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FORT VANCOUVER EXCAVATIONS - V

Flagstaff and Belfry

by

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## I - INTRODUCTION

This is the fifth in a series of interim reports detailing the findings of the Fort Vancouver Archeological Project. Scope, purposes, and methods of the current project were outlined in the first report of this series (Hoffman and Ross 1972). Briefly, our purpose is to provide archeological support for an ambitious program of reconstruction at Fort Vancouver. This means the archeological gathering of structural and other artifactual evidence necessary for architectural designing and historical planning of reconstruction.

This fifth report varies from our past efforts in that it does not deal with large buildings of the Fort. Our subjects here are two small but functionally important structures. A flagstaff was an important feature of Hudson's Bay Company posts. This was especially true at Fort Vancouver which functioned as the administrative and logistical center for Company activities in western North America during the second quarter of the 19th Century.

Historical research indicates that flag-raising was not an every-day occurrence at Hudson's Bay Company forts. Such activity was generally reserved for ceremonial occasions such as the saluting of boat brigades and important visitors, or the recognition of special days (Hussey 1972:64-65). At Fort Vancouver, we can assume the arrival and departure of ships to have also occasioned flag-raising.

The Belfry was an integral part of daily life at the Fort. Work periods, mealtimes, and calls to worship were all regulated by time, although few workmen in and around the Fort carried watches. Regular and irregular events, such as alarms, were signaled by bell. Uses of bell signaling at Fort Vancouver are particularly well known (Ibid.:71-72).

The Flagstaff was dug in the Summer of 1972 during the course of a larger excavation designed to expose remains of the 1845 period Fur Store. Rather than reporting it with the Fur Store, as per our usual practice, we have included it with the Belfry report in order to provide information for proposed construction deadlines. In our discussion of the Flagstaff, we have eliminated descriptions of associated artifacts. This is done for two reasons. Field observations indicate that cultural materials recovered around the location of the Flagstaff associate with structures and events other than the Flagstaff. These materials will be discussed in our future report on the 1845 period Fur Store. Field observations also failed to note any specific items that we could functionally attribute to the Flagstaff as opposed

to surrounding features.

The Belfry was dug as a specific, exploratory operation during the early Spring of 1973 before the beginning of our regular excavation season. The operation was unique in that it was performed by volunteer aid. Students and instructors from the Multnomah School of the Bible, Portland, Oregon, were enrolled as Volunteers-in-Parks. Over 40 persons from classes in Biblical Archaeology participated in the Belfry excavations at various times as a training exercise for their future operations in Israel. The skill and enthusiasm of the volunteers is greatly appreciated by the National Park Service. Their experience was well-gained; the area of the Belfry remains is similar to Near East urban sites in that it is highly disturbed by successive construction, sequential occupation, and past exploratory work. Results of the volunteers are well measured by their successful location and delineation of the Belfry remains.

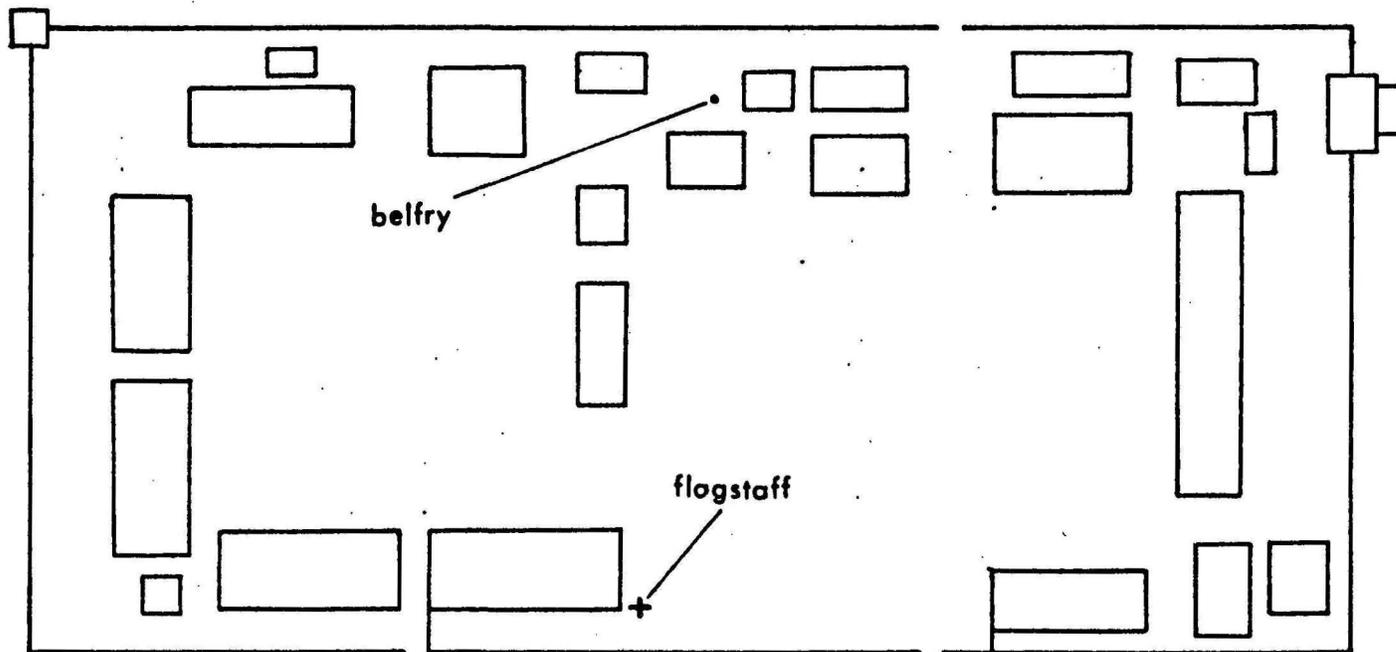


Fig. 1 - Archeological locations of the Flagstaff and Belfry in relation to major buildings of 1845 as plotted by Lt. M. Vavasour of the Royal Engineers (redrawn from Hussey 1972:Pl. VII).

## II - EXCAVATIONS

### Flagstaff

Subsurface remains of the Flagstaff were found immediately east of the 1845 period Fur Store (Fig. 1). Distance from the center of the Store's southeastern corner footing to the center of the staff was 9 ft. east and one ft. north. This location was about 22 ft. north of the centerline of the 1845 period Stockade trench, and less than 9 ft. east of the actual east wall of the Fur Store.

Remains consisted of 4 wooden timbers laid horizontally and notched to intersect each other. These were set slightly under the top of the HBC surface (Fig. 2). Field records indicate that the old surface was a compacted level immediately below modern sod. Tops of the timbers were slightly deeper than the tops of other HBC features in the immediate area. Center of the crossed timbers formed a rectangle that contained a cast and fragments of the wooden staff butt. Under the timbers and surrounding the butt remains was a large hole originally dug to set the butt (Fig. 3).

Positions of the timbers clearly indicated their supportive functions for the Flagstaff. Like many structures of Fort Vancouver, the timbers were closely oriented to true cardinal directions as opposed to the magnetic orientations of our excavation units (Fig. 2). Remnant lengths of the timbers ranged from 8 to 9 ft., while widths were consistently 0.4 to 0.5 ft. throughout the lengths. Thicknesses or vertical dimensions of the ends differed from those at the intersection. At the ends the timbers were 0.60 to 1.05 ft. thick, while intersection thicknesses varied from 0.45 to 1.05 ft. (Fig. 4).

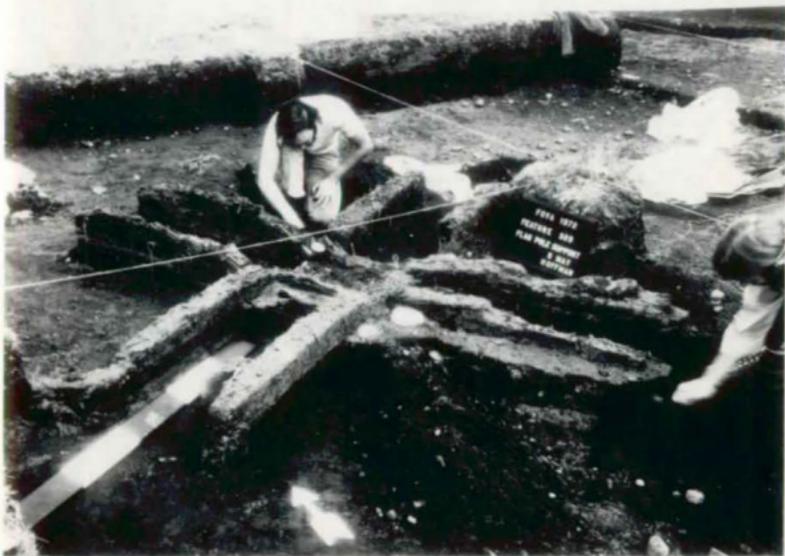
Intersection of the timbers formed a rectangular area that varied from 0.95 to 1.20 ft. on a side. This area formed the supportive collar for the Flagstaff. Remains of the wooden butt were badly rotted; however, a well-preserved cast of the butt indicated the original diameter to have been one ft. Evidence of the cast and butt fragments were found within the collar but they extended only 3.55 ft. below the timbers (Fig. 3).

The hole dug to set the butt had an oval plan 3.7 to 4.3 ft. in diameter and an irregular section. Part of the hole fill consisted of large stones used to brace the butt. We were unable to find evidence of the HBC excavation opened for the setting of the timbers. While several small posts and stakes were found in the vicinity of the Flagstaff remains, we could not conclusively identify them as auxiliary supports.

Fig. 2 - Crossed timbers of Flagstaff support.

a - Excavating timbers from HBC matrix  
(FOVA neg. 069.51-72/14)

b - View of rectangular collar at center  
of crossed timbers (FOVA neg. 069.51-72/13)



A



B

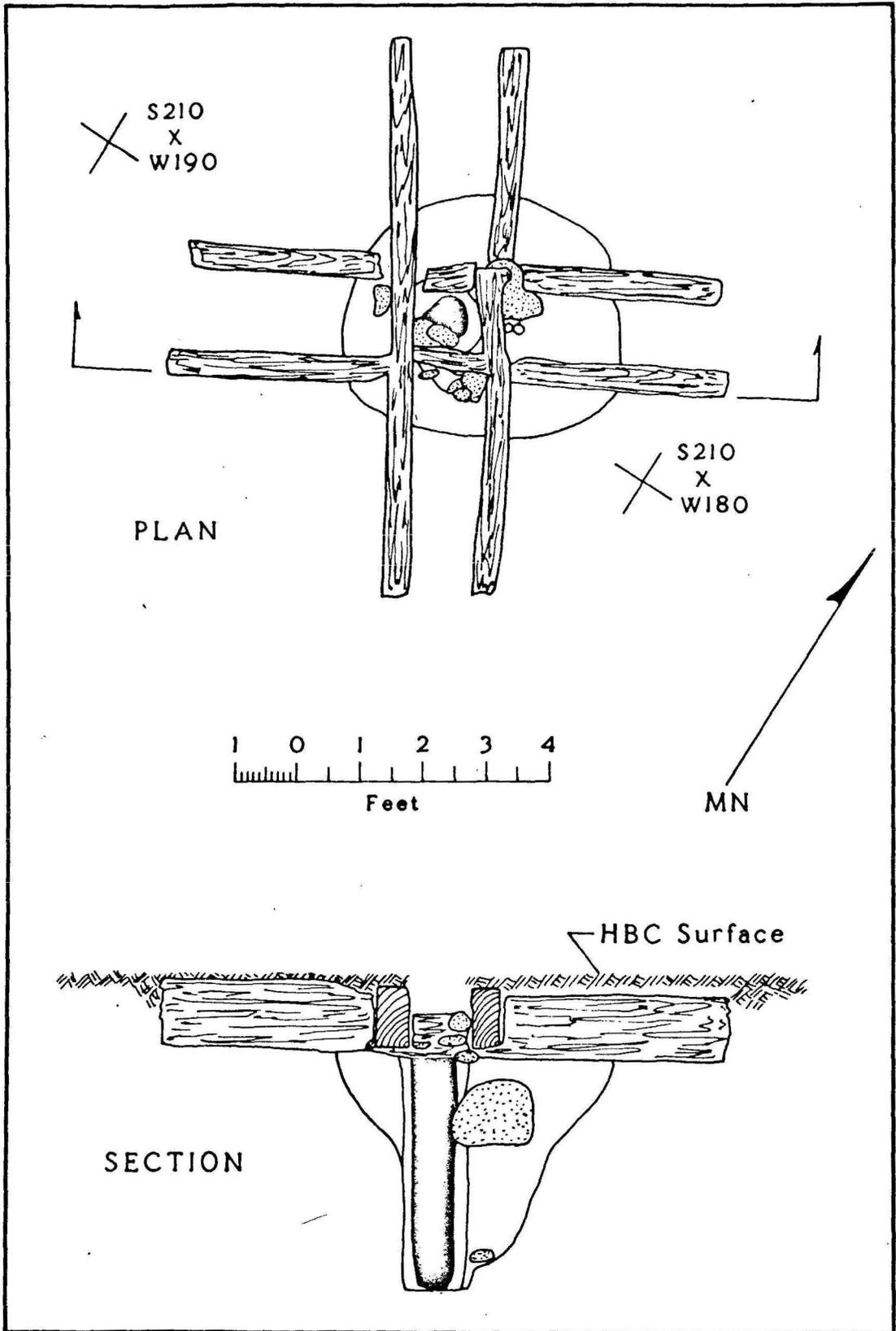
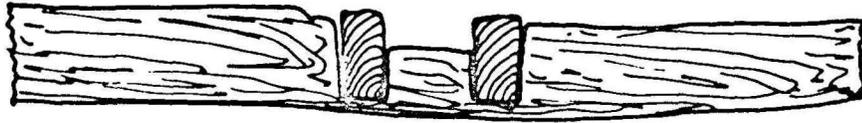
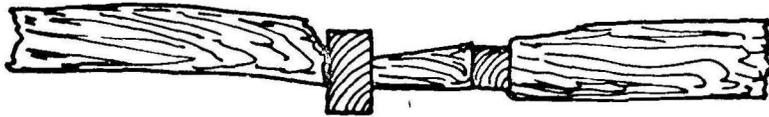


Fig. 3 - Archeological plan and section of Flagstaff remains.



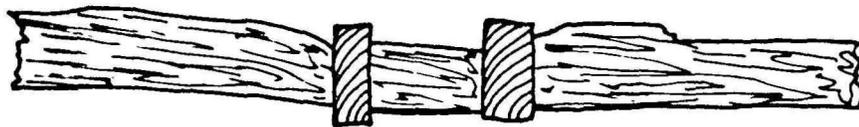
South Elevation of South Timber



East Elevation of East Timber



North Elevation of North Timber



West Elevation of West Timber



Feet

Fig. 4 - Archeological sections of individual timbers of Flagstaff support.

### Belfry

Remains of the Belfry were found in the north central sector of the Fort. By reference to a map of past explorations (Caywood 1955: sheet 8 of map 2), we determined this location to be about 32.5 ft. south of the northern Stockade, about 18 ft. north of the New Office north wall, and about 15 ft. west of the presumed west wall of the Jail (Fig. 1).

Several 10-ft. square units were opened in this general area before finding the Belfry location. These exploratory efforts revealed modern U.S. Army trash, a short section of railroad spur, scattered and mixed HBC trash, and outlines of past explorations. Fortunately, the subsurface remains of the Belfry were undisturbed by modern intrusions, and soil stratigraphy was quite clear (Fig. 6).

The first layer over the Belfry base was a mixture of gravelly, silty clay 0.35 to 0.45 ft. thick. Top of this modern layer was the grass-covered surface of 1973. The second layer consisted of fine and coarse sands 0.2 to 0.4 ft. thick slightly mixed with clay at its upper portion. This appeared to be deliberate fill from USA activities of 1918-19. The third layer was a moist band of silty clay mixed with small amounts of gravel. It was 0.10 to 0.25 ft. thick and represented deposition from a late 19th Century river flood. The fourth layer, the main HBC cultural deposit, was 0.05 to 0.20 ft. thick. It consisted of moist, brown silty clay mixed with buff pea gravels and HBC specimens. Since this layer was sealed by a historically known flood, we assume the top of layer 4 to be the last HBC occupation surface. The fifth layer was a moist mixture of brown and buff silty clay with gravel no more than 0.2 ft. thick. It appeared to be a combination of general HBC deposit and fill from the excavation prepared for the Belfry base. In turn, the base was set into the culturally sterile buff gravels of the floodplain (Fig. 6).

Base of the Belfry consisted of an iron-hooped wooden barrel set 4.80 to 4.95 ft. below the HBC surface (Fig. 5). Top of the barrel was ringed with large, rounded stones which were partially exposed at the HBC surface (Fig. 7a). The only remnant wood of the barrel was found adhering to a series of iron hoops that remained in place after rotting of the barrel. However, partial stave casts were found in the earthen matrix. Within the barrel was the vertical cast of a one-ft. square wooden timber that was the butt of the bell mast (Fig. 7b). The butt had been packed in the barrel with black silty clay and, in its upper portions, large rounded stones (Fig. 5). In addition to the archeologically

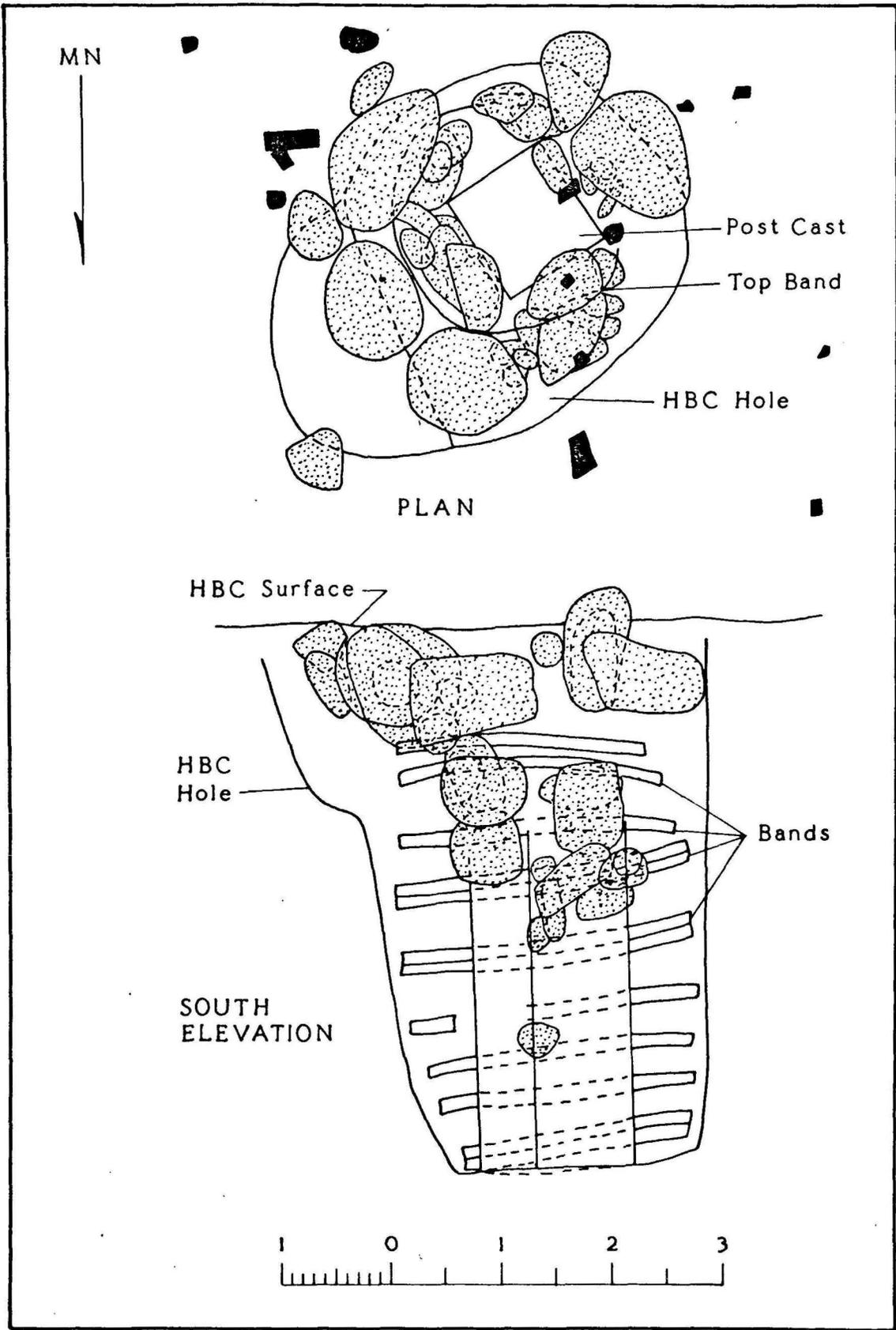


Fig. 5 - Archeological plan and section of Belfry remains.

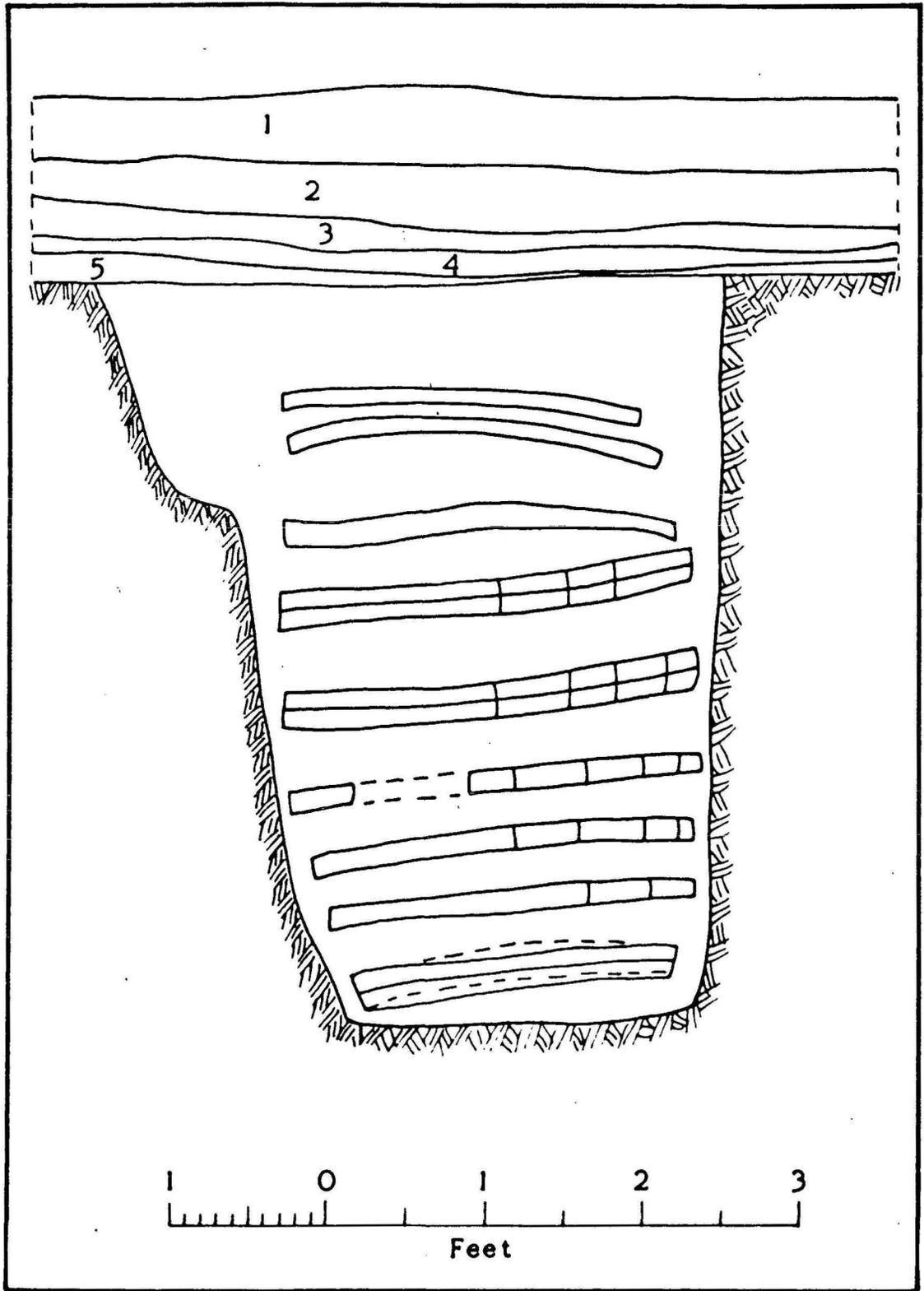


Fig. 6 - Soil stratigraphy and hoop positions of the Belfry base.

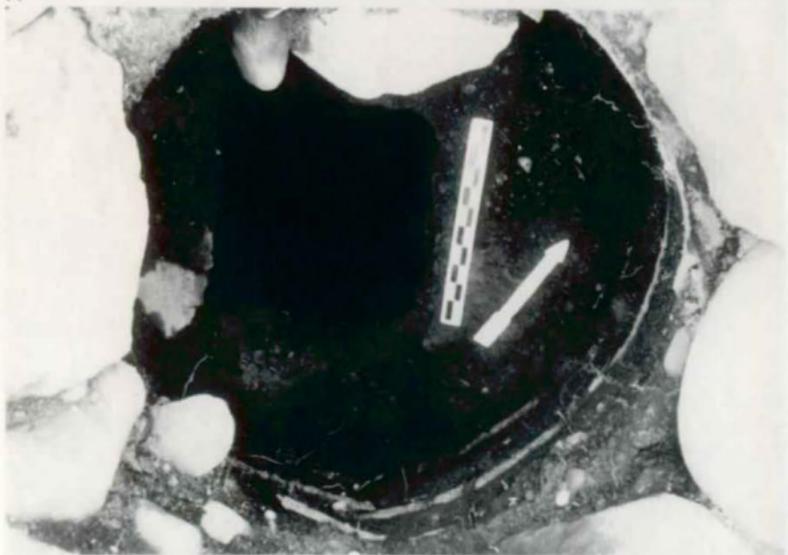
Fig. 7 - Belfry remains.

a - Stone ring outlining mouth of barrel  
(FOVA neg. 069.51-73/6)

b - Interior of barrel showing hoops and  
cast of bell mast (FOVA neg. 069.51-73/13)



A



B

found material, it is historically known that salt was used to pack the butt (Hussey 1972:72).

The hole dug by the Hudson's Bay Company to set the base had an irregularly oval plan about 2.9 to 4.0 ft. in diameter. Its section was more regular and indicated that the hole was dug only large enough for the barrel. Remains of the barrel consisted of 12 iron hoops left in place. The hoop fragments are discussed in Chapter III. Despite their fragmentation, the hoops clearly outlined the barrel position (Figs. 5, 6). Bits of wood adhering to the interior faces of the hoops and the earthen casts indicated that the wooden staves ranged from about 0.3 to 0.4 ft. in width. The inferred appearance of the barrel will be further discussed in Chapter IV. Despite some rather extensive exploration of the area, no credible evidence for auxiliary supports of the Belfry was found.

### III - ARTIFACT DESCRIPTIONS - BELFRY

Since this report is primarily concerned with the cultural aspects of the Belfry and Flagstaff, little effort has been made to analyze the cultural remains not directly associated with these structures. Thus, it was decided to analyze only cultural remains found in those excavation units directly associated with the Belfry base (Appendix I).

A total of 2252 fragments of artifacts was recovered from these excavation units (Table 1), and cultural items other than artifacts totaled 214 items (Appendix II). The only material cultural items recovered which can be directly associated with the Belfry were the barrel hoops which belonged to the salt cask. All other items are presumed to be cultural debris associated with adjacent structures.

#### Window Glass Fragments

As with previous reports, the only attribute of window glass found to be significant was thickness, and the frequency distribution for the Belfry area (Fig. 7) was similar to that of the Chief Factor's House. This glass probably came from the New Office.

#### Square Nail Fragments

##### Hand Forged Nails

Of the 126 hand forged nail fragments found, 74 have been classified within the variety system presented in our report on the Chief Factor's House (Table 2).

##### Machine Cut Nails

Of the 236 machine cut nail fragments found, 196 have been classified within the variety system presented in our report on the Chief Factor's House (Table 3). In comparing the nail varieties from the Chief Factor's House with those recovered from the Belfry area, we have observed a different variety of "shingling" nail (i.e. Variety #2004 as opposed to #2001). These nails presumably came from the New Office which, as Hussey reported (1972:73), was erected in the Fall of 1845. The Chief Factor's House was shingled in the Fall of 1846, and a different variety of "shingling" nail was used.

#### Barrel Hoops

As discussed elsewhere, the 1845 Belfry was constructed by placing

Table 1 - Quantitative distribution of artifacts from the Belfry area by descriptive category.

Descriptive Category	Sub- total 3	Sub- total 2	Sub- total 1	Total
<b>CERAMIC WARE &amp; CONTAINER FRAGMENTS</b>				465 ✓
Earthenware Fragments			368	
White Glazed Fragments		366		
Undecorated Fragments	160			
Transfer Printed Fragments	205			
Hand Painted Fragment	1			
Yellow Glazed Snuff Bottle Fragments		2		
Stoneware Fragments			94	
Ale and/or Ink Bottle Fragments		-66 ✓		
Chinese Ginger Jar Fragments		2		
"Canton" Ware Fragments		13		
White Bodied Saltglazed Fragments		3		
Unidentified Ware Fragments		10		
Vitreous China Fragments			2	
Undecorated Ware Fragment		1		
"Chinese Export" Ware Fragment		1		
Hand Painted Porcelain Fragment			1	
<b>CERAMIC PERSONAL ITEMS</b>				107 ✓
Kaolin Tobacco Pipe Fragments			107	
<b>GLASS ITEMS</b>				437
Bottle, Tumbler, and Stemmed Glassware Fragments			177 ✓	
Bottle Fragments		143		
Tumbler Fragments		5		
Unidentified Curved Glass Fragments		29		
Stock Bottle Stopper			1 ✓	
Window Glass Fragments			225 ✓	
Beads			19 ✓	
Clear Rod with a Flattened End			1 ✓	
Electrical Tube Fragments			11 ✓	
Unidentified Melted Glass Fragments			3 ✓	
<b>METAL ITEMS</b>				836
Hardware Items			729	
Square Nail Fragments		467 ✓		
Hand Forged	126			
Machine Cut	236			
Unidentified Fragments	105			
Wire Nail Fragments		29 ✓		

Table 1 (cont'd)

Descriptive Category	Sub- total 2	Sub- total 1	Total
Hand Forged Bolt	1✓		
Machine Forged Bolts	2✓		
Nut	1✓		
Rivet	1✓		
Barrel Hoop Fragments	214		
Metal Strap Fragments	10✓		
Lock Key Plate	1✓		
Wire	3✓		
Household and Personal Items		6	
Buttons	3✓		
Buckle	1✓		
Straight Pin	1✓		
Lead Wrapper Fragment	1✓		
Weaponry Items		6	
30-06 Cartridge	1✓		
Ball and Shot	5✓		
Unidentified Metal Object		1	
Unidentified Metal Fragments		94	
<b>CONSTRUCTION MATERIAL</b>			<b>392✓</b>
Brick Fragments		341✓	
Imported Brick	334		
Local Brick	6		
Unknown Brick	1		
Brick Roofing Tile Fragments		19✓	
Mortar Fragments		20✓	
Putty Fragments		3✓	
Cement Fragments (USA)		8✓	
Ceramic Insulator with Wire Nail (USA)		1✓	
<b>STONE ITEMS</b>			<b>5</b>
Slate Pencil Fragment		1✓	
Gun Flint		1✓	
Flaked Basalt Pebble		1	
Detritus		2	
<b>RUBBER ITEMS</b>			<b>3</b>
Electrical Insulator Fragments		2✓	
Tubing Fragment		1✓	
<b>MISCELLANEOUS ITEMS</b>			<b>7</b>
Unidentified Fiber Fragments		6	
Paint Chip		1	
<b>GRAND TOTAL</b>			<b>2252</b>

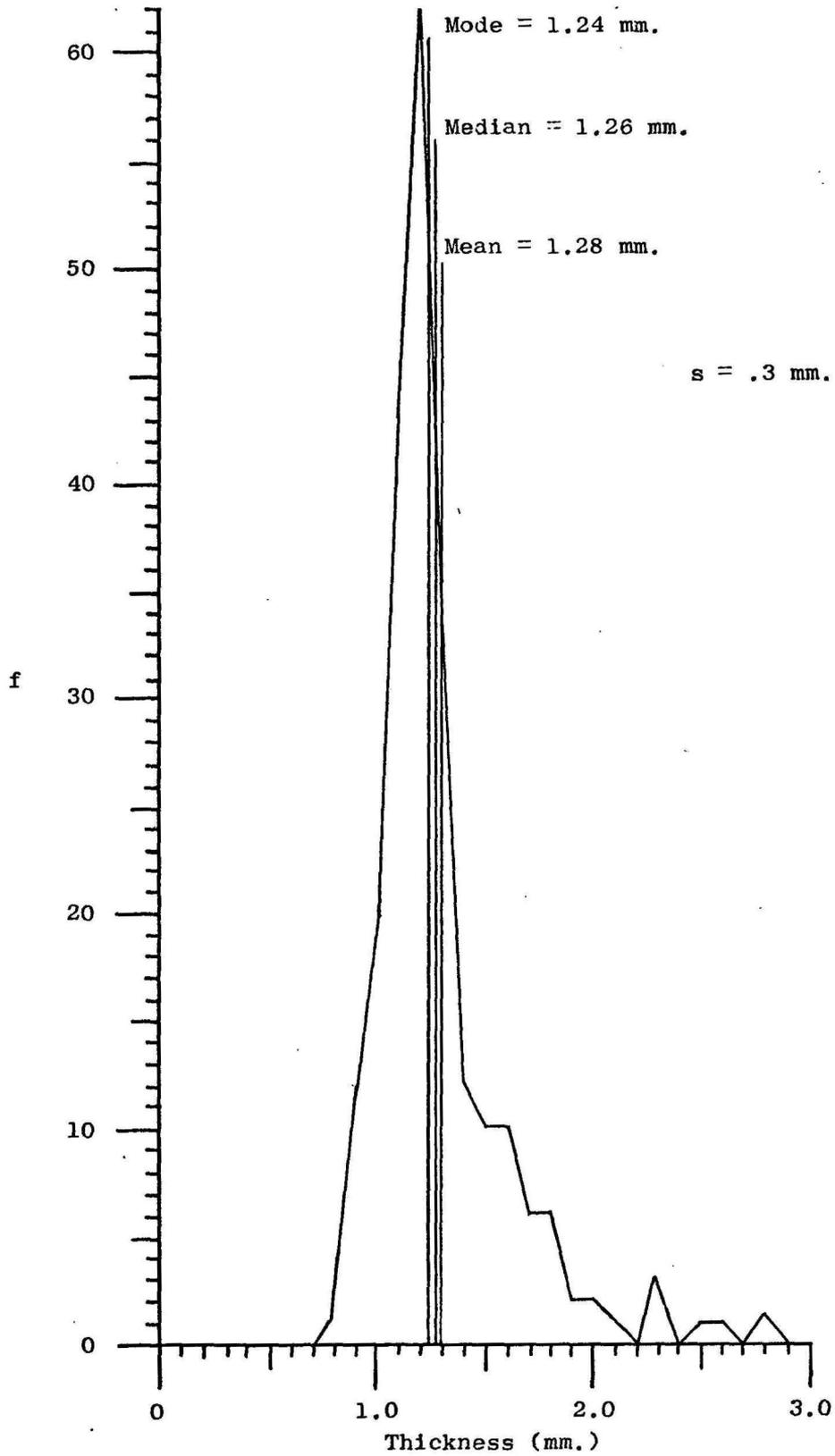


Fig. 8 - Frequency of window glass thickness for the area of the Belfry (N=225).

Table 2 - Varieties of hand forged nails and spikes.

Variety #	Historical Term	Size Range	Total Fragments
1001	"Clasp" Nails	9d	8
1002	"Rose" Nails	3d, 5d, 8d, 10d	51
1003	"Sharps" Nails	-	2
1005	"Clout" (?) Nails	-	3
1007	-	-	1
1009	"Rose Flat Point" Spikes	30d, 6 in.	3
1016	-	36d	2
1022	-	10d	1
1023	-	6d	1
1026	"Clout" (?) Nail	9d	1
1032	-	7d	1
GRAND TOTAL			74

Table 3 - Varieties of machine cut nails.

Variety #	Historical Term	Size Range	Total Fragments
2001	"Clasp" Nails	10d, 16d	55
2002	"Common" Nails	10d, 12d	45
2003	-	8d	1
2004	"Shingling" Nails	4d	90
2005	-	-	5
GRAND TOTAL			196

a 50 ft. pole into "a large cask of salt." A reconstructed view of this cask appears as Fig. 10, and if it was indeed a cask for salt, then its reconstructed volume indicates that it was a 1/2 avoirdupois ton salt cask (i.e. 1120 avoirdupois lbs. of salt) which would have held an equivalent of 138.5 imperial gallons (based upon 1 imperial gallon = 8.08 avoirdupois lbs. of salt; British). Since salt was commonly sold by the avoirdupois hundred-weight (i.e. 112 avoirdupois lbs.; British), this 1/2-ton cask would have contained an even 10 avoirdupois cwt. of salt.

As depicted in Fig. 10, the cask consisted of 20 staves (oak?) held together by 14 iron bands. Each band was made from strap iron measuring 1 3/8 inches in width and ca. 1/8 inch in thickness, and each was formed from a single piece of strap iron bent in a circle, overlapped and joined with a single rivet. Apparently, the inner bands were held in place without the use of fasteners, but the method of attaching the end bands could not be determined due to the loss of these bands through corrosion.

#### Brick Fragments

Of the 341 brick fragments found, 334 were from imported brick, 6 from local brick, and one was unidentified. Following the variety system for bricks which we used for the Chief Factor's House, 340 of the brick fragments were classified (Table 4).

Table 4 - Varieties of bricks.

Variety #	Total
1001 (imported)	303
1002 (imported)	31
1004 (local)	5
1005 (local)	1
Grand Total	340

The imported bricks are primarily firebricks (#1001) which are identical to those found in the second Bakery of 1835 (Hoffman and Ross 1973:49, 53-57). If this variety of firebrick had been imported at earlier dates, then the bricks from the Belfry area may have been part of the oven for the first Bakery built in 1829.

#### IV - PRELIMINARY INTERPRETATIONS

Position of the 1845 period Flagstaff is well known from both archeological and historical evidence. Our excavations demonstrated the presence of a Flagstaff and subsurface support immediately east of the easternmost, large building in the southwestern corner of the Fort. This building has been identified as the Fur Store of the 1845 period (Hussey 1972:185). The archeological position of the staff is almost exactly the same as the historical position shown on the Vavasour map of 1845 (ibid.:Pl. VI). As indicated by various sketches and views, the relative position of the Flagstaff remained unchanged from about 1841 to 1855 (ibid.:Pls. IV, VI, IX, X, XI, XII, XVI, XVIII, XXII, LIII). Despite artistic license in the depictions of spacings and heights, the Flagstaff is always shown inside the south wall of the Stockade immediately east of the same large building.

The archeological remains may well represent the Flagstaff erected on 21 December 1844. On that day, a new staff was placed in the same position as a previous one that was blown down by the wind (ibid.:62). A witness to the event specifically noted that the new staff was set within a few feet of the east end of the Fur Store (ibid.). Unfortunately, the witness left no account of the methods used to set or brace the Flagstaff. However, it can be inferred that construction was no minor matter since the witness stated that "all hands" of the Fort plus a ship's crew participated in the construction. Length of the staff erected in late 1844 was reported as 103 ft. (ibid.).

Archeology does not provide direct evidence of the Flagstaff's height; neither does it tell us whether the staff was a single pole (ibid.:63). The archeological evidence does show that the Flagstaff was one ft. in diameter at its butt. Since the butt was set about 4.5 ft. below surface when erected, the two lines of evidence indicate that the staff rose about 98.5 ft. above ground during the 1845 period.

The subsurface bracing of crossed timbers was apparently successful in holding the staff in the ground, as shown by the well-preserved cast of the wooden butt. When finally destroyed, the staff must have broken off well above surface level in order to leave the crossed timbers well intact and in position. The hole originally dug (or expanded) for the staff was found, but we were unable to delineate the hole dug for the subsurface bracing.

Although we were unable to conclusively identify any subsurface features as auxiliary supports of the staff, such supports may have existed above ground. The Flagstaff was located less than

9 ft. from the east wall of the Fur Store. This distance could be spanned easily with ropes or light chains that would provide additional support without guypes or other surface level encumbrances. Conceivably, several guys for the Flagstaff could be attached to the Fur Store.

The archeological evidence of the Flagstaff is subsumed in the schematic drawing of Fig. 9. With the staff butt packed in rock, it is possible that the subsurface crossed timbers were sufficient support for a single wooden pole 103 ft. long. While this length is not extraordinary for local Douglas fir trees, the butt diameter is. If the Flagstaff was a single tree, its butt must have been extensively trimmed to obtain the even diameter of one ft.

Several Belfry styles and locations are known for the Fort between 1841 and 1860. Presumably, signaling bells were used from the earliest days of the Fort, well before 1841.

There is no doubt that the large barrel excavated in 1973 was the base of the 1845 period Belfry. The archeological and historical lines of evidence are in agreement. We determined the barrel to have been buried about 32.5 ft. south of the northern Stockade, and about 18 ft. north of the New Office north wall. The same witness who reported the raising of the Flagstaff also described the construction of the Belfry on 31 December 1844.

The people engaged erecting a new Belfry, the Bell being placed at the top of a spar 45 feet above the ground the butt end of which was placed in a large cask of salt in order to preserve it from decay. It is placed behind the small Granary, near the North pickets. (Hussey 1972:72.)

While this position may seem ambiguous, it is clarified by a further statement of the same witness who reported on 8 August 1845: "Commenced building a new Office, in front of the bellfry" (Ibid.:73).

The position of the northern Stockade or pickets and the wall lines of the New Office are known from past exploratory operations (Caywood 1955:sheet 8 of map 2). By projecting locational data of current excavations onto maps of past explorations, we determined the Belfry base to be located exactly as reported.

As historically documented, the Belfry base consisted of a large

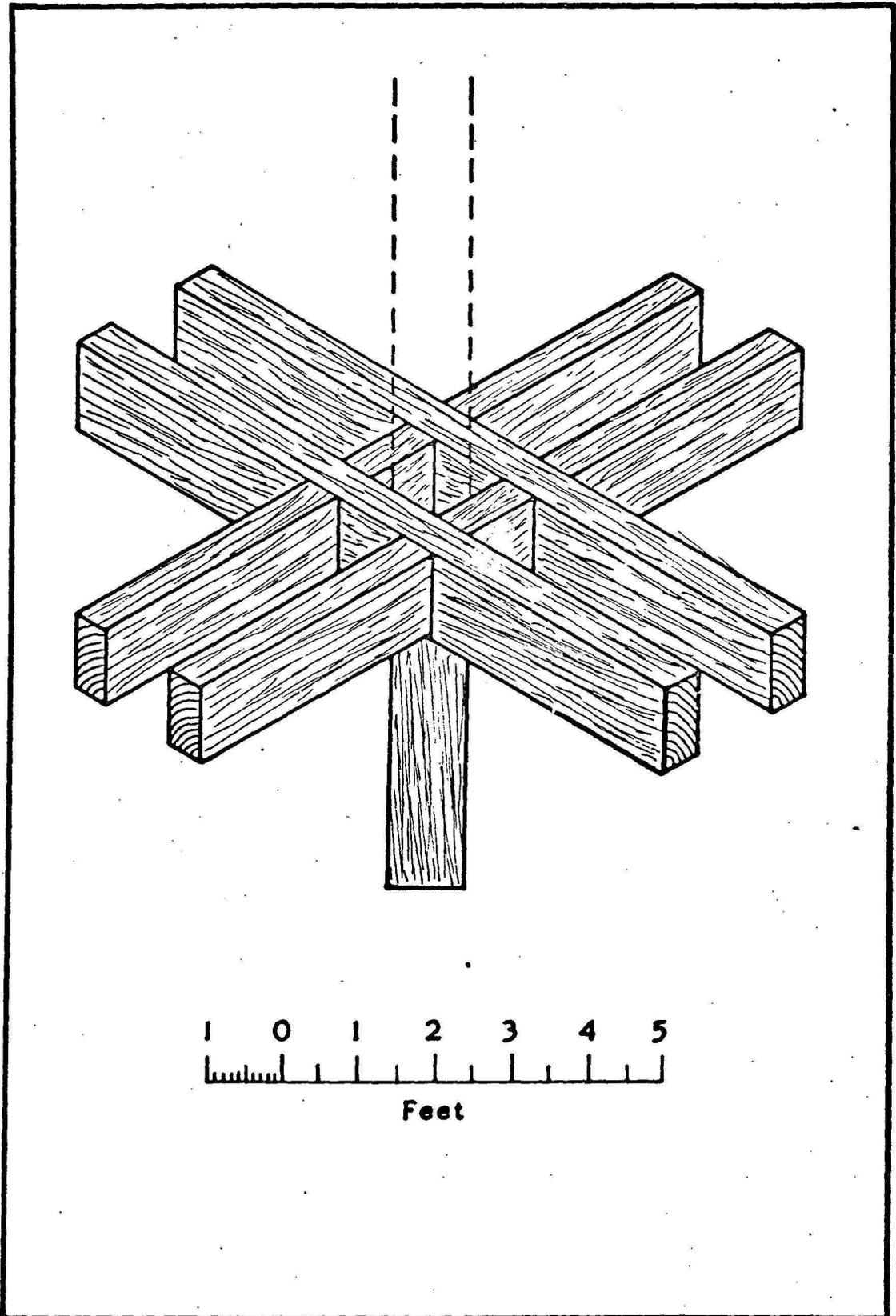


Fig. 9 - Inferred construction of Flagstaff support.

barrel or cask buried in the ground. The barrel was 4.5 ft. high and 2.65 ft. in diameter at its girth. The heads were 2 ft. in diameter and the circumference of the girth was about 8.32 ft. These measurements indicate that the barrel had a salt capacity of 1/2 avoirdupois ton. As discussed in Chapter III, this capacity is better expressed as 10 avoirdupois cwt. of salt.

While the archeological evidence was fragmentary, we believe the barrel consisted of 20 wooden staves, each 4.5 ft. long. Assuming symmetry of the staves, they were about 0.416 ft. or 5 inches wide at their girths and about 0.312 ft. or 3 3/4 inches wide at their ends. Thickness could not be determined. Twelve metal bands or hoops were found in situ, although only 8 could be collected due to fragmentation. Each hoop was made of 1/8 inch stock, cut 1 3/8 inches wide, and joined at the ends by a single rivet. The archeological evidence indicates that the barrel heads were hooped by double bands and the barrel girth held by 2 sets of double bands. Intervening hoops were single bands. Thus, the barrel was originally hooped with 14 bands (Fig. 10). Apparently, the bands were held by pressure alone; we have no clear evidence for other means of attachment.

The height of the bell mast or "spar" was reported to be 45 ft. above ground at the time of construction. Archeology shows that the butt of the mast extended 4.80 to 4.95 ft. below surface at the time of use. For practical purposes, we can say that the bell mast was originally 50 ft. long. As shown in excavation, the mast butt was one ft. square; presumably, the entire mast length was one ft. square. The upper portion of the butt was packed with large stones both inside and outside of the barrel. Some of these stones protruded through the old surface producing a ringed, decorative appearance (Fig. 11). While soil contents of the barrel were not chemically tested, we have no reason to question the historically recorded salt-packing of the mast butt.

The appearance of the Belfry above ground cannot be determined archeologically. Fortunately, there exists an excellent illustration of the upper portions of the Belfry as it probably looked in 1846-47. This illustration shows the western sector of the Fort Interior and depicts, among other things, the exact location of the Flagstaff and the approximate location of the Belfry (Hussey 1972:Pls. XI, XII). The Belfry is shown immediately north of the New Office. It consists of a single pole or mast rising well above surrounding buildings. A series of horizontal cleats are attached to the eastern (?) face of the mast, probably for access to the bell mechanism. The mechanism attached to the

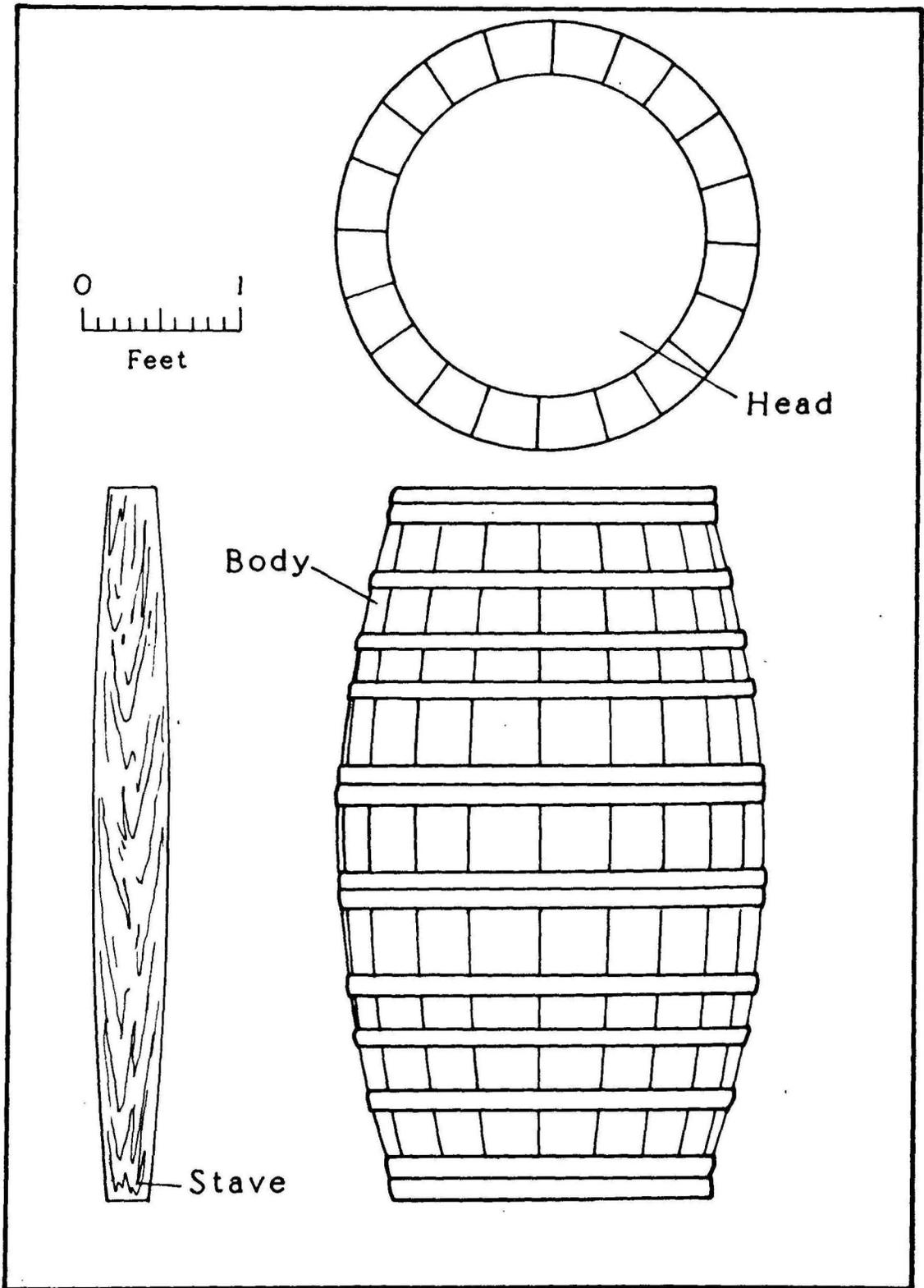


Fig. 10 - Inferred appearance of the salt barrel used for the Belfry base.

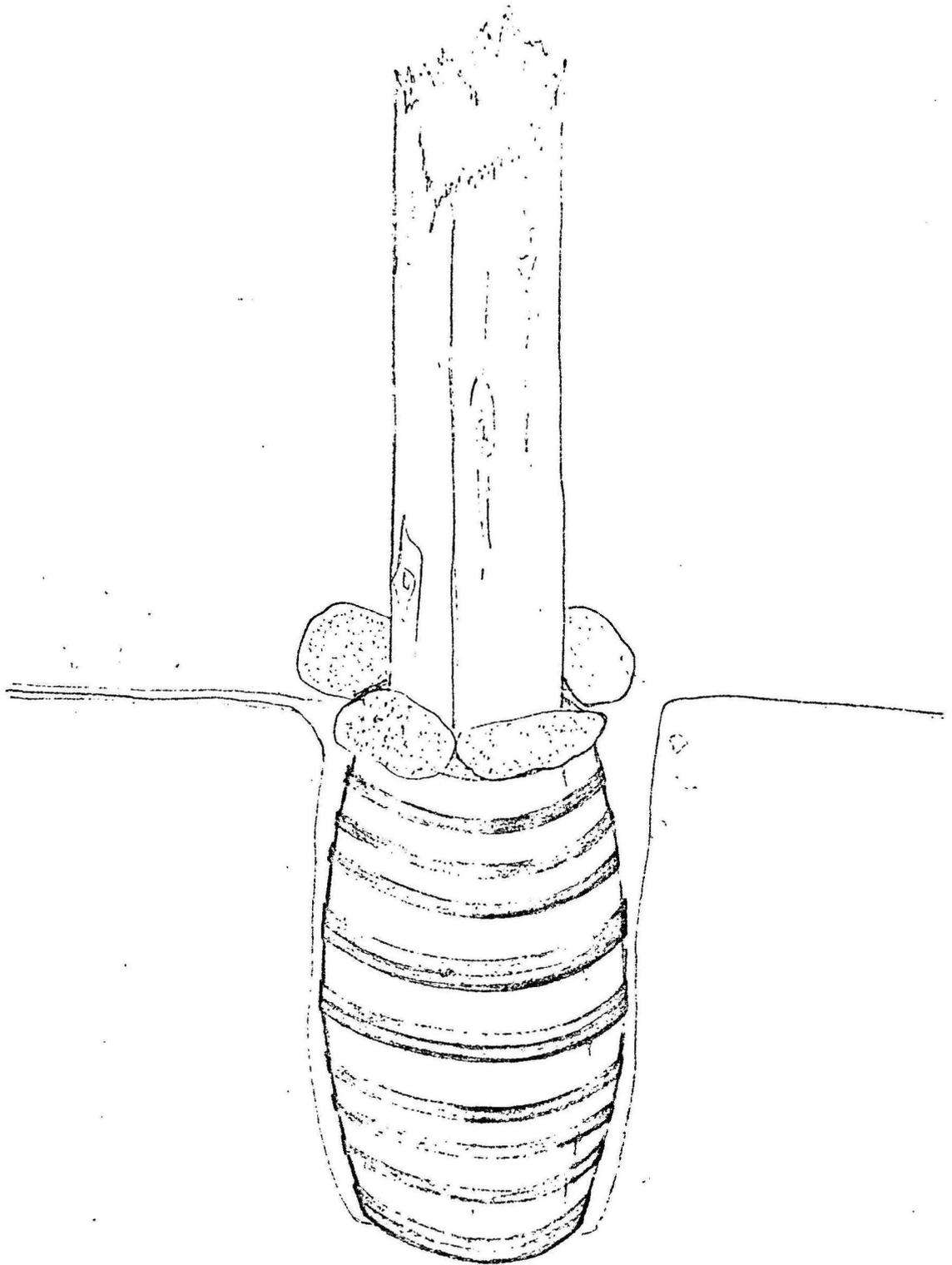


Fig. 11 - Inferred construction of Belfry base.

top of the mast is a ring-like housing containing the bell. A short, horizontal piece projects from the south side of the housing and holds one end of a line that appears to reach to the ground. The line and housing projection seem to be part of the activating mechanism for ringing the bell, although we are uncertain as to how the mechanism operated.

The illustration of 1846-47 shows 6 cleats fixed to the face of = *Conjecture* the mast at constant intervals. While distances are difficult to gauge, comparison with surrounding features suggest that the interval between cleats was about 2.5 ft. If this is valid, and assuming cleats were present along the entire length of the mast, we can say that 17 cleats were present. The first cleat was located 2.5 ft. above ground; succeeding cleats were spaced 2.5 ft. apart, and the last cleat was 2.5 ft. below the bell housing.

We assume the cleats to have been wooden pieces simply nailed to the mast. Using the above suggested scale, the cleats were probably about 1.5 ft. long and 0.5 ft. wide. Since neither cleats nor upper mast were found, we cannot positively state what sort of nail was used for fastening. However, the cleats must have been load-bearing devices and thus, required heavy fasteners. Speculatively, the 30d forged spikes (Table 2, Variety #1009) found in the area may have been used to attach the cleats to the mast. *Conjecture*

Balance of the artifacts found in the area do not appear to relate to the Belfry. Rather, their associations appear to have been with adjacent buildings, specifically the New Office and the hypothetical first bakery of the Fort. There is no archeological evidence of the bell, its housing, or its operating mechanism. As stated before, no credible evidence of auxiliary supports was found for the mast. If such supports were needed, they may have been above ground and guywired or roped to adjacent buildings.

## V - SUMMARY AND CONCLUSIONS

Archeological evidence of the Flagstaff and Belfry used during the 1845 period consisted of well-defined, subsurface remains. In both cases, the remains were the bases of structures historically recorded above ground. There is excellent correspondence between the archeological and historical locations of the two features.

Base of the Flagstaff was exposed as part of our excavations around the 1845 period Fur Store. We have not discussed artifacts found with the feature since our preliminary observations indicate a lack of functional relationships between the Flagstaff and the artifacts. The Belfry was dug as a specific exploratory operation by Volunteers-in-Parks from classes in Biblical Archaeology at the Multnomah School of the Bible. Artifact discussion of this feature is limited to collectable remains of the Belfry and materials found immediately adjacent to the base.

The Flagstaff was located adjacent to the eastern wall of the 1845 Fur Store. Remains consisted of 4 wooden timbers set subsurface and notched to form a cardinaly oriented cross. The horizontal pieces were joined in such a way as to provide a rectangular collar for the staff. Evidence of the wooden staff butt was found below the crossed timbers. Remnant dimensions of the timbers varied from 8 to 9 ft. long, 0.4 to 0.5 ft. wide, and 0.45 to 1.05 ft. thick. Original dimensions were probably about 9 by 0.5 by 1.0 ft. Remnant dimensions of the collar varied from 0.95 to 1.20 ft. on a side. Since the staff butt was found to have been one ft. in diameter originally, we believe the supportive collar to have been one ft. square originally.

Evidence of the staff butt extended 3.55 ft. below the timbers. The historic length of the total staff was 103 ft. By adding the archeological depth of the butt to the thickness of the collar, we believe the staff rose about 98.5 ft. above its subsurface support.

In addition to the wooden support, large stones were packed around the butt to brace the Flagstaff. No subsurface evidence of auxiliary supports was substantiated. However, it is possible that the staff was guyed above ground to the adjacent Fur Store. It appears likely that the Flagstaff was a single length of Douglas fir.

Base of the Belfry was a large barrel buried in the ground immediately north of the New Office. Originally, the barrel was a 10 cwt. salt cask made of 20 wooden staves held by 14 metal hoops. From the archeological remains, we deduce the barrel to have been 4.5 ft. high with a girth circumference of 8.32 ft., and head

diameters of 2 ft. Bottom of the barrel was set about 5 ft. below surface at the time of use.

An earthen impression or cast of a one-ft. square timber was found within the barrel. This represented the butt of the bell mast which was historically reported to rise 45 ft. above ground. Thus, the total length of the mast was originally 50 ft. We assume this length to have been one-ft. square throughout. The upper part of the mast butt was packed in large stones. Some of the stones protruded through the old surface producing a ringed, decorative appearance. Hudson's Bay Company artifacts from the Belfry area consisted either of barrel parts or items that we attribute to the New Office and the hypothesized first bakery of the Fort.

From historic evidence, we believe the bell and its operating mechanism were attached to the top of the mast. While we are uncertain as to the appearance and operation of the mechanism, we believe it was activated by a line that extended from the bell housing to the ground.

Historic evidence also indicates the presence of wooden cleats fastened to one face of the mast. The cleats may have been fastened to the eastern face; undoubtedly they provided access to the housing for repair and maintenance. We believe 17 cleats spaced at intervals of 2.5 ft. were present originally. The bottom cleat was 2.5 ft. above ground, and the top cleat was 2.5 ft. below the mast top. Each cleat was a wooden piece about 1.5 ft. long, 0.5 ft. wide, and of undetermined thickness. We speculate that the cleats were fastened to the mast with forged, 30d "Rose Flat Point" spikes.

Both the Flagstaff and Belfry fulfilled important functions at Fort Vancouver. The Fort was a busy commercial establishment with regulated hours of business and non-business activities. In an age when most people did not carry watches, or whose watches did not agree with Company time, bell-signaling was a necessity for regular and irregular events.

As compared to mundane bell-signaling, flag-raising seems to have been a less frequent activity. The raising of flags was a largely ceremonial affair used to salute special occasions and persons. Both the Hudson's Bay Company flag and the Union Jack were apparently flown at Fort Vancouver, although we do not know which flag was used for which occasion. It is evident from historic evidence, however, that the Flagstaff and the Belfry were functionally important structures in the lifeways of personnel at Fort Vancouver.

APPENDIX I

List of Provenience Units with their  
Corresponding Lot and FOVA Catalog Numbers

Provenience	Lot#	FOVA Catalog#
F456		
N40 W280		
1.0-1.5'	1753	18242-18246
1.5-2.0'	1754	18247-18255
N50 W280 (Fill)		
0.5-1.0'	1755	18256-18259
1.0-1.5'	1756	18260-18276
1.5-2.0'	1757	18277-18291
2.0-2.5'	1758	18292-18300
2.5-3.0'	1759	18301-18316
3.0-3.5'	1760	18317-18329
3.5-4.0'	1761	18330-18345
4.0-4.5'	1762	18346-18358
4.5-5.0'	1763	18359-18369
5.0-5.5'	1764	18370-18377
N50 W280 (Barrel Hoops)		
1.5-2.0' Hoop #1	1765	18378
2.0-2.5' Hoop #2	1766	18379
2.5-3.0' Hoop #3	1767	18380
3.0-3.5' Hoop #4	1768	18381
3.5-4.0' Hoop #5	1769	18382
4.0-4.5' Hoop #6	1770	18383
4.5-5.0' Hoop #7	1771	18384
5.0-5.5' Hoop #8	1772	18385
N40 W280		
0.0-0.5'	1773	18386-18405
0.5-1.0'	1774	18406-18428
0.5-1.0' HBC	1775	18429-18440
1.0-1.5' HBC	1776	18441-18458
N50 W280		
0.0-0.5'	1777	18459-18471
0.5-1.0'	1778	18472-18487
0.5-1.0' HBC	1779	18488-18501
1.0-1.5' HBC	1780	18502-18522

APPENDIX II

Summary of Miscellaneous Materials from the Belfry Area

Cultural material, other than artifacts, totaled 214 items and are listed below:

Descriptive Category	Subtotal	Total
Bone Fragments		147
Coral Fragments		5
Minerals		34
Coal	23	
Asphaltum	9	
Ochre	1	
Chalk	1	
Shell Fragments		17
Wood Fragments		9
Unidentified Material Fragments		2
GRAND TOTAL		214

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