slightly more obtuse bowl/stem angle. The bowl mouth radius mean of 18.0 mm is slightly smaller than that of the 8a pipes. Base shapes can be round or oval, but with a mean length of 6.0 mm they are generally smaller than the type 8a pipe bases

TABLE 33. Attributes Defining Oswald (1961) Type 8b Pipes.

Attribute	N	R	$\bar{X}$
Bowl length (mm)	2	39.0-40.0	39.5
Bowl/stem angle (^{o})	6	N/A	150
Bowl radius at mouth (mm)	1	N/A	1.8
Base length (mm)	8	5.0-7.0	6.0
Base shape	8	N/A	oval/round

The final bowl type, Oswald (1961) 6c, is represented by a single specimen. With a bowl length of 27.0 mm, it is shorter than the two previously discussed pipe types. The bowl/stem angle is a relatively acute 130^{o}.

Statistical Dating

A sample of 355 pipe stem bores were measured according to Walker's (1967:96-97) suggestions. The proximal or plain end of commercial drill bits were inserted into individual pipe stems. These bits ranged in increments of 1/64 inches.

Using the Harrington (1954) method of analysis, it was noted that only two bore sizes were represented in the

sample (Figure 63). These sizes correspond to the 1650-1680 (7/64") and the 1680-1710 (6/64") periods. The greater percentage of pipes, 207 or 58.3%, have inch bore diameters of 6/64, thereby suggesting that the site was occupied between 1680-1710.

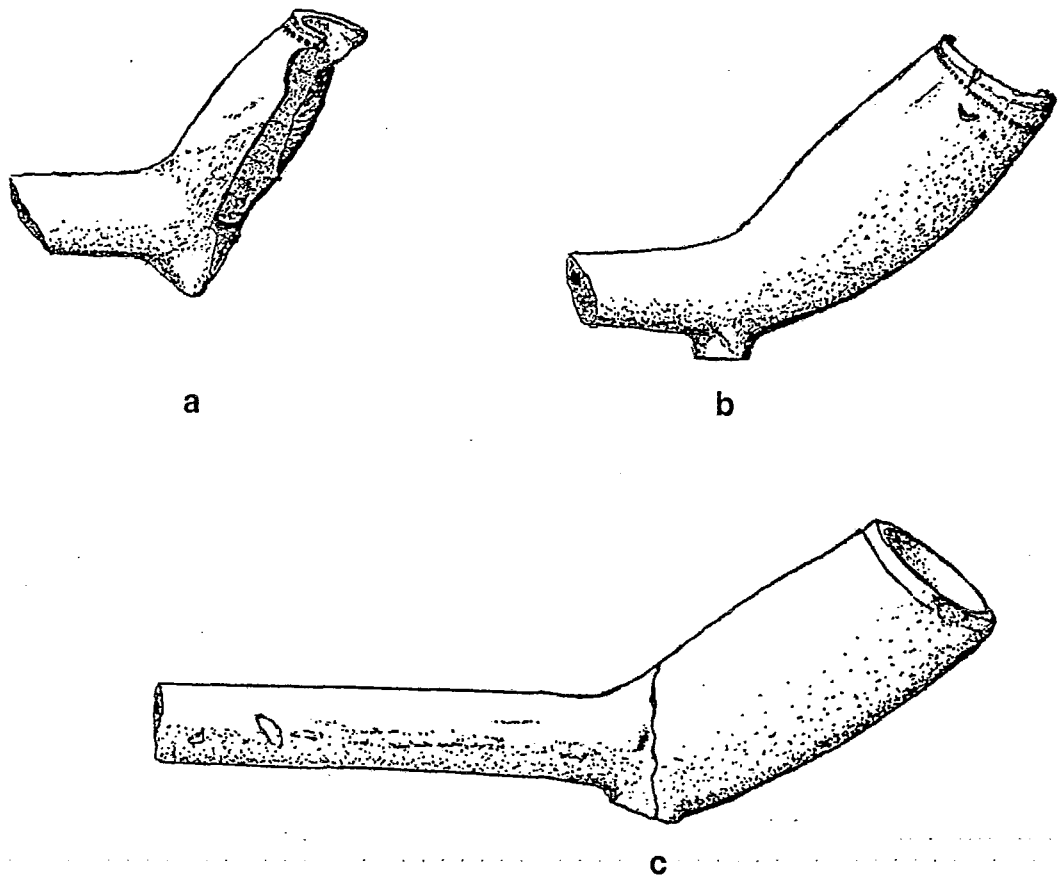

FIG. 62. GlIw-1 clay tobacco pipes: a) type 6c, b) type 8b, and c) type 8a.

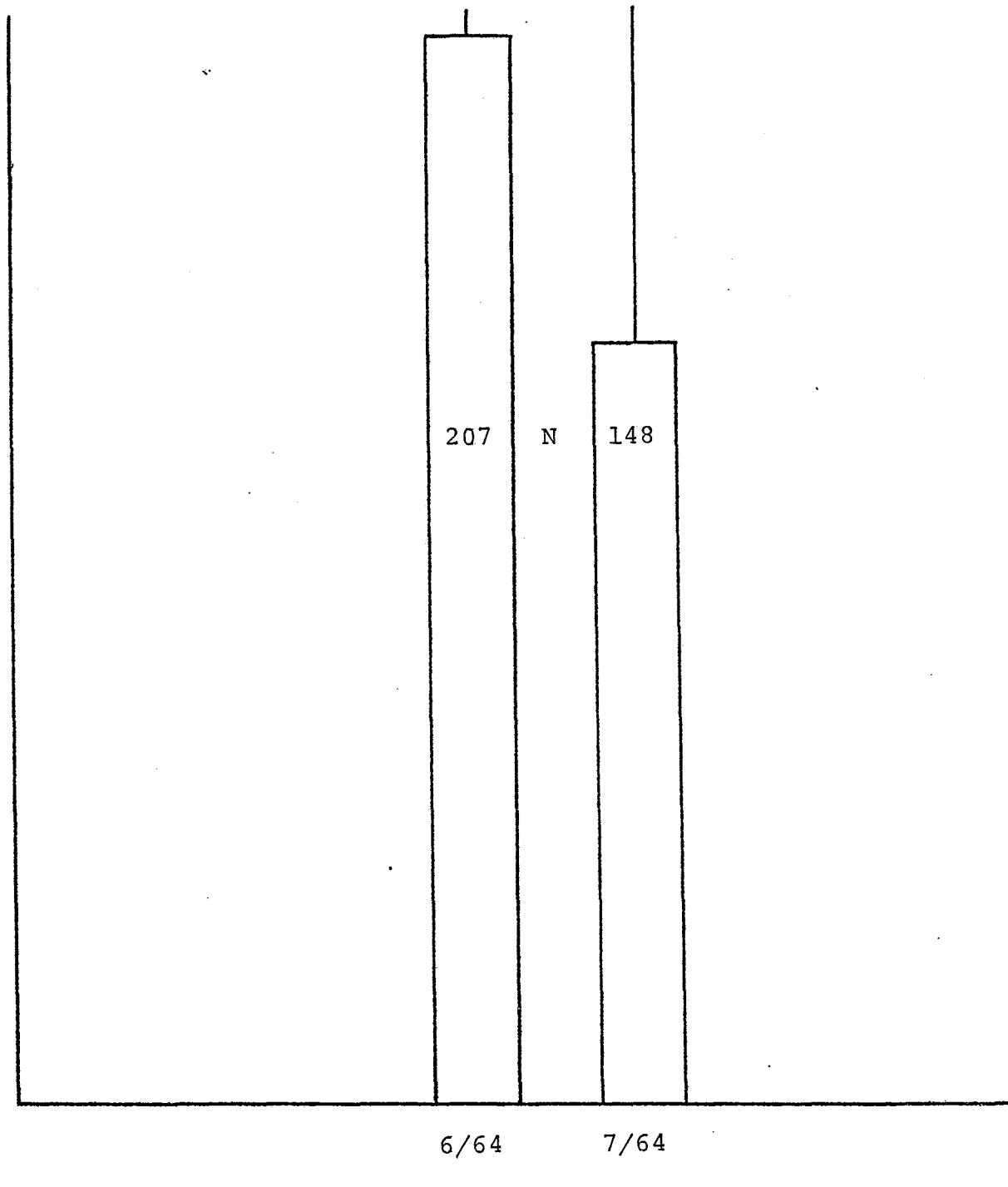

FIG. 63. Bar graph illustrating the bore sizes of GlIw-1 clay pipe stems.

The Binford straight line regression formula yielded a site median occupation date of 1686.336 (Table 34). In contrast to views expressed by Martin (1977:221) about possible inadequacies of sample size for statistical dating, the large sample from the GlIw-1 site appears to be most adequate. Noel-Hume (1963) has indicated that samples as small as 17 pipes can produce accurate dates for sites with occupations no later than 1760.

Summary and Conclusions

The clay pipe sample from the GlIw-1 site exhibits a high degree of uniformity. Only three pipe types, all English, were classified using Oswald's (1961) typology. These individual 8a, 8b and 6c pipe types were also defined on the basis of differences in metric attributes. Additional work with attribute analysis on clay pipes may allow archaeologists to identify bowl fragments that are too incomplete to facilitate visual identification.

Omwake's (1963) report on clay pipes from Fort Albany Ontario provides a useful comparison for the present analysis. The original Fort Albany trade post was constructed by the Hudson's Bay Company in 1679; thereafter, it was occupied by Company personnel or French interest throughout a period of armed hostilities ending in 1713 (Kenyon and Turnbull 1971:37-38).

TABLE 34. Age Determination of the G1Iw-1 Site Based on Binford's (1962) Clay Pipe Formula.

Bore size in.	N	Cumulative N of numerator
4/64	0	0
5/64	0	0
6/64	207	1242
7/64	148	1036
8/64	0	0
9/64	0	0
Total	355	2278

$$X = \frac{2278}{355} = 6.417$$

$$Y = 1931.85 - 38.26X$$

$$Y = 1931.85 - 38.26\ (6.417)$$

$$Y = 1931.85 - 245.514$$

$$Y = 1686.336$$

Although generally comparible to the known parameters of the GlIw-1 site, Fort Albany reflects occupations by both the Hudson's Bay Company and French interests. This latter feature contrasts with the single component Severn River site.

Omwake (1963) identifies five pipe groups from the Fort Albany collection. Of these categories, only his group 3 in analagous to the Oswald (1961) types 8a and 8b pipes dominant in the GlIw-1 sample. None of Omwake's groups 1 and 2 pipes, attributatble to Dutch manufacture, or the group 4 and 5 pipes, post-dating 1690, appear in the GlIw-1 collection.

On the basis of these comparisons with the Fort Albany pipe sample, the GlIw-1 specimens appear to be pre-1690 English clay pipes. The site median occupation date of 1686.336, derived from Binford's (1962) formula, argues for the site being the former Hudson's Bay Company post New Severn.

Activities Group

These artifacts are the material culture remains of human activities not previously discussed within the other artifact groups in South's (1977) classification scheme. Table 35 indicates the individual artifact classes within the

GlIw-1 Activities Group.

TABLE 35. Relative Frequencies of GlIw-1 Activities Group Artifacts.

Activities artifact	N	%
Construction tools	6	13.0
Aboriginal artifacts	28	60.9
Miscellaneous hardware	3	6.5
Hunting and trapping items	2	4.4
Military objects	7	15.2
Total	46	100.0

Construction Tools

The construction tool class is represented by 3 files, 1 axe head, 1 bi-pointed bar, and 1 cold chisel. The files were all incomplete, although some description is possible. The first item (Figure 64a) was located adjacent to the north wall of building 1. It consists of the lower portion of a file with a convex/flat cross-section and a rectangular tang. This specimen is 19 mm wide, 8 mm thick, and has 11 cross-hatched teeth per cm.

The second file (Figure 64b) consists of the lower portion of a flat four sided file with an intact tang. The specimen is 22 mm wide and 7 mm thick; the tang is 49 mm long. Parallel teeth are present on the specimen's four sides with 11 teeth to the cm. It was located immediately adjacent to the north wall of the palisade.

The third file is badly rusted, but appears to be a fragment from a rectangular file. It is 24 mm wide and 7 mm thick; the deteriorated condition of the teeth did not allow their measurement.

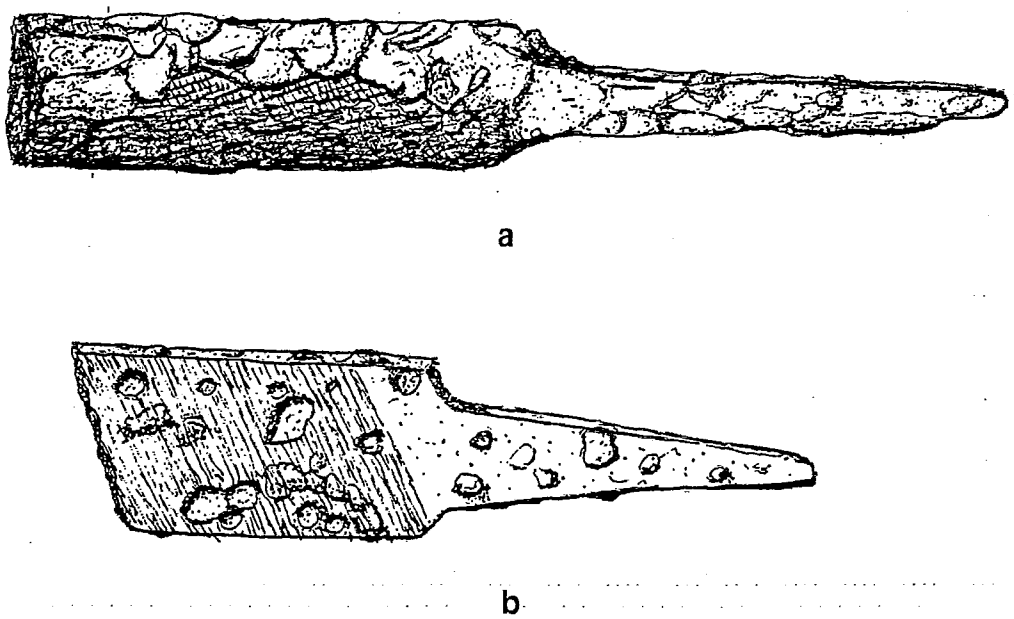

FIG. 64. GlIw-1 files.

The only axe recovered during excavation is broken with the blade portion missing. The specimen features a rounded triangular handle hole and was made by bending a single piece of iron around a form. The handle hole is 55 mm long and has a maximum width of 35 mm.

The final two construction tools are a bi-pointed bar and a cold chisel fragment. The former is 116 mm long, features a maximum width of 13 mm, and was located in the main bastion. The cold chisel fragment is 36 mm long and has a maximum thickness of 7 mm.

Aboriginal Artifacts

These items constitute only .9% of the total assemblage; and although generally non-diagnostic, they offer a glimpse of the traditional aboriginal material culture in the Hudson Bay lowlands. Table 36 indicates the relative frequencies of artifacts within this class.

Lithic cores

Three tan coloured Hudson Bay lowland chert cores were recovered from the site. Two of these items, weighing 15.8 gm and 111.5 gm, were associated with building 2. The third core weighed 228.9 gm and was located in the main bastion.

TABLE 36. GlIw-1 Aboriginal Artifacts.

Artifact	N
Lithic cores	3
Lithic flakes	17
Aboriginal ceramic sherds	5
Bark objects	3
Total	28

Lithic flakes

All of the lithic flakes from the site are also Hudson Bay lowland chert, and 12 of the 17 located flakes were from the building 2 cellar. Two of the flakes feature some wear associated with cultural use. Item B5-50 (Figure 65a) exhibits polish along a slightly serrated edge. The second utilized flake (Figure 65b) also is polished in addition to having step fractures along one edge (Paul Lennox:personal communication).

Aboriginal ceramics

Five body sherd fragments of Selkirk fabric impressed ceramic were located within the building 2 cellar. The absence of rim portions and the polished surfaces of the body sherds makes further identification difficult. All of the specimens feature grit temper.

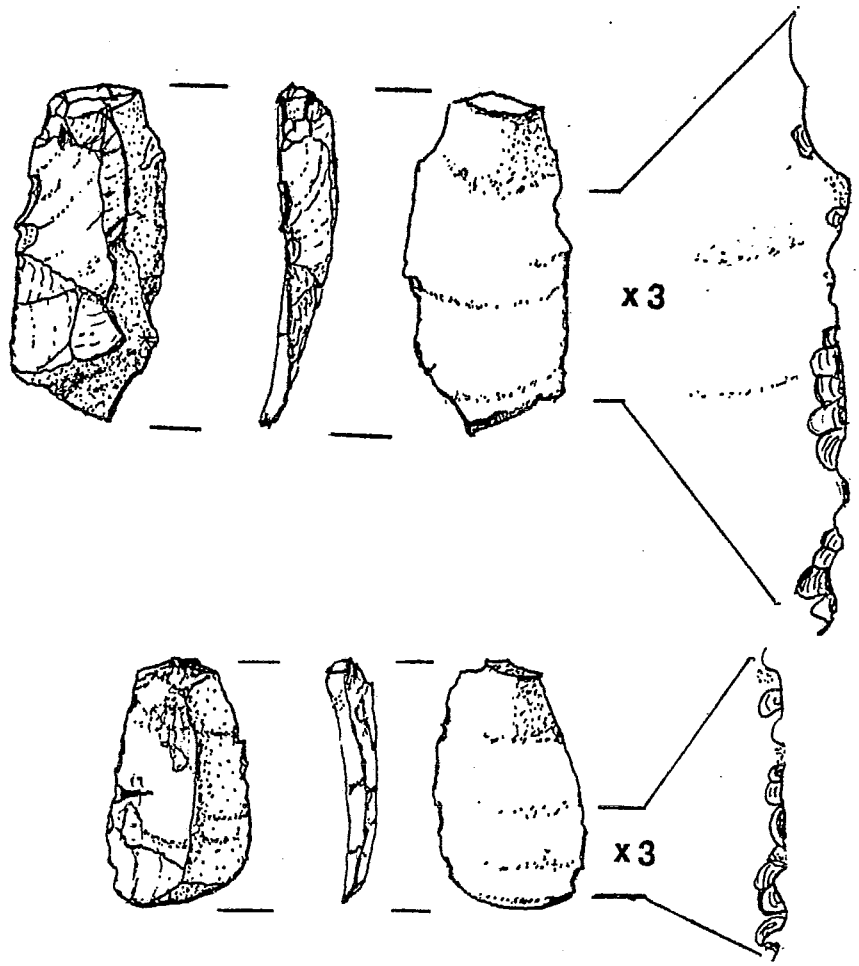

FIG. 65. GlIw-1 utilized lithic flakes.

Bark objects

Three artifacts made from birch bark were recovered from the site and are assigned to this artifact class. The first item (Figure 66) is 134 mm long and ranges from 33 mm to 52 mm in width. The wide end of this cut bark artifact is reminiscent of a funnel or it may have served as a ladle. It was located in the building 2 cellar.

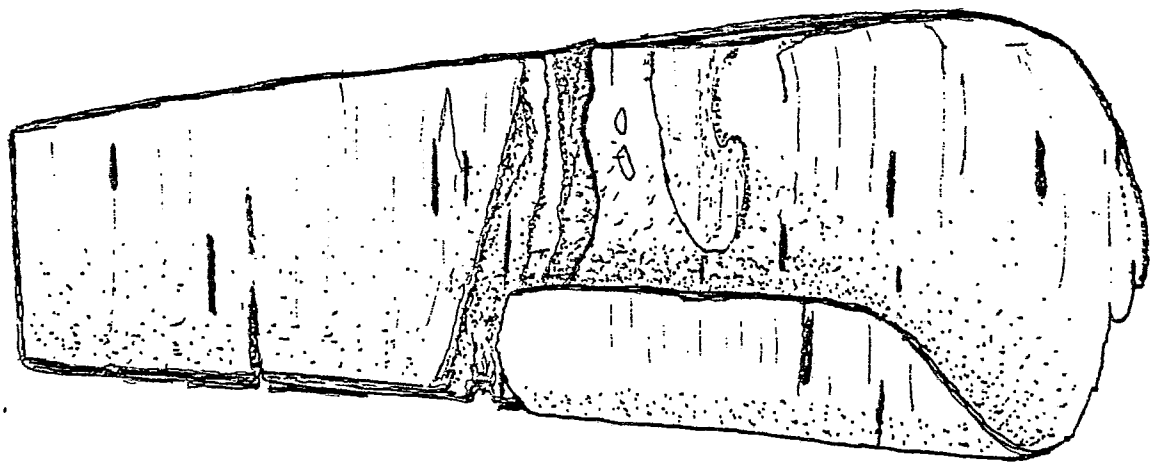

FIG. 66. GlIw-1 bark object.

The second bark object, also from building 2, consists of three fragmentary pieces of cut birch bark. The general contours of the largest of these pieces is similar to the large end of the previously described funnel-like object.

The final bark object is a cut rectangular sheet measuring 136 mm long and 70 mm wide. It was associated with the main bastion.

The strong association of the majority of the aboriginal artifacts with the building 2 cellar suggests that

Native Peoples were active in this location although not over the site generally. It does not seem likely that the trade post inhabitants would encourage unrestricted access to a storage area. Rather, the aboriginal artifacts may reflect a later short duration occupation of this portion of the site. The excavated cellar may have served as a windbreak for activities associated with the aboriginal artifacts from the site.

Miscellaneous hardware

The miscellaneous hardware artifact class includes only three specimens. The first is a flat spacer washer with an outside diameter of 42 mm and a hole diameter of 15 mm. It was located adjacent to the interior south wall of building 1.

The second hardware item appears to be an incomplete iron eye meant to be used in conjunction with rope. It was located in the building 2 cellar.

The final object is a screw measuring 16 mm long with a shaft diameter of 4 mm; the slotted head has a diameter of 7 mm. Screws were hand made during this period and consequently expensive. This specimen was associated with the main bastion.

Hunting and Trapping Objects

Two hunting and trapping artifacts were recovered from the site. The first item, a steel trap spring, was located in the small storage pit (pit 1) within building 1. This trap spring is 192 mm long, 23 mm wide, and 4 mm thick. The lower bow, or spring end, terminates in a notch that probably served in joining the spring to the trap base. The bow of the upper spring arm ahs been broken. The remaining bow portion is 16 mm wide and 13 mm thick.

Steel spring traps were used in Europe well before the sixteenth century (Russell 1967:103). However, the introduction date of steel traps to North America is unknown. Russell (1967:103) postulates that steel spring rodent traps were used by European settlers to North America in the early 1600's.

The earliest documentary evidence for steel traps in North America is reported by Robin Wells (1972:479) who discusses the English use of steel traps in combination with castoreum scent prior to 1728 in Virginia. James Isham (Rich 1949) describes the use of steel traps in the Hudson Bay area between 1743-1749 and provides illustrations of these devices (Rich 1949:153).

The present specimen has no direct analog with any of the trap springs illustrated by Russell (1967:102-140),

nor does it match the rough sketches presented by Isham (Rich 1949:153). Furthermore, the location of this trap spring within the storage pit suggests that it dates to the period of post occupation. As such it appears to be the oldest archaeological evidence for steel traps in North America.

The other artifact within this class is identified as a wire snare. It consists of a length of drawn brass wire with a wound eye in one end through which the other wire end passes to form a loop. This object was located in a test unit within the south-east bastion in close proximity to a cannon ball.

Military Objects

This artifact class is composed of objects primarily associated with military activities. Firearms and related items such as musket ammunition served a more general function and were described separately within the Arms Artifact Group. The GlIw-1 military object class contains four grenade fragments, two cannon balls, and one sword pommet.

The grenade fragments are all curved iron sherds formed when grenades filled with gunpowder exploded. Two of these items were associated with the main bastion, one was

located adjacent to the north wall of building 1, and the final fragment was associated with the south-east bastion.

Both of the cannon balls from the collection were mold manufactured and feature the nipple diagnostic of the process. The larger of these objects is 80 mm in diameter and was located in the south-east bastion. The other cannon ball has a diameter of 48 mm and was recovered from the large refuse pit (pit 2) located behind the post.

The remaining military object is an iron sword pommet 40 mm long and 24 mm wide. This item served to attach the sword hilt to the handle by means of a threaded interior hole.

Unidentified Artifacts

There are 209 unidentified artifacts in the collection. Most of these items are scrap or melted brass and badly rusted iron fragments. However, 13 objects (Plate 14) exhibit sufficient form to warrant further description.

Two brass wire fragments of unknown function form part of this class. The larger wire fragment has a diameter of 2 mm, while the smaller is 1 mm in diameter.

A brass artifact resembling a small knife guard was located adjacent to the north wall of building 1. It has a 4 mm perforation through one of two projecting tangs.

Two broken brass objects resembling spoon handles were located within building 1. They each feature a hole near the curved end of the item and are broken at a point contiguous with another hole.

A small roughly triangular brass object with one bulbous projection was recovered from the fireplace area of building 1.

Four rigid wire angled items resembling modern Allen wrenches constitute the most frequent unidentified artifacts. Three of these items were located in the main bastion, while the fourth was associated with building 1. They range between 25 mm and 46 mm in length and are approximately 2.5 mm in diameter.

A single iron item resembling a clock winding key was located in the building 2 cellar. The 'handle' portion of this object is oblong shaped and a threaded screw projects from it.

A strap-like iron item with a single sleeve aperture was located within the main bastion.

The final item in this category resembles the general shape of the previously described brass spoon handle objects but is made from iron. It features a single hole near one end, is 52 mm long and 11 mm wide.

Scrap Brass and Iron Fragments

A total of 152 heat distorted or waste brass fragments were recovered during excavation. Table 37 indicates the distribution of these items by frequency and weight over the site. The predominance of brass fragments within the main bastion supports the earlier suggestion that the bastion served as a storage or repair area for brass kettles

TABLE 37. GlIw-1 Waste Brass Distribution.

Site area	N	%	Weight gm	%
Building 1	16	10.5	71.2	7.6
Building 2	12	7.9	82.0	8.8
Main bastion	95	62.5	639.1	68.3
Other	29	19.1	143.8	15.4
Total	152	100.0	936.1	100.1

Iron fragments too rusted to identify further are the final objects within the artifact assemblage from the GlIw-1 site. Forty-four rusted, and generally fragmented, iron pieces were located throughout the site. Of this total, 24 fragments, or 54.5%, were associated with building 1.

CHAPTER 5

INTERPRETATIONS

Previous chapters of this thesis have described the historical events, settlement features, and material culture associated with the GlIw-1 fur trade post archaeological site located near Fort Severn in northwestern Ontario. This site will now be identified and placed within the broader context of the early (1668-1713) Hudson Bay fur trade. Proper identification necessitates determining the correct temporal context for the site and examining the ethnic affiliations of associated architectural and artifactural evidence.

Temporal Placement of the GlIw-1 Site

Chapter 2 established the sequence of events connected with the fur trade at the mouth of the Severn River between 1631-1759. Included within this historical synthesis was the recognition of two posts, New Severn (1685-1690) and Nieu Savanne (1700-1704), as being the most probable candidates for the identity of the GlIw-1 site.

Artifacts recovered from the site support a late seventeenth or early eighteenth century date for the trade post; one example is the wine bottle class. No complete

specimens were located but bottle necks and bases in the sample were sufficiently diagnostic to indicate a manufacture date sometime between 1680-1700. In fact, these elements most closely correspond to bottles from 1686-1687.

Nails from the site are also a good indicator of general temporal period. As discussed in Chapter 4, the nails from the GlIw-1 site were not completely hand wrought but rather were made from prepared nail rod and then finished by hand. Cunningham and Price (1976:109) suggested that this manufacturing method was introduced into England near the end of the seventeenth century. Neither the origin of the technique, or its use in France was investigated by the authors.

The one-piece cast candlestick recovered from building 1 (Figure 42) was probably made before the end of the seventeenth century. Grove (1967:39) indicated that this casting method was terminated around 1700 in an effort to save brass.

The most useful artifacts for eliciting temporal affiliation are the European clay tobacco pipes. Prior research by Oswald (1960, 1961), and Atkinson and Oswald (1969), has resulted in useful morphological typologies allowing the placement of bowl styles within defined temporal periods. Also, a method of pipe stem bore

measurement pioneered by Harrington (1954) and refined by Binford (1962) facilitated computation of a median date of occupation for the site. The GlIw-1 pipe sample proved to be very uniform, with only three bowl styles, all English and dating to 1680-1710, recovered. Harrington's (1954) bar graphs of English pipe bores support this period assignment.

Of greater precision, is the site median occupation date derived from Binford's (1962) straight-line regression formula. When applied to the GlIw-1 sample, the resulting date of 1686.336 falls within the known occupation period of the New Severn trade post (1685-1690). Controversy does surround this dating method, as discussed in Chapter 4, but it appears that dates derived from the formula are accurate if use of clay pipes was fairly uniform throughout the period of occupation, if the sample size is adequate, and if sites date before 1760. At GlIw-1, the restricted access and operations of this small post occupied for such a short time period, its sample of 355 measured pipe bores, and its early date satisfy the above criteria such that a date of 1686 seems entirely reasonable and accurate.

In summary, the datable artifact assemblage at GlIw-1 strongly indicates an occupation date within the last quarter of the seventeenth century. Such a date is

congruent with the known operation period of the New Severn post.

Identification of the GlIw-1 Site

There are no detailed descriptions or diagrams of either New Severn or Nieu Savanne. The only references to these posts that were located were presented in Chapter 2. Several quoted passages from Hudson's Bay Company sources referred to the strengthening of the New Severn defenses, but unfortunately no details were included. However, it is reasonable to infer from these references that New Severn was fortified in some manner. Period letters to and from Hudson Bay indicated that the post was continuously occupied between 1685-1690.

Conversely, Nieu Savanne was in operation for at most only four years (1700-1704). Jeremie (Douglas and Wallace 1926:36), resident at nearby Fort Bourbon for twenty years, restricts the Nieu Savanne occupation to 1702-1704. A letter from James Bay to the London Committee of the Hudson's Bay Company in 1702 (Rich 1958:379) stated that the French were only at Severn during the season of trade (i.e. summer). This limited occupation of Nieu Savanne by the French suggests that it was a relatively insubstantial structure.

The structural evidence from the GlIw-1 site generally coincides with a 1686 description of Hudson's Bay Company posts on James Bay provided by Ste. Hélène (Rich 1958:215). He described these posts as consisting of four walls interspersed with corner bastions. This analogy with the GlIw-1 site is not in itself a conclusive argument for the site being a late seventeenth century Hudson's Bay Company post. Unfortunately, we do not have comparable historical or archaeological descriptions of contemporaneous French trade posts.

Ste. Hélène provides a more significant observation concerning the corner bastions at the Hudson's Bay Company Fort Moose. Specifically, he describes structures that closely coincide with the archaeological evidence for the main bastion at the GlIw-1 site (pp53-54, Chapter 3). Perhaps most important, Ste. Hélène indicated that this form of mounded earth and plank bastion was only used by the English and that it differed significantly from period French bastions.

References to the destruction of the New Severn post were presented in Chapter 2 and it is clear that it was burned by post personnel to prevent its use by the advancing French forces led by d'Iberville. During excavation and subsequent artifact analysis, it was evident

that GlIw-1 had been destroyed by fire. The plank floor of building 1 was charred, melted glass and ceramic sherds were present, and most of the recovered gunflints had been thermally altered.

The fate of the Nieu Savanne post is not known. In Chapter 2 it was argued that Jeremie's account (Douglas and Wallace 1926:36) of the destruction of Fort Ste. Therese, or Phelipeux, actually referred to a post on the Hays River and not to Nieu Savanne on the Severn River. The Nieu Savanne post may actually have been abandoned because of lack of success and the general supply difficulties experienced by the French during their tenure on Hudson Bay.

The material culture associated with the GlIw-1 site included artifacts manufactured in various countries including England, France, Germany, China and probably others. Only those artifacts that have had their origins determined are included in the following discussion on site identification.

The European ceramic artifacts from GlIw-1 include items from several European nations. French coarseware ceramics were located on the site alongwith at least one German Westerwald stoneware vessel. There was even a Chinese export porcelain teacup in the assemblage.

Yet, in spite of the cosmopolitan nature of the site ceramics, the predominant type was an English refined earthenware featuring a manganese purple design on a white tin glaze background.

The wine bottles from the site were all English. However, it is known that English wine bottles were also in general use on period French sites (eg. Hanrahan 1978:52-74), and thus, this artifact class does not help in definitively identifying the GlIw-1 site.

A wide variety of trade goods were recovered from the site. Many of these items appear to have been used by post personnel as well. Most of the trade goods could not be assigned a country of origin. However, the sheet brass hawk bells in the collection are probably French (Brown 1977).

Gunspalls were one of the more frequent artifacts located on the site. Unfortunately, there is still uncertainty over the origins of various gunflint types. In Chapter 4, Witthoft's (1966) hypothesis that gunspalls were predominantly of Dutch origin was rejected in favour of views expressed by White (1975), who argued that most gunspalls were actually manufactured in England. To further complicate the issue, it appears that the Hudson's Bay Company was using French gunflints for at least part of their trade as indicated by a letter to Governor Geyer

at Port Nelson in 1691 from the London Committee (Rich 1957: 121).

> ...&particularly to be spareing in your Flints (tho' it seems a very small thing) and in your brandy, they being both French commodities and hard to come by.

As noted previously, the tobacco pipes from the site constitute a markedly uniform sample. Only English pipe types are present in contrast to the occurrence of English and Dutch pipes at the contemporaneous Fort Albany site (Omwake 1963). Fort Albany was occupied by both French and English forces in the 1668-1713 period; as Omwake (1963) indicates, the Dutch pipes presumably represent French usage. The absence of Dutch pipes from the GlIw-1 site, then, is a particularly strong argument that it was an English post.

Based on the foregoing lines of evidence, it appears that the GlIw-1 site represents the remains of New Severn (1685-1690). This Hudson's Bay Company post was small in physical size, produced modest trade returns, and employed relatively few post personnel. Yet, it served an important role in the French/English competition of the period, and provides a valuable example of the early fur trade operations on Hudson Bay.

New Severn Activities

The settlement patterns obtained by excavating a portion of the New Severn post indicates that the site consisted of three principal structures (building 1, building 2, and the main bastion) encompassed within a single row, four wall palisade. An examination of the 1689 New Severn debt list (Appendix C) reveals that eleven men were resident at the post.

As suggested in Chapter 3, building 1 probably served as the sleeping and eating quarters for the post personnel. As such, living conditions at the site would have been very crowded indeed. Perhaps the rather insubstantial building 2 also served as a living area, as well as a major storage facility. The unknown variable is the amount of living space allotted to Thomas Walsh, the Chief Trader at New Severn. Did this supervisory position include separate living quarters as was granted the heads of larger posts? The question must remain unanswered at this time. Future archival research may clarify the division of living space in smaller posts such as New Severn.

The identity of the post personnel at New Severn in 1689 is of some interest historically. As noted, Thomas Walsh was Chief Trader, a position he acquired

following the dismissal of Samuel Missenden in 1688. Walsh was directly responsible for the burning of New Severn in 1690, an action viewed favourably by the London Committee (Rich 1957:116). Following his tenure at New Severn, Walsh rose to become Governor at the important York Factory post.

Richard Liddiard was another resident at New Severn in 1689 (Appendix C), and is remembered for receiving a gratuity for aiding Walsh destroy New Severn.

Thomas Simpson also appears in the 1689 New Severn debt list (Appendix C). Although he is not known to have played a major role in the early history of the Hudson Bay trade, his presence at New Severn lends a personal touch to this research. In Chapter 4 a brass ring poignantly inscribed with LOVE TS was reported. While perhaps a tenuous speculation, this ring may have been associated with a man who is otherwise only known to history from a debt list.

There is little available information on the actual trade operations of the New Severn post. No journals have survived and account books for most years of operation are likewise absent. Fortunately, the 1689 trade figures are available within the Port Nelson account books for that year (Appendix D).

Goods valued at 6332 beavers were traded at New Severn in 1689. The total beaver value of furs received

was 7325, making for an overplus figure of 993 (Appendix D). At this time, all fur returns were expressed in terms of their beaver value, with the expression "made beaver" denoting the practice. An overplus figure was the beaver value of all furs received above the value of goods traded and was a common occurrence in the Hudson's Bay Company operations of the day.

The 1689 trade figures from New Severn indicate most clearly the trade items preferred by the Native Peoples trading at the post. It is not known for certain who these people were, but it is reasonable to suggest that they included bands of Swampy Cree. Table 38 condenses the figures from Appendix D into five trade good categories. Subsistence items used in the procurement and processing of food account for the major portion (62.6%) of the fur returns at the post. It should be noted that most of these furs were used to purchase guns, powder, and shot. The second major category was comprised of clothing, fabrics, and related items; it accounted for 24.5% of the total fur returns. Tobacco and related items brought in 8.9% of the obtained furs, while decorative items and unclassified goods led to substantially smaller returns.

These trade figures illustrate the high value placed on firearms by Indian traders at this time. Clothing

TABLE 38. New Severn Trade Good Categories and Relative Fur Returns in 1689.

Category	N	%
Subsistence Items (guns, powder, shot, flints, powder horns, gun worms, red lead, daggers, ice chisels, hatchets, net lines, knives, sword blades, brass kettles, copper kettles, tin kettles, scrapers, burning glasses, fire steels, twine)	3963 1/4	62.6
Clothing, Fabrics, and Related Items (mens laced coats, mens plain coats, present suits, white calico shirts, painted calico shirts, silk sashes, black hats, mens laced caps, blankets, awls, needles, french fall shoes, sleeves altered into coats, red knit stockings, Irish stockings, knit gloves, wadmill mitts, scissors, duffel cloth, bay cloth, chintz, broad cloth	1548 2/3	24.5
Tobacco and Related Items (Brazil tobacco, English roll tobacco, tin tobacco boxes, steel tobacco boxes, tobacco tongs)	564 1/2	8.9
Decorative Items (vermillion, beads, Ivory jewels, hawk bells, leather looking glasses, Ivory combs, box combs, guilt rings)	213 1/4	3.4
Non-classified Items (tin showes, wire hand cuffs, leather trunks)	41	.7
Total	6330 2/3	100.1

articles are also being traded in large quantities indicating the replacement of traditional clothing. However, food and brandy had not become trade items, although they may have been presented as gifts at the trade ceremony.

With the legitimizing of the Hudson's Bay Company monopoly with the signing of the Treaty of Utrecht in 1713, the company gradually consolidated and strengthened its position. Existing posts on James Bay and at the mouth of the Hays River were expanded. In 1759, trade at the mouth of the Severn River was resumed with the building of Fort James, later renamed Fort Severn. As with its seventeenth century predecessor, Fort Severn never achieved the success of major posts such as Fort Albany or York Factory. However, it has continued in operation to the present day, thereby proving the validity of the long sought after Severn River trade begun with such uncertainty and turmoil. In a very real sense the New Severn post is representative of the problems and ultimate success experienced by the Hudson's Bay Company during its early years of existence.

Advancement of the Shared Fur Trade Material Cultures Hypothesis

The GlIw-1 archaeological site has been identified as the Hudson's Bay Company New Severn post through a

combination of archaeological and historical evidence. This identification could not have been made solely from the available artifact data for artifacts of both English and French manufacture are present. The occurrence of French ceramics, hawk bells, and probably gunflints may be explained by the general European trade patterns extant at the time. After all, this factor accounts for the predominance of English wine bottles on seventeenth century French sites (eg. Hanrahan 1978:52-74) and the widespread occurrence of German stonewares on European and North American sites.

It appears, though, that a more important factor was operative in this case. As the Hudson's Bay Company was newly-formed, and therefore, inexperienced in the North American fur trade, it consciously copied proven French trade practices. This economic mimicry is largely explained by the influence of Radisson and Groseillers on company policies. Talented and experienced French Canadian traders, they were instrumental in initiating English involvement in the Hudson Bay trade in 1668, and continued to exert influence for most of the ensuing French/English period of direct Hudson Bay competition (1668-1713). Their expertise in establishing trade posts and instigating the initial tenuous trade contacts with northern Algonkians

contributed much to the success of the Hudson's Bay Company. A measure of Radisson's worth to the company is illustrated by how quickly he was able to rejoin the English side after contributing to the destruction of Port Nelson while briefly back with the French in 1682.

A major role for Radisson, and to a lesser extent Groseillers, was as adviser on the purchase of suitable trade items. He occasionally made bad decisions as illustrated by his counsel to purchase Dutch guns ill suited to northern conditions in 1684 (PAC MG 20 HBC 2 A. 1/8 fo. 13). However, most of his advice was of a sounder nature and Radisson was a major influence on the types of goods purchased and used by the Hudson's Bay Company during the early development years.

The argument to this point is that French influences on the Hudson's Bay Company are reflected in the New Severn assemblage, and such influences resulted from a conscious effort by the Company to copy French trade practices. From this premise, it is hypothesized that French and English trade interests operating on Hudson Bay during the early fur trade period (1668-1713), utilized similar material culture items.

Furthermore, the similarities included domestic and trade items; the former perhaps resulting largely from

general European trade practices. The use of French trade items and English copies of French products, one example being the similarity between Hudson's Bay Company gun lock patterns ordered in 1684 and earlier French gun locks (Chapter 4), was a conscious effort on the part of the Hudson's Bay Company.

A major artifact class that was not shared is the European clay tobacco pipe. The English had a well developed pipe industry by this time as indicated by the New Severn pipes coming from the London area (Iain Walker: personal communication). Conversely, the French pipe industry was in its infancy during the latter part of the seventeenth century and the French appear to have used Dutch pipes as suggested by the Fort Albany sample (Omwake 1963).

Future excavation and analysis of other early French and English trade posts on Hudson Bay would help to refine this hypothesis of shared material culture by early English and French Hudson Bay trade interests.

CHAPTER 6

CONCLUSIONS

This thesis has examined one aspect of the often tempestuous period of French/English competition for control of the early Hudson Bay fur trade. The research focuses on the problems of identifying trade post sites dating between 1668-1713, through the examination of a particular archaeological trade post site located near Fort Severn, Ontario. Previous testing (Pollock and MaLeod 1977) indicated that the GlIw-1 site dated to the early period of the Hudson Bay fur trade, while subsequent excavation and analysis by the present author refined the temporal placement of the GlIw-1 site to the last quarter of the seventeenth century. Also, historical research identified New Severn (1685-1690) and Nieu Savanne (1700-1704) as the most probable candidates for the identity of the GlIw-1 site.

Through a combination of historical and archaeological evidence, The GlIw-1 site was identified as the Hudson's Bay Company post New Severn. Factors contributing toward this identification include: 1) the site median occupation date of 1686.336 derived from the clay tobacco pipes; 2) historical references suggesting that New Severn was

fortified and the absence of similar evidence for Nieu Savanne; 3) the similarities between the architectural evidence from GlIw-1 and the description given by Ste. Helene of contemporary Hudson's Bay Company posts on James Bay; 4) New Severn was destroyed by fire and the GlIw-1 site produced evidence that it was burned; 5) the presence of English clay tobacco pipes to the exclusion of Dutch varieties.

A second objective of this thesis was to describe the material culture associated with New Severn. The artifact classification proposed by Stanley South (1977) was adapted to allow use with a late seventeenth century fur trade post assemblage. Hopefully, the use of South's classification will facilitate future inter-site comparisons.

Difficulties encountered while trying to identify the GlIw-1 site based on associated artifacts led to an examination of period fur trade practices. It was determined that the early Hudson's Bay Company was strongly influenced by contemporary French trade procedures, largely as a result of important advisory positions held by Radisson and Groseillers. From this information, the hypothesis of shared material culture has been advanced to account for the presence of French artifacts on the New Severn site. Basically, my hypothesis states that French

and English trade interests operating on Hudson Bay during the early fur trade period (1668-1713) used similar material culture items.

As with most research, this thesis remains incomplete in the sense that questions raised throughout this inquiry have not all been answered and await future research. However, the thesis does contribute towards an increased understanding of a poorly understood period of the Canadian sub-arctic fur trade. At the very least, a Hudson's Bay Company post dating to 1685-1690 has been identified and placed within a re-evaluated early sequence of events at the mouth of the Severn River. Also, the description of the New Severn assemblage adds to our knowledge of late seventeenth century fur trade material culture. Finally, the "shared material culture" hypothesis has been advanced for consideration and refinement.

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APPENDIX A

NEW SEVERN SHIPPING INVOICE 1686

The following invoice of supplies and trade goods represents the only known shipment that was sent directly to New Severn. Subsequent shipments were landed at Port Nelson for redistribution to the smaller New Severn post. This invoice is from the 1686 Port Nelson Shipping Invoice (PAC MG 20 357 A24/1).

1	barrel porke qte. 57 lbs of 6 lb			
2-17	as above but with different weights			
18	barrel lard and suet			
19	barrel flower qte 4: 2 : 0 Tarv 43 lb			
20-30	as above but different values			
	total	57: 1 : 16		4: 0 : 23
31	Kildonkin peas	3 bushels	0 pecks	0 pinte
32-44	as above with different sizes			
	total	42	0	4
45	Kindonkin peas	3 bushels	0 peck	0 pinte
	total	18	0	0
51	oatmeale	3 bushels	0 peck	4 pinte
52-57	as above but different sizes			
	total	21	2	6
58	Butt mault	17 bushels	2 peck	4 pint
59-64	as above but different sizes			
	total	107	2	--

65	caske	qte.	102	large hatchets
66	-	-	100	ditto
67	-	-	98	ditto
68	-	-	94	ditto
69	-	-	106	ditto

70	-	-	165	small ditto		
71	-	-	152	ditto		
72	-	-	183	ditto		
73	-		1000	large long knives 6 ea. large scissors		
			500	large Rochbury		
			500	small ditto		
			100	prs. tobacco tongs		
74	Rols	Braided	Tobacco	1:3:ℳ	Tarv	6 lb
75	-	-	-	1:2:-	-	6
76	-	-	-	1:2:26	-	6
77	-	-	-	1:2:9	-	6
78	-	-	-	1:1:ℳ	-	6
79	-	-	-	1:1:1	-	6
80	-	-	-	1:3:5	-	6
81	-	-	-	1:1:ℳ	-	6
82	-	-	-	1:2:8	-	6
83	-	-	-	1:3:5	-	6
84	-	-	-	1:1:11	-	6
85	-	-	-	1:2:25	-	6
				19:-:6		0:2:16
				0:2:16		
				19:1:18		
86	Rol	Braided	tobacco	1:1:14	Tarv	6 lb
87	-	-	-	1:1:26		6
88	-	-	-	1:2:25		6
				4:2:9	-	18

89	Caske	qte	6½	bushels Indian Corn
90	-	-	7	ditto
91	-	-	5	ditto
92	-	-	7½	ditto
93	-	-	8	ditto
94	-	-	8	ditto
95	-	-	8	ditto
			50	ditto

96	--	qte	7	p____*	blankets & 2 duffolds	
		no	44	qte yd	21.2	
			45	- -	20.3	
			46	- -	22.-	7 blanketts
			47	- -	22-	
			48	- -	22.2	
			49	- -	21-	
			50	- -	21.3	

* word not legible

51 - - 40
52 - - 40½ } duffalls

97 -- qte. 8 p_____ blankettes & 2 bays
no. 36 qte yds 21-
37 - - 21
38 - - 21.1
39 - - 21
40 - - 22.1
41 - - 21.1
42 - - 21.2
43 - - 21.1
Bay Red 42
ditto blew 21
4000 ℔ Bristol Shott
4000 ℔ Swan
1000 ℔ Collivor
1000 ℔ Pistol
1000 ℔ Duck No. 1
1000 ℔ Partridge #2
14000 ℔ 280 barrels ____ 7 tons

98 chest qte. 100 plaine men's caps
100 ditto
50 women ditto
10 mens blue_____ coats

99 Chest qte 30 blue mens _____ doates
60 red ditto

100 Chest qte. 20 blue mens coats
30 red ditto, 50 womens plaine caps, 50 pr. of shaoes for women, 50 pr. ditto wf. _ ll _ome, 4 p_____ coates
wf bells & caps.

101 chest qte. 34 plaine ____ coates, 16 blue plaine, 16 blue l___, 35 red ditto for boys of 16 years old

102 cask qte. 100 brass kettles, 3½__: french folle

103 a bo__ Medicine

104 caske qte. 100 brass kettles, 3 __: french folls, 1__: flatt shaoes, 5 Tin tobacco b___, 16 ea steele ditto, one bottle of ___, Inck, one Rh_am_ white pape, 1 quir_ ditto, 4 sticks of wax, brawne thread, 8℔ cu ll___ ditto, 2 grass (bell mettle)

buttons, 4 grass coate, ditto, 6 (ydes)
borad Cull____ (Tape), 1 ℔ broad
fill__ ing, 500 rounde needles, 500
square ditto.
4 f__kins __tt__(button) no. 1 to 4
caske qte. 10 cheese 1: 2: 14
10 1: 2: 15
10 1: 2: 18
30 4: 3: ~

two quarter casks of spirits qte. 49 gallons 3½ pints

105 Rundlet qte 3 gallons lyme jùyce

106 - - 6 gallons ____ oyle

107 caske 6 bushels salt

108 30 gallons vinegar
two barrels pitch
two barrels tar

109 chests qte. 2 guns 3½ foate } Watkinson
1 -- 4 -- }
1 -- 3½ -- } Austin
2 -- 4 -- }
7 guns 3½ foate } Silke
1 -- 4 -- }

110 chest qte. 12 guns 4 foote } Silke
17 - 3½ - }

111 - - 15 guns 3½ foote } Bannister
14 - 4 - }

112 - - 13 guns 3½ foote } Austin
14 - 4 - }
27

113 - - 10 guns 3½ foote Austin
20 - 4 - Finch
30

114 - - 10 guns 4 foote } Finch
- - 20 - 3½ foote }
30

115 chest qte. 15 guns 3½ foote } Rickford
- - 15 - 4 - }
30

116 - - 7 guns 3½ foote } Hartwood
- - 8 - 4 - }
- - 7 - 4 - } Watkinson
- - 8 - 3½ - }
30

117 - - 12 guns 3½ foote } Stacey
- - 13 guns 4 - }
25

118 - - 13 guns 3½ foote } Stacey
- - 11 - 4 - }
24

119 chest qte. 7 guns 3½ foote } Pickford
- - 5 - 4 - }
- - 4 - 3½ - } Finch
- - 1 - 4 - }
- - 5 - 3½ - } Stacey
- - 4 - 4 - }
- - 1 - 3½ - } Hartwood
- - 4 - 4 - }
- - 1 - 4 - Banister

120 bundle qte. 7 peeces of cloth
no. 373 R__ yds 28.2
371 - 28.2
374 - 29
340 blue - 30
364 - 28-3/4
362 - 28.3
361 - 29.3

121 --- qte. 5 ea: & 2½ candle
122 -- - 5 ea: & 4 ditto
123 barrel qte. 11 gross tobacco pipes
124 bags mollasses at 3: 2: 25 Tarv 84 lb.
125 -- - at 8: 3: 21 - 84
℔ 9 ℴ
126 Caske qte. no. 120 chysells 2: 2: 11
127 140 - - 3: -: 10
140 - - 2: 3: 7
400

129 --- qte. 12 files for the smith, a handwire,
a screw plate with 12 taps, 6 ea: scrapers
1000 awls, 300 fire steeles, 200 arrow heads
a whipsaw; 3 ea: a__ b__/__e

130 Kildonkin currants 1:3:0
Tarv 0:0:14
1:2:14

131 hogs prunes qte 10: 2: 14
tarv 1: -: -
& 9: 2: 14

132 barrel Raysons 2: 3: 15
ditto 3: -: -
5: 3: 15
Tarv 0: 2: 4
5: 1: 11

134 Kildonkin Rice qte. 2: 1: 03
0: 1: 3
2: -: 00

In which kindenkin are:
4 @ cynamon
6 @ cloves
6 ginger
4 @ mace
4 @ nutmeg
4 pepper

135 barrel suguar 2:2:14
tarv 0:0:18
2:1:24
one bundle of cotton w oi__

136 hogs. qte. a barrel ___ lead wt 107 ,
one ____ black lead 22 , one copper
stew pott, 2 brass cocks, 200 hawkes
bells, 3 ea: guilt rings, 3 ea: ditto___ ____
15 neck Jewells, 2 breast Jewells, 3 arme ditto
18 nose or eare jewells, one bundle hogs
brystels, 51 wooden boxes, 1 ring brass
w____, 2 scales, 2 setts of weights,
1 gross _____ lace, 50 white shirts, 6
ea. sashes, 20 pr. mittens, 6 pieces
_____, 4 chintz red & blew,
7 pieces chintz in a variety of colour.

137 casket qte. 161 secines of twyne, 39 ditto, 100
Alligan shirtes, 1 ea: stockings no 16½,
2 doz ditto no 17½, 1 doz ditto #18, 2
dozen ditto No. 20, & one box of ____.

138 Caske qte. 1 ea _ appe, 20 lb. _____, 84
doble boavo _ lyme, 60 Doble boavo _ lyme,
2 ea. irish stockings, 80 paire mittens,
21 bunches beade qte 588, 4 ea burning
glasses, one large bible & Common Prayer
booke, 300 gun worms

139 caske qte 17 ea: powder _____

one bundle gunsticks qte. 300
30 bands fine powder or halfe bands
2 barrels common powder
2 chaldron coal__
2000 stock bucks__
1000 Flemish bricks
800 paving tiles
17 dozen combes
10 dozen & 5 combes
10 cozen & 5 Ivory combs

One bagge of Cow_ ie

APPENDIX B

NEW SEVERN FAUNAL ANALYSIS

Rebecca J. Balcom

All faunal remains excavated during the 1978 field season were identified. Permission was granted by Jack Dubois, mamologist at the Manitoba Museum of Man and Nature to use the comparative collection at the museum in order to ascertain identification. Four fish vertebrae were sent to Dr. Howard Savage at the University of Toronto to be identified.

Techniques

The faunal remains were initially divided into identifiable and unidentifiable groups. The identifiable fauna was then classified into the lowest possible taxonomic category. Element, portion, side, and where possible, degree of maturity at death were recorded. Unidentifiable fauna were those bones, or fragments thereof, which could not be placed in a taxonomic category smaller than order. These bones were recorded within categories of small, medium or large mammal, bird, or fish. Notes were made on all bone where applicable concerning the presence of butchering marks and degree of burning. All bone was well

preserved with the exception of the more severely burnt pieces. I am assuming that all bone dates from the 1685-1690 occupation of New Severn.

The Fauna

Thirteen taxonomic categories of mammals were recovered from the excavations at New Severn (Table 1). The Bovidae family is the only fauna of European origin, the remainder being local wild game. The Bovidae family was represented by one rib. Ribs of this family are unique in being very broad and flat. I feel that this is undoubtedly domestic cow (Bos) rather than bison (Bison bison) and represents the sides of beef that were imported from England. There is no evidence of livestock being sent to the post at this time period.

Birds representing ten taxonomic categories have been identified (Table 2). These include representatives from six species, two subfamilies, one family and one order. The identification of the bird remains was hampered by two problems which are often prevalent when dealing with avian remains: lack of an adequate skeletal reference collection; and the fact that there are often very small osteological differences between species. For these reasons I had difficulty with the identification of geese (Anserinae)

TABLE 1. Mammals Identified from New Severn.

Artiodactyla	
Cervidae	
Alces alces	moose
Rangifer tarandus	caribou
Bovidae	
Rodentia	
Castoridae	
Castor canadensis	beaver
Carnivora	
Ursidae	
Ursus maritimensis	polar bear
Canidae	
Vulpes vulpes	red fox
Alopex lagopus	arctic fox
Canis lupus	wolf
Mustelidae	
Martes americana	marten
Mustela vison	mink
Cricetidae	
Ondatra zibethicus	muskrat
Pinnipedia	seal, walrus

TABLE 2. Birds Identified from New Severn.

Anseriformes	
Anserinae	
Bránta canadénsis	Canada goose
Chén hyperboréa	snow goose
Anatinae	surface feeding ducks
Aythinae	
Melanitta deglándi	white winged scoter
Aýthya marila	greater scaup
Galliformes	
Tetroanidae	grouse and ptarmigan
Phasianidae	
Pérdix perdix	gray partridge
Gruiformes	
Gruidae	
Grús canadénsis	sandhill crane

and could not place all the bones within species categories. Even the species level sometimes seems general when one considers the fact that Canada goose (Bránta canadénsis) alone has at least ten different subspecies (Belrose 1942: 141; Robbins, Bruun and Zim 1966:40). However, it was impossible to identify the bird faunal remains to lower taxonomic categories than I have indicated. I found it necessary to classify grouse and ptarmigan together (Tetroanidae) rather than separate the two into distinct species. This was initially due to the scanty reference collection; but in spite of reference collections, separation of these two species is often impossible. Many fragments and elements are so similar that they are impossible to differentiate between, and size alone is not diagnostic (Rick 1979:3). Grouse and ptarmigan coexist in the area of the site so the location of New Severn is not a distinguishing factor.

Having noted the above difficulties inherent in identifying the bird remains from New Severn, I suggest that these problems do not detract from the interpretation of the faunal remains. If a particular researcher deemed it worthy to know, for example, whether grouse or ptarmigan were being utilized at a particular post, then I suggest the historical documents might be consulted.

The daily journals kept by the Governors of each post often contain records of the kinds and quantities of birds being caught.

The final category of bone identified from New Severn was fish. This category is represented by one fish only, that fish being represented by four unusually large vertebrae. At this time, these still have not been identified owing to the lack of a comparitive skeleton in Winnipeg as well as in Toronto.

QUANTIFICATION

The calculation of abundances of faunal remains from archaeologaicl sites is a basic aspect of most faunal analyses. However, the ways of calculating taxomonic abundances and the methods of presenting the information have varied considerably among archaeologists. It is my aim in this section to clearly present the quantification data using the various methods outlined in Grayson's (1979) thorough article. The data should then be in such a format that it can be used easily for comparison by future interested researchers.

I have divided the faunal remains from New Severn according to the settlement pattern features within the site as defined by Christianson (1980). Bone which does

not fit into one of these five features has been referred to as being from either outside or inside the palisade. I feel that these are valid categories since little excavation was carried on outside these features, namely the palisade, the main bastion, building 1, building 2 and the refuse pit (pit 2). Since the site represents a continuous five year habitation period, the faunal remains have not been separated according to vertical stratum.

Table 3 shows the numbers of identified elements by cultural area. I was able to identify 289 bones in 24 taxonomic categories. I have included one mammalian order in this table, that being Pinnipedia. I have done this because I wanted this order to be represented in the calculations. This order was represented by a fused tibia and fibula and could not be further identified with the available reference collections. A vertebra which is possibly from the same order was found in the cellar. I have not included the 100 bones that I have identified to the family Cervidae in Table 3 because of the nature of that bone. Being mainly rib and vertebral portions as well as some tooth fragments and other bones unidentifiable at the species level, they do not lend themselves to abundance calculations, particularly at the level of minimum numbers. Therefore, I have placed Cervidae as a

TABLE 3. Numbers of Identified Elements Per Taxon by Feature.

Taxon	Palisade	Main bastion	Bldg. 1	Bldg. 2	Refuse pit	Inside palisade	Outside palisade	Total
Rangifer tarandus	3	5	86	21	13	10	4	142
Tetroandae		4		21	46	2	1,9*	83
Anserinae		4		5		1		10
Bránta canadénsis				2	3	1	1	7
Alopex lagopus				7				7
Martes americana			3	1	1		1	6
Aýthya marila		1		2	2			5
Unidentified fish	4							4
Castor canadensis			1	2				3
Chén hyperboréa				2	1			3
Odocoileus virgianus					2			2
Vulpes vulpes		1		1				2
Pérdix perdix		2						2
Anatinae	1	1						2
Alces alces				1				1
Ursus maritimensis								1
Ondatra zibethicus				1				1
Canis lupus				1				1

TABLE 3. Cont'd.

Taxon	Palisade	Main bastion	Bldg. 1	Bldg. 2	Refuse pit	Inside palisade	Outside palisade	Total
Mustela vison				1				1
Bovidae				1				1
Pinnipedea					1			1
Grús canadénsis				1				1
Melanita deglándi				1				1
								289

9* - refers to elements with no provenience

single family in Table 4 which shows its spatial distribution.

TABLE 4. Numbers of Identified Cervidae Elements by Feature

Palisade	Bastion	Cellar	Building	Refuse Pit	Inside Palisade	Outside Palisade
	2	77	13	2	5	1
				total = 100		

The minimum number of each fauna was established by separating elements into age classes, left and right components of element, and portion of element and then using the greatest number to define the abundance of a given taxa. Grayson (1979:203-204) emphasizes a problem inherent in the calculation of minimum numbers:

> The values of minimum numbers of individuals that result from this process vary with the way in which the faunal material is divided into smaller faunal aggregates, which in turn forms the basis of minimum number determination...and...the changes in minimum number values across taxa that occur when different aggregation approaches are employed differentially affect the calculated minimum number abundances of different taxa.

I have calculated the minimum number of individuals from the New Severn remains using two different aggregation methods applicable to this site, by horizontal strata and

for the total site (Table 5). The two different aggregation methods do cause variation within the absolute taxonomic abundances as well as variation in the ratios of one taxa to another. Generally, the minimum numbers calculated by the settlement pattern features yield a higher number of individuals than when calculated for the whole site. It is clear that the grouse and ptarmigan group (Tetroanidae) changed only slightly by using the two different methods. This is because the most abundant element, sternum keels, was identical for almost all of the features.

The largest possible minimum number values are calculated by tabulating the number of identified specimens per taxonomic category. Using this method, each identified element represents an individual. By subtracting the lowest possible minimum number of individuals, that is the number obtained when the entire site is treated as an aggregate, from the largest possible minimum number of individuals, the maximum possible difference for minimum number values can be obtained. The resultant numbers actually represent the range of values that the minimum numbers for each taxon may have. The actual value will depend on how the faunal material was grouped prior to analysis. The figures in Table 6 verify for New Severn Grayson's argument that

> The distribution of most abundant elements will almost always be such as to cause

TABLE 5. Total Minimum of Individuals by Aggregation Method.

Taxon	MNI-feature	MNI-site
Rangifer tarandus	12	6
Tetroanidae	33	31
Anserinae	3	1
Brânta canadénsis	4	2
Alopex lagopus	1	1
Martes americana	4	2
Aýthya marila	4	1
Unidentified fish	1	1
Castor canadensis	2	1
Chén hyperboréa	2	2
Odocoileus virgianus	1	1
Vulpes vulpes	2	1
Pérdix perdix	1	1
Anatinae	2	1
Anseriformae	2	1
Alces alces	1	1
Ursus maritimensis	1	1
Ondatra zibethicus	1	1
Canis lupes	1	1
Mustela vison	1	1
Bovidae	1	1
Pinnipedia	1	1
Grús canadénsis	1	1
Melanita deglándi	1	1

TABLE 6. Maximum Possible Differences in Minimum Number Values.

Taxon	MNI-site	NISP*	Maximum possible MNI difference
Rangifer tarandus	6	142	136
Tetroanidae	31	83	52
Anserinae	1	10	9
Bránta canadénsis	2	7	5
Alopex lagopus	1	7	6
Martes americana	2	6	4
Aýthya marila	1	5	4
Unidentified fish	1	4	3
Castor canadensis	1	3	2
Chén hyperboréa	2	3	1
Odocoileus virgianus	1	2	1
Vulpus vulpes	1	2	1
Pérdix perdix	1	2	1
Anatinae	1	2	1
Anseriformae	1	2	1
Alces alces	1	1	0
Ursus maritimensis	1	1	0
Ondatra zibethicus	1	1	0
Canis lupus	1	1	0
Mustela vison	1	1	0
Bovidae	1	1	0
Pinnipedia	1	1	0
Grús canadénsis	1	1	0
Melanita deglándi	1	1	0

NISP* - number of identified specimens per taxon

> different aggregation methods to differentially alter the absolute abundances of taxa as measured by minimum numbers (1979:212).

This is of course more noticeable when more bones per taxon are present.

Because of the problems evident when using minimum numbers as indicators of the absolute abundance of taxa, Grayson felt that the value of such a procedure is rather to provide ordinal level data on taxonomic abundances (1979:214). If taxa are widely separated in abundances, then rank orders of abundance should not be affected by different aggregation methods. Table 7 indicates the rank orders of abundance for the New Severn faunal remains.

This table shows that the most significant taxa are the grouse and ptarmigan group (Tetroanidae) and the caribou (Rangifer tarandus). These are important not only because they rank the highest and can therefore be considered economically more important than the lower ranking taxa, but because their minimum numbers are widely separated and therefore their rank orders are probably accurate. Although the rank orders change for the NISP value, this is, as I have mentioned before, due to the prevalence of sternum keels over any other element. Since one keel represents one individual, fewer bones represent

TABLE 7. Rank Orders of Abundance from all Abundance Measures

Taxon	MNI-feature	MNI-site	NISP
Rangifer tarandus	2	2	1
Tetroanidae	1	1	2
Anserinae	6	15	3
Bránta canadénsis	4	4	4.5
Alopex lagopus	17.5	15	4.5
Martes americana	4	4	6
Aýthya marila	4	15	7
Unidentified fish	17.5	15	8
Castor canadensis	9	15	8
Chén hyperboréa	9	4	9.5
Odocoileus virgianus	17.5	15	13
Vulpes vulpes	9	15	13
Pérdix perdix	17.5	15	13
Anatinae	9	15	13
Anseriformae	9	15	13
Alces alces	17.5	15	20
Ursus maritimensis	17.5	15	20
Ondatra zibethicus	17.5	15	20
Canis lupes	17.5	15	20
Mustela vison	17.5	15	20
Bovidae	17.5	15	20
Pinnipedia	17.5	15	20
Grús canadénsis	17.5	15	20
Melanita deglándi	17.5	15	20

a greater number of individuals than when using paired elements to calculate minimum numbers.

In summarizing the quantification data I wish to first enforce the fact that New Severn was not excavated for the purpose of gaining subsistence information only. Although this was a concern, it was not the major orientation of the excavations. Therefore, sampling design is of major consequence when interpreting the quantification data. Although the faunal sample is probably representative of the remains inside the palisade walls, only a very small area outside the palisade was excavated. It is here that I would expect major bone deposits. The refuse pit was located just prior to the termination of the excavations and could not be extended from the 1 m by 1 m size weighted random test pit that it was. This refuse was almost solid bone refuse.

In spite of the above, some patterns are clear. The grouse and ptarmigan group (Testroanidae) and caribou (Rangifer tarandus) are the dominant taxa and thus it can be assumed that they were important as subsistence species. Goose (Anserinae) would also appear to be economically important if it were regarded as a family rather than being subdivided into two species and a family. Other taxa are less prevalent and therefore perhaps less common as subsistence sources or as fur bearing animals.

Distribution

Table 3 shows the distribution of faunal remains within the cultural features. Some general speculations are presented concerning these fauna.

Of note is the outstanding prevalence of caribou (Rangifer tarandus) and the absence of almost all other taxa in the building 2 cellar area. It seems likely that the caribou were stored in the cellar after having been salted (or frozen during the winter months). A General overview of the types of bones from this area shows a prevalence of both fore and hindlimbs (many of which are complete), as well as some ribs and vertebrae and fragments thereof (although these latter two are only identified to Cervidae). Although there are some mandibular and teeth fragments, there were no identifiable cranium fragments in the area. Although it is not my concern at this time to extensively study the faunal remains for butchering patterns, the presence of the types of bones noted above in association with the absence of others suggests that the animals had been killed elsewhere, lightly butchered, and brought back to the post. The cellar was probably used for storing sides and quarters of caribou in a salted or frozen state to be consumed later.

Building 1 housed the greatest variety of fauna and this was probably in part due to the storage pit (pit 1) contained within its walls. Regretably, for lack of provenience, I cannot say which mammals and birds were present in the storage pit itself. However, within the 2 m by 2 m unit that contained most of the pit, the following taxa were present:

Rangifer tarandus	Pérdix perdix
Alopex lagopus	Melanita deglándi
Martes americana	Anserinae
Mustela vison	Chén hyperboréa
Tetroanidae	Aýthya marila
Grús canadénsis	Bránta canadénsis

Also, in the adjacent unit, which housed the remaining portion of the storage pit, Castor canadensis was present. The variety of fauna seems to be a mixture representing both subsistence resources and animals valued for their fur. One can only speculate that perhaps both resources were kept in this pit. Although the variety of bones is extensive here, the number of bones for each bird and animal is not, therefore I hesitate to comment further on this area.

The refuse pit (pit 2) just outside the back gate of the palisade contained a high concentration of bone for such a small area. The portion of the pit that we were able to excavate was predominantly grouse and ptarmigan (Tetroanidae) but this is not an indication of what the

rest of the refuse pit might contain. Further excavation in this refuse pit would be of value because of the dietary implications contained within such a concentrated area, especially at this post where the occupation period is known to have been only five years.

In other areas, bone was scattered with no apparent pattern. This is what one would expect at a post that was being occupied year-round.

The faunal analysis will receive a more comprehensive coverage in my M.A. thesis, especially in light of refuse disposal patterns

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APPENDIX C

NEW SEVERN DEBT LIST 1689

This document identifies the personnel at the New Severn post near the end of 1689, or less than a year before the abandonment of the post. The debt list was part of the New Severn financial statement included within the 1689 Port Nelson account book. It is included within the Hudson's Bay Company archival collection (PAC MG20 IM665 B 239/d/1 fo. 15).

Here followeth ye accompt of Debts vis Goods Taken up by ye People att Churchill ffort in New Severn. 1689

Mr. Jno: Jones
To: 12 ℔ leafe tobacco, 8 ℔ Eng roole ditto ½ yd. duffells, 1 pr. wadmill mittens 1 pr. Irish stockings, & 1 yd. chites
see more in Hayes River accompt X

Mr. Charles Newton
To: 1 yd. & ½ broad cloth, 2 yd. Bayes, and 1 Alleja shirt X

Richd: Lyddiard
To: 3 ℔ leafe tobacco, ½ yd. broad cloth, ½ yd. duffels, 7 ℔ Eng. roole tobacco, and ½ ℔ brazille ditto X

John Pierce
To: 2 painted Calico shirts, 13½ ℔ leafe tobacco, 1 ℔ & ½ eng. roole ditto, 1 pr worsted stockins, 1 pr french fall shoos, 2 steele tobacco boxes,

1 pr. sissors, ¼ ℔ thread, ½ yd duffels, ½ yd broad cloth, & 1 pr wadmill mittons X

John Constant
To: ½ ℔ brazille tobacco, 10 ℔ leafe ditto, 3 ℔ eng roole, & 3 painted calico shirts X

Edward Stacy
To: 6 pr wadmill mitts, 4 leafe tobacco, 2 pr worsted stockings, 1 pr. Irish ditto, 1 steele tobacco box, 3/4 ℔ thread, 1 yd duffels, 1 yd & ½ broad clooth, 3 doz & ½ bell mettle buttons, 1 pr. sissers, 6 ℔ & ½ eng roole Tobacco, 18 needles, 1 pr french fall shoes, & 2 white calico shirts X

John Mac kenny
To: 4 doz. bell mettle buttons, 4 ℔ leafe tobacco 2 ℔ & ½ eng roole ditto, 1 pr worsted stock, 1 steele tobacco box, ½ yd duffolls and ½ yd broad cloth X

Rich^{d}: Browne
To: ½ ℔ brazille tobacco, 9 ℔ leafe ditto, & 8 ℔ Eng roole, ¼ ℔ thread, 1 pr wadmill mittens, 3 painted Calico shirts, 1 pr french fall shoes, ½ yd duffels, 4 doz: bell mettle buttons, & ½ yd broad cloth X

John Marten
To: ¼ ℔ brazille, 6 ℔ leafe and 9 ℔ eng roole tobacco, 2 pr wadmill mittens, 1 pr. sissors and 1 pr. Irish stockings. X

Tho: Simpson
To: 3/4 ℔ brazille, 14 ℔ leafe, & 5 ℔ eng roole Tobacco, ½ ℔ thread, 2 pr wadmill mittens, 3 painted calico shirts, 1 pr Irish stockings, and 1 pr french fall shoes. X

Wm: Kirkwood
To: 15 ℔ leafe Tobacco, 4 ℔ eng roole ditto, 1 pr. sissors, ¼ ℔ thread, ½ yd duffels, and 1 pr wadmill mittens. X

APPENDIX D

NEW SEVERN TRADE ACCOUNT 1689

This list of goods traded in return for furs at the New Severn post is for the year ending in 1689 and is from the Port Nelson account books of that year (PAC HBC MG 20 IM 665 B 239/d/1 fo. 13-14).

By the accompt w^{ch}: came from Seaverne it appears there was so Traded there as followeth. viz^{t}.

		beaver
	Powder 1100 ℔ Traded att 1 ℔ p is	1100
	3024 ℔ shott traded at 4 ℔ p is	756
	224 ℔ Brazile tobacco att 1 ℔ p is	448
	89 ℔ eng: roole ditto att 1 ℔ p is	89
	16 3/4 red Lead att ½ ℔ p is	33½
	2 ℔ vermillion att 12 sk. per ℔ is	24
	33 ℔ ½ beades att ½ ℔ p is	67
	41 long & 56 short gunns at 11 sks p	1052
20	60 brass Kettles wey 182 ℔ att 1 ℔ p is	182
14	2 copper ditto wey 4 ℔ ¼ att 1 sk per 3/4	6
	80 mens laced coats att 6 skins p	480
	24 plaine ditto att 5 sks p	120
	2 present suits at 10 sk p is	20
	16 white calico shirts is	16
	13 painted ditto att 2 p is	26
	21 Tin showes att 1 p is	21
	6 burning glasses att 1 p	6
	3 silke sashes att 2 beaver p	6
	6 black hats att 3 p is	18
	62 gun worms att 4 p is	15½
	108 ffire steeles att 2 p is	54
	10 daggers att 2 beaver p is	20
	2 wire handcuffes att 1 p is	2
	20 Ivory jewells att 4 p is	5
	128 hawkes bells att 2 p is	21½

		beaver
	6 Tin kettles at 1 p is	6
	26 leather looking glasses att	26
20/15	122 Ice chissels att 1 p is	122
	241 hatchets att 1 p is	241
	2 Nett Lines is	1
	1179 knives att 6 p is	196½
	37 scrapers att 2 p is	18½
	6 sword blades att 1 p	6
	54 large powder horns att 1 p	54
	76 Ivory combs att 2 p is	38
	27 box ditto att 3 p	9
	13 mens laced capps att 2 sk p	26
	16 mens plaine ditto att	24
21/16	10 Tin tobacco boxes att 2 p	5
	19 steele ditto att 1 p	19
	42 blankets att 7 sk p	294
	7 Leather trunks at	18
	20 seames twine att 1 p is	20
	1465 fflints att 20 p beaver is	73¼
	91 guilt rings att 4 p is	22 3/4
	361 awls att 6 p is	60 1/6
	190 needles att 10 p is	19
	4 pr french fall shoes att	4
	45 pr. sleeves altered into coats is	135
	5 pr. red knit stockins att 1 pr p	5
	2 pr. Irish ditto is	2
	2 pr. knit gloves att	1
	6 pr. wadmill mittens att	3
	15 pr. sissers 2 pr p is	7½
	7 pr. tobacco tongs is	3½
	3 yd ½ Duffels att 2 sk p yd	7
	26 yd ¼ bayes att 1 yd p is	26¼
	11 yd netting att 8 yd p	1 3/8
	28 yd 3/4 chintes att 1 yd p is	28 3/4
	77 yd ¼ broad cloth att 1 yd p) 3/4 5 beaver p)	220
		6332

In Leiu of the aforesaid Goods Traded I have rec'd Beaver & other Furs as followeth

vizt:

	Beaver
150 whols Phm^{t}: & 40 halfe ditto made whole is 20 received July 1688. w^{ch} is:	170
Rec'd alsoe from ^{e}y Collington Yatch July 1689 as followeth. 3293 sks coate beaver, 2820 sks of whole Phm^{t}: ditto 1960 sks of half Phm^{t}: made whole is 980. 42 otter skins, 160 martins, & a ffox made beaver is 62. All wich added together makes	7155
Bye w^{ch}: it appeares ^{e}y overplus is	992 1/28
And Castoreum 64	
——All w^{ch}: is thus discharged.——	
Sent home last fall by Capt. Edgecombe viz^{t} Sept 1688... 190 whole Phmt: beaver and 400 halfe ditto made whole is	170
Sent home this yeare as will appear by bill of lading & Invoice is 30 Cask 3293 sks of coate beaver, 160 martin, 42 otter or fox, 1800 skins halfe phm^{t}: beaver all wch made whole beaver is	4255
94 bundles whole Phm^{t}: beaver 30 each is	2820
4 bundles halfe Phm^{t}: ditto 40 each is 160 made whole is	80
1 cask 64 ℔ castoreum	
	7325

PLATE 1. Aerial view of New Severn fur trade post excavation.

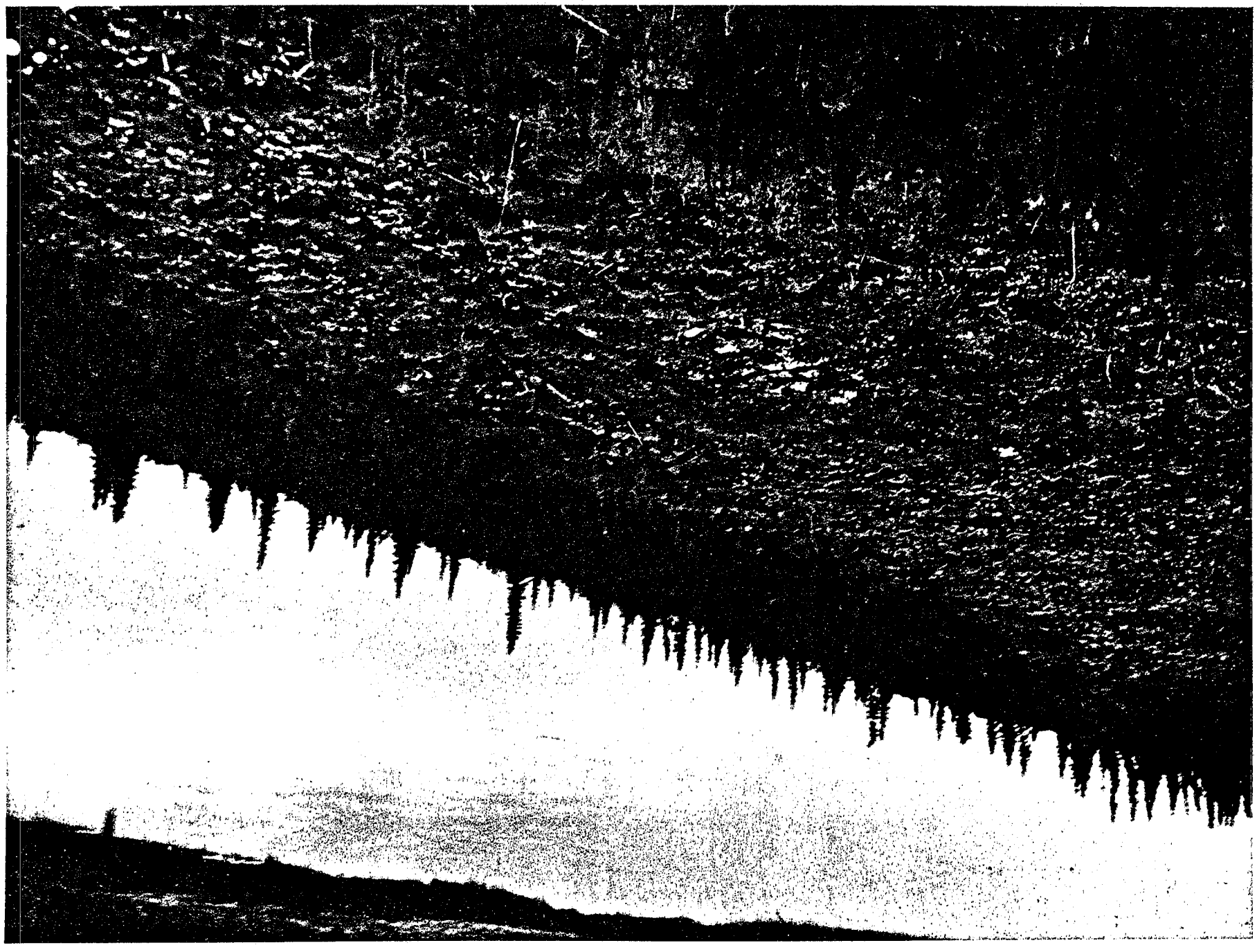

PLATE 2. Main bastion.

PLATE 3. Building 1.

PLATE 4. Building 1 fireplace.

PLATE 5. Building 2.

PLATE 6. Kitchen artifacts.

1. manganese purple on white glazed English refined earthenware
2. Chinese export porcelain tea cup
3. brandy bottle neck with cork
4. pharmaceutical bottles
5. brass kettle rim portion

1

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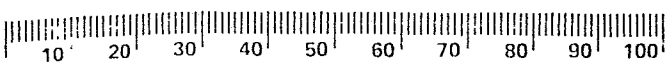

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PLATE 7. Architectural artifacts.

1. articulated pintle hinge
2. strap hinge
3. Selkirk ceramic sherd
4. utilized lithic flakes
5. steel strap spring

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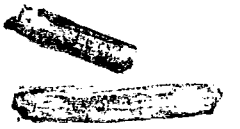

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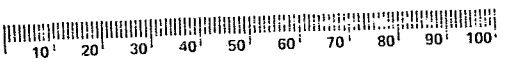

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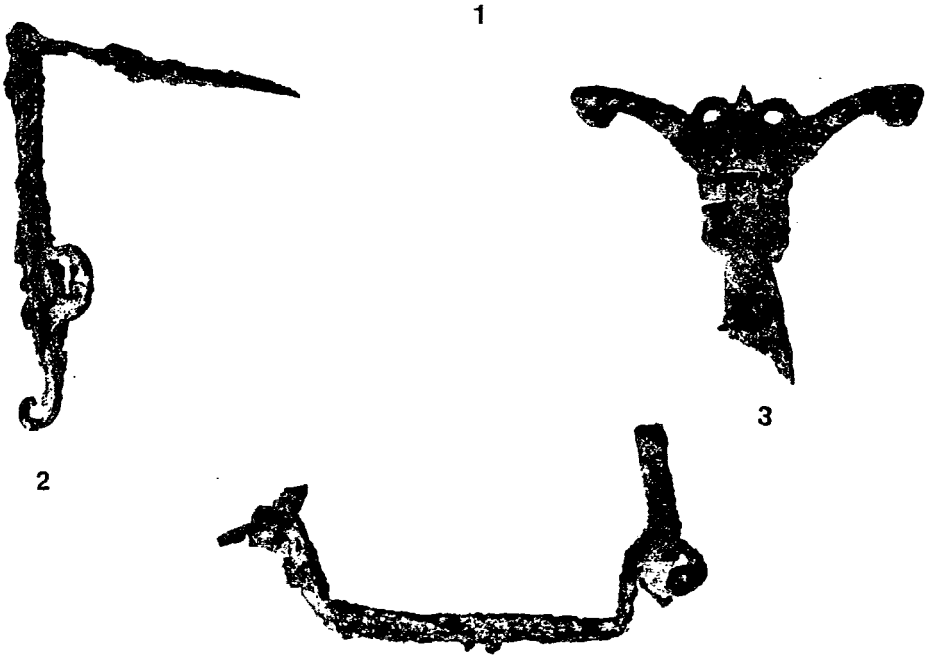
PLATE 8. Furniture artifacts.

1. brass candlestick
2. furniture hasp
3. ornamental brass furniture hinge
4. iron drawer pull

1



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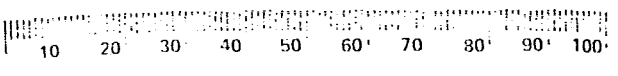
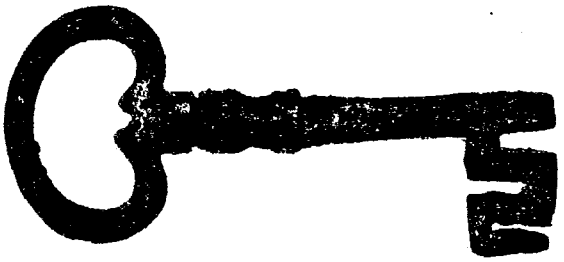


PLATE 9. Personal artifacts.

1. clasp knife blade
2. key
3. plain rings
4. Signet ring
5. smoker's companion

1



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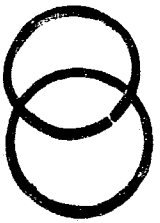

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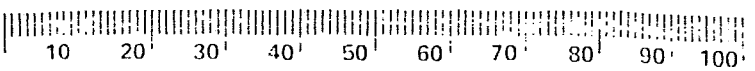

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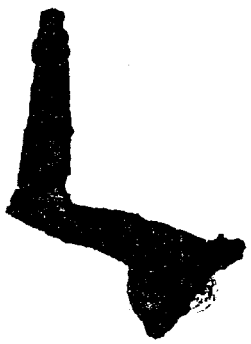
PLATE 10. Arms artifacts.

1. musket sideplate
2. frizzen
3. frizzen spring
4. sprue fragment
5. brass rod guide
6. iron gun worm
7, 9. gunspalls
8. gunspall used with strike-a-lite
10. reverse flaked gunspall

1



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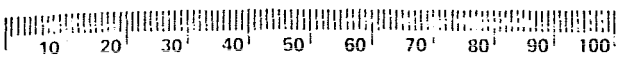

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PLATE 11. Clothing artifacts.

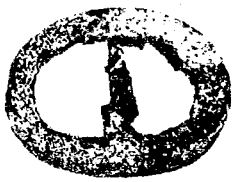
1, 2. buckles

3. brass thimble

4. metal button

5. wooden buttons

6, 7. textile fragments



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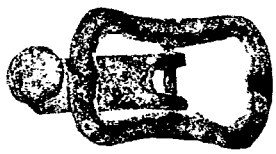

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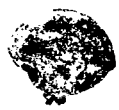

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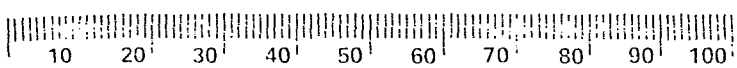

PLATE 12. European clay smoking pipes.

top. Oswald type 8b

middle, bottom. Oswald type 8a

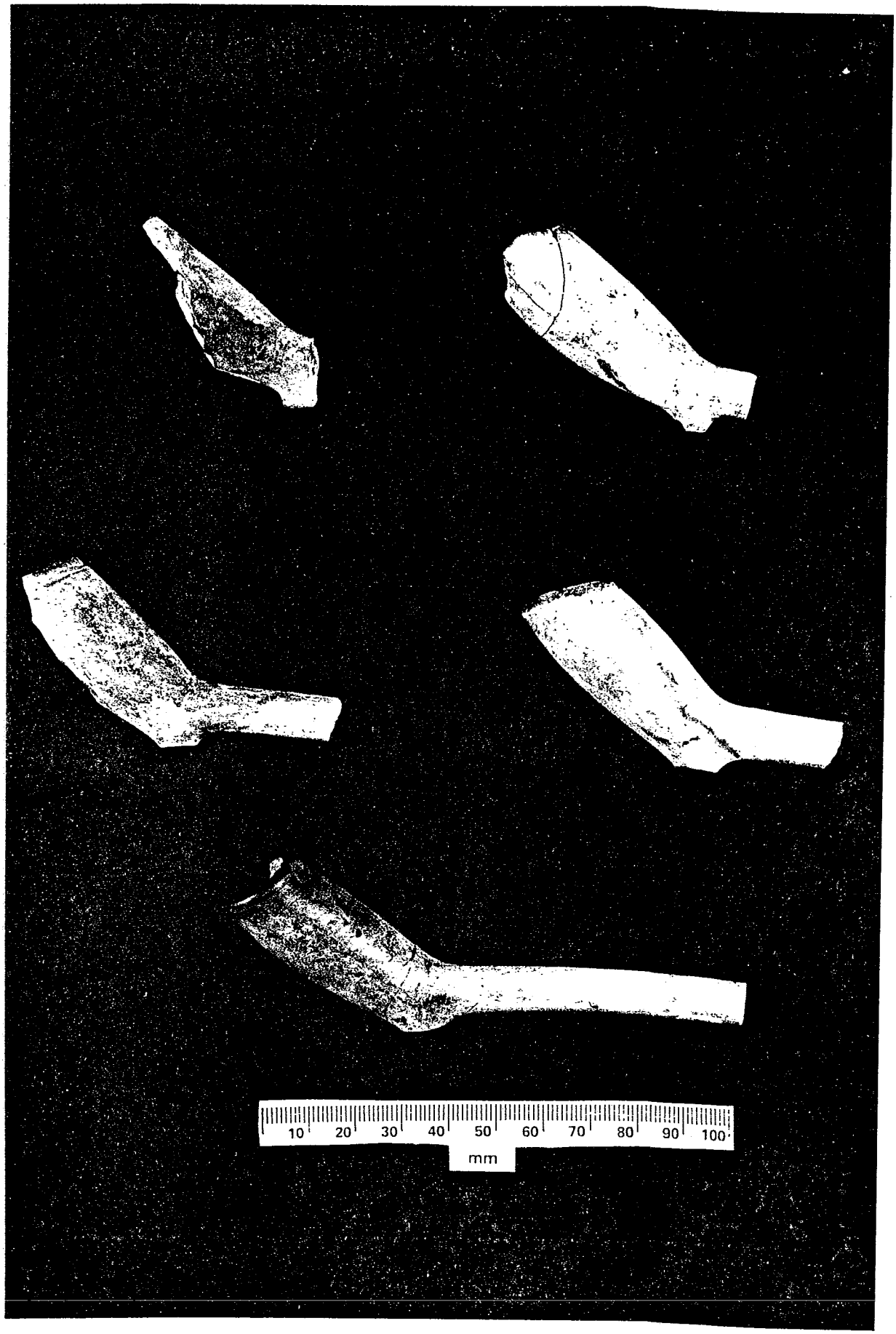
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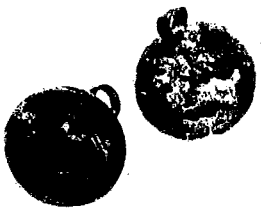
PLATE 13. Activities artifacts.

1. hawk bells
2. lead pencil
3. Selkirk ceramic sherd
4. utilized lithic flakes
5. steel trap spring



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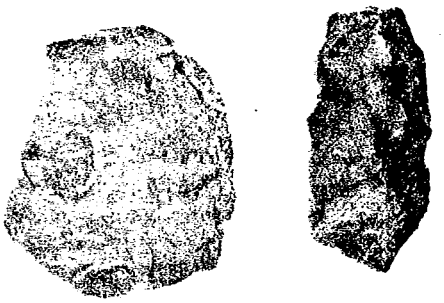

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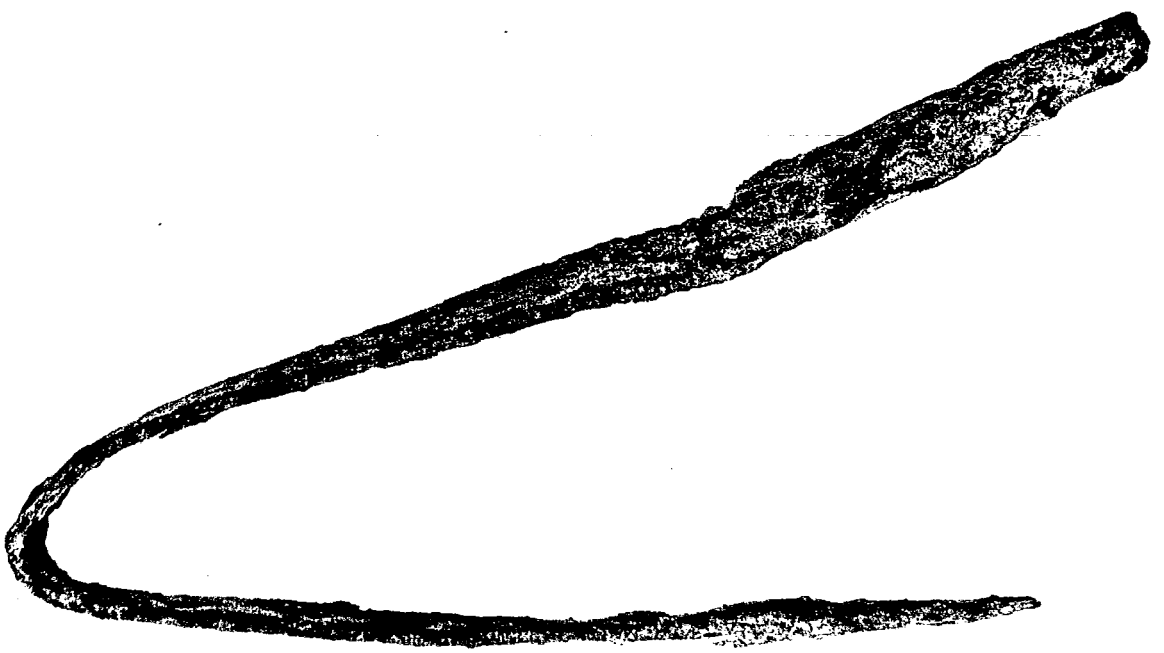

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PLATE 14. Unidentified artifacts.

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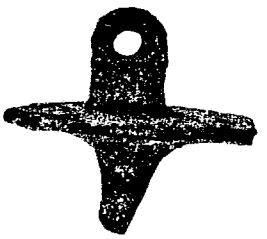

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