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FORT VANCOUVER EXCAVATIONS - VI

Sales Shop and Powder Magazine

by

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I - INTRODUCTION

This is the sixth in a series of interim reports detailing the findings and analyses of the Fort Vancouver Archeological Project. Purposes, scope, and methods of the project were outlined in the initial report of the series.

This report deals with the Sales Shop and Powder Magazine of Fort Vancouver. Both structures were highly important to the commercial operations of the Hudson's Bay Company during its peak activities at the Fort. From historic research, this period of activity is determined to have been about 1845 when Fort Vancouver was the administrative and logistical center of Company operations in western North America. It follows that this is the period selected by the National Park Service for intensive research of Fort activities and structures for purposes of presenting an authentic reconstruction to the American public.

The Sales Shop was a retail "company store" that catered to HBC employees at Fort Vancouver and subsidiary posts. It also served missionaries, government expeditions and other travelers, as well as certain local settlers. Use of the store was determined by an individual's account of credit which was established by service to the Company, exchange of local products, or acceptance of extra-Company bills of credit (Hussey 1972:188-194). Both necessities and luxuries of everyday life were merchandised through the Sales Shop. Goods stored within the building were primarily non-foodstuffs and (probably) non-explosive. However, sales of foodstuffs and even livestock were conducted through the Sales Shop (Ibid.:192-193).

During the 1840's the fur trade declined drastically and the Hudson's Bay Company turned more to general merchandising at Fort Vancouver. Thus, the operations of the Sales Shop assumed greater commercial importance until after mid-century when competition from local American merchants made these operations marginal (Ibid.:195-196).

The Sales Shop excavated during the current project appears to have been one of the newer buildings of the Fort. Historical research suggests that the Shop was built between 1841 and mid-1845; perhaps it was completed about 1843 (Ibid.:187). If so, the building occupied approximately the same position as that of an older and presumably cruder structure of similar functions (Hussey 1957:185). The wooden 1-1/2 story Sales Shop of the 1845 period stood in one location until at least May of 1860 (Hussey 1972:Pl. XXVIII).

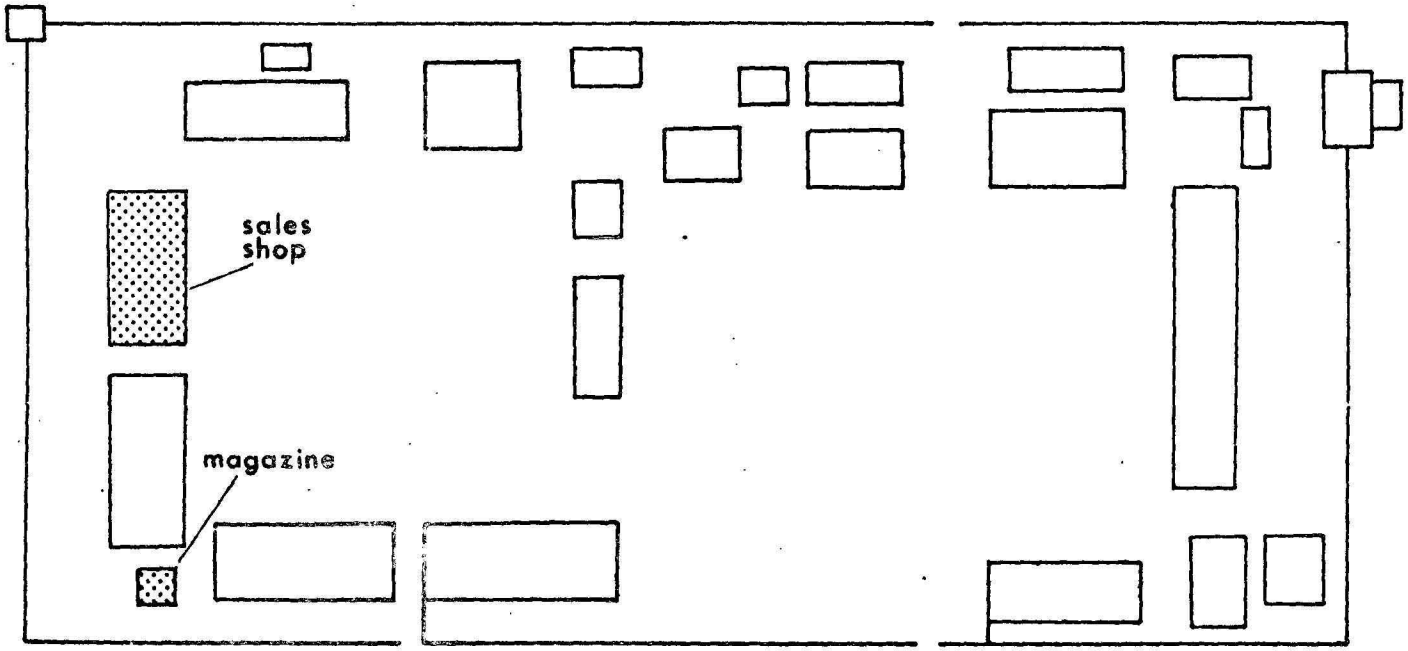


Fig. 1 - Locations of the Sales Shop and Magazine on the Vavasour map of 1845 (after Hussey 1972:Pl. VII).

A Powder Magazine was a necessary adjunct to the logistical functions of the Fort. Vast amounts of ammunition funneled through Fort Vancouver to supply subsidiary posts and the general trade. In addition to firearms usage, black powder was the standard explosive in pre-dynamite days. Some idea of the volume of powder storage can be gained from a single year's listing. The "Inventory of Sundry Goods... etc...remaining on hand at Fort Vancouver Depot, Spring 1844" includes 158 barrels and kegs of gunpowder weighing over 14,000 pounds (Ibid.: 267). Elementary discretion would indicate separate storage of such amounts under rigid security.

A Magazine built of stone, brick, or both is known to have existed by 1832 at the latest (Hussey 1957:184). Presumably, this was the same Magazine that existed in 1845 and lasted in the same position until at least June of 1860 (Ibid.:Pls. IV, XXIV). It seems improbable that a masonry structure would be moved about or reconstructed during the 31-year span of the Fort. The 1845 Magazine position was the one dug by the current project (Fig. 1). Historically, the Magazine is reported to have been a small, masonry structure with an arched masonry roof, and a copper-sheathed door (Ibid.:184).

The Sales Shop and Magazine were archeologically tested to a limited degree during the late 1940's and early 1950's (Caywood 1955). The exploratory tests served to locate the structures, but were too limited for present reconstruction needs. Excavations described in this report were expanded tests designed to yield more concise information. For instance, at least 2 contemporary illustrations are known for the east wall of the Sales Shop (Hussey 1972:Pls. XI, XXVIII). A comparison of the archeological remains of the east wall with the illustrations would provide usable structural information without comprehensive excavation. No contemporary illustrations are known for the Magazine; any archeological information on the building's foundations and interior would be of benefit. Slightly more than half of the Magazine was dug in order to provide usable information without comprehensive excavation.

II - EXCAVATIONS

As indicated by the archeological maps (Figs. 2, 5), only portions of the building sites were excavated. These portions were selected on the assumption that they would provide sufficient structural information. Seven excavation units of varying sizes were dug along the north wall and interior of the Sales Shop. These units were oriented to the overall magnetic grid used at Fort Vancouver during the current project. Ten arbitrarily oriented units were dug along the east wall of the Shop. Each was 10-ft. square, placed to coincide with the east wall, and opened to reveal area outside of the wall (Fig. 2).

The Magazine was tested by 3 arbitrarily oriented units, each 10 by 15 ft. These were placed over the presumed eastern half of the structure and opened to reveal areas inside and outside of the eastern wall (Fig. 5).

The Components

As with all areas of the Fort excavated to date, the Sales Shop and Magazine positions included evidence of Vancouver Barracks activity dating from post-Hudson's Bay Company occupation. A selected soil profile from the Sales Shop excavation is typical of the general deposits found at this locale (Fig. 3).

The modern sod line and recent deposits were removed for installation of an asphalt pad over the Sales Shop during the 1960's. After removing the asphalt, the intact layers of Fig. 3 were distinguishable. Layer 1 consisted of coarse sand and gravel laid by Vancouver Barracks during World War I as part of the construction of a lumber mill. Layer 2 was a thin band of water-laid silts attributable to a late 19th Century flood of the Columbia River. Beneath was layer 3, the HBC deposit, which was essentially native soils mixed with organic material and cultural debris. This deposit rested on culturally sterile, native soils. Holes were dug along the east wall of the Shop for the setting of subsurface footings. These holes were partially open during destruction of the building. The upper portions of layer 4 consisted of burned debris and soils deposited either by destruction or the subsequent cleanup of the Shop area by the USA. In time, the HBC deposit (layer 3) eroded over the post-HBC deposit (layer 4) at the footing holes, and produced natural dips in the old HBC surface. These dips were largely filled with sediments of the late 19th Century flood (Fig. 3).

Layer 2 was invaluable for sorting features in the field since any feature that broke through the flood level could be readily ascribed

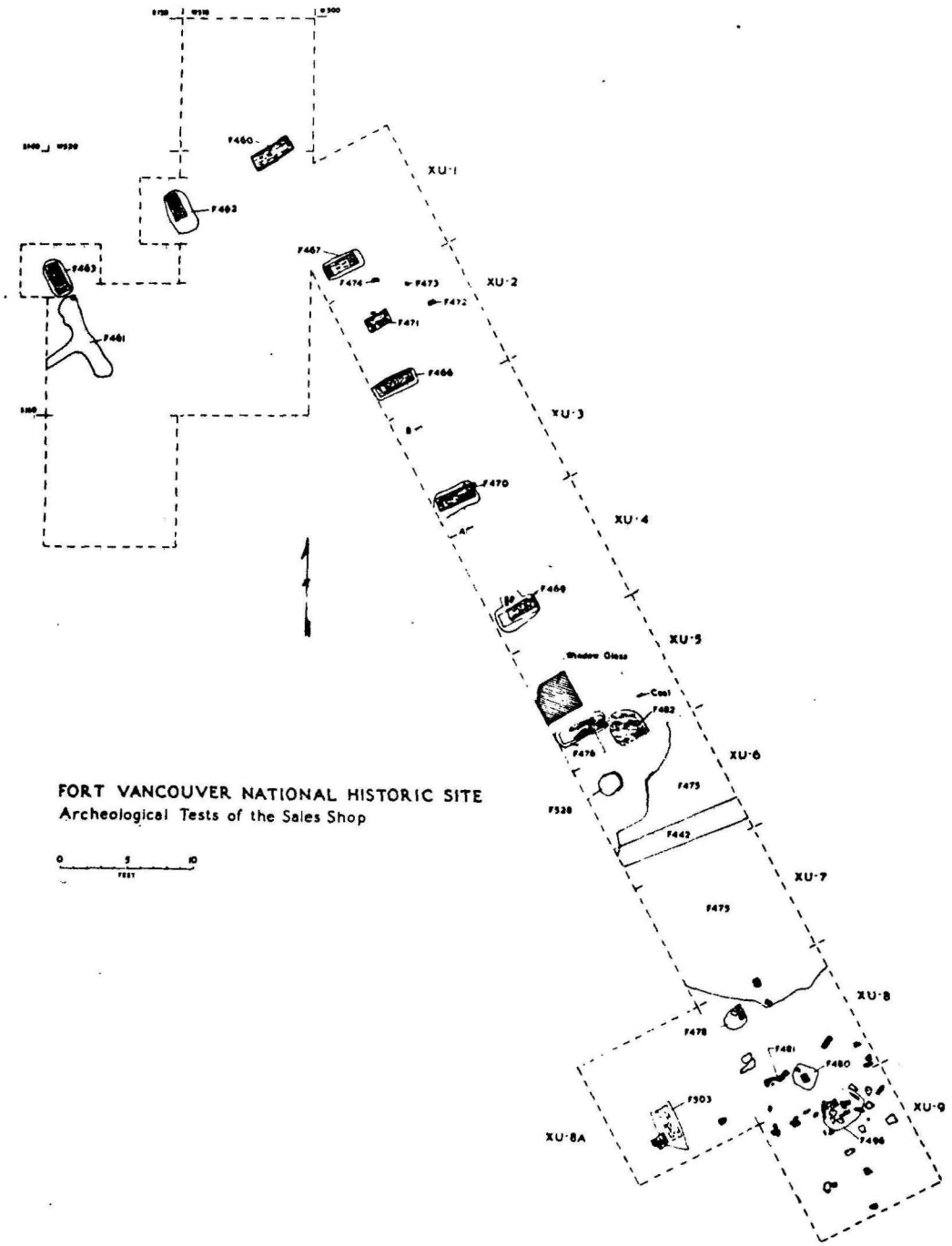
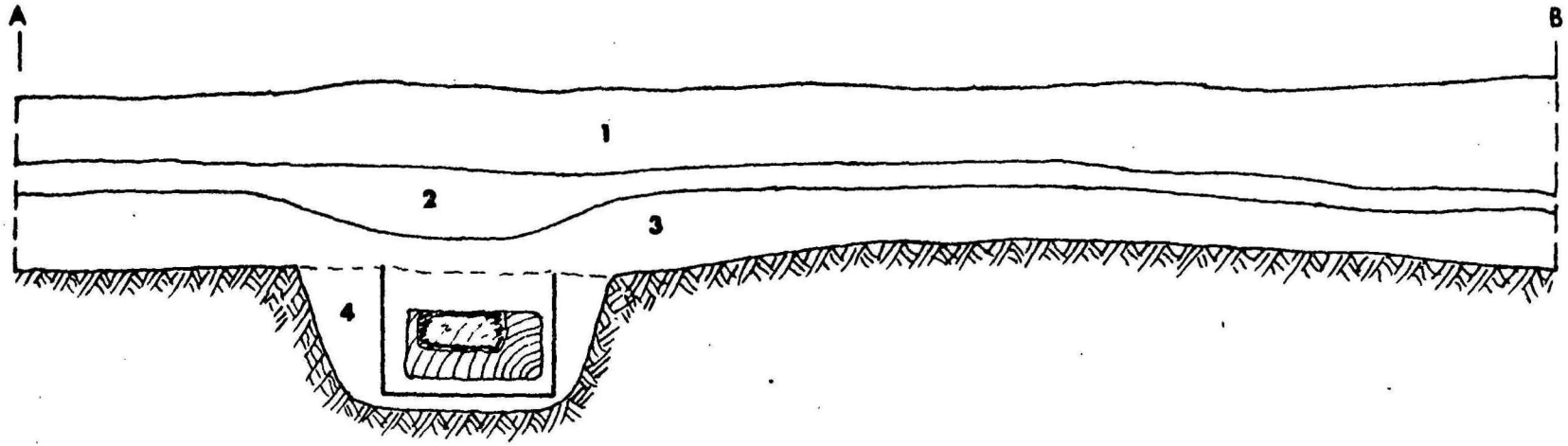

F460
F462
F463
F467
F474
F473
F472
F471
F466
F461
F470
F469
XU-1
XU-2
XU-3
XU-4
XU-5
XU-6
XU-7
XU-8
XU-8A
XU-9
Window Glass
Coal
F482
F476
F475
F528
F442
F478
F481
F480
F503
F496
FORT VANCOUVER NATIONAL HISTORIC SITE
Archeological Tests of the Sales Shop
0
5
10
FEET

Fig. 2



FORT VANCOUVER NAT'L HIST. SITE

footing section and soil profile
A-B in XU-3 of the Sales Shop

1. USA 1918
2. 19th C. flood
3. HBC deposit
4. post HBC deposit

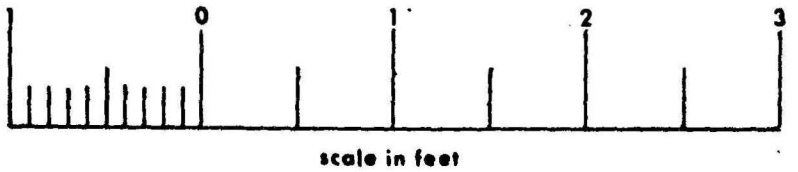


Fig. 3

to post-HBC activity. This activity consisted mainly of Vancouver Barracks intrusions, although previous archeological explorations could also be identified.

Three sizable intrusions of Vancouver Barracks were found in the Sales Shop area (Table 1). The largest was a shallow trash pit that destroyed portions of the Shop east wall (Fig. 2). The pit was filled with stove pipe, rain spouts, pieces of corrugated and smooth sheet metal, large diameter wire cables, an Army style bed frame, loose wire of various gauges, as well as a wooden and wire screen object that appeared to have been the door of a pyramidal tent. Smaller items were collected, as were the HBC materials mixed in the trash, but large items were left in place. The pit was only 1.5 ft. deep, but this was sufficient to destroy any pre-existing HBC evidence. No attempt was made to define the horizontal limits of the trash deposit. Evidently, the trash was concentrated during a USA cleanup of the area after dismantling a 1918-19 lumber mill.

A straight-sided and flat-bottomed trench was found under the trash pit (Fig. 2). A portion of this same trench was observed during our excavation of the western Stockade line of the 1845 period. There, the trench contained a waterline made of long, curved wooden pieces fitted to form a continuous cylinder. The line was tarred and held together by a continuous spiral winding of heavy, ferrous wire. Undoubtedly, the line was laid by either the Army or the City of Vancouver. Its absence in the trench below the USA trash indicated its removal prior to dismantling of the WWI lumber mill.

An oddly shaped intrusion was located near the northern wall of the Sales Shop. It was a deep, narrow basin oriented north-south, with a narrower cut on its west side that sloped from the bottom of the basin up into the Vancouver Barracks level (Fig. 2). Its stratigraphic position clearly indicated a USA affiliation. A very similar hole was found during our excavation of the 1845 period Fur Store. The latter hole contained a long, ferrous eyebolt that perforated a short log and originally projected above ground. Apparently, this was a "deadman" or subsurface anchor for some sort of Vancouver Barracks structure.

Another trench for a USA (?) waterline was found in the northern part of the Magazine excavation (Fig. 5). This trench was virtually identical to the one described above. It had been discovered previously during our excavation of the Fur Store and the southern line of the 1845 period Stockade. In the western sector of the Fur Store, the trench contained a wire-wound, wooden waterline identical to the one described above.

With a single exception to be discussed, all other defined features of the Sales Shop and Magazine tests were of Hudson's Bay Company

Table 1 - Archeological features excavated in the Sales Shop area.

Feature	Description	Component
442	Vancouver Barracks waterline; late 19th or early 20th Century	USA
460	Subsurface wooden footing, NE corner	HBC
461	Intrusive hole from Vancouver Barracks	USA
462	Subsurface wooden footing of north wall	HBC
463	Subsurface wooden footing of north wall	HBC
466	Subsurface wooden footing of east wall	HBC
467	Subsurface wooden footing of east wall	HBC
469	Subsurface wooden footing of east wall	HBC
470	Subsurface wooden footing of east wall	HBC
471	Wooden footing and driven, wooden stake in east wall	HBC
472	Driven wooden post outside east wall	HBC
473	Driven wooden post outside east wall	HBC
474	Driven wooden post outside east wall	HBC
475	Post-WW I trash intrusion of Vancouver Barracks	USA
476	Subsurface wooden footing of east wall	HBC
478	Wooden footing (?) of east wall	HBC
480	Wooden post set outside SE corner	HBC
481	Subsurface wooden footing; SE corner	HBC
482	Pebble-filled basin outside of east wall	HBC
496	Debris-filled basin outside of SE corner	HBC
503	Subsurface wooden footing and repair footing of south wall	HBC
528	Basin under east wall	HBC

derivation (Table 1). Their identity was established by their stratigraphic positions beneath the 19th Century flood level, or their structural and artifactual relationships to HBC features so identified.

Sales Shop

The outstanding remains consisted of wooden footings that defined the eastern wall, as well as portions of the northern and southern walls (Fig. 2). The footings were identified by their rotted remains as well as their casts or impressions left in the soil by the original wooden pieces. Casts were the more credible findings since they revealed the exact horizontal dimensions of the original footings. Vertical dimensions could not always be determined due to disturbances from previous explorations.

The footings were deeply set; in many cases it was possible to determine their depths below the old HBC surface (Table 2). A series of rectanguloid holes was dug along the wall lines for setting the footings (Fig. 4a). Mean measurements of the holes were 3.41 ft. long by 1.66 ft. wide, with a mean depth of 1.19 ft. below the HBC surface. A typical arrangement of footing cast, wooden remains, and prepared hole is shown on Fig. 3.

Other footings of the eastern and southern walls did not conform to the above pattern in that they had small holes or no holes. These appear to have been repair footings. Two such pieces were simply slabs laid on the ground and depressed into the old surface by the weight of the Shop. No evidence of a cast or prepared hole was found at the southeastern corner due to previous disturbances.

All footings were wooden blocks trimmed to rectangular shape (Fig. 4b). They varied from 0.60 to 1.15 ft. wide, with a mean of 1.01 ft., and from 0.60 to 3.50 ft. long, with a mean of 2.34 ft. (Table 2). Mean thickness of the blocks was 0.50 ft., but this measurement is not overly credible due to previous disturbances.

Distances between footing centers indicated an attempt to set the blocks at 10 ft. intervals, except for repair purposes. The latter were set at intervals of 5 to 6 ft., or approximately midway between pre-existing blocks. As a whole, the footings had a mean interval of 9.78 ft. based on the cumulative distances of Table 2. The straight line distance between the centers of the northeastern and southeastern footings was 79.95 ft. (Fig. 2). Unfortunately, the HBC inventory of 1846-47 gives the plan dimensions of the Sales Shop as 40 by 86 ft. (Hussey 1972:197). Previous archeological evidence confirms the historic width of 40 ft. but not the length (Caywood 1955:sheet 4 of map 2). In this case, we choose to rely on the physical evidence

Table 2 - Footing characteristics of the Sales Shop.

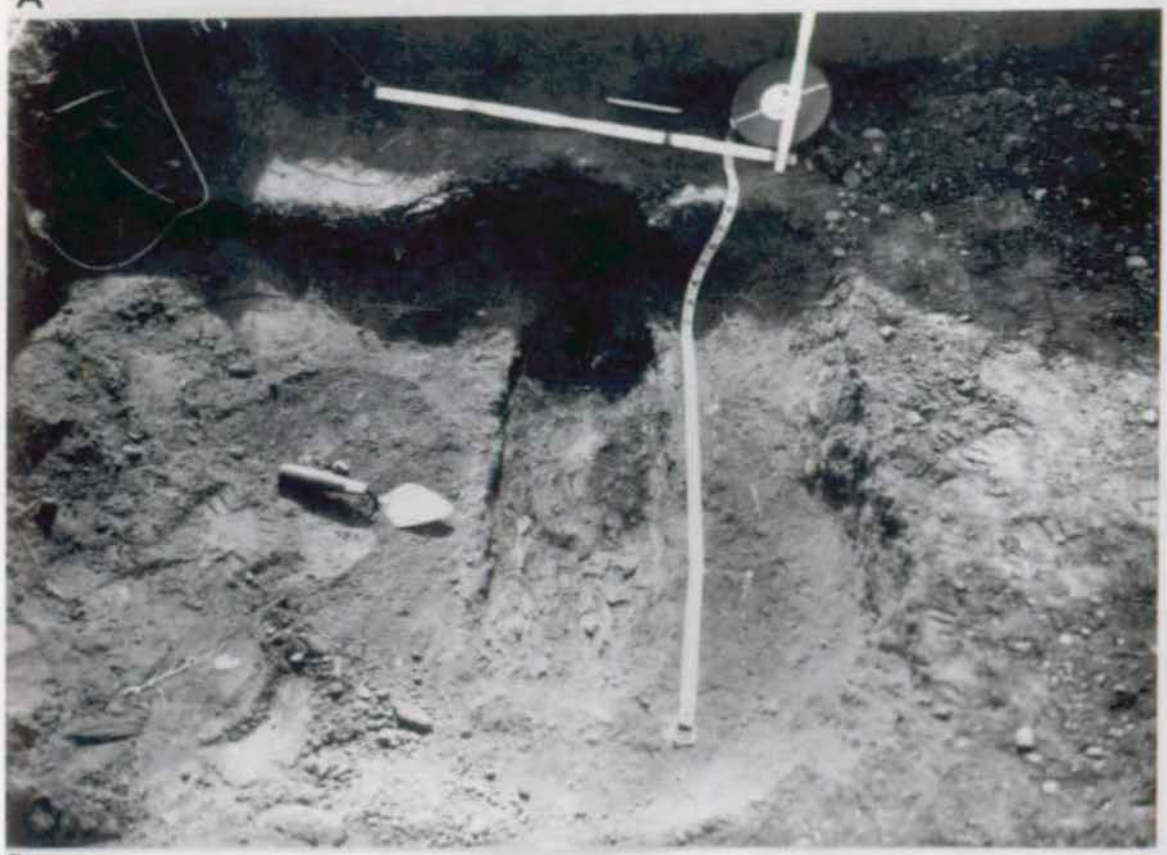
Footing	Type	WidthxLength xThickness	Depth bs(ft)	Dist. from last footing	Remarks
F463	wooden block	1.10 x 2.35 x 0.40 ft.	1.30-1.70	0.00 ft.	North wall; subsurface
F462	wooden block	0.95 x 2.00 x 0.55 ft.	1.60-2.15	10.35 ft.	North wall; subsurface; cast bottom 1.05-1.15 ft. below HBC surface
F460	wooden block	1.10 x 3.10 x 0.30 ft.	1.60-1.90	8.30 ft.	NE corner; subsurface
F467	wooden block	0.95 x 2.55 x 0.60 ft.	1.40-2.00	9.95 ft.	East wall; subsurface; cast bottom 0.9-1.0 ft. below HBC surface
F471	wooden block	1.10 x 1.90 x 0.10 ft.	1.00-1.10	5.10 ft.	East wall repair footing; depressed into HBC surface
F466	wooden block	1.00 x 2.90 x 0.90 ft.	1.00-1.90	4.90 ft.	East wall; subsurface; cast is 0.0-0.9 ft. below HBC surface
F470	wooden block	1.00 x 2.90 x 0.85 ft.	1.00-1.85	9.85 ft.	East wall; subsurface; cast is 0.45-1.30 ft. below HBC surface
F469	wooden block	1.05 x 3.00 x 0.85 ft.	1.20-2.05	9.90 ft.	East wall; subsurface; cast is 0.60-1.45 ft. below HBC surface
F476	wooden block	1.05 x 3.50 x 0.80 ft.	1.10-1.90	10.15 ft.	East wall; subsurface; cast is 0.15-0.95 ft. below adjacent HBC surface
F478	wooden block?	1.10 x 0.60 x 0.40 ft.	0.80-1.20	24.40 ft.	East wall repair footing; associated with prepared hole whose alignment and elevations correspond with prepared holes of subsurface footings
F481	wooden block?	0.60 x 2.00 x 0.20 ft.	1.20-1.40	5.80 ft.	SE corner; subsurface; no cast or hole found
F503 lower	wooden block	1.00 x 2.65 x 0.45 ft.	0.90-1.35	8.75 ft.	South wall; subsurface
F503 upper	wooden block	1.15 x 1.00 x 0.10 ft.	0.90-1.00	1.60 ft. (9.95 ft. from F481)	South wall repair footing; depressed into HBC surface

Fig. 4 - Excavations along the eastern wall of the Sales Shop.

a - View south along the wall. Prepared footing holes can be seen as dark rectangles within the excavation units (FOVA neg. 069.51-73/107)

b - Cast and wooden remains of a footing (FOVA neg. 069.51-73/102)

A



B

which clearly shows the building to have been close to 80 ft. long.

Another possible repair footing of the eastern wall was located 25 ft. north of the southeastern corner and labeled F528 (Fig. 2). The feature was a rectanguloid basin 1.6 ft. in diameter that extended 1.05 ft. below the HBC surface. No footing cast or wood was found within the hole. However, its alignment, spacing, and depth were similar to other footing holes of the Shop walls.

A debris-filled basin, F496, was found outside of the southeast Shop corner (Fig. 2). Located within the HBC level, the irregularly shaped basin was only 0.7 ft. deep. A good part of the basin's fill under the burned debris consisted of water-laid silts. Wooden fragments as well as stone and brick rubble surrounded and covered the basin at a slightly higher elevation. A similar basin, F482, was located along the east wall 33 ft. north of F496 (Fig. 2). F482 was one ft. deep within the HBC level and filled with washed pebbles. Coal fragments and dust from a surrounding deposit overlay the pebbles. The southern basin may have marked the location of a rainbarrel or downspout from the Sales Shop.

Several wooden post and stake butts were found along the eastern wall. The largest, F480, was located at the southeastern corner (Fig. 2). The rectangular butt was 0.4 by 0.6 ft. and set into a prepared hole that extended one ft. below the HBC level. Butts of 4 wooden stakes were found driven well below the HBC level in the northern part of the eastern wall. These were labeled F472, 473, 474 and one was included with footing F471 (Fig. 2). The stakes were rectangular or triangular at their tops and had maximum widths of 0.10 to 0.45 ft. They varied from 1.00 to 2.05 ft. in length, and all were pointed or tapered. Spacings and alignments of the stake butts did not form recognizable patterns. At least 2 of the stakes were probably concealed under the east wall of the Shop during the latter's existence.

A concentration of fragmented pane glass was found between footings in Excavation Unit 5 (Fig. 2). Sherds of window glass were noted throughout the eastern wall length, but this concentration was sufficiently dense to warrant mapping in the field. A concentration of coal fragments and dust was defined immediately east and south of the window glass. The coal lay in the HBC level and covered basins F482 and F528, as well as the eastern portion of footing F476. At its southern edge, the coal deposit was truncated by F475, the large USA trash pit (Fig. 2). Masses of small wooden fragments were found on and in the HBC level throughout the Sales Shop excavations. These were mapped in the field as an effort to determine structural patternings, such as floor joists. Despite the extensive deposit of fragments, no patterns were identified.

Destruction of the Sales Shop by fire was clearly evidenced in the footings. Seven footings were overlain by burned debris of melted glass, ash, charcoal, and scorched earth. In some cases, the debris collapsed into the casts. A repair footing was charred on one end and associated with scorched earth. Ten of the footings had marked, burned areas either on the wooden remnants or the upper portions of the casts. The burned areas were often rectangular in shape and measured 0.5 to 1.0 ft. on a side; they were distinct from unburned areas of the footings.

The small burned spots represented remains of wooden shims used to level framing sills on the footings. One footing, F469, was found with unburned remains of a rectangular shim 0.9 by 1.0 ft. on its upper face. It appears that most shims were burned down to their bases during destruction of the Sales Shop. The footings were sufficiently protected from fire in their partially backfilled holes. Thus, discrete burning marks were left to indicate the former presence of leveling shims.

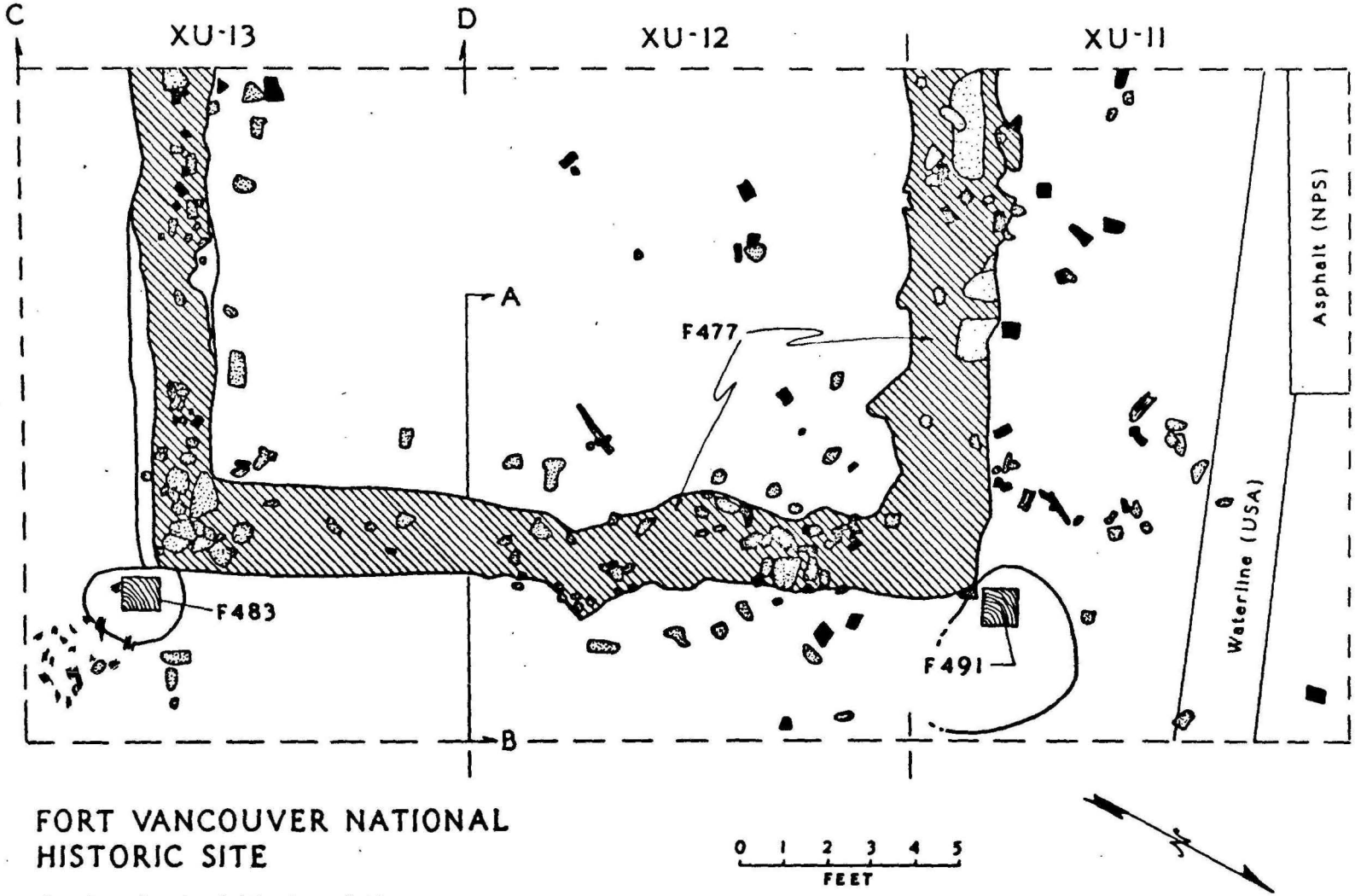
Magazine

Few archeological features were found in the Magazine excavation (Table 3). Hudson's Bay Company features consisted solely of the Magazine foundations and 2 post casts at corners of the foundations (Figs. 5, 7). A shallow trench paralleling the interior of the foundation was recorded in the field as an archeological feature (Fig. 7a). Complete exposure of the trench indicated it to be an artifact of previous archeological testing.

Table 3 - Archeological features excavated in the Magazine.

Feature	Description	Comp.
477	Prepared trench and rubble fill foundation	HBC
483	Post cast at SE corner of foundation	HBC
491	Post cast at NE corner of foundation	HBC
509	Shallow trench paralleling interior of foundation	NPS

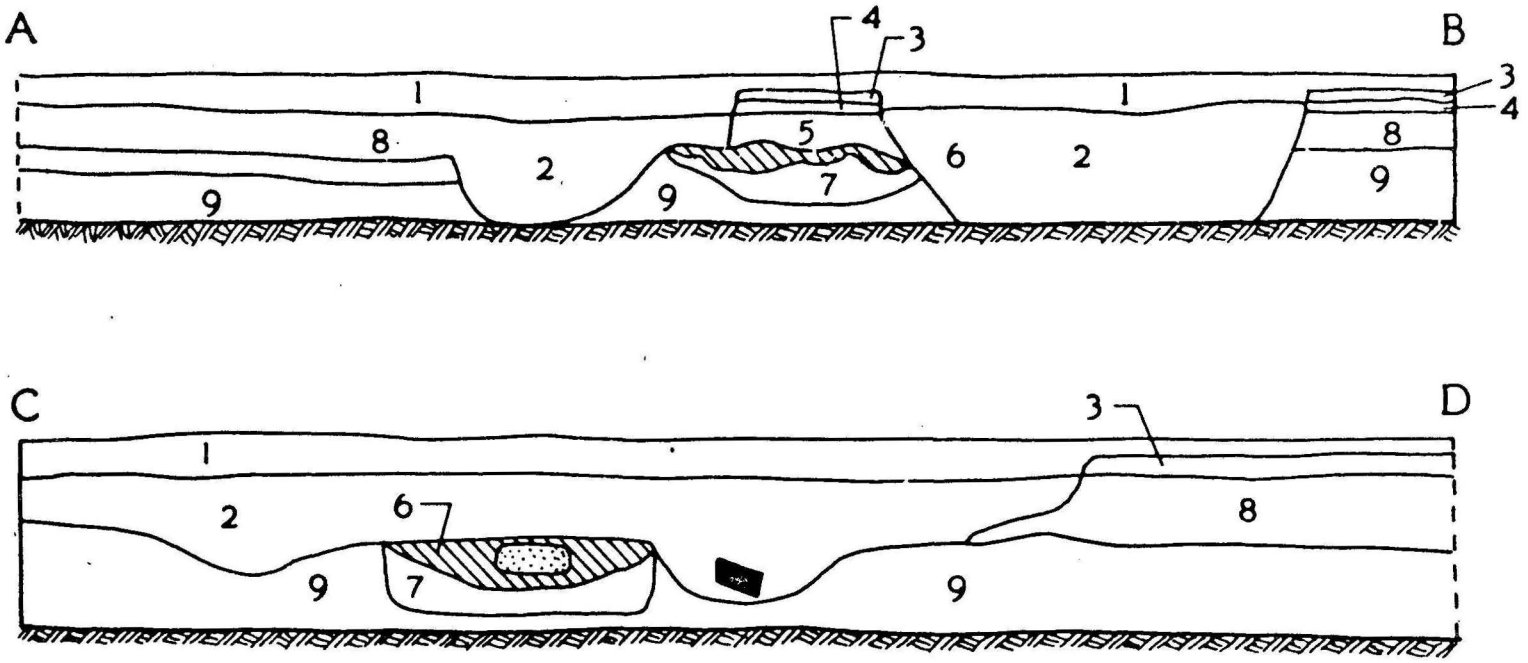
Soil stratigraphy in the Magazine was basically the same as in the Sales Shop, but with certain complexities. Two sections were recorded at the eastern and southern foundations (Fig. 5) and detailed on Fig. 6. Layer 1 of the sections consisted of a rather thick, present-day sod cover. Where in contact, the sod covered a thin layer of WWI Vancouver Barracks activity, layer 3, which overlaid a thin flood deposit of the late 19th Century, layer 4. Very little of the flood deposit was noted.



FORT VANCOUVER NATIONAL
HISTORIC SITE

Archeological Tests of the
Powder Magazine

Fig. 5



1. Sod Line 1973
2. Excavations of 1947
3. Sand, USA 1918
4. Flood Deposit, Late 19th C.
5. Mixed Coral & Soil
6. Coral, Rock & Brick Rubble
7. Silty Clay
8. HBC Layer
9. Native Soils

FORT VANCOUVER NATIONAL HISTORIC SITE

Sections A-B and C-D of Magazine Tests

0 1 2 3 4 5

FEET

Fig. 6

Fig. 7 - Excavations in the eastern sector of the Powder Magazine.

a - Northeastern corner of the foundation showing the rubble fill (FOVA neg. 069.51-73/122)

b - Cast of square post outside the northeastern corner of the foundation; scale is in inches (FOVA neg. 069.51-73/115)

A

B

Most of the sod layer was in direct contact with backfilled trenches of previous explorations (Caywood 1947:10), which were labeled layer 2. Along the southern foundation, the trenches destroyed much of the HBC deposit (Fig. 6, C-D). At the eastern foundation (Fig. 6, A-B), remains of a stratigraphic column were found. This showed the flood deposit to overlay a thick level of mixed coral, mortar and soil, layer 5. Layer 5 was the only intact upper limit we found of the remnant foundation. Layer 6 consisted of the rubble foundation. It rested on and in layer 7 which was a shallow trench filled with silty clay whose horizontal dimensions matched those of the foundation. Where found intact, the HBC deposit was labeled layer 8. The upper limit of this deposit was the old HBC surface. Layer 9, the lowest recorded, consisted of native soils of the floodplain.

The foundation consisted of stone rubble loosely cemented with coral-derived lime. It was found as 3 sides of a rectangular outline that varied from 19 to 20 ft. on a side. Width of the outline varied from 2.0 to 2.7 ft. at the northern wall to 1.0 to 1.3 ft. at the southern wall (Fig. 5). Near the center of the eastern wall, the rubble was 0.2 ft. thick, while it was 0.4 ft. thick at the western exposure of the southern wall (Fig. 6). Since the upper portions of the foundation were exposed and eroded during previous tests, the above dimensions are only approximate of the originals. The stone rubble consisted of variously sized angular pieces (Fig. 7a). Compared with masonry previously found during the current project, the foundation appeared to have been crudely made of hastily selected materials.

A shallow trench filled with silty clay was found directly under the rubble (Figs. 5, 6). True dimensions of the trench could not be determined due to disturbances. However, the observable dimensions generally matched those of the rubble. After field mapping, a portion of the southern wall rubble was removed and found to have been wholly confined to the horizontal limits of the trench. The silty clay of the trench was layered and appeared to have been deliberately laid with water. From these observations, we believe that the foundation was laid in a prepared, water-soaked trench. A crude cement of coral-derived lime and odd-sized stone was poured into the trench and allowed to set. Curing of the foundation was aided during setting by the moisture of the trench. While brick fragments were among the rubble, we are not certain that brick formed part of the foundation. More likely, the brick were unsalvaged remains of the Magazine walls.

Casts of 2 large, square posts were found immediately outside the northeastern and southeastern corners of the foundation (Fig. 5). Corners of the posts nearly coincided with corners of the foundation. The casts were each 0.83 ft. (10 inches) square and set into prepared holes 1.4 to 1.5 ft. below the foundations (Fig. 7b). Very little

wood was found in the casts. Wooden fragments found near the southeastern post lay above the bottom of the cast and may be results of previous disturbances. The intersections of the holes prepared for the posts with the trench prepared for the foundation indicated that the posts were erected after the foundation was laid. As will be discussed, the large posts were integral parts of the Magazine structure.

A thorough search was made at the interior of the Magazine for flooring and additional HBC features. No evidence of a prepared surface was found in the remnant HBC layer. Other than scattered pieces of rubble, the interior was completely vacant (Fig. 5). A large iron doorbolt was found outside the northern foundation near the northeast post cast. Historically, the Magazine door was located in the north wall (Hussey 1957:184), presumably near the center of the wall. Putative evidence of the door sill may be represented by an exceptionally large stone set lengthwise into the northern foundation at the latter's approximate center (Fig. 5).

III - ARTIFACT DESCRIPTIONS

Sales Shop

A total of 36,759 artifact fragments was recovered within the area of the Sales Shop. A quantitative distribution of these fragments by their descriptive category appears as Table 4.

Ceramic Household and Container Fragments

There were 5731 ceramic household and container fragments found, but no complete wares were reconstructed and only one partially complete stoneware ink bottle was found. Following our previous reports, the ceramic material has been divided into 5 major categories, and further divided into a variety of subcategories (Table 4). A discussion of each descriptive subcategory is presented below.

Common Pottery

Of the 81 fragments found, no complete or partially complete common pottery wares were recovered.

Yellow Glazed Redware Fragments

Six fragments of an unidentified red body ware were recovered. The exterior portions of the fragments are unslipped and unglazed while the interior portions appear to have a light yellowish glaze covering a white slip. No other decoration was observed.

Lustreware Fragments

Of the 75 lustreware fragments found, no new decorations were observed. All fragments came from wares with gold lustre applied on a variety of slips and glazes.

Earthenware

Earthenware fragments, which totaled 4544, have been classified into descriptive subcategories based upon fabric color, glaze color and method of decoration (Table 4).

Clear Glazed White Body Fragments

White earthenware fragments totaled 4253 and have been classified according to function (i.e. household articles vs. product containers) and method of decoration (Table 4).

Table 4 - Quantitative distribution of artifacts by descriptive category for the Sales Shop.

Descriptive Category	Sub-total 3	Sub-total 2	Sub-total 1	Total
CERAMIC HOUSEHOLD & CONTAINER FRAGMENTS				5731
Common Pottery Fragments			81	
Yellow glazed redware fragments		6		
Lustreware fragments		75		
Earthenware Fragments			4544	
Clear glazed white body fragments		4253		
Undecorated household fragments	1671			
Transfer printed household fragments	2492			
Transfer printed container fragment	1			
Hand painted household fragments	42			
Molded household fragments	47			
Clear glazed buff body fragments		285		
Snuff bottle fragments	285			
Clear glazed yellow body fragments		6		
Mocha ware fragment	1			
Undecorated fragments	5			
Stoneware Fragments			1086	
Saltglazed container fragments		945		
Ink bottle fragments	36			
Brown "crock" fragments	909			
Brown glazed, red body fragments		99		
Green glazed container fragments		3		
"Read's Ale" bottle fragments	3			
Bluish gray glazed fragments		39		
Chinese ginger jar fragments	32			
Canton household fragments	7			
Vitreous China Household Fragments			5	
Undecorated fragments		4		
Hand painted fragments		1		
Porcelain Household Fragments			15	
Undecorated Fragments		4		
Hand painted, transfer printed frags.		11		
CERAMIC PERSONAL ITEMS				6766
Common Pottery Items			5	
Doorknob fragments		5		
Earthenware Items			6759	
Kaolin tobacco pipe fragments		6757		
Unidentified objects		2		
Vitreous China Item			1	
Marble		1		
Porcelain Item			1	
Button		1		

Table 4 (cont'd.)

Descriptive Category	Sub-total 3	Sub-total 2	Sub-total 1	Total
GLASS ITEMS				15182
Bottle, Tumbler & Stemmed Glassware Frags.			1791	
Bottle fragments		1346		
Tumbler fragments		98		
Stemmed glassware fragments		31		
Unidentified curved glassware fragments		316		
Glass Stopper			1	
Window Glass Fragments			9306	
Mirror Glass Fragments			58	
Glass Beads			3999	
Marble			1	
Unidentified Melted Glass Fragments			26	
METAL ITEMS				8750
Hardware Items			7336	
Square nail fragments		6961		
Hand forged	3466			
Machine cut	2040			
Cast	27			
Unidentified fragments	1428			
Wire nail fragments		107		
Wire tacks		2		
Forged staple		1		
Wire staple		1		
Screws		10		
Rivets		5		
Bolts		2		
Docking bolt with nut		1		
Nuts		9		
Nuts with bolt shank		2		
Countersunk screw plates		8		
Strap hinge		1		
Bolt hinge fragments		4		
Stove pipes (USA)		6		
Metal stock binding strap		1		
Strap fragments		7		
Cable clamp (USA)		1		
Chain links		3		
Mule shoe (USA)		1		
Axe		1		
Axe blade inset		1		
Chisel		1		
Flat file		1		
Triangular file		1		
Trap parts		3		

Table 4 (cont'd.)

Descriptive Category	Sub-total 2	Sub-total 1	Total
Trap chain	1		
Hoe preform	1		
Tool handle insert	1		
Tent-rope guy (USA)	1		
Box car seal (USA)	1		
Chromed pipe bracket (USA)	1		
Wire mesh fragments	12		
Zinc sheathing fragments	30		
Lead ingot	1		
Drawn wire fragments	145		
Woven wire fragment	1		
Household and Personal Items		42	
Buttons	9		
Garter hook	1		
Clothing fastener	1		
Fabric snap	1		
Thimble fragments	10		
Triangular needle	1		
Round needle	1		
Chest lock	1		
Iron kettle fragments	2		
Pocket knife fragments	3		
Lead seal fragment	1		
Jews harp	1		
Keys	4		
Can fragments	5		
Lead wrapper	1		
Weaponry Items		281	
Cartridges (USA)	10		
Percussion caps	2		
Ball and shot	268		
Cannon primer with wire	1		
Unidentified Lead Object		1	
Unidentified Lead Fragments		25	
Unidentified Metal Objects		19	
Unidentified Metal Fragments		1046	
CONSTRUCTION MATERIAL			226
Brick Fragments		142	
Imported brick	123		
Unknown brick	19		
Drainage Tile Fragments		8	
Roofing Tile Fragments		2	
Glazed Tile Fragments		1	
Mortar Fragments		36	

Table 4 (cont'd.)

Descriptive Category	Sub-total 1	Total
Cement Fragments	14	
Window Putty Fragments	13	
Tar Paper Fragments	8	
Glass Insulators	2	
STONE ITEMS		20
Slate Pencil Fragments	8	
Slate Tablet Fragments	2	
Gunflints (English)	5	
Flaked Stone Items	3	
Cryptocrystalline Flake	1	
Carved Stone Object	1	
LEATHER ITEMS		8
Shoe Fragments with Nails	6	
Shoe Heel	1	
Unidentified Leather Fragments	1	
PLASTIC ITEMS		1
Unidentified Object	1	
RUBBER ITEMS		18
Button	1	
Vulcanized Fragments	16	
Unidentified Object	1	
WOODEN ITEMS		13
Post Fragments	3	
Asphalt Coated Wood Fragment	1	
Painted Wooden Fragments	9	
MISCELLANEOUS ITEMS		44
Marking Crayon Fragments	2	
Fabric Fragments	2	
Paint Flakes	35	
Unidentified Fragments	5	
GRAND TOTAL		36759

Undecorated Household Article Fragments. No complete or partially complete wares were found among the 1671 fragments recovered. However, there were 10 fragments which came from a yellow-tinted, clear glazed teabowl, identical to a partially complete teabowl recovered in 1947 by Caywood (#1/194). For comparative purposes, the teabowl by Caywood has been illustrated in this report as Fig. 8b; and this specimen has a brown transfer printed "Copeland & Garrett" garter manufacturing mark (coded CG-TP-1).

Transfer Printed Household Article Fragments. No complete or partially complete wares were found among the 2492 fragments recovered. Unlike our previous reports, we did not tally the number of identified and unidentified patterns because for this report the entire structure was not excavated and we believe a tally for this area to be of limited use for comparative purposes. However, we did tally those fragments of previously unseen patterns, and recorded that information in our comparative ceramic catalog. Four new unidentified patterns were found and have been classified as Varieties #7111-7114 within the ceramic catalog.

Only one new manufacturing mark was observed, and that was a transfer printed "Copeland and Garrett" crown-and-wreath mark (coded CG-TP-4) with the words "Continental Views" and a registration mark dated October 21, 1845. In our previous reports this pattern has been referred to as "Continental".

Transfer Printed Product Container Fragment. One rim fragment of a "Prince Albert Shaving Cream" lid was found.

Hand Painted Household Article Fragments. Of the 42 fragments recovered, no complete or partially complete wares were reconstructed. No manufacturing marks were observed, and no patterns were recognized. Decoration on these fragments were either monochrome or polychrome, with a few of the monochrome fragments belonging to polychrome wares. Most, if not all, fragments had underglaze decoration, and the most common types of decoration were floral and banded.

Molded Household Article Fragments. Of the 47 fragments found, no complete or partially complete wares were reconstructed, and no manufacturing marks were observed. No patterns were recognized.

Clear Glazed Buff Body Container Fragments

All ceramic fragments with a clear glazed buff body belonged to snuff bottles bearing the name "R. Curry & Co."

Clear Glazed Yellow Body Household Article Fragments

Of the 6 fragments found, only one could be definitely classified as having a mocha decoration. This decoration consisted of a blue fern-like motif on a white glaze covering the yellow body. All fragments had a clear glaze covering both body and/or decoration.

Stoneware

Saltglazed Product Container Fragments

Ink Bottle Fragments. Thirty-six fragments of ink bottles were recovered, and are characterized by a black stained, grayish fabric with an unglazed interior and a fine brown saltglazed exterior. One partially complete ink bottle (FOVA 19373) was found with an impressed "Blacking Bottle, 9, J. R. D." (Fig. 8c).

Brown "Crock" Fragments. Nine hundred and nine fragments of large brown saltglazed "crocks" were recovered, but no complete or partially complete vessels could be reconstructed. The exterior surfaces of these fragments varied in color from red to brown and interior surfaces varied from unglazed to slipped to glazed with colors varying from gray to light yellowish brown. Many of the fragments came from vessels with an estimated capacity of 2-4 U.S. gallons.

Brown Glazed, Red Body Fragments

Ninety-nine fragments of a red body ware with a brown interior and exterior glaze were recovered and may represent fragments of either product containers or teapots.

Green Glazed Product Container Fragments

"Read's India Pale Ale" Bottle Fragments. Only 3 "Read's Ale" bottle fragments were recovered. The green exterior and brown interior glaze of this bottle type has yet to be identified.

Bluish Gray Glazed Fragments

The only stoneware articles found at Fort Vancouver with a bluish gray body and glaze are the Chinese ginger jars and Canton plates. These items are referenced by various authors as "Chinese porcelain," but on the basis of fabric color, we have referred to them as stoneware.

Chinese Ginger Jar Fragments. Thirty-two fragments of Chinese ginger jars were recovered, but no complete or partially complete jars could be reconstructed. Complete specimens were found by Caywood, and measured 7 inches in height (with lid) and 6 1/2 inches in diameter. Decorations on the jars consist of an overglaze, blue hand painted fishing scene.

Canton Plate Fragments. Seven fragments of Canton plates were recovered, but no complete or partially complete plates could be reconstructed. Complete 8-sided plates found by Caywood measure 8 1/2 inches in diameter, and are decorated with an overglaze, blue hand painted village scene.

Vitreous China

Of the 5 vitreous china fragments found, no complete or partially complete wares were recovered. The decorated fragment is too small to be accurately described.

Porcelain

Of the 15 porcelain fragments found, no complete or partially complete wares were recovered.

Hand Painted, Transfer Printed Fragments

Eleven fragments were found with a grayish blue transfer printed floral underglaze decoration. Hand painted, pastel, overglaze paints have been used to color in the outlined transfer printed design.

Ceramic Personal Items

Common Pottery

Doorknob Fragments

Five fragments of an "agate ware" doorknob were recovered, but we could not reconstruct its original shape. The fabric of the doorknob consists of a mixture of light and dark clays, and after shaping, the exterior was covered with a transparent brown glaze.

Earthenware

Kaolin Tobacco Pipe Fragments

Kaolin pipe fragments totaled 6757 specimens, but no complete or

partially complete pipes could be reconstructed.

Bowls. Marked bowl fragments included 6 varieties of impressed "Ford" marks, and 2 unidentified impressed marks. Four of the six "Ford" marks were identical to varieties found in the area of the Chief Factor's House (Hoffman and Ross 1973:Fig. 13a, c, d-e). One variety (Fig. 8f) with the words "Ford, Mile End, London" is identical to a variety found in the Bakery-Wash House area (Hoffman and Ross 1972:Fig. 14d). The sixth "Ford" variety (Fig. 8e) has the word "Prince Albert" on the bowl with "J. & T. Ford" on the stem (see discussion below).

The unidentified, marked bowl fragments had impressed markings which could not be distinguished.

Fifteen fragments of fluted bowls and 12 fragments of floral decorated bowls were found, but no partially complete specimens could be reconstructed.

Stems. Fourteen fragments of "J. & T. Ford" latice decorated stems were found (Fig. 8e), and from matching specimens in the FOVA Museum, it has been possible to associate these stems with "Prince Albert" bowls.

Two floral decorated stems were found which are identical to the example depicted by Caywood in his final report (Caywood 1955:Fig. 16).

One fragment of a stem was found with the raised letters "...rnaay." Presumably, this represents an example of the "A. O. ? S. Sparnaay, in Gouda Holland" pipestem found in the area of the Chief Factor's House (Hoffman and Ross 1973:Fig. 13i).

One final stem fragment was found with a raised letter "I", but it has yet to be identified.

Three red glazed stem tips were recovered, as well as 4 stem fragments which had been ground down and reused. One stem fragment was found with an iron sleeve, and may represent a means (very uncommon at best) for repairing broken pipestems.

Spurs. Thirty-three spurs were found with the raised letters "I/F", one spur with "M/G", and one with "*/*".

Unidentified Object

Two fragments of an unidentified object (Fig. 8d) were found with a clear slip glaze on one side. The object appears to be incomplete,

Fig. 8 - Artifacts from the Sales Shop (SS) and Powder Magazine (PM).

a - Redware dish reconstruction (PM)

b - Earthenware teacup (SS; Caywood #1/194)

c - Stoneware "J. B. D., 9, Blacking Bottle" base (SS; FOVA 19373)

d - Unidentified earthenware object (SS; FOVA 19239)

e - "J. & T. Ford, Prince Albert" pipe reconstruction (SS)

f - "Ford, Mile End, London" pipe bowl mark (SS)

g - Vitreous china marble (SS; FOVA 19642)

h - Porcelain button (SS; FOVA 19425)

i - Metal button, Type IM (SS; FOVA 19391)

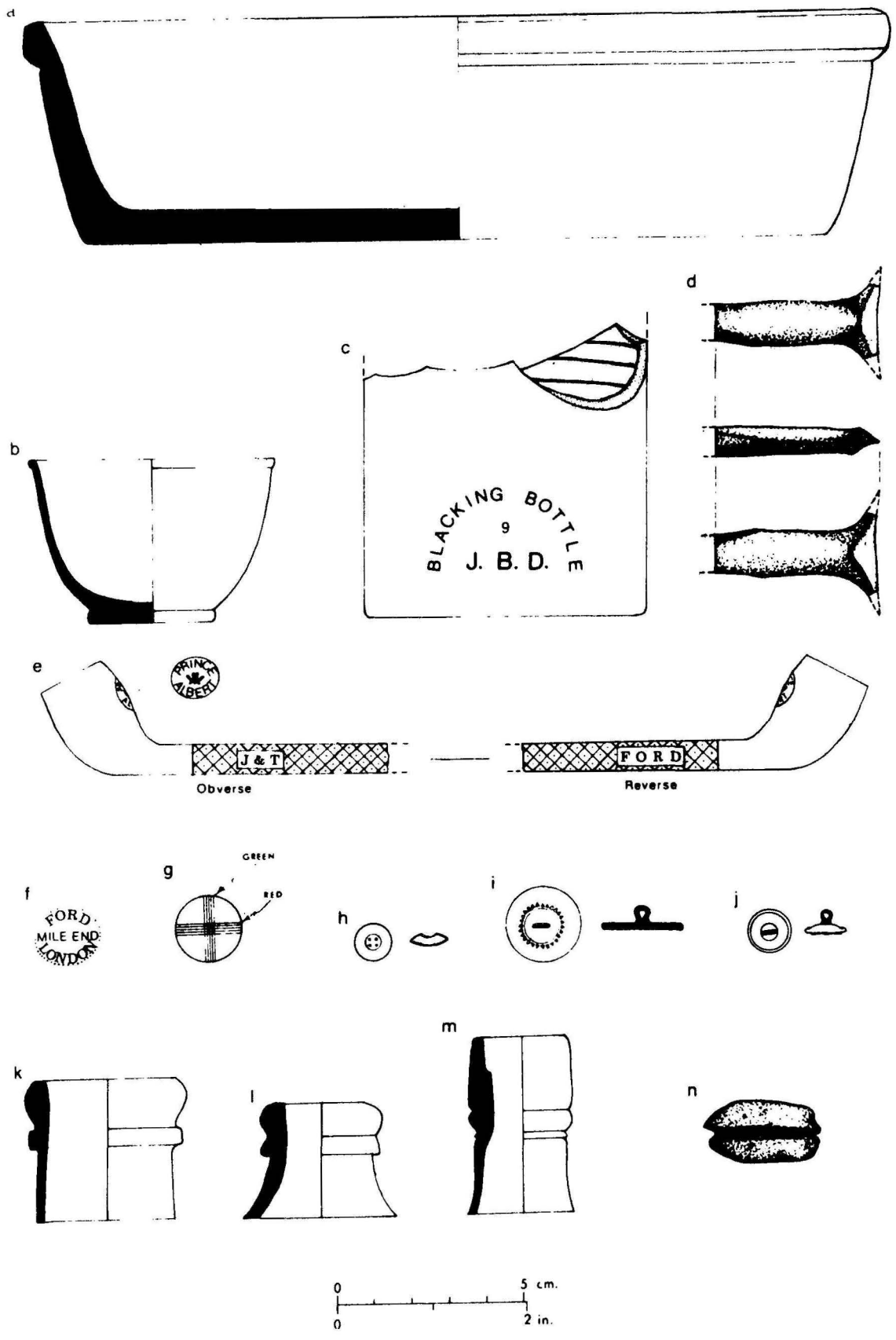
j - Metal button, Type IIJ (SS; FOVA 19391)

k - Bottle rim type 20 (SS)

l - Bottle rim type 21 (SS)

m - Bottle rim type 22 (SS)

n - Carved stone object (SS; FOVA 19256)


a
b
c
BLACKING BOTTLE
9
J. B. D.
d
e
PRINCE ALBERT
J & T
FORD
Obverse
Reverse
f
FORD
MILE END
LONDON
g
GREEN
RED
h
i
j
k
l
m
n
0
5 cm.
0
2 in.

and may represent a partial "stilt" for separating ceramics being fired in a kiln.

Vitreous China Item

Marble

One marble was found with 5 red and 5 green stripes (Fig. 8g).

Porcelain Item

Button

One 4-hole button (Fig. 8h) was found which may represent what has been described as a "Prosser Button." Roderick Sprague, in a paper on molded ceramic beads delivered at the 26th annual Northwest Anthropological Conference (Sprague 1973), described a button-making technique patented by Richard Prosser in 1841 which creates molded buttons with a "pebbled" undersurface. This pebbled surface was noted for our 4-hole button, and also appears on all other ceramic buttons thusfar found at Fort Vancouver.

Glass Items

Bottle Fragments

Of the 1346 identified bottle fragments, no complete or partially complete bottles could be reconstructed.

The only identified bottle was a single fragment from an "Udolpho Wolfe's, Schiedam, Aromatic Schnapps" bottle (FOVA 19317).

Bottle Rims

Fourteen bottle rims were found, and they have been classified (see Table 5) into 4 descriptive types following the format established in our fourth report (Hoffman and Ross 1973:Table 15).

Bottle Bases

Six bottle bases were found, and they have been classified (see Table 6) into 4 descriptive types following the format established in our fourth report (Hoffman and Ross 1973:Table 16).

Table 5 - Bottle rim types as defined by manufacturing attributes and form.

Attributes	Rim Types 15	20	21	22
Rim Manufacture				
Rim Shaped From Neck Glass				
Nonoverlapping			X	
Rim Shaped From Additional Glass				
Outside Application	X	X		
Wrapped	X	X		
Rim Molded				X
Interior Ground			X	
Rim Form				
Double Lipped				
Straight		L		
Flared	B		L	U
Convex		U	U	L
Frequency	10	2	1	1

Table 6 - Bottle base types as defined by manufacturing attributes, form and color.

Attributes	Base Types 1	4	9	29
Manufacturing Type				
Freeform	X	X		
1-piece Mold			X	
3-piece Mold				X
Pontil Type				
Bare Iron	X		X	
Blowpipe		X		
Absent				X
Bottle Shape				
Round	X	X	X	
Square				X
Basal Cross section				
Conical ("Push-up")	X			
Concave		X	X	
Flat				X
Circular Indent				X
Color (Translucent)				
Dark Olive (opaque)	X			
Aqua		X		
Blue			X	
Colorless				X
Frequency	3	1	1	1

Tumbler Fragments

Freeblown Tumblers

Of the 93 tumbler fragments found, only 5 were identified. There were 4 fragments of cut glass tumblers (Variety #2002) and one fragment of a plain tumbler (Variety #2001).

Stemmed Glassware Fragments

Of the 31 stemmed glass fragments found, no complete or partially complete glasses could be reconstructed and no manufacturing types could be identified. Eighteen of the 31 fragments belonged to a transparent green glass, but its shape could not be distinguished.

Window Glass Fragments

There were 9306 fragments of window glass recovered. Glass thickness varied from 0.8-3.9 mm with a mean of 1.59 mm and a standard deviation of .36 mm (Fig. 9). From observations of individual units, at least 2 thickness populations were present. These populations center about the following thicknesses: 1.2 mm and 1.8 mm.

Mirror Glass Fragments

Fifty-eight fragments of mirror glass were recovered, and they varied in thickness from 0.9-2.0 mm (Fig. 10).

Glass Beads

Of the 3999 glass beads recovered, all have been classified on the basis of manufacturing type, color and reflection. These classified beads are listed, together with the identification numbers of Kenneth and Martha Kidd (1970) in Table 7.

Metal Items

Hardware Items

Square Nails

Of the 6961 square nail fragments found, there were 3466 hand forged, 2040 machine cut and 27 cast nail fragments. All complete specimens were measured, and the distribution of such measurements for hand forged and machine cut nails appears in Fig. 11.

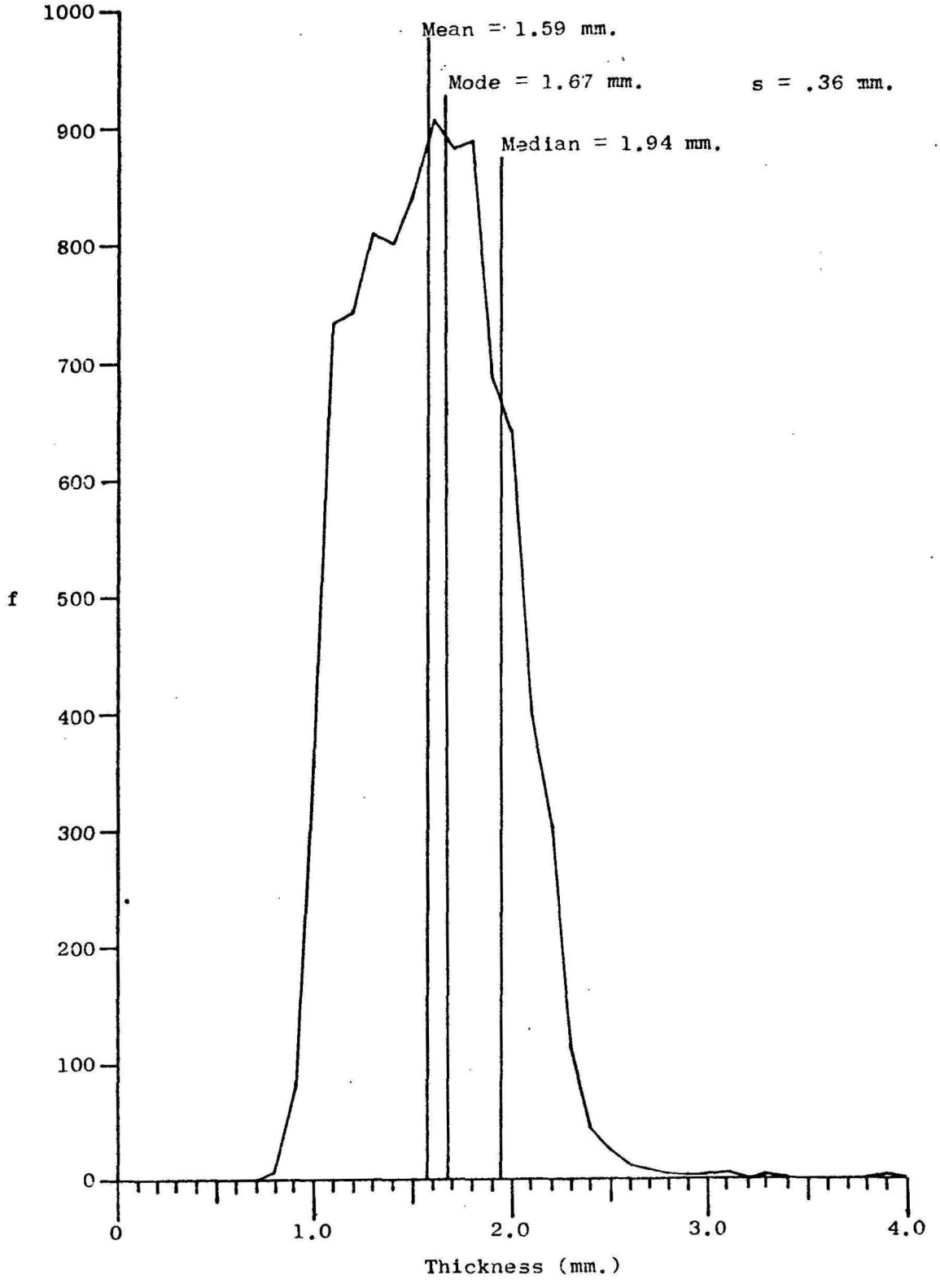


Fig. 9 --Frequency of Window Glass Thickness for the Sales Shop area (N = 9306).

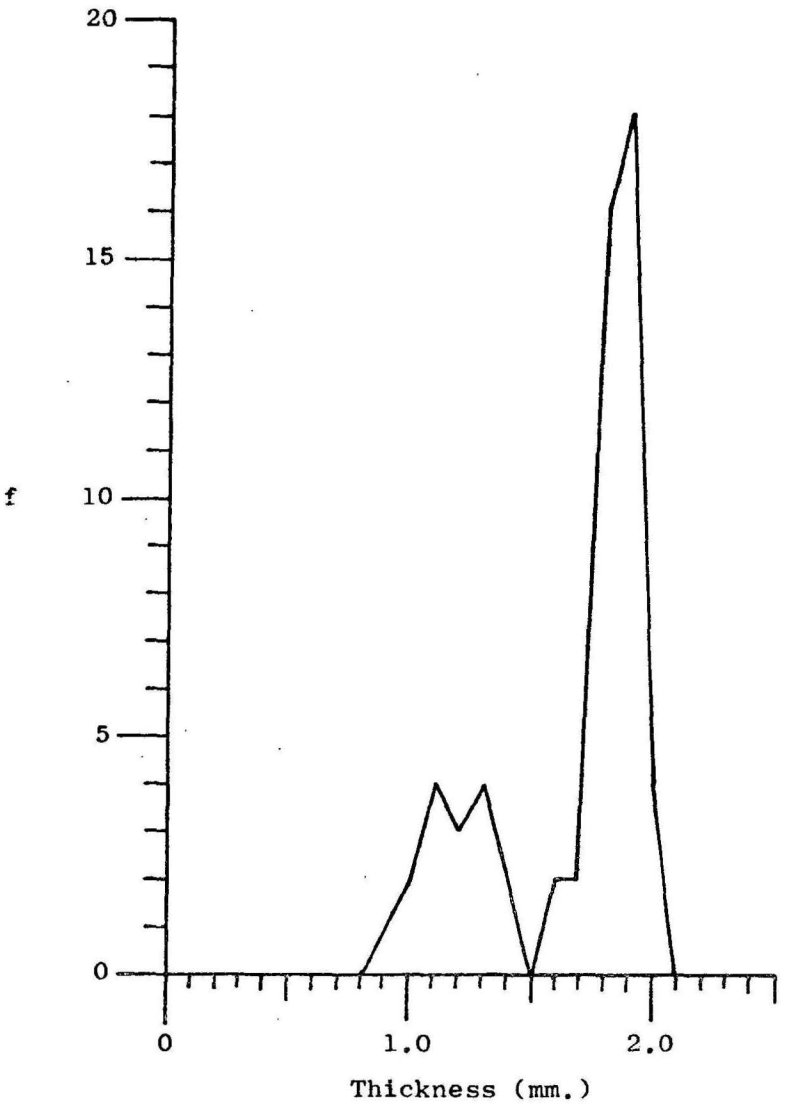


Fig. 10 --Frequency of Mirror Glass ("Looking Glass") Thickness for the Sales Shop area (N = 58).

Table 7 - Comparison of beads with Kidds' identification numbers.

Kidds' Identification Number	Color		Reflection	Total
	Primary	Secondary		
Ia	5 B 5/8		Opaque	1
If	Black		Opaque	1
	7.5 G 4/8		Translucent	1
	5 BG 4/8		"	1
	7.5 PB 2/10		"	1
IIa	White		Opaque	1429
	Black		"	4
	7.5 R 3/6		"	3
	10 GY 5/6		"	23
	2.5 B 4/6		"	2
	10 B 6/4		"	1
	10 B 5/8		"	4
	10 B 3/6		"	1
	2.5-5 PB 3-4/4-8		"	69
	7.5 RP 5-6/8-10		"	2
	White		Translucent	1
	7.5 R 3/12		"	1
	2.5 G 3-4/6-8		"	19
	5 G 3/4		"	75
	10G-5BG 3-4/6-8		"	2
	10 BG 5/6		"	2
	10 BG 4-5/4		"	5
	2.5 B 4/4		"	59
	2.5 B 3/6		"	21
	2.5-5 B 4-5/8		"	18
	5-10 B 3-4/3-6		"	971
	10 B 4/10		"	35
	5 PB 2/6		"	18
	7.5 PB max		"	14
	7.5 PB 2/8		"	11
IIIf	7.5 B 7/4	7.5 B 8/4	Opaque	8
	5 PB 4/8	5 PB 6/8	"	1
	7.5 PB 4/10	7.5 PB 5/10	"	2
	7.5 PB 3/10	7.5 PB 5/10	"	1
	5 PB 3/6	5 PB 6/6	Translucent	1
	7.5 PB max	7.5 PB 7/6	"	1
	7.5 PB 4/10	7.5 PB 7/6	"	5
IVa	10 Y 8/1	10 Y 9/1	Opaque	839
	10 Y 8.5/1	10 YR 3/2	"	2
	7.5 R 4/10	Clear	Opaque&Clear	1
	6.25 R 3/12	White	Trans&Opaque	8

Table 7 (cont'd.)

Kidds' Identification Number	Color		Reflection	Total
	Primary	Secondary		
W1a	White		Opaque	1
	10 BG 4/6		"	3
	Clear		Clear	3
W1b	White		Opaque	1
	7.5-10 B 4-5/6-8		"	9
	5 R 2/8		Translucent	1
	2.5-5 B 3-4/4-8		"	39
	5 B 5/6		"	242
	7.5 B 4/6		"	1
	2.5 PB 3/10		"	2
W1c	White		Opaque	1
	5 R 2/8		Translucent	1
W111	5 G 2/6	White	Trans&Opaque	1
W111d	7.5 R 2/6	White	Trans&Opaque	1
Mandrel Molded	Black		Opaque	5
	2.5 B 8/4		"	11
	5 PB 6/8		"	2
	5 PB 5/6		"	1
	Clear		Clear	3
	7.5 G 4/8		Translucent	2
	7.5 PB 4/10		"	3
	7.5 PB 3/10		"	1
Molded	White		Opaque	1
GRAND TOTAL				3999

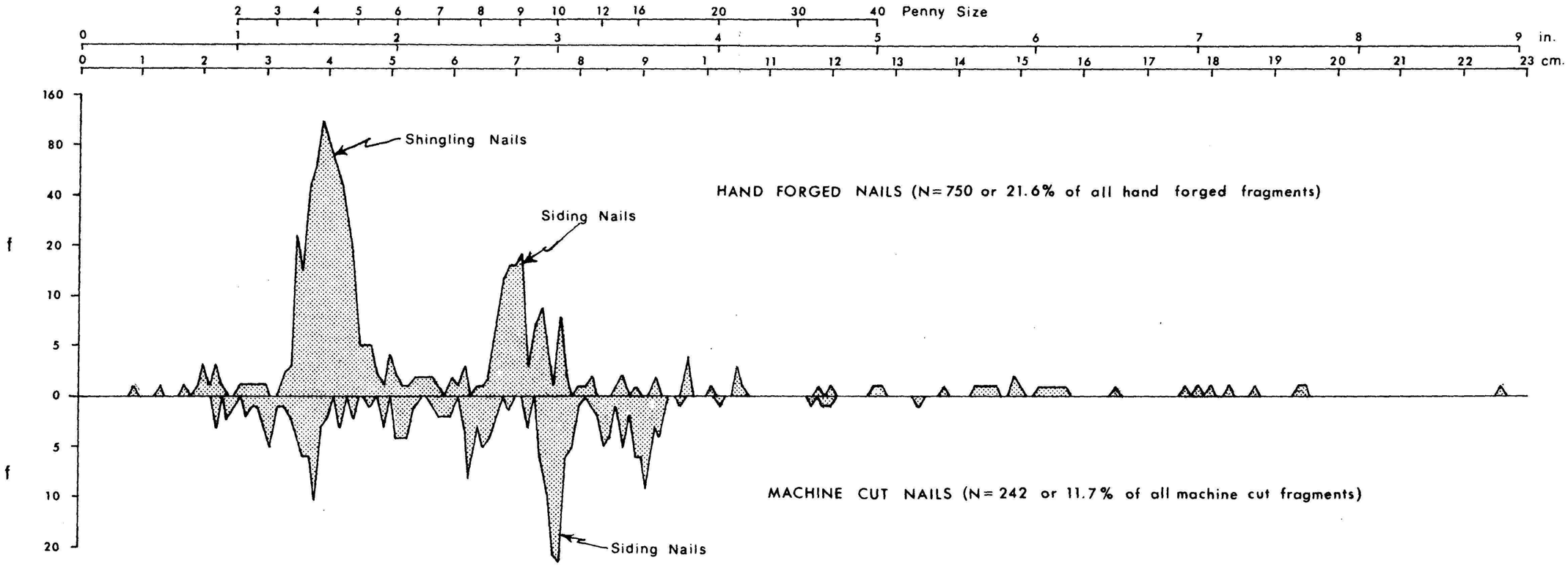


Fig. 11 – Frequency distribution of all complete Hand Forged and Machine Cut Nails(Sales Shop).

Hand Forged Tacks, Sprigs, Brads, Nails and Spikes. Of the 3466 hand forged fragments found, 750 specimens were complete and 30 varieties were identified (Table 8 and Figs. 12, 13a-c). Varieties #1001-1032 have been illustrated previously (Hoffman and Ross 1973: Figs. 24-26) and Varieties #1034, #1038 and #1048-1057 are illustrated in Figs. 12d-l and 13a-c.

Of the hand forged nails, 78% were Variety #1002 nails consisting primarily of 2 populations (Figs. 11, 12a-c). Of the measurable specimens of #1002 nails, 81.1% were 4d nails, 13.6% were 9d nails and the remaining 5.3% were sizes varying from 2d - 7 1/2". The 4d nails (Fig. 11) probably represent "shingling" nails whereas the 9d nails (Figs. 11, 12b-c) probably represent "siding" nails. Hussey (1972:186-187) notes that the Sales Shop was shingled during the summer of 1845, and this date can also be applied to the use of the above shingling nails. Many of the shingling nails exhibit differential shank rusting, and measurements of the length of this rusting indicate that shingle thickness approaches 3/4 inches.

As for dating when the siding was put on the Sales Shop, Hussey (Ibid.:201) states that no evidence has been uncovered suggesting when this task was accomplished, but presumably it occurred sometime between 1844-1860. Siding nails are generally 2 1/2 - 3 times as long as the siding is thick (Graham and Emery n.d.:51; Rees 1819:nails), and the siding on the Sales Shop was probably one inch thick.

Machine Cut Tacks, Sprigs, Brads and Nails. Of the 2040 machine cut fragments found, 242 specimens were complete and 11 varieties were identified (Table 9 and Fig. 13). Varieties #2001-2010 have been illustrated previously (Hoffman and Ross 1973:Fig. 27), and Varieties #2017-2020 are illustrated in Fig. 13f-i.

The most common varieties were #2001, #2002 and #2004. Variety #2001 consisted primarily of 2 sizes (10d and 16d), Variety #2002 consisted of 6 sizes (4d, 6d, 8d, 10d, 12d and 16d), and Variety #2004 consisted primarily of 4d nails. The 4d nails of Varieties #2002 and #2004 may have been used as shingling nails, but their frequency is significantly lower than Variety #1002 shingling nails. Of the measurable specimens, there were 541 #1002, 24 #2002 and 29 #2004 shingling nails.

The 10d specimens of Varieties #2001 and #2002 may also have functioned as siding nails, and their combined frequencies nearly equaled the frequency of 10d #1002 nails. Of the measurable specimens, there were 91 #1002, 20 #2001 and 46 #2002 siding nails.

Table 8 - Varieties of hand forged tacks, sprigs, brads, nails and spikes.

Variety #	Size Range	Figure	Measurable Specimens	Unmeasurable Fragments	Total
1001	4d-12d	-	19	49	68
1002	2d-7 1/2"	12a-c	667	2044	2711
1004	-	-		8	8
1005	1/2"-2d	-	5	8	13
1007	-	-		1	1
1009	4"-7 1/2"	-	8	13	21
1010	7"	-	1		1
1013	10d	-	1		1
1014	5"-7"	-	2		2
1016	6"-7 1/2"	-	2		2
1017	-	-		1	1
1018	6"	-	1		1
1022	5d-9d	-	2	2	4
1023	6d	-	1	2	3
1025	6d-8d	-	2		2
1028	7d	-	1	2	3
1031	9"	-	1		1
1032	4d-7d	-	3	5	8
1034	6"	12d	6		6
1038	6d	12e	4	2	6
1048	2d-6d	12f	4		4
1049	4d	12g	2		2
1050	6"	12h	1		1
1051	1d-3d	12i	8		8
1052	5d	12j	1		1
1053	6d	12k	3		3
1054	5 1/2"	12l	1		1
1055	10d	13a	2		2
1056	6d	13b	1		1
1057	1/4"	13c	1		1
Unidentified Fragments				579	579
GRAND TOTAL			750	2716	3466

Fig. 12 - Hand forged nails.

a - Variety #1002b -- "Shingling Nail" (FOVA 19145) -- L=4.3 cm.

b - Variety #1002c, Variation #1 -- "Siding Nail" (FOVA 19246) -- L=6.7 cm.

c - Variety #1002c, Variation #2 -- "Siding Nail" (FOVA 19145) -- L=7.2 cm.

d - Variety #1034 -- "Railroad Spike - USA" (FOVA 9042) -- L=11.8 cm.

e - Variety #1038 (FOVA 4733) -- L=4.3 cm.

f - Variety #1048 (FOVA 19145) -- L=5.2 cm.

g - Variety #1049 (FOVA 19683) -- L=3.6 cm.

h - Variety #1050 (FOVA 19875) -- L=14.5 cm.

i - Variety #1051 (FOVA 20060) -- L=2.1 cm.

j - Variety #1052 (FOVA 19279) -- L=4.2 cm.

k - Variety #1053 (FOVA 19121) -- L=4.7 cm.

l - Variety #1054 (FOVA 19321) -- L=13.8 cm.

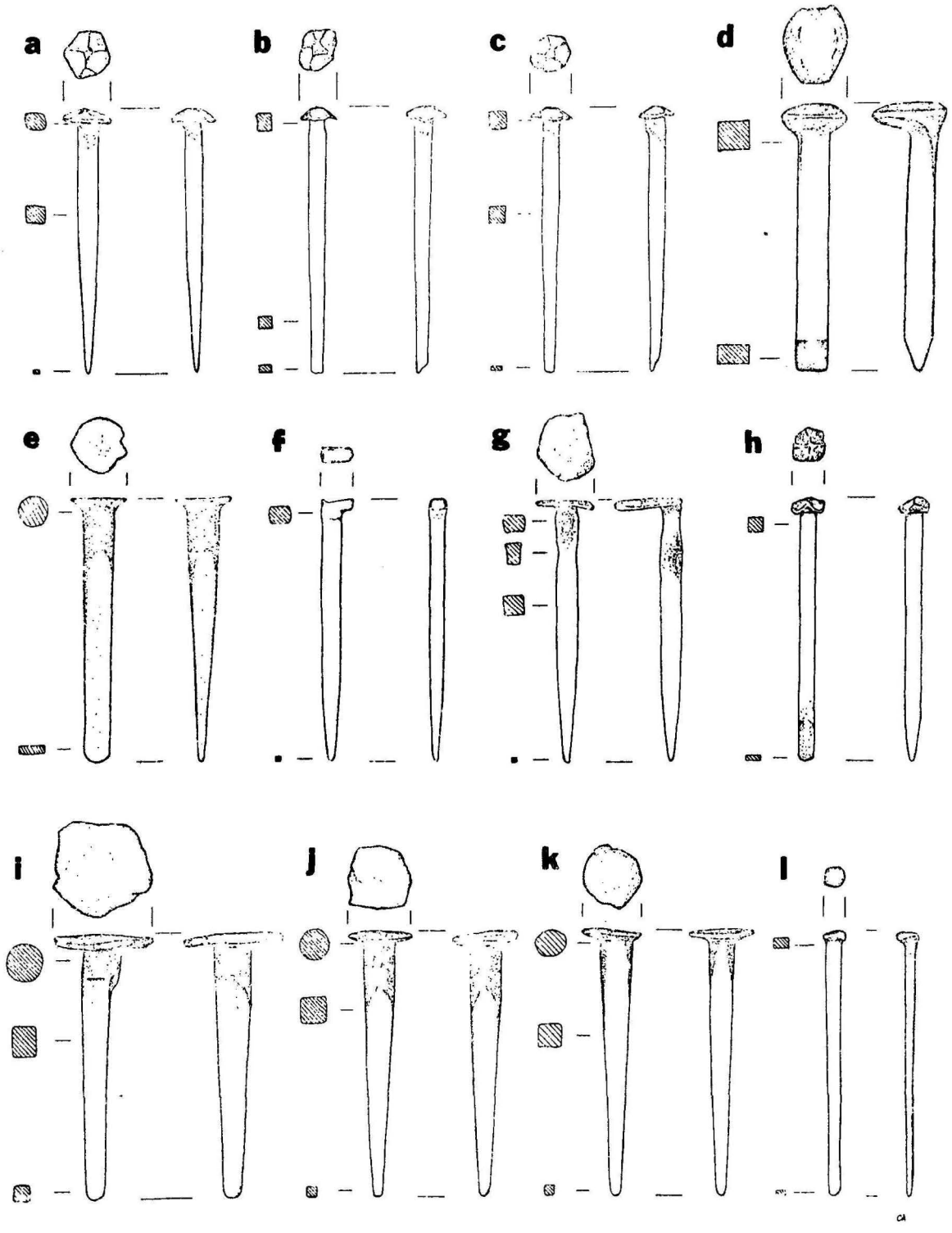

a
b
c
d
e
f
g
h
i
j
k
l

Table 9 - Varieties of machine cut tacks, sprigs, brads and nails.

Variety #	Size Range	Figure	Measurable Specimens	Unmeasurable Fragments	Total
2001	4d-40d	-	52	368	420
2002	4d-20d	-	108	769	877
2003	10d-18d	-	5	2	7
2004	2d-9d	-	41	156	197
2005	4d-9d	-	21	78	99
2009	2d-5d	-	3	1	4
2010	1d	-	1		1
2017	16d	13f	1		1
2018	4d	13g	1		1
2019	30d-36d	13h	2	1	3
2020	2d-3d	13i	7	2	9
Unclassified Fragments				421	421
GRAND TOTAL			242	1798	2040

Table 10 - Varieties of cast tacks, sprigs and nails.

Variety #	Size Range	Figure	Measurable Specimens	Unmeasurable Fragments	Total
4001	2d	-	1		1
4002	2d-3d	-	12	2	14
4003	1d	-	3		3
4004	8d	-	1		1
4007	2d-3d	-	6		6
4008	4d	13j	1		1
Unclassified Fragment				1	1
GRAND TOTAL			24	3	27

Fig. 13 - Hand forged, machine cut and cast nails.

a - Variety #1055 (FOVA 19199) -- L=7.6 cm.

b - Variety #1056 (FOVA 19875) -- L=5.3 cm.

c - Variety #1057 (FOVA 19250) -- L=0.8 cm.

d - Variety #1058 (FOVA 20014) -- L=12.5 cm.

e - Variety #2004, Variant (FOVA 20043) -- L=3.7 cm.

f - Variety #2017 (FOVA 19200) -- L=8.7 cm.

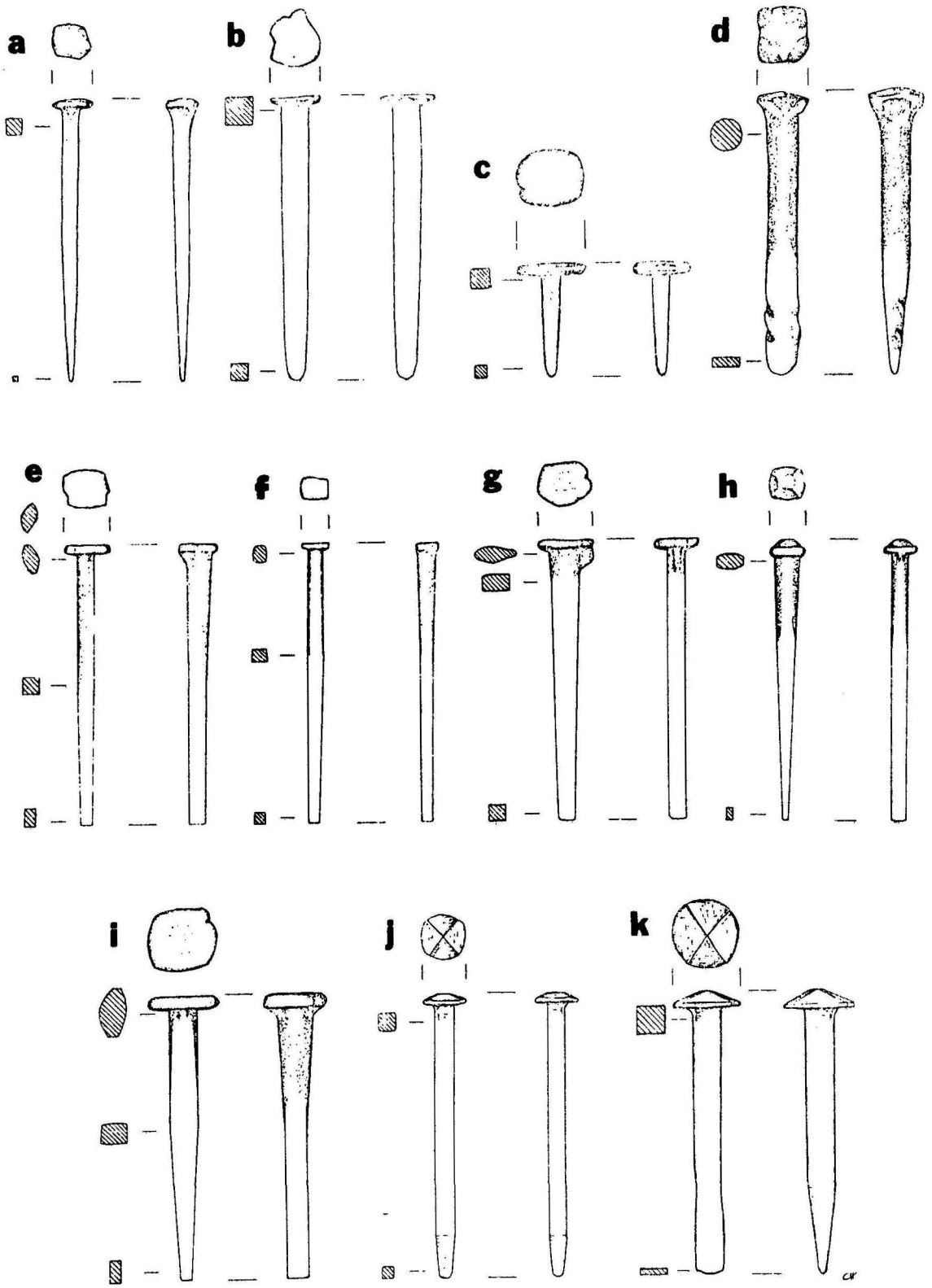
g - Variety #2018 (FOVA 19247) -- L=3.8 cm.

h - Variety #2019 (FOVA 19383) -- L=11.8 cm.

i - Variety #2020 (FOVA 19973) -- L=3.0 cm.

j - Variety #4008 (FOVA 19147) -- L=3.9 cm.

k - Variety #4009 (FOVA 20016) -- L=2.0 cm.


a
b
c
d
e
f
g
h
i
j
k

Cast Tacks, Sprigs and Nails. Of the 27 cast fragments found, 24 specimens were complete and 6 varieties were identified (Table 10 and Fig. 13). Varieties #4001-4007 have been illustrated previously (Hoffman and Ross 1973:Fig. 28), and Variety #4008 is illustrated in Fig. 13j.

Hinges

Of the 5 hinge fragments found, only 2 styles could be distinguished, a 4-hole strap hinge (Fig. 14a) and an 8-hole butt hinge (Fig. 14b).

Household and Personal Items

Buttons

Of the 9 button fragments found, 8 were complete buttons (2 fragments were from a single type IM button). Four of the buttons were single piece loop-shank buttons, one was a composite loop-shank button, and three were single piece 4-hole buttons (Table 11 and Fig. 8i-j). Button types IF, IH, IVD and IVH have been previously illustrated (Hoffman and Ross 1973:Fig. 33).

Table 11 - Types of buttons.

Type	Dia. (mm)	Frequency	Figure
I. Single Piece Loop-shank			
F	20.6	1	-
H (2 sizes)	13.7	1	-
	20.2	1	-
M "Kendrick & Co., Superfine"	20.0	1	8i
II. Composite Loop-shank			
J "Extra Rich"	12.8	1	8j
IV. Single Piece 4-hole			
D "G. E. & R. A. S., Patent"	12.9	2	-
H Iron	17.1	1	-

Keys

Of the 4 key fragments found, 3 were ward keys and one was an unidentified fragment. One key (FOVA 19348) is identical to another key found in the area of the Chief Factor's House (Hoffman and Ross 1973:Fig. 34b).

Chest Lock

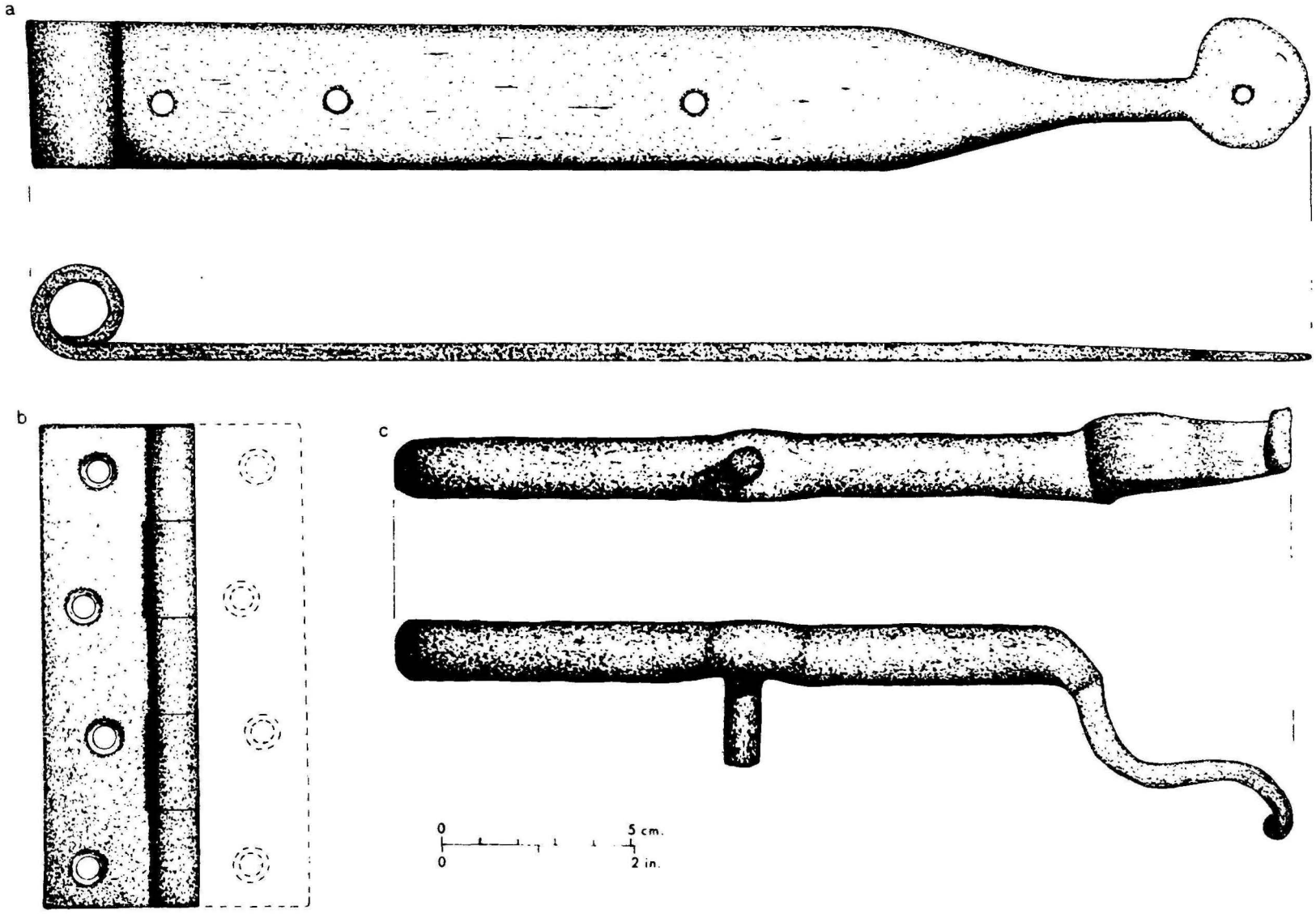
One "Secure Lever Double Link Chest Lock" (Schroeder 1970:373) was

Fig. 14 - Hardware from the Sales Shop (SS) and Powder Magazine (PM).

a - Shutter (?) strap hinge (SS; FOVA 18533)

b - Door butt hinge (SS; FOVA 19209)

c - Sliding door bolt (PM; FOVA 20023)


a
b
c
0
5 cm.
0
2 in.

found, but due to its fragmentary nature, a graphic reconstruction could not be made.

Weaponry Items

Cartridges

Of the 10 cartridges found, 4 were 30-06 Springfield cartridges, 3 were 45-70 Government cartridges, one was a 30-Krag rimmed cartridge, one was a 45 S&W pistol cartridge, and one was a 45 A.C.P. pistol cartridge.

Ball and Shot

Of the 268 specimens of ball and shot found, 76.5% were lead shot, 11.2% lead buckshot, 8.2% lead shot and 4.1% iron cannon shot.

Measurable examples of lead shot totaled 205 specimens which clustered about 3 populations (Fig. 15). There were 30 measurable buckshot specimens and all came from the same population (Fig. 15). Of the 22 measurable specimens of lead shot, there were 2 populations represented (Fig. 15). Of the 11 iron shot found, 3 sizes were present: 1/8 lb. (N=7), 1/4 lb. (N=3) and 1/2 lb. (N=1).

Construction Material

Brick Fragments

Of the 142 brick fragments recovered, 123 were fragments of imported bricks and 19 were fragments of unidentified varieties. Following the classification used for brick from the Chief Factor's House (Hoffman and Ross 1973:Table 23), the identified varieties of imported brick included #1001 (N=96) and #1002 (N=27). No fragments of local brick were recovered.

Stone Items

Slate Pencil Fragments

Two types of slate pencils were found. The first type, most commonly found throughout the Fort, is a multisided pencil while the second type has a circular cross section with a relatively smooth, longitudinally grooved surface. No complete specimens of either were found.

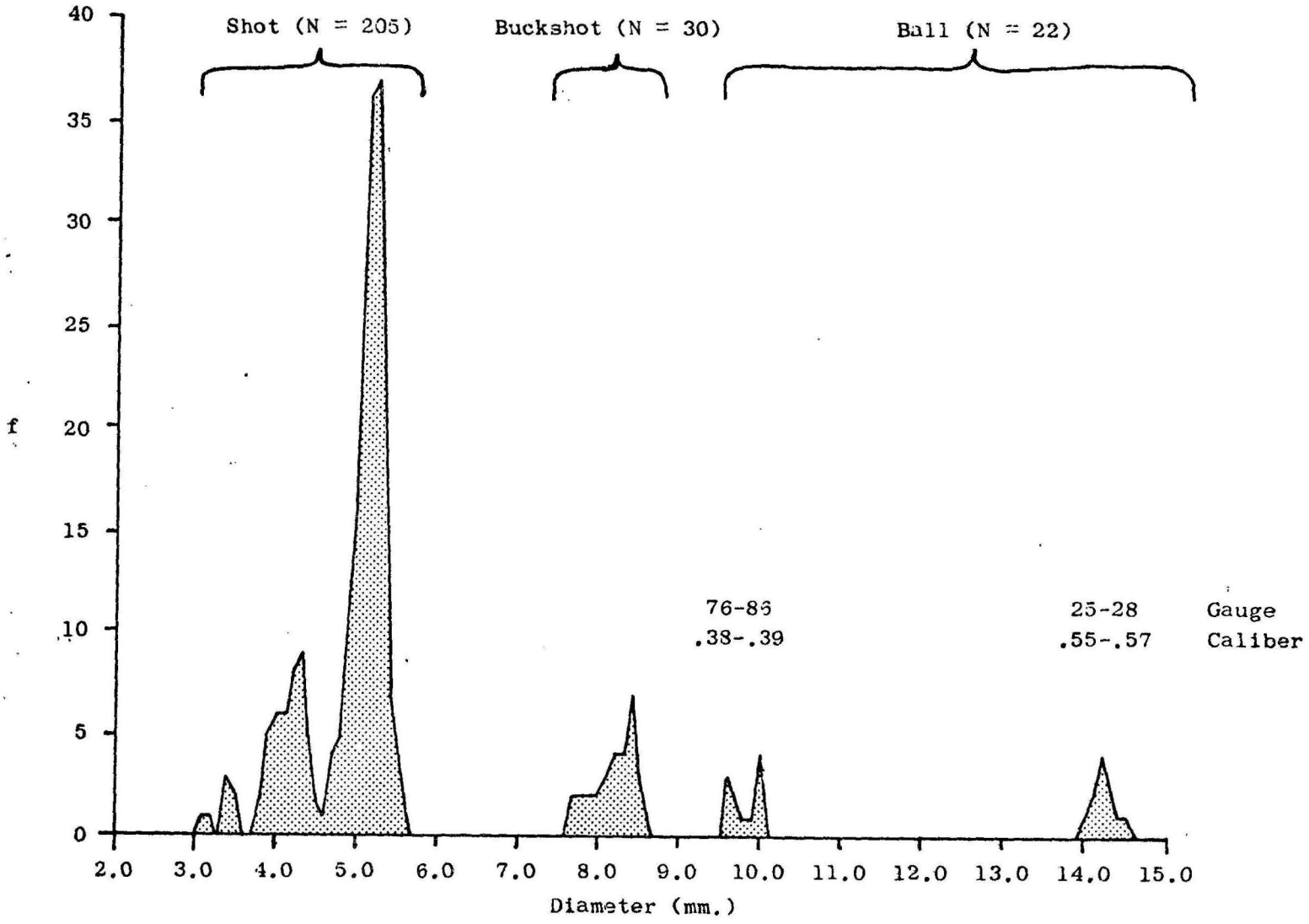


Fig. 15 -Lead Shot, Buckshot and Ball from the Sales Shop (N = 257)

Carved Stone Object

One unidentified carved stone object was found and is illustrated in Fig. 8n.

Leather Items

Shoe Fragments with Nails

Six shoe fragments were recovered, and a reconstruction of the heel is shown in Fig. 16a. Four varieties of shoe nails were found and have been identified as machine cut nail Varieties #2021-2024 (Fig. 16b-e).

Rubber Items

Button

One 4-hole, hard rubber button was found with the following impressed letters on its reverse: "I. R. C. CO, Goodyear, 1851". The initials "I. R. C. CO" represent the India Rubber Comb Company of New York which produced combs and buttons in the 1880's and 1890's (Albert and Kent 1949:405). The "Goodyear, 1851" represents Goodyear's hard rubber button patent of 1851 (Ibid.:68).

Powder Magazine

A total of 6872 artifacts was recovered within the area of the Powder Magazine. A quantitative distribution of these artifacts by their descriptive category appears as Table 12.

Ceramic Ware and Container Fragments

Common Pottery

Redware Dish

The 39 redware fragments found belong to a single unglazed redware dish, and a reconstructed version of this dish is shown in Fig. 8a.

Fig. 16 - Heel construction and machine cut shoe nail varieties for the shoe fragment from the Sales Shop.

a - Reconstructed heel

b - Variety #2021 (FOVA 19286) -- L=2.2 cm.

c - Variety #2022 (FOVA 19286) -- L=1.5 cm.

d - Variety #2023 (FOVA 19286) -- L=1.5 cm.

e - Variety #2024 (FOVA 19286) -- L=0.7 cm.

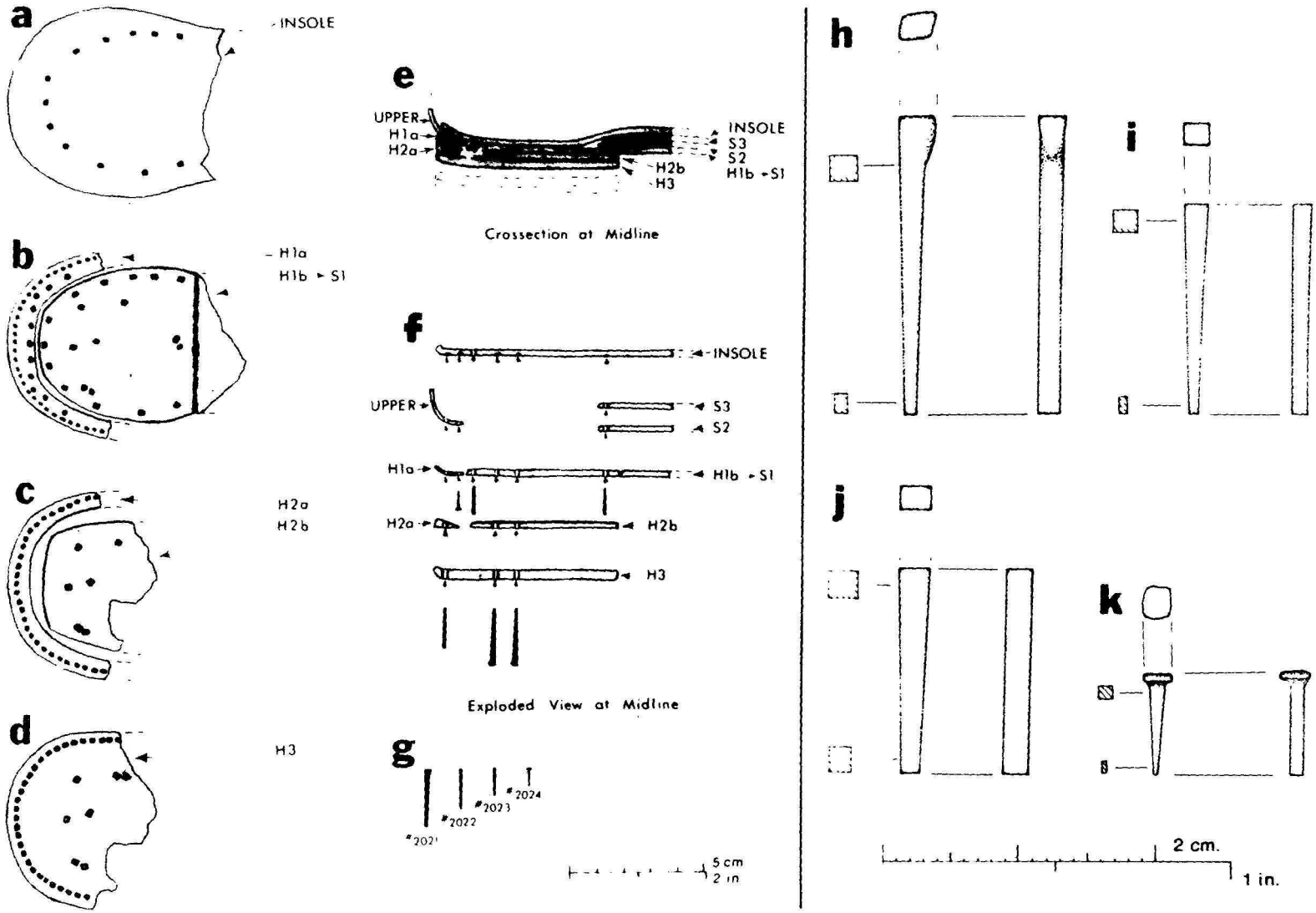

a
INSOLE
b
H1a
H1b + S1
c
H2a
H2b
d
H3
e
UPPER
H1a
H2a
INSOLE
S3
S2
H1b + S1
H2b
H3
Crossection at Midline
f
INSOLE
UPPER
S3
S2
H1a
H1b + S1
H2a
H2b
H3
Exploded View at Midline
g
#2021
#2022
#2023
#2024
5 cm
2 in
h
i
j
k
2 cm.
1 in.

Table 12 - Quantitative distribution of artifacts by descriptive category for the Powder Magazine.

Descriptive Category	Sub-total 3	Sub-total 2	Sub-total 1	Total
CERAMIC HOUSEHOLD & CONTAINER FRAGMENTS				302
Common Pottery Fragments			39	
Unglazed redware fragments		39		
Earthenware Fragments			246	
Clear glazed white body fragments		241		
Undecorated fragments	209			
Transfer printed fragments	32			
Clear glazed buff body fragments		5		
Snuff bottle fragments	5			
Stoneware Fragments			16	
Saltglazed container fragments		16		
Brown "crock" fragments	2			
Unidentified fragments	14			
Vitreous China Fragment			1	
Unidentified container fragment		1		
CERAMIC PERSONAL ITEMS				33
Earthenware Fragments			33	
Kaolin tobacco pipe fragments		33		
GLASS ITEMS				97
Bottle, Tumbler & Stemmed Glassware Frags.			64	
Bottle fragments		51		
Tumbler fragments		2		
Stemmed glassware fragments		2		
Unidentified curved glassware fragments		9		
Window Glass Fragments			25	
Glass Beads			8	
METAL ITEMS				692
Hardware Items			582	
Square nail fragments		551		
Hand forged	347			
Machine cut	153			
Cast	10			
Unidentified	41			
Wire nail fragments		10		
Bolt		1		
Bolt with nut		1		
Nut		1		
Washer		1		
Tent grommet		1		
Sliding door bolt		1		
Metal band		1		
Metal strap with machine cut nail		1		

Table 12 (cont'd.)

Descriptive Category	Sub-total 3	Sub-total 2	Sub-total 1	Total
Trap part		1		
Lead casting		1		
Wire fragments		11		
Household and Personal Items			11	
Unidentified iron button fragment		1		
Cannister lids (for percussion caps?)		3		
Aluminum foil cigarette wrapper fragments		6		
Foil fragment		1		
Weaponry Items			6	
Cartridges		2		
Iron grapeshot		2		
"Minie ball"		1		
Cannon primer with wire		1		
Unidentified Metal Objects			6	
Unidentified Metal Fragments			87	
CONSTRUCTION MATERIAL				5747
Brick Fragments			564	
Imported brick		534		
Local brick		12		
Unidentified brick		18		
Roofing Tile Fragments			7	
Stone Fragments with Mortar			40	
Mortar Fragments			5110	
Concrete Fragments			26	
MISCELLANEOUS ITEM				1
Cigarette Filter			1	
GRAND TOTAL				6872

Ceramic Personal Items

Earthenware Items

Kaolin Tobacco Pipe Fragments

Of the 33 pipe fragments found, there was one bowl fragment with a molded "T" and 2 spur fragments with the initials "F, I".

Glass Items

Glass Beads

Of the 8 beads found, all have been classified on the basis of manufacturing type, color and reflection (Table 13).

Metal Items

Hardware Items

Square Nails

Of the 551 square nail fragments found, there were 347 hand forged, 153 machine cut and 10 cast nail fragments. All complete specimens were measured and the distribution of such measurements for hand forged and machine cut nails appears in Fig. 17.

Hand Forged Tacks, Sprigs, Brads, Nails and Spikes. Of the 347 hand forged fragments found, 132 specimens were complete and 7 varieties were identified (Table 14 and Figs. 12, 13). Varieties #1001-1014 have been illustrated previously (Hoffman and Ross 1973:Figs. 24-25), and Variety #1051-1058 are illustrated in Figs. 12i-13d).

Of the hand forged nails, 79% were Variety #1002 nails consisting primarily of 2 populations (Figs. 12, 17). Of the measurable specimens of #1002 nails, 71.4% were 4d, 18.7% were 9d nails and the remaining 9.9% varied in sizes from 8d - 4 1/2 inches. Because these percentages so closely match those of the Sales Shop, it is presumed that these nails represent items from one of the adjacent warehouses rather than items directly associated with the Powder Magazine.

Machine Cut Sprigs, Brads and Nails. Of the 154 machine cut fragments found, 44 specimens were complete and 6 varieties were identified (Table 15 and Fig. 13). All varieties have been illustrated previously

Table 13 - Comparison of beads with Kidds' identification numbers.

Kidds' Identification Number	Color		Reflection	Total
	Primary	Secondary		
IIa	White		Opaque	2
	10 B 5/8		"	1
	5 G 3/4		Translucent	1
	10 BG 5/6		"	1
	2.5 B 4/4		"	1
	7.5 B 4/6		"	1
IIb	7.5 B 4/6		Opaque	1
GRAND TOTAL				8

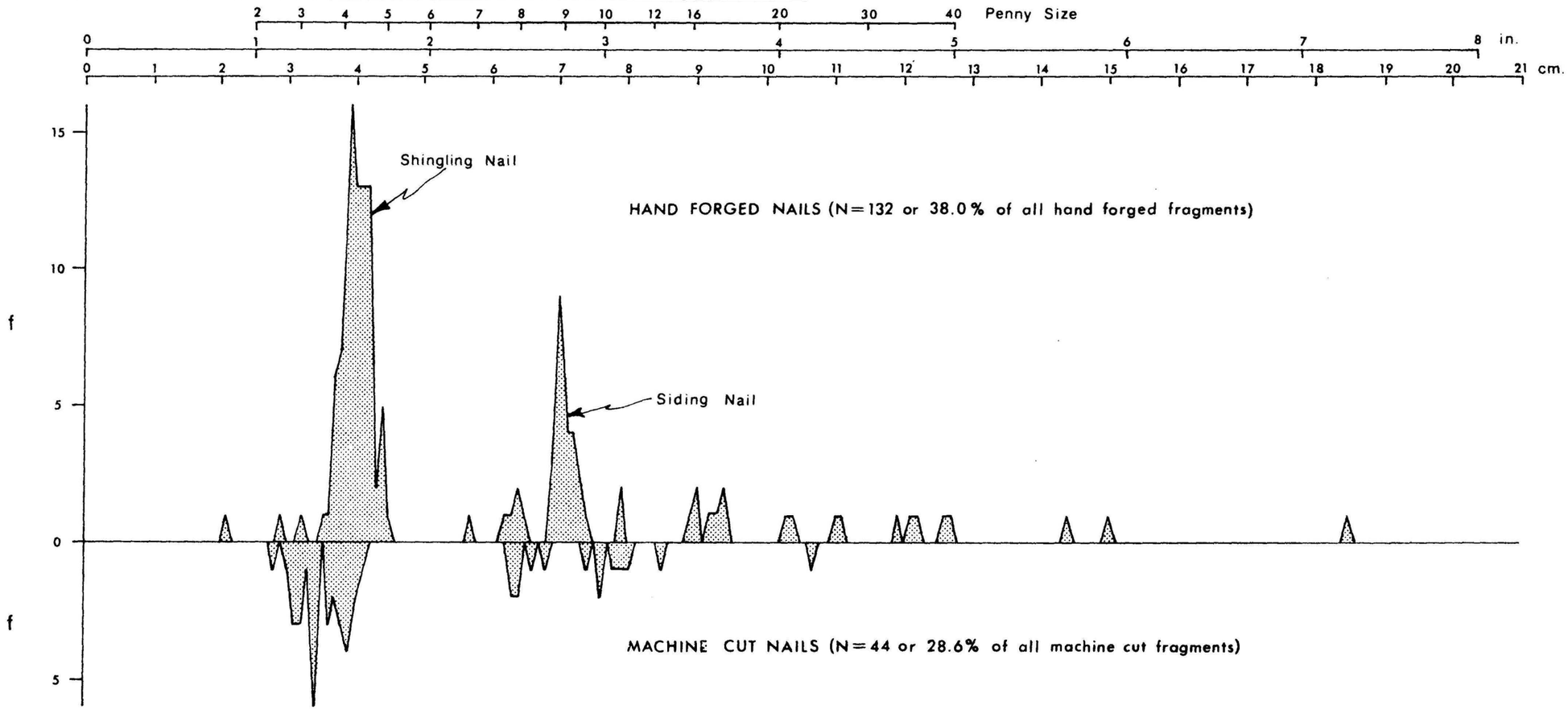


Fig. 17 – Frequency distribution of all complete Hand Forged and Machine Cut Nails (Powder Magazine).

Table 14 - Varieties of hand forged tacks, sprigs, brads, nails and spikes.

Variety #	Size Range	Figure	Measurable Specimens	Unmeasurable Fragments	Total
1001	7d-16d	-	8	10	18
1002	3d-4 1/2"	12a-c	112	163	275
1005	-	-		1	1
1009	4"-6"	-	8	1	9
1014	5"-7 1/2"	-	2		2
1051	3/4"	12i	1		1
1058	5"	12d	1		1
Unclassified Fragments				40	40
GRAND TOTAL			132	215	347

Table 15 - Varieties of machine cut sprigs, brads and nails.

Variety #	Size Range	Figure	Measurable Specimens	Unmeasurable Fragments	Total
2001	4d	-	3	8	11
2002	8d-24d	-	13	58	71
2003	10d	-	1		1
2004	3d-4d	13e	18	9	27
2005	3d-4d	-	9	12	21
2010	-	-		1	1
Unclassified Fragments				22	22
GRAND TOTAL			44	110	154

Table 16 - Varieties of cast tacks and sprigs.

Variety #	Size Range	Figure	Measurable Specimens	Unmeasurable Fragments	Total
4001	2d	-	3		3
4002	2d	-	5	1	6
4009	3/4"	13k	1		1
GRAND TOTAL			9	1	10

(Hoffman and Ross 1973:Fig. 27). A new variation for Variety #2004 was observed and is illustrated in Fig. 13e. This variation consists of a diagonal, rather than straight, wedging mark below the head; all specimens with the variation were 4d nails.

Cast Tacks and Sprigs. Of the 10 cast fragments, 9 were complete and 3 varieties were identified (Table 16 and Fig. 13). Varieties #4001-4002 have been illustrated previously (Hoffman and Ross 1973: Fig. 27), and Variety #4009 is illustrated in Fig. 13k.

Sliding Door Bolt

One hand forged sliding door bolt was found and is illustrated in Fig. 14c. The lift latch is slightly offset in relation to the stop, thus allowing the bolt to fit flush against the door. No related hardware was recovered which could be directly attributed to this bolt, and similar bolts have yet to be found in the Fort.

Weaponry Items

Cartridges

The 2 cartridges found were 45-70 Government cartridges.

Iron Grapeshot

One 1/16 lb. and one 1/4 lb. grapeshot were found.

Construction Material

Brick Fragments

Of the 564 brick fragments recovered, 534 were fragments of imported brick, 12 were fragments of local brick and 18 fragments were unidentified. Following the classification used for brick from the Chief Factor's House (Hoffman and Ross 1973:Table 23), the identified varieties of imported brick included #1001 (N=501) and #1002 (N=33), and the local brick varieties were #1003 (N=7) and #1004 (N=5).

The only variety for which measurements could be obtained was #1001, and its average size was 2 3/4" x 4 1/4" x 8 3/4". These measurements are 1/4" larger (for each dimension) than those given for English brick regulated by Statute 17 of King George III in 1776 (Lloyd 1925:12).

IV - PRELIMINARY INTERPRETATIONS

The limited archeological tests of the Sales Shop and Magazine combined with the historic record are sufficient to gain specific ideas regarding the construction and uses of the buildings. There are minor discrepancies between the archeological and historical records. However, we feel these can be resolved largely on the basis of the extant physical remains, the archeological record.

Sales Shop

The outstanding structural remains found in the Sales Shop excavation were the wooden footings. The presence and alignments of these blocks readily indicate that the basic construction of the Shop was the "Canadian" or post-in-sill technique. Not surprisingly, this was the predominant technique of structural framing historically employed at Fort Vancouver (Hussey 1957:161). The wooden block footings used for initial construction were set subsurface into prepared holes. Additional repair footings were simply placed on the surface at points of needed support. Smaller wooden blocks or shims were placed on top of the footings. These served as leveling devices for the framing sills that spanned the footings. Thus, the sills appeared to rest on or slightly above surface when they actually rested on subsurface supports. As noted in a previous report (Hoffman and Ross 1973:35), placing repair footings under such a sill arrangement was relatively simple.

Earlier, we noted that the historic record indicates that the Sales Shop was completed perhaps about 1843 in the approximate position of a precedent and functionally similar structure. We are unable to identify remains of this precedent structure in the archeological record. Other than 3 supernumary footings in the east and south walls, we found no evidence of repair or reconstruction. Where footings were clearly extant, we found only a single series of prepared holes, each occupied by a well defined cast of a single wooden block (Fig. 2).

There are several alternatives to resolving the apparent contradictory evidence. (1) The 1843 Sales Shop was a reconstruction placed on the same location and footings as those of the precedent structure. (2) The 1843 Sales Shop was not placed in the same location as the precedent building, and the latter has yet to be identified archeologically. (3) There was no precedent structure as such, and the 1843 Sales Shop existed sometime before 1843, perhaps from the earliest days of the Fort.

We favor a combination of the first and third alternatives in light of the archeological evidence. We note that the historic evidence for a precedent structure consists of a change in roof style and building height between 1841-45, as well as testimony given during claims hearings of the HBC against the U.S. Government in 1865-69 (Hussey 1972:185-186). While it is possible that a precedent structure exists in a slightly different position, we believe that evidence of such would have been noted by the extensive tests of previous archeological explorations (Caywood 1955:sheet 4 of map 2). The historic record clearly shows that the appearance of the Sales Shop changed between 1841-45. We suggest that the change in building height and roof style involved sufficient reconstruction to lend the impression of a virtually new building in 1845. Presently, we have no evidence as to the full extent of the reconstruction, or the date of the initial construction. While historically valid, these problems are not archeologically germane to the 1845 period.

Another conflict of evidence is less readily solved. As previously noted, the HBC inventories of 1846-47 list the plan dimensions of the Sales Shop as 40 by 86 ft. (Hussey 1972:197). Exploratory archeological tests indicated a mean width across footings of 39.25 ft. (Caywood 1955:sheet 4 of map 2), which can be reasonably interpreted as a 40-ft. wide building. However, our tests indicated a length close to 80 ft. across footings, substantiating previous archeological tests (Ibid.). As will be discussed, the actual length of the Sales Shop was slightly more than 80 ft., but not the reported length of 86 ft.

Balance of HBC features found along the eastern wall are less important to understanding the appearance of the Sales Shop. The small, driven posts near the northeastern corner (Fig. 2) appear to have no structural relationships; they form no recognizable patterns or alignments. A large wooden post set outside the southeastern corner is an enigma that could have been anything from a hitching post to a support for a guardrail that protected the building corner from wagon traffic. The water-laid silts in the basin outside the southeastern corner suggest the location of a downspout and/or rain barrel. A similar basin outside the east wall and to the north may have had a similar function, but the evidence is unclear. A small basin along the eastern wall line has the alignment and spacing of a repair footing, such as the one immediately north of the southeastern corner, but it lacked wood, a cast, or other credible footing evidence. The concentrations of window glass and coal near the center of the eastern wall are parts of a trash deposit which will be discussed further.

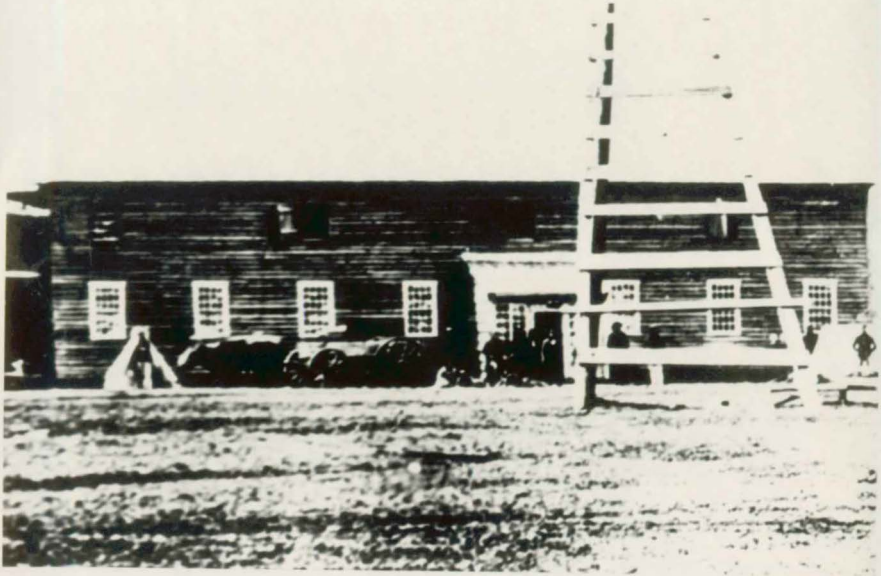
As noted in the introduction, one of the purposes of this report is to compare the archeological data against historical illustrations of the Sales Shop. Two excellent illustrations are available for this purpose. The earliest is the "Coode watercolor" (Williams 1970:52) which depicts the western interior of Fort Vancouver with emphasis on warehouses and other commercial buildings. There is very good evidence that the original version of this watercolor was made by an officer of H.M.S. Modeste between 18 June 1846 and 3 May 1847 (Hussey 1972:22-23, n57; 105, n79). The second illustration is a photograph of the northwestern interior of the Fort taken in May of 1860 (Hussey 1957:Pl. XXIII; 1972:Pl. XXVIII). For purposes of this discussion, we have enlarged and photographically enhanced a portion of the photo that shows the Sales Shop (Fig. 18).

Certain discrepancies between the Coode watercolor and the 1860 photo have been discussed by Hussey (1972:201, 203). Barring extensive structural changes between ca. 1846 and 1860, we prefer to follow his line of reasoning and accept the photo as the more credible illustration (Ibid.:203).

Our enhanced photo of the Sales Shop shows the large, 1-1/2 story building covered with siding (Fig. 18). Despite this exterior sheathing, the historic evidence (Ibid.:198-199) and the archeological evidence indicate the basic construction of the Shop was the post-in-sill technique. As a matter of weight distribution, we believe the upright posts of the building frame were set into the sills directly above the subsurface footings.

The photo contains a great deal of information as to placements and dimensions of windows and doors. In order to obtain this information, we have scaled the photo in terms of known archeological dimensions. The length of the eastern wall was at least 80 ft. as determined from the centers of the corner footings. Since the usual HBC practice was to place the outsides of framing timbers flush to the outsides of the footings (Ibid.:197, n39), the real length of the wall shown in the photo must have been 80 ft. plus one half the width of each corner footing, plus the thickness of the corner boards that edge the siding. The footings were archeologically found to have a mean width of 1.01 ft.; therefore, the real length was 81 ft. plus thickness of the corner boards. As noted in the previous chapter, archeological evidence indicates the siding to have been one inch thick based on the recovered nails. For the purpose of this argument, we assume the corner boards to also have been one thick. Rather than scaling the photo with a dimension of 81 ft. and 2 inches, we prefer to apply an even dimension of 81 ft to the north-south length of the wall. This means our scale has a built-in error of 2 inches within 81 ft.

Fig. 18 - Eastern elevation of the Sales Shop as photographed in May of 1860. Roof details are bleached out in order to enhance wall details. Object in foreground is a tripod bell tower (FOVA neg. 974.7, H-3.F, FV-2).



We believe the error of 0.21% is insignificant to the following interpretations.

The archeological evidence indicates that the basic plan of the eastern wall consisted of footings, thus upright posts, set at intervals of 10 ft. on centers. For post-in-sill construction, a length of 81 ft. broken into 10 ft. intervals requires 9 posts -- 2 corner posts and 7 spacer posts that form 8 "bays" of horizontal timbers or "fillers." This basic plan is graphically shown as Fig. 19.

Taking a clue from an extant (1967) HBC warehouse at Fort St. James, B.C. (Hussey 1972:Pls. LXXVIII-LXXX), we show the upright spacer posts and horizontal fillers to be one ft. wide. Unlike the Fort St. James warehouse, we believe the much larger Sales Shop of Fort Vancouver had corner posts larger than the spacer posts. There is precedent for this hypothesis in other structures of Fort St. James, as well as in large HBC warehouses that formerly existed at Fort Victoria, B.C. and Fort Edmonton, Alberta (Ibid.:Pls. XLV, XLIX, LXXXVIII). Therefore, we have assigned a dimension of 1.5 ft. square to corner posts of the Sales Shop. We have used the same dimension for the framing sills as a matter of symmetry and strength at the joints of sills and corner posts. Since we believe the corner posts were 1.5 ft. square, the framing plates or lintels were most likely 1.5 ft. thick, although not necessarily more than one ft. wide (Fig. 19).

By projecting a measurement of 81 ft. on the east wall as shown in the photograph of 1860 and continually dividing the measurement by halves, we arrived at a constant scale that gives credible dimensions of visible Sales Shop details. For instance, our scale indicates the east wall elevation was 22.5 ft. high including sills and lintels (cf. Hussey 1972:199, n44). Excluding trim and framing, the first floor windows measured 2.5 ft. wide, 5 ft. high, and were all within the same horizontal planes. Window bottoms were 5 ft. above the sills. Each first floor window was slightly offset from the centerline of its bay. The center of the southernmost window was 6 ft. north of the southern edge of the Shop wall, and the center of the northernmost window was 5 ft. south of the northern Shop edge. Windows were 10 ft. apart on centers, except those on either side of the doorway which were 20 ft. apart (Fig. 19).

The smaller windows of the upper story were spaced 20 ft. apart on centers. They were also slightly offset from the centerlines of their bays. One northern and two southern windows were set directly in line with the first floor windows below them. Again excluding

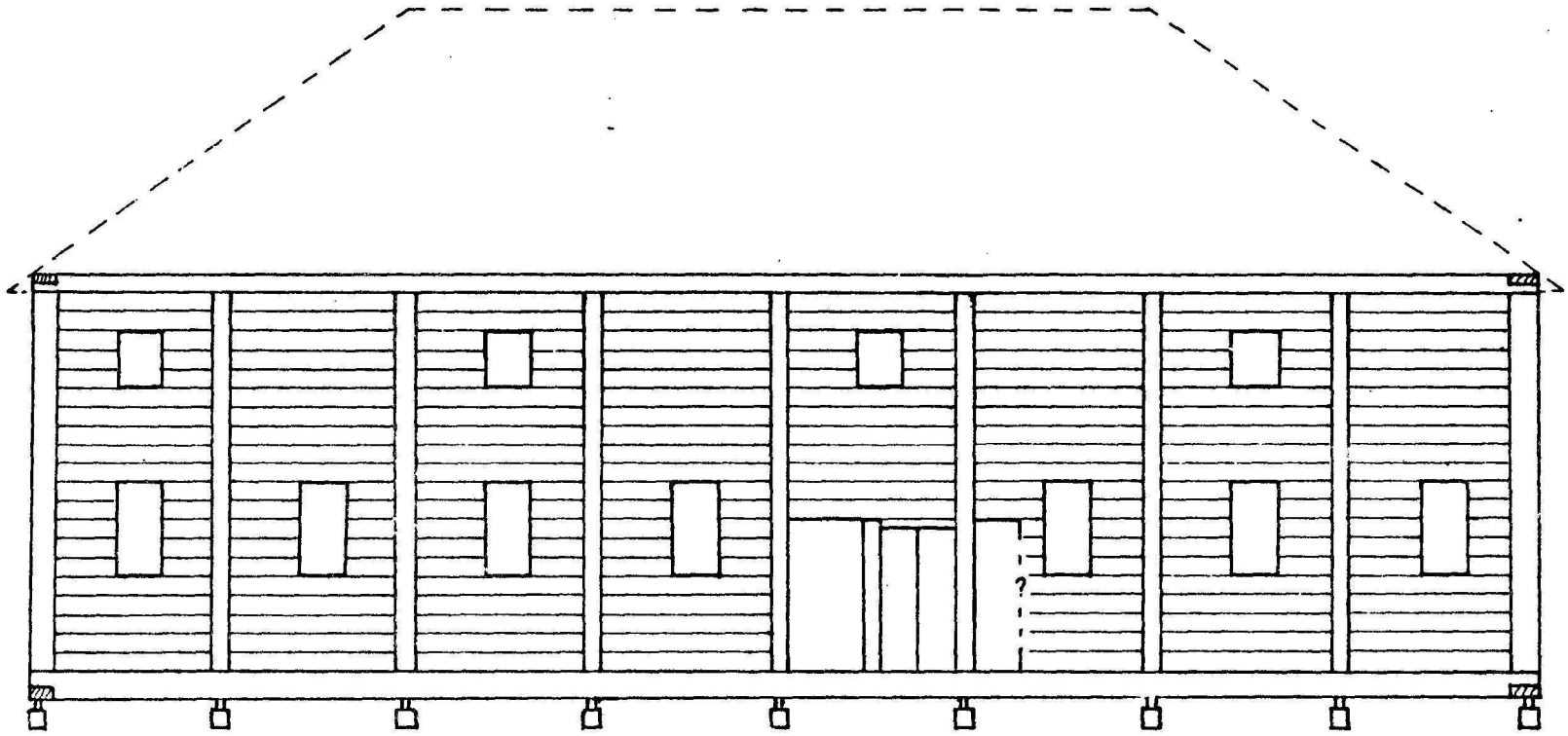


Fig. 19 - Deduced framing of the Sales Shop at the eastern wall.

trim and framing, each upper story window was 2.5 ft. wide, 3 ft. high, and had its bottom 5 ft. above the tops of the first floor windows (Fig. 19).

The 1860 photo shows the first floor windows to have been double sashed with 12 panes in each sash (Fig. 18). Exterior shutters are not evident in the photo or in the Coode watercolor. Only the southernmost upper story window had glass in 1860. This appears to have been a single sash with an undetermined number of panes. However, exterior shutters were present on all upper story windows as shown in the watercolor and photo. In 1860, at least, the shutters were single leaves attached to the south sides of the windows (Fig. 18).

Centerline of the doorway was 33 ft. south of the Shop's north wall, well offset from the building's east-west axis. North edge of the door was butted into the third spacer post south of the north wall, while the south edge was a supernumary post that appeared to have been only 8 ft. high. The door opening was 4 ft. wide and 7.5 ft. high; its base appeared to have been in the same plane as the top of the framing sill (Fig. 19). Dimensions of the opening suggest a double door such as those extant (1967) at the Trade Shop and a warehouse of HBC Lower Fort Garry (Hussey 1972:Pls. LXXXIII, LXXXV). A close examination of the Coode watercolor shows a vertical line in the center of the Fort Vancouver Sales Shop door that suggests a double-leaf door (Williams 1970:52). The door lintel is not visible in the 1860 photograph. Since we have hypothesized the fillers or horizontal timbers of the east wall to have been one ft. wide, and the door was only 7.5 ft. high, we must hypothesize the lintel to have been 0.5 ft. high. Perhaps it was simply a split filler.

Large lights or possibly sash doors flanked the doorway in 1860 (Fig. 18). Excluding trim and framing, the southern light was 5 ft. wide and 8 ft. high. The northern light was also 8 ft. high, but its width cannot be accurately determined due to an obstruction in the foreground of the photo. If the northern light was appreciably more than 3 ft. wide, its framing would abut the framing of a first floor window (Fig. 19). Whatever the sash arrangement of the lights, a large number of window panes were present (Fig. 18).

The Coode watercolor of 1846-47 shows a small stoop or single step at the exterior of the doorway. This feature is not visible in the 1860 photo. However, certain artifact concentrations to be discussed indicate that the small stoop was a real feature of the building. Another discrepancy between the watercolor and the photo is the presence of a rain shelter on the latter (Fig. 18). The evident part of the shelter was a shed roof about 10 ft. wide that projected over the doorway at an angle of about 60°. The lower or eastern edge of

the roof terminated in a horizontal object which may have been a rain gutter. Short, projecting walls about 10 ft. apart may have formed a part of the shelter, although the photo is unclear in this respect. The short walls may be optical illusions caused by painting the lateral margins of the entrance area; there is no archeological evidence of the rain shelter.

Downspouts and/or rain barrels such as we have inferred archeologically are not shown in the watercolor; neither are they readily evident in the 1860 photo. However, close examination of the southeastern corner of the building in our enhanced photo shows a dark, banded object which may have been a rain barrel (Fig. 18).

Both the watercolor and the photo agree in depicting a covered catwalk that connected the upper stories of the Sales Shop and an adjacent warehouse known as the New Store. Judging from the photo, elevation of the catwalk was only slightly over 10 ft. above the framing sills of the Shop (Fig. 18). If this elevation is interpreted as the elevation of the upper floor in the Shop, serious structural problems arise. This interpretation would place the upper floor joists in the same horizontal plane as the tops of the first floor windows. Such an arrangement is not feasible for post-in-sill construction wherein second floor joists were generally attached to walls one or two courses above the headers over windows and doors (Hussey 1972:106, n82). More likely, the upper story floor joists of the Sales Shop were attached to the walls at a distance of 2 or 3 ft. above the tops of the first floor windows. If so, the northern end of the catwalk inside of the Shop was probably fitted with a ramp and/or a series of low steps for ease of moving merchandise.

Other than our previous discussion of shingling nails, we have little to add to Hussey's (Ibid.:200-201) interpretation of the roof. Our photo of the Sales Shop does not clearly picture the roof since this area was bleached out in order to emphasize the east wall (Fig. 18). Based on various other photographic details (Hussey 1957:Pl. XXIII), we believe the hipped roof to have been 15 ft. high with an overhang of about 1.5 ft., and a drop of one ft. at the eaves. Including shingles, the roof was 84 ft. long at the drop line. This length was divided into segments of 22, 40, and 22 ft., with the longest segment being the ridge (Fig. 19).

The Coode watercolor shows the east wall to have been painted a very light color, almost white, during the 1846-47 period. First floor windows were trimmed in a dark red, and the same color was used on the shutters of the upper level windows. The door was either a similar color, or it was left unpainted (Williams 1970:52). The 1860 photo

does not show such a generous use of paint on the east wall. Neither do we have archeological evidence of paint from the HBC deposits. The painted wooden fragments and paint chips of Table 4 derive from USA contexts or later. It may be that the Sales Shop was covered with siding after 1846-47, thus concealing the painted east wall in the 1860 photo. In any event, the first floor windows and entrance features were trimmed in white (?) paint by 1860, as was the shed roof over the entrance. Inexplicably, a strip of white (?) paint paralleled the upper margin of the shed roof where it was attached to the east wall (Fig. 18).

Distribution of cultural materials within the excavated areas of the Sales Shop reflects some of the activities in and around the building. As with our past practice where site stratigraphy could be clearly distinguished, we have calculated the frequency per cubic foot (f/ft^3) of selected artifact groups from only the HBC deposits within each excavation unit (XU). This procedure has been quite useful in past reports for interpreting past human behavior associated with specific structures. Since the Sales Shop excavations were limited tests, quantities and spatial distribution of recovered materials were also limited. Therefore, all interpretations based on artifact densities are highly tentative.

While our excavations concentrated on wall lines and areas immediately outside, artifacts were recovered from areas inside of the building. The presence of objects at the interior was most likely due to the "loosely laid" plank flooring of Fort Vancouver warehouses (Hussey 1972:205) which allowed certain materials to fall through cracks in the floor.

The archeological presence of ceramic wares, bottle fragments, and glassware is well in keeping with the historically known functions of the Sales Shop. Highest density of ceramic fragments was found outside the east wall adjacent to the doorway (Fig. 20). The greatest concentration of this material was about 15 ft. south of the door centerline. The situation in this area is suggestive of a trash pile accreted by ceramics broken within the Shop, swept up, and thrown out the door or possibly a window. A rather high concentration of ceramics was also found along the northern wall line. We are not aware of a door in the northern wall of the Shop, and reasoning based on historical research argues against such a door (Hussey 1972:202). The concentration at the northern wall may represent an actual storage area of ceramics whose broken pieces were simply swept through the floor cracks. As a generality, the density of ceramics was higher inside or on the northern wall line than it was outside. Sizable amounts of ceramic fragments were also found around the southeastern corner, but these are difficult to interpret other than as putative trash piles.

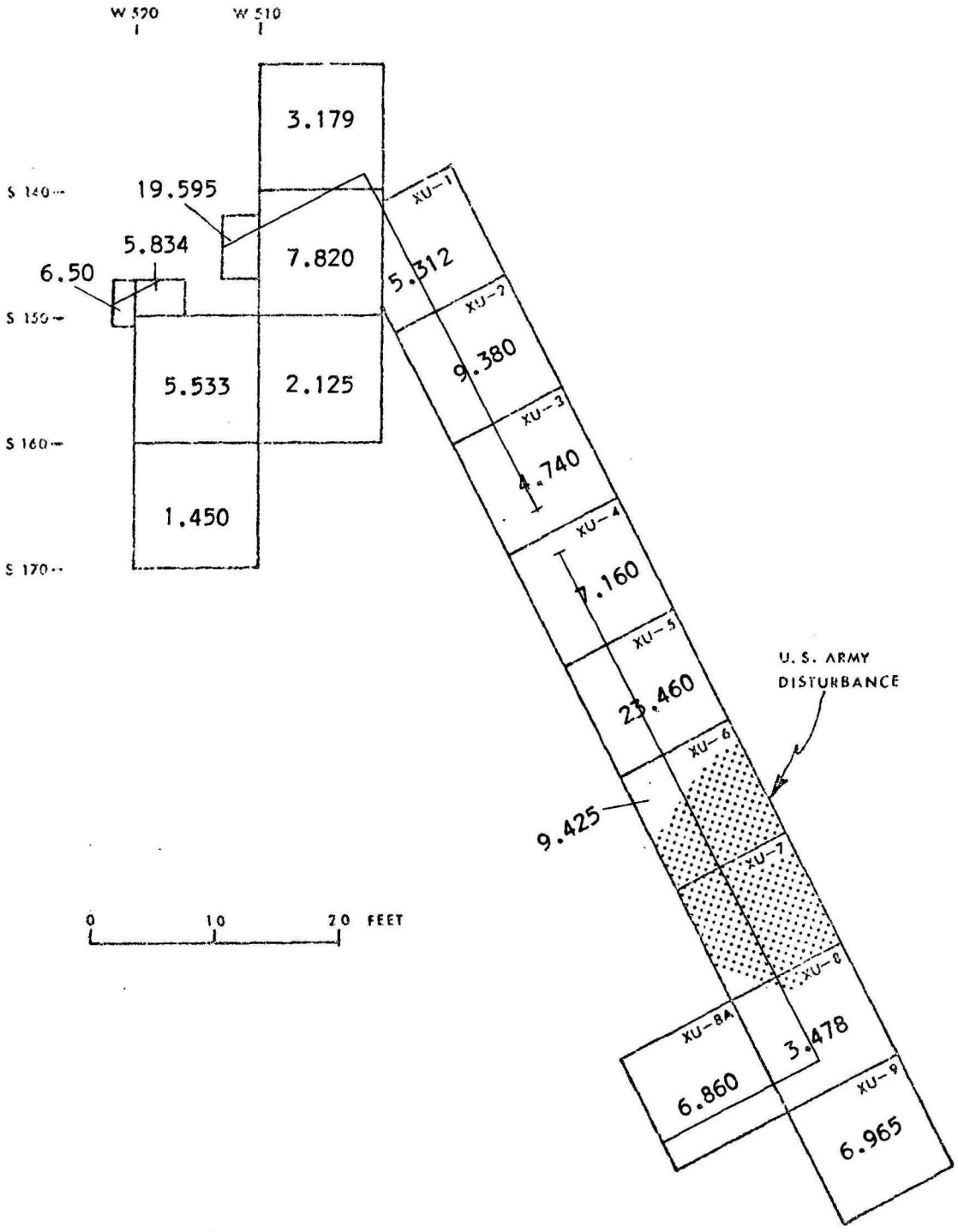


Fig. 20 - Distribution of ceramic fragments in the Sales Shop excavations (f/ft^3).

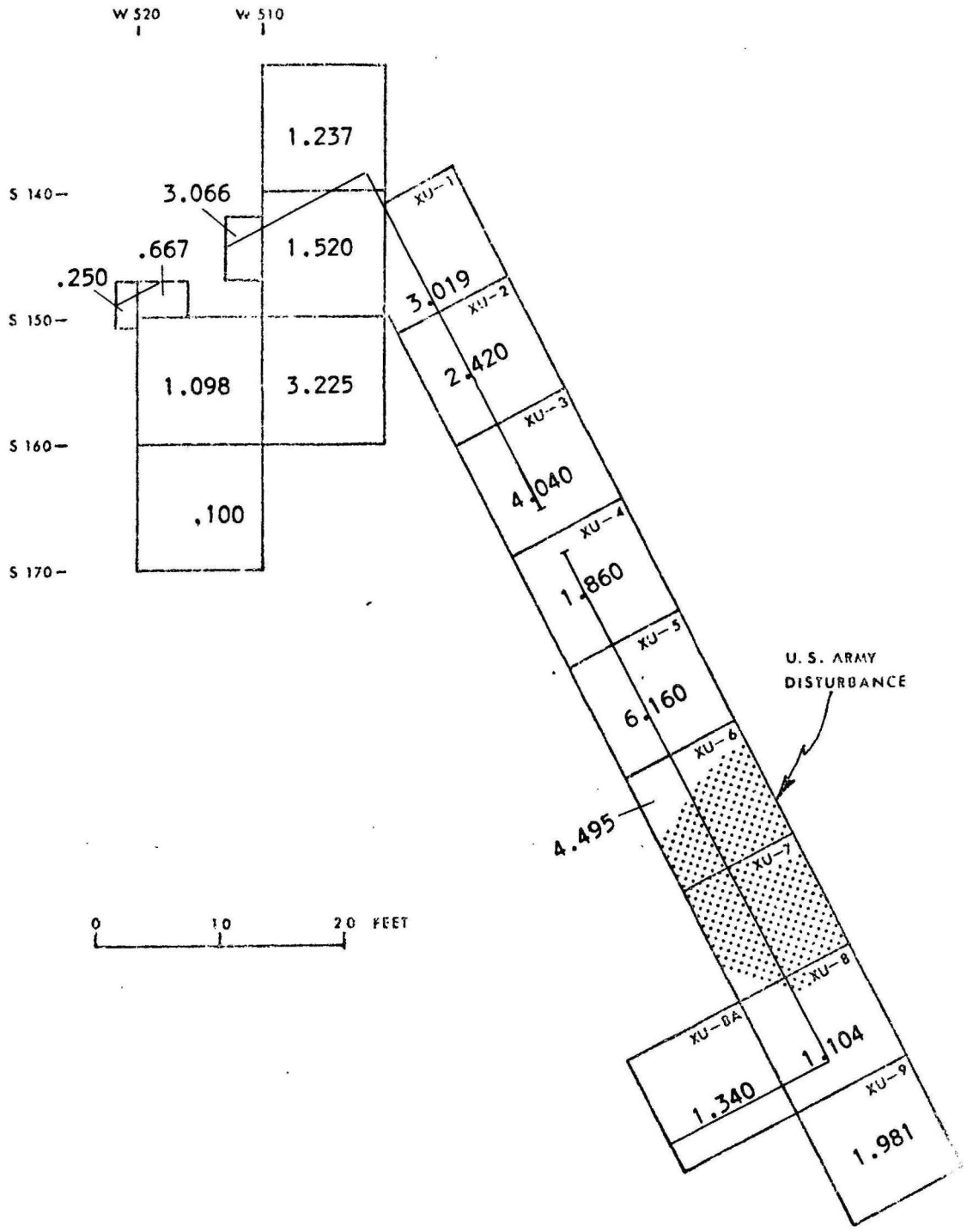


Fig. 21 - Distribution of bottle and glassware fragments in the Sales Shop excavations (f/ft^3).

Interestingly, most of the ceramics found in the Sales Shop were white earthenware, often transfer printed, and fragments of large, saltglazed stonewares. Both groups are primarily culinary in function and lend added insight into the saleable merchandise of the Shop. Another ware frequently found was buff earthenware containers of dry snuff (Table 4).

Distribution of bottles and glassware generally paralleled that of ceramic wares. Most of the material was found along the eastern wall with a concentration about 15 ft. south of the door centerline (Fig. 21). Again, the sweeping and disposal of items broken within the Shop seems indicated. A relatively high density just inside the northeastern corner may indicate actual storage in that area, whereas other densities at the northern wall and the southeastern corner appear to be normal distributions for the general area. A great majority of this material consisted of bottle fragments, while a substantial amount could be confidently identified as tumblers and stemware (Table 4). The unidentified curved glassware recovered from the Shop could derive from any of the above groups as well as containers yet to be identified. It is evident that the use of liquors, wines, and fine glassware was not restricted to gentlemen at Fort Vancouver (cf. Hoffman and Ross 1973:173-174).

The distribution of hand forged nails showed little variance except that most nails were found along the eastern wall (Fig. 22). As a subjective observation, the distribution appears to be normal for the area. This is not surprising since 78% of the forged nails recovered in the Shop were a single variety (Table 8). Moreover, 81% of this variety can be identified as shingling nails, while another 13% represent siding nails. Since we know the general appearance of the Sales Shop in 1860, the large quantities and even distribution of shinging and siding nails in an archeological context is not surprising.

Machine cut nails had a distribution very similar to that of hand forged nails, although the actual quantity was lower. Like forged nails, the machine cut varieties tended to cluster around the doorway (Fig. 23). As discussed in the previous chapter, many of these nails were probably used for shingling and siding. If a temporal difference obtains between forged and cut nails at Fort Vancouver, then machine cut shingling and siding nails reflect continued repair to the exterior of the Sales Shop. These nails may also indicate more than the single shingling event for the Shop that is presently documented in the historical record (cf. Hussey 1972:187).

Other items of building hardware were found exclusively along the eastern wall (Fig. 24). Two of the hinges were recovered from

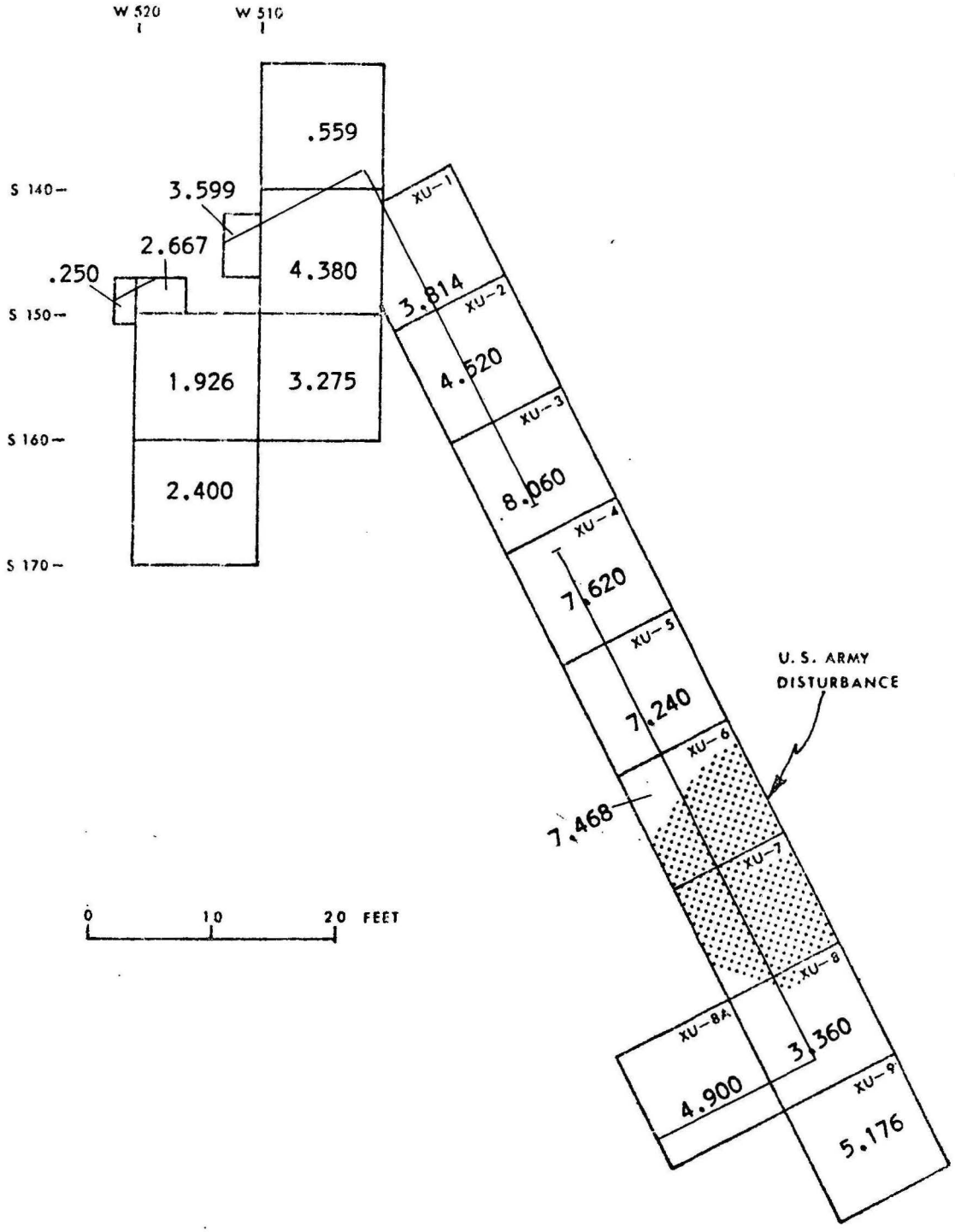


Fig. 22 - Distribution of hand forged nails in the Sales Shop excavations (f/ft^3).

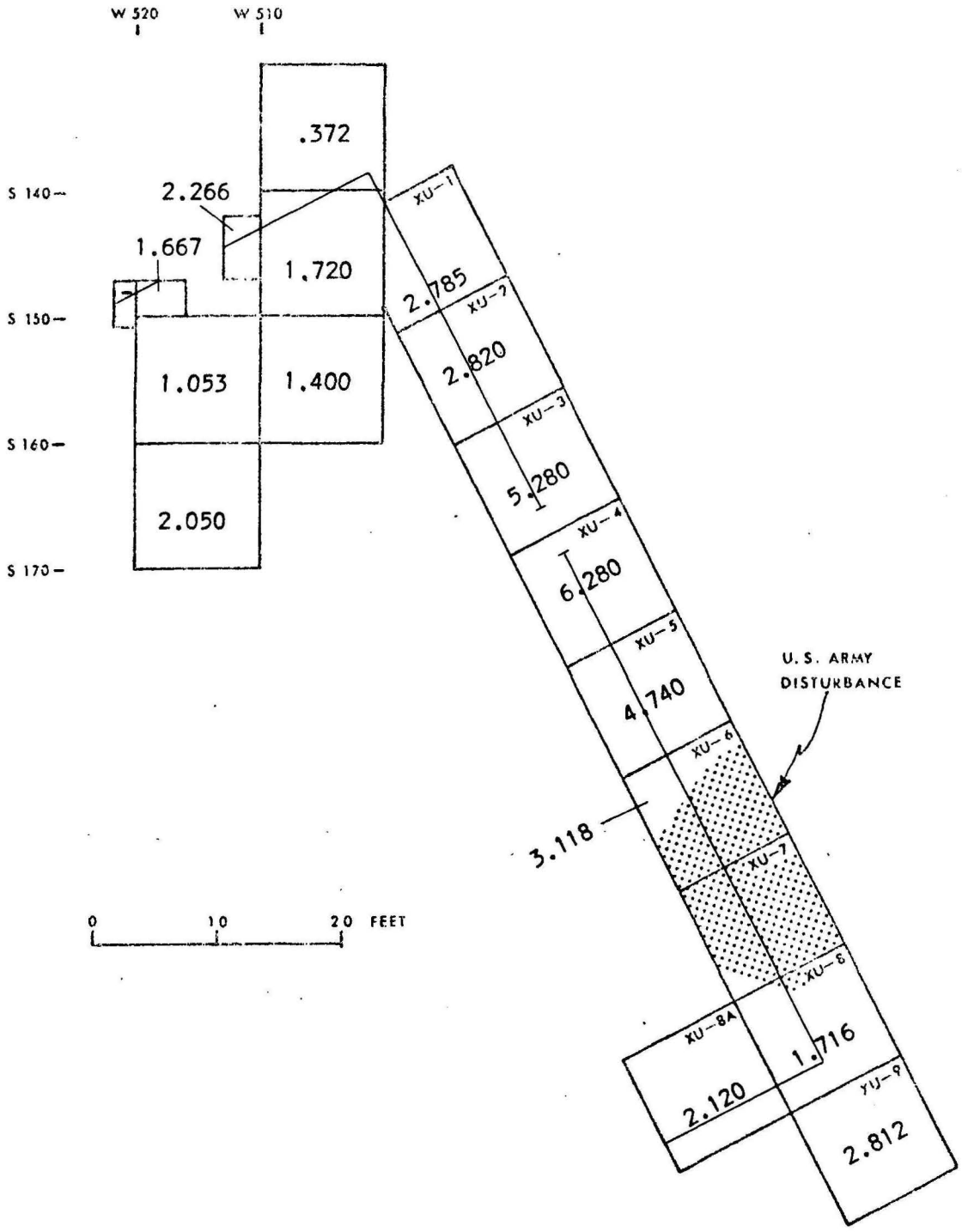


Fig. 23 - Distribution of machine cut nails in the Sales Shop excavations (f/ft^3).

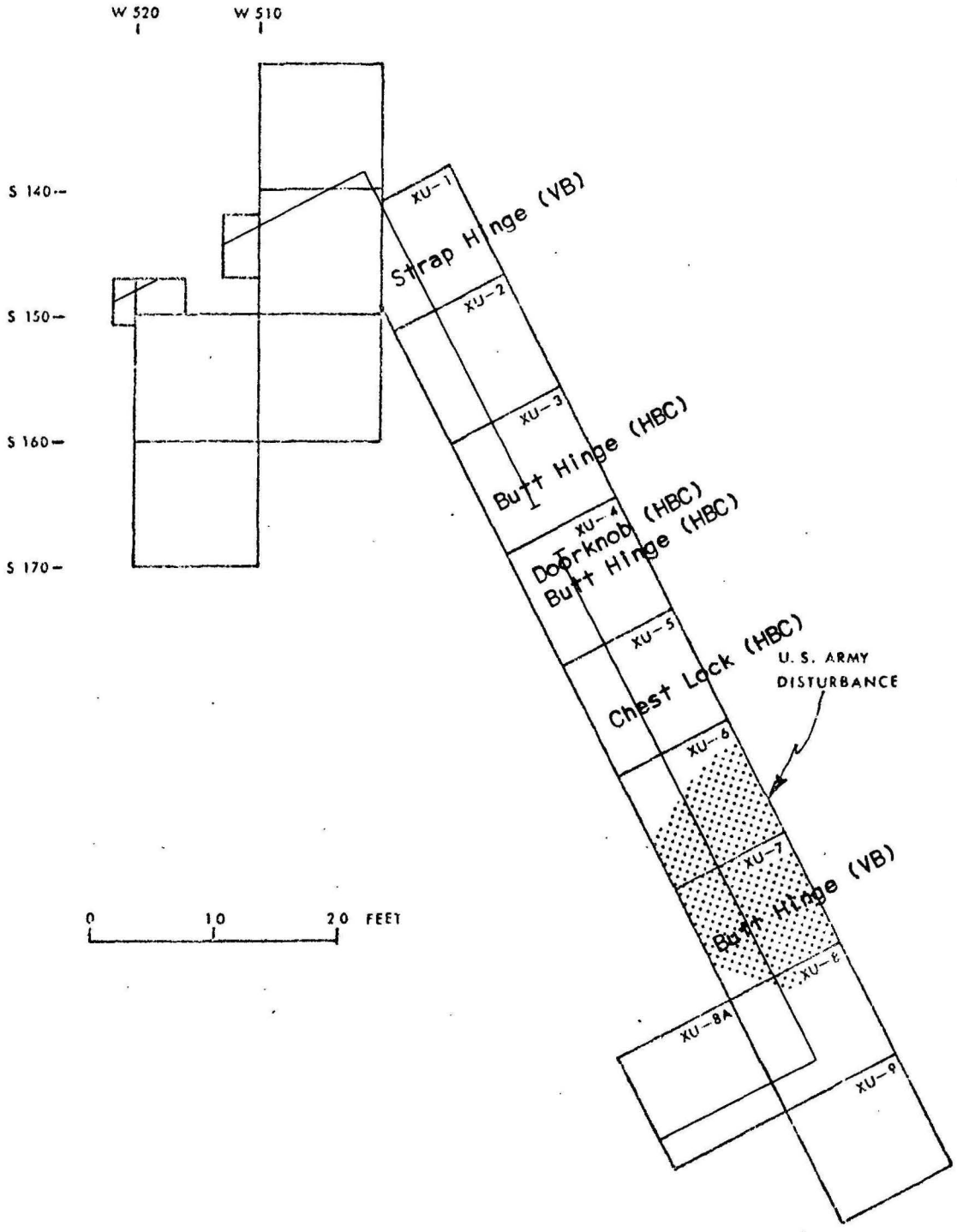


Fig. 24 - Distribution of hardware fragments in the Sales Shop excavations (f/ft^3).

Vancouver Barracks deposits but were included in the distribution because of their stylistic similarity to other HBC hinges. Most interestingly, fragments of a single ceramic doorknob were found adjacent to the historically deduced position of the door (Fig. 24).

Distribution and quantity of window glass fragments generally reflected the historically deduced positions of windows in the Sales Shop. With two exceptions, the glass fragments were distributed in such a way as to indicate a rather even spacing of windows along the eastern wall. Frequencies at the northeastern corner suggest the presence of windows in at least the eastern end of the northern wall (Fig. 25). The exceptions were high concentrations that probably reflect trash disposal. The concentration south of the door was so dense as to warrant mapping in the field (Fig. 2). Like the ceramics and glassware in this spot, much of the window glass was probably broken inside the Shop, swept up and deposited with other refuse outside. The second exception was an anomalous concentration immediately west of the southeastern corner (Fig. 25). The anomaly may be due to window panes broken during transport over the catwalk between warehouses. As an alternative, the density may reflect the presence of several windows in the facing walls of the adjacent buildings.

Distribution of beads in the northern sector of the Sales Shop clearly showed more items inside than outside of the building -- a reflection of the loose floor boards previously mentioned. The concentration at the doorway was quite interesting (Fig. 26). We interpret this situation as an attempt to sweep beads out of the Shop, only to have many of them fall between the cracks of the stoop outside the door. The relatively even distribution of beads on either side of the door suggests that the attempt was partially successful. But the highest concentration was immediately west of the southeastern corner (Fig. 26). As with the window glass, this is an anomaly that may stem from transport of the items over the catwalk. However, the possibility cannot be dismissed that beads were dropped in this area by assembled customers of the Sales Shop.

Distribution of ball and shot was very similar to that of beads. Again, more items were found inside than outside in the northern sector (Fig. 27). The concentration at the doorway suggests the sweeping of ball and shot out the door and largely through the cracks of the stoop. Like beads, the highest density was west of the southeastern corner, with relatively significant densities at the corner and south (Fig. 27). There is a definite indication of trash disposal here, but again we are unsure of the mechanism of deposition.

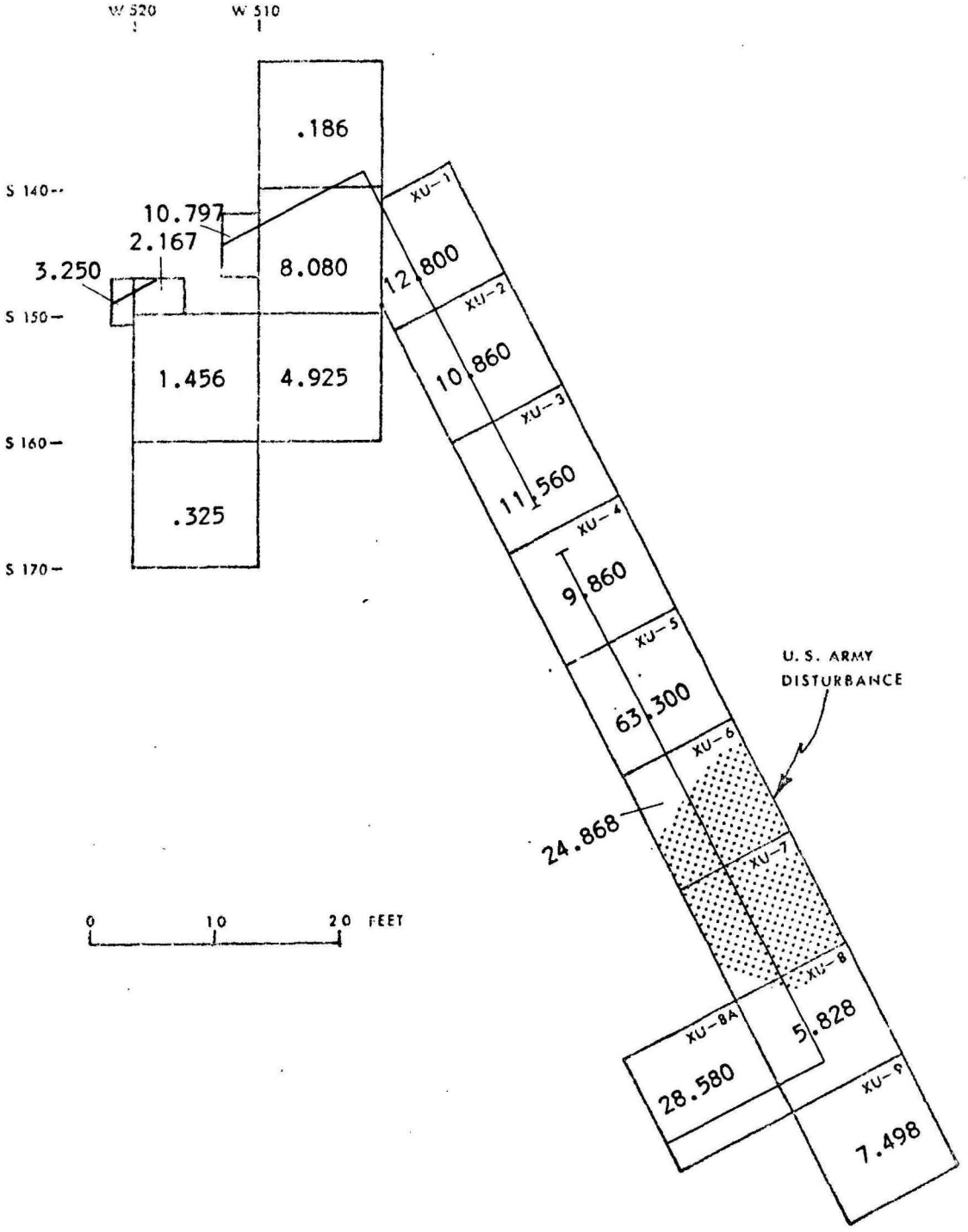


Fig. 25 - Distribution of window glass fragments in the Sales Shop excavations (f/ft^3).

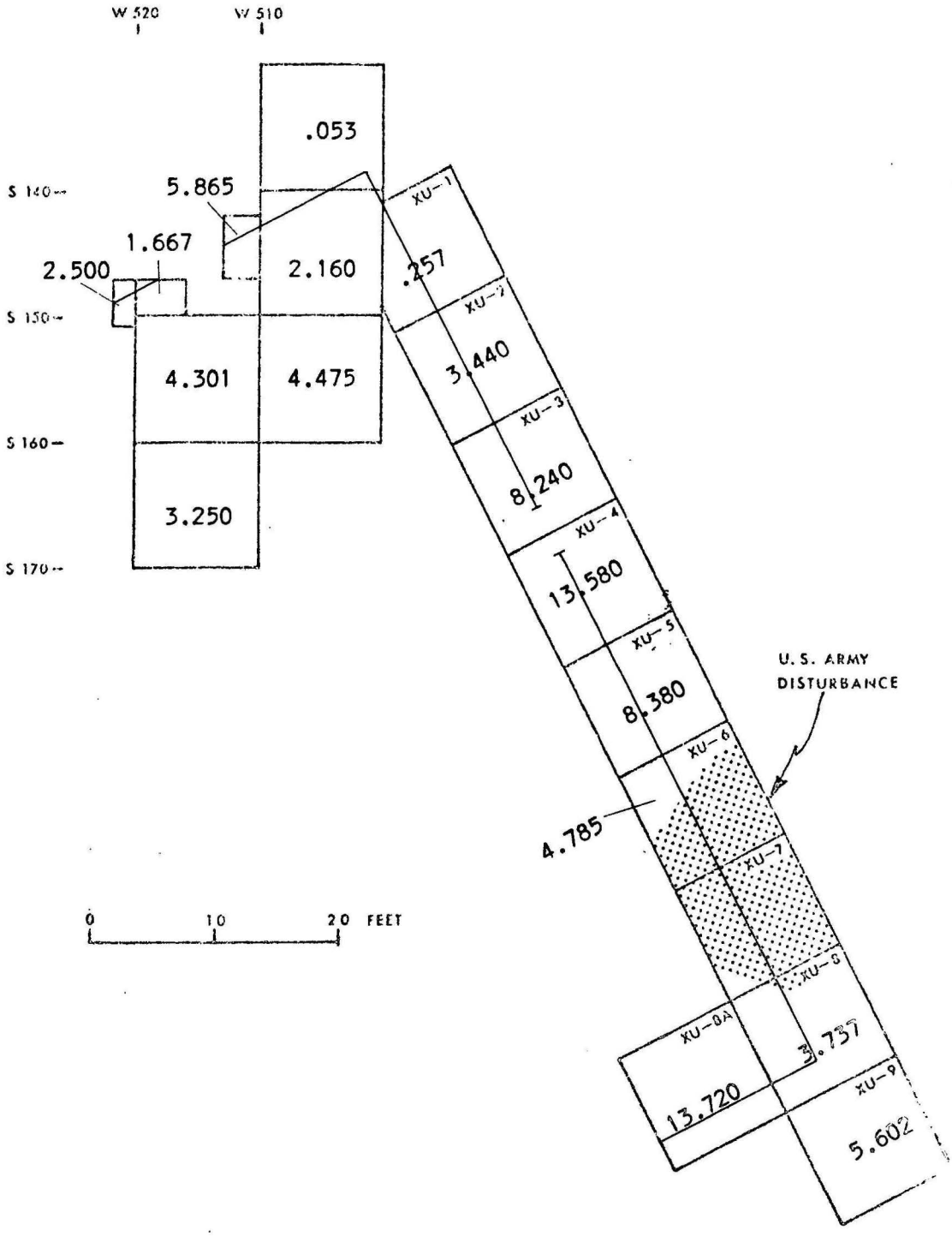


Fig. 26 - Distribution of beads in the Sales Shop excavations (f/ft^3).

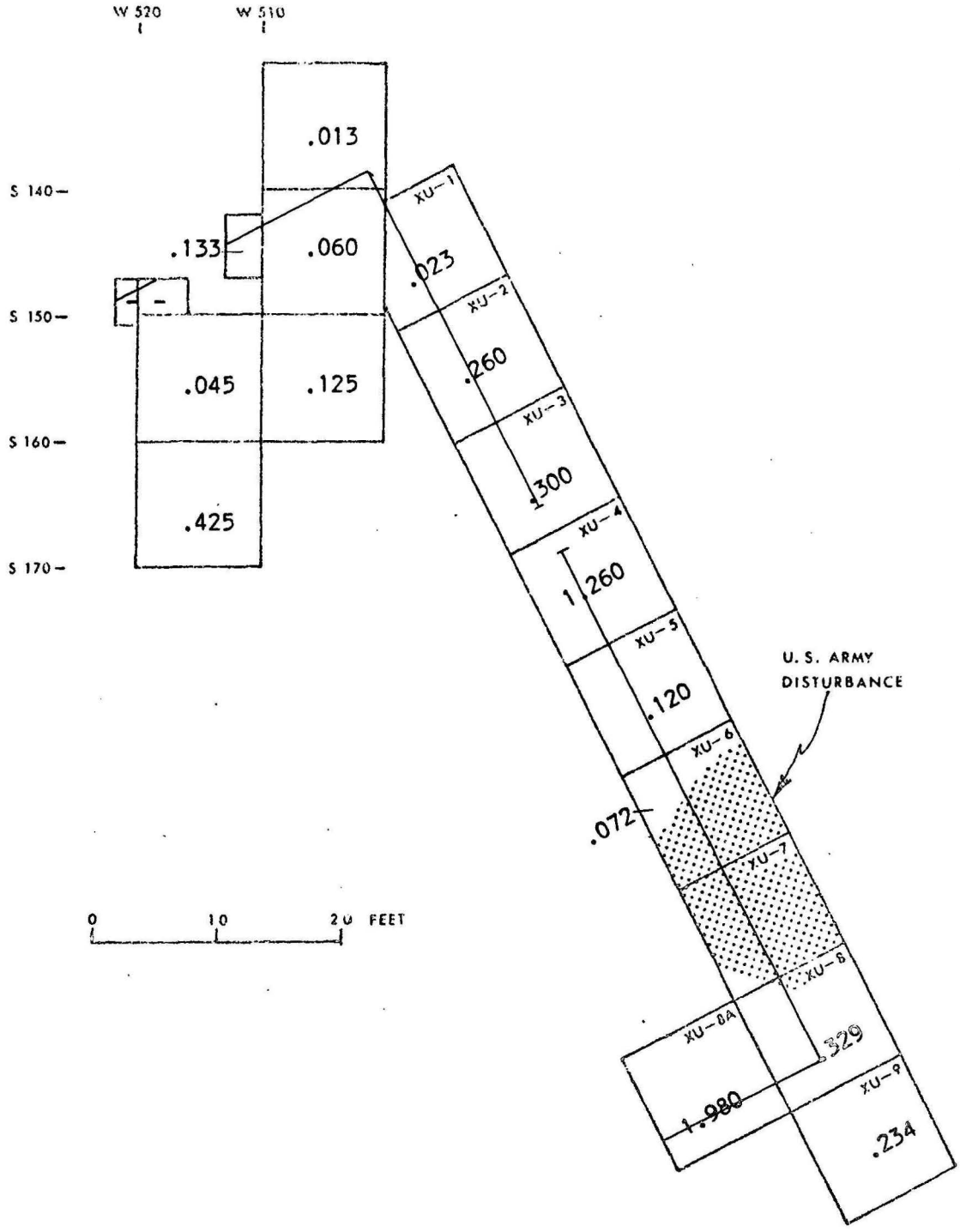


Fig. 27 - Distribution of ball and shot in the Sales Shop excavations (f/ft^3).

Frequency and distribution of brick fragments indicated that this material had no structural significance to the Sales Shop (Fig. 28). Only 14 pieces were recovered (Table 4). Most were imported brick of British manufacture. The thin scattering at the northern and southern ends of the excavation appear to have been trash dispersal activities not necessarily related to the Shop.

The frequency and distribution of clay pipes is another matter. Almost 7,000 fragments were recovered in excavation, most of which were concentrated along the eastern wall (Fig. 29). Some pipes were found inside the northern sector of the Shop, but as a generality, fragments were concentrated outside of the wall lines. Areas on either side of the doorway contained more fragments than the area of the stoop. There is almost a pattern in the way pipes cluster about the door, then decrease in frequency to the north and south (Fig. 29). We infer more than trash disposal in this distribution. Rather, we interpret the concentration of clay pipes about the door as physical evidence of customers waiting outside of the Sales Shop for their turn at the counter inside.

We have previously touched upon designated smoking areas as inferred from archeological remains in our discussion of the Chief Factor's House (Hoffman and Ross 1973:162). Whether designation of these areas was by HBC fire suppression policy or merely by mutual agreement of the participants, the fact remains that such areas often can be archeologically identified at Fort Vancouver. In the case of the Sales Shop, some indirect historical evidence supports our interpretations of a smoking area. As cited by Hussey (1972:n74), a contemporary observer of Trade Store operations at Lower Fort Garry in the 1870's noted that:

> A small area is railed off near the door sufficiently large to hold twenty standing customers. When this is filled, the remaining patrons must wait their turn in the courtyard; and it is not at all an unusual sight to see from fifty to one hundred people standing quietly about outside until their time comes to be served.

It is not difficult to understand how large quantities of clay pipes were deposited around the doors of HBC retail stores.

The concentration of pipes around the southeastern corner of the Sales Shop does not seem to reflect a smoking area. This distribution agrees with an area of trash disposal previously interpreted for other fragile items. Considering the quantity of material found in this vicinity, it may be that our excavations at the southeastern corner merely touched upon a general dump of HBC refuse that originally came from both the Sales Shop and the adjacent New Store.

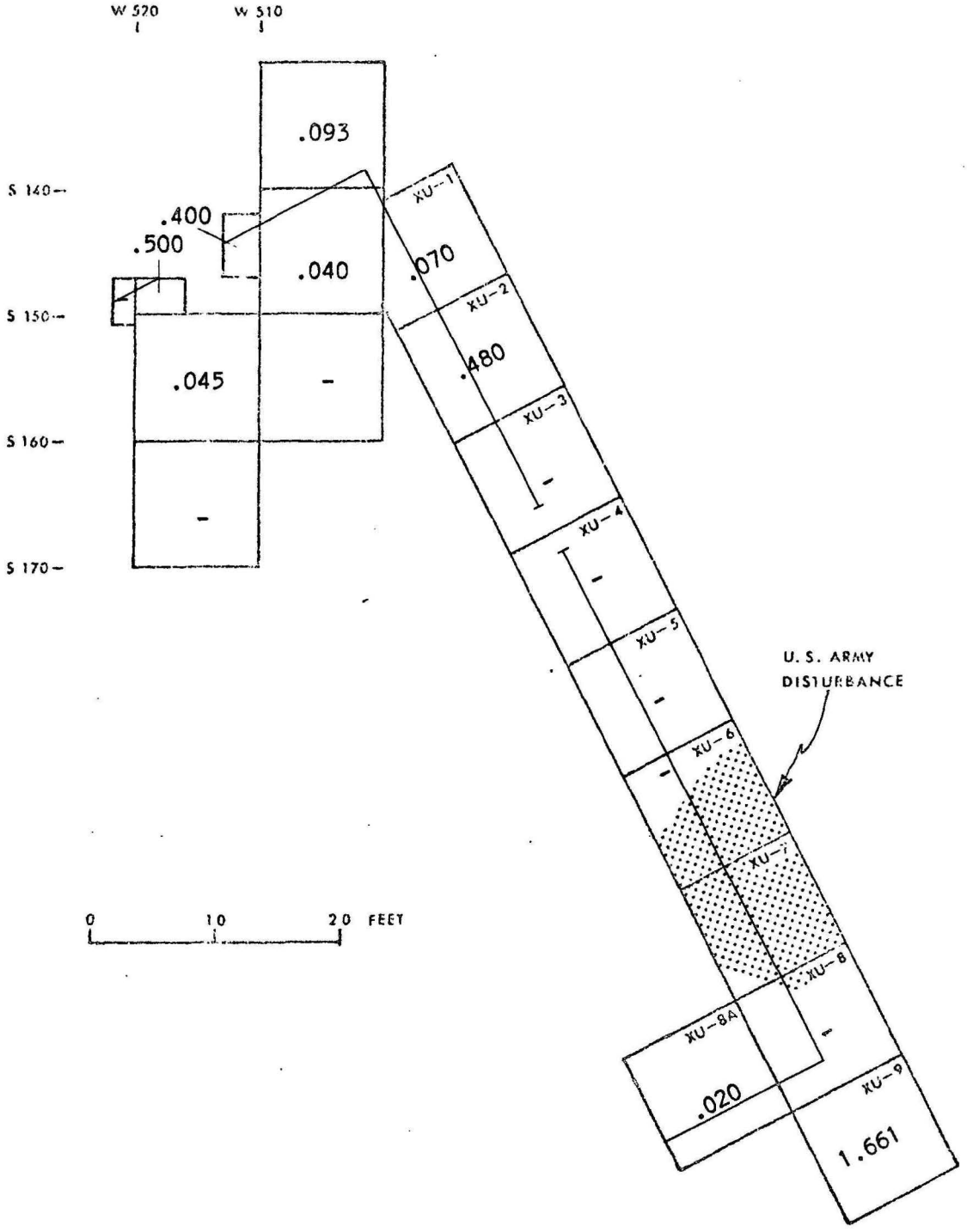


Fig. 28 - Distribution of brick fragments in the Sales Shop excavations (f/ft^3).

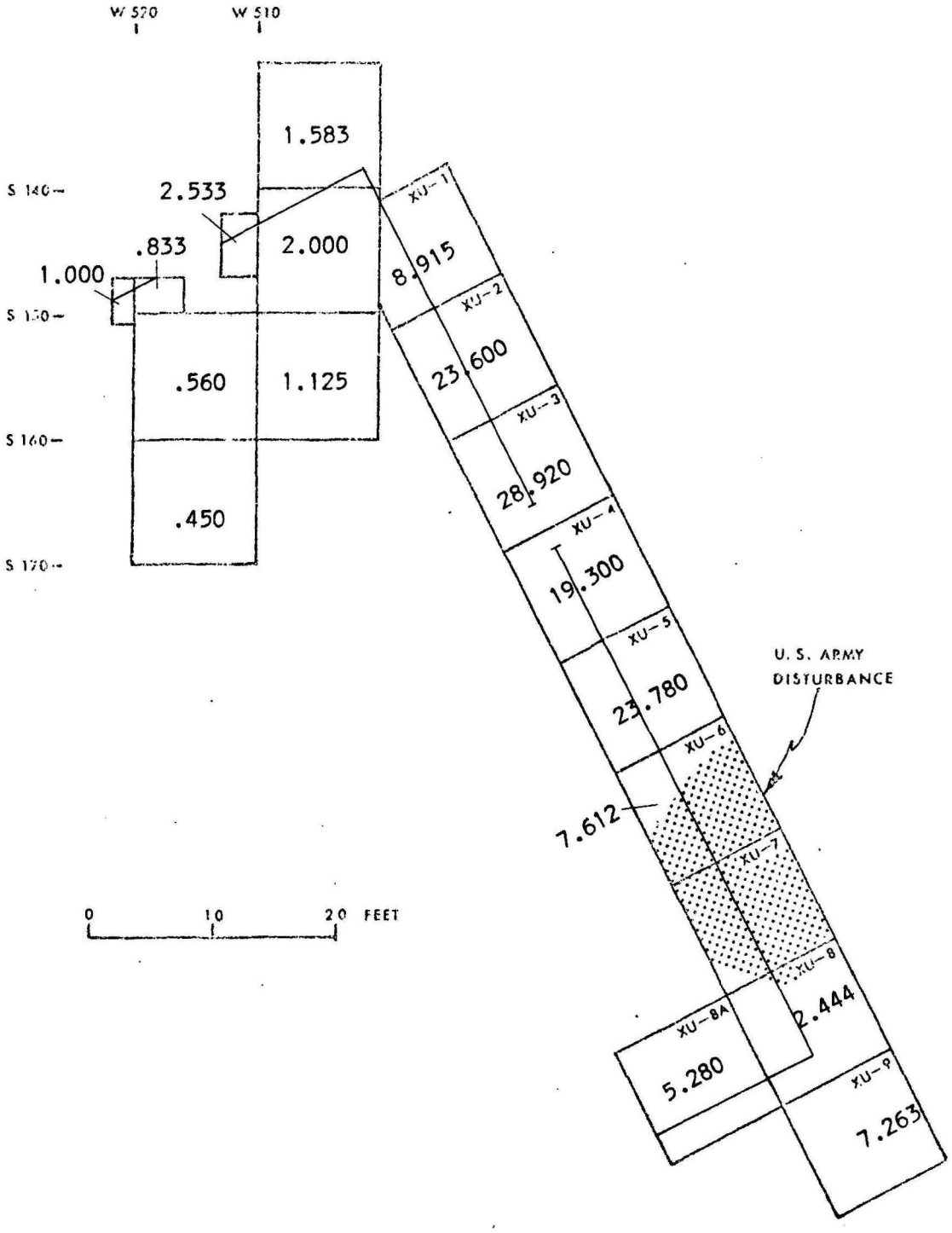


Fig. 29 - Distribution of clay pipe fragments in the Sales Shop excavations (f/ft^3).

The high quantities and distribution of coal and clinkers found in excavation pose a surprising problem (Figs. 30, 31). It must be remembered that these items stem from HBC deposits only, and not from overburden or Vancouver Barracks intrusions. Also, these clinkers are carefully distinguished from the slag and molten glass found associated with footings of the eastern wall (Appendix I).

In past investigations, coal and clinkers have been found associated with heating and cooking activities. Yet the historical record shows that HBC policy was generally not to permit the use of stoves and fireplaces in shops and warehouses due to potential fire danger (Hussey 1972:201, 216, n81). This is the problem posed by the presence of 2 materials clearly associated with fire at the Sales Shop.

Over 3,000 pieces of coal were found mainly concentrated in a small area south of the door (Fig. 30). Part of the concentration was so dense as to warrant mapping in the field (Fig. 2). With the possible exception of a small density south of the southeastern corner, the balance of the coal fragments were infrequent and scattered about the excavation.

Distribution of clinkers showed more material outside the Shop than inside, with sizable concentrations north and south of the door (Fig. 31). The highest frequency coincided with the densest concentration of coal. This particular spot has been previously interpreted as a dumping area for objects broken within the Shop. It is difficult to associate the coal and clinkers with fragile items deliberately dumped outside of the building. Neither are we convinced that the coal concentration south of the door was the remains of a stockpile sold through the Shop.

Lacking a reasonable basis for inferring the use and/or sale of coal in the Sales Shop, as well as a basis for explaining the clinkers, we must seek another answer. Inspection of the artifact inventory for the Shop (Table 4) fails to reveal satisfactory evidence of stoves or blacksmithing activity; neither does the distribution of brick indicate any activities reasonably associated with fire.

It is possible that a small forge, such as a farrier's, may have been used in conjunction with the services of the Sales Shop. Yet, proximity of a forge to the Shop would seem to contradict Company fire policy. At this time we are not certain of the relationship of coal and clinkers with the Shop. It may well be that these materials represent an activity not associated with the Shop, an activity that has yet to be archeologically or historically identified for this

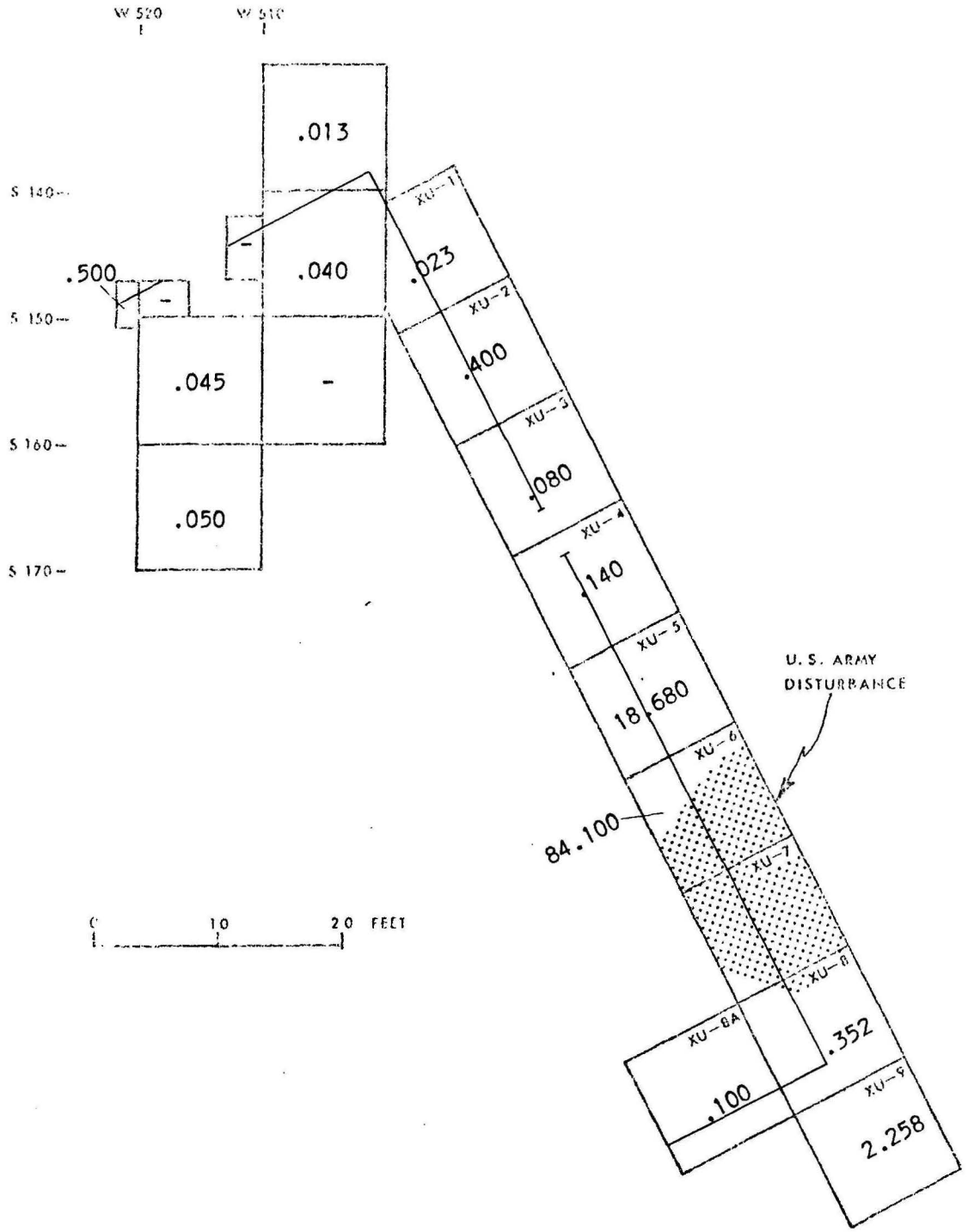


Fig. 30 - Distribution of coal in the Sales Shop excavations (f/ft^3).

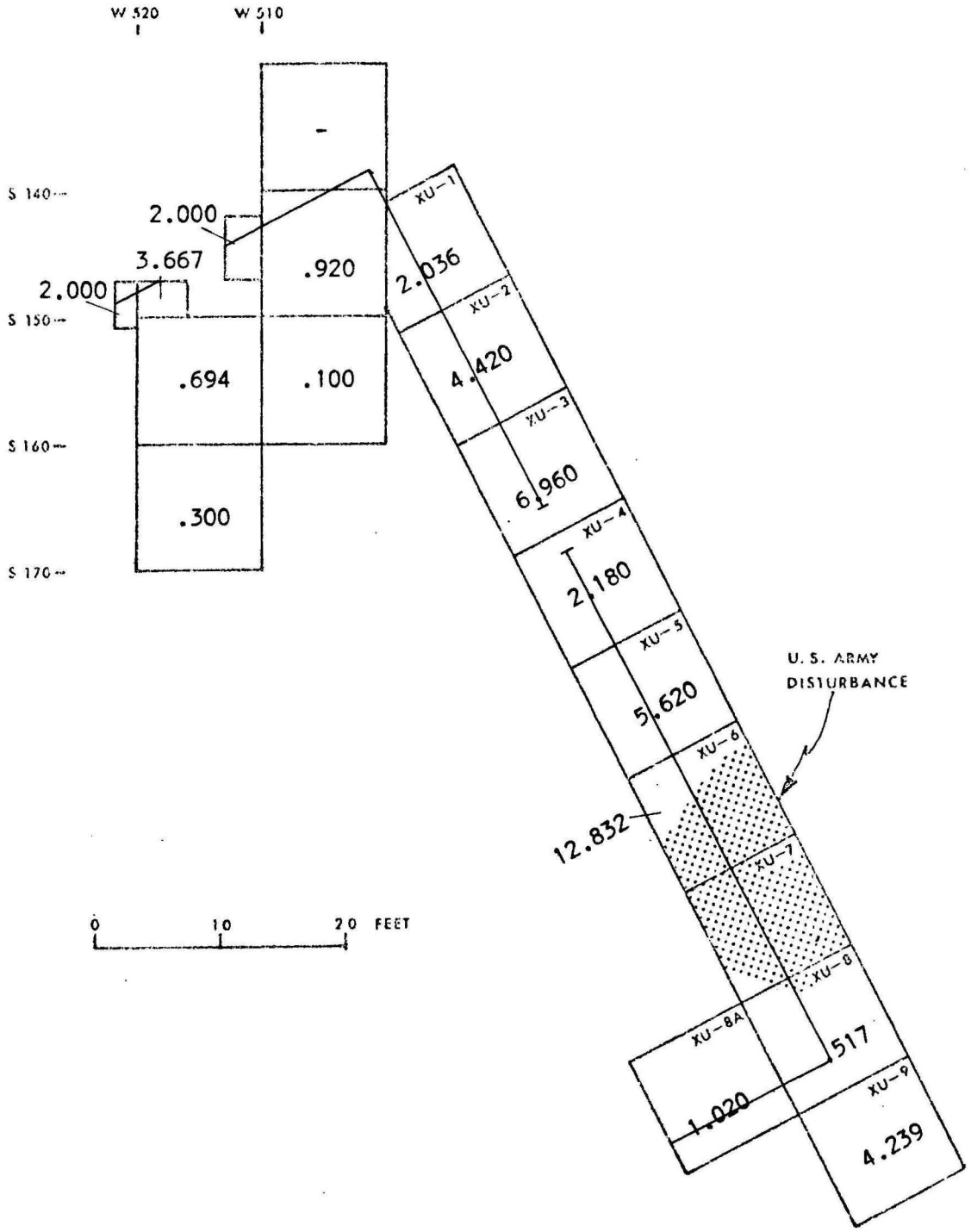


Fig. 31 - Distribution of clinkers in the Sales Shop excavations (f/ft^3).

sector of the Fort. While we are not aware of any historical data relevent to forging activities in this vicinity, we note that there remains a most sizable area east of the Sales Shop that has never been archeologically tested (Caywood 1955:sheet 4 of map 2).

Another test of the effectiveness of comparing archeological remains against historical data is to note the similarity between artifact categories provided by the two sets of data. We are fortunate in having a list of merchandise contained within the Sales Shop as of Spring, 1844 (Hussey 1972:217-226). This list was originally prepared for purposes far different than those of archeologsits. It does not include items such as brick, paint flakes, building hardware in use, or many other materials we have listed in the archeology inventory (Table 4, Appendix I). Neither does the HBC inventory include objects from later occupations such as items made of modern polymers. Also, the archeological inventory consists of objects discarded or lost over the years of Shop operation, as opposed to a single year's listing of saleable merchandise. Despite this, inspection of the two inventories indicates the efficacy of our limited archeological testing.

The "Inventory of Sundry Goods, etc., remaining on hand in Fort Vancouver Sale Shop, Spring, 1844" (Hussey 1972:217-226) lists 367 categories of objects by descriptions and quantities. The inventory is so exact as to distinguish between blanket qualities, kettle sizes, or implied functions of combs and brushes to name but a few examples. Of the total merchandise listed, 47% was of perishable nature such as clothing, fabrics, tobacco, paper products, etc. Another 8% consisted of liquids, pastes, powders and similar items that were probably stored in generalized containers such as stoneware vessels, wooden boxes and barrels, or fiber bags and bales. These would include such things as soap, starch, bulk condiments and spices, and some cosmetics. Such items cannot be archeologically identified from remains of a stoneware vessel or a wooden barrel that may have been continually reused for varying storage purposes. Thus, only 45% of the categories known to have been in the Sales Shop during the Spring of 1844 have any potential for archeological identification under the most ideal of conditions for preservation.

Despite the diminished odds and the very limited excavations, there is a striking correlation between the two inventories in terms of specific categories. Table 17 shows archeologically recovered objects which are categorically known to have existed in the Sales Shop during the Spring of 1844. While the list is small, the specificity of the objects indicates the worth of comparing the two inventories. From the archeological remains, we can now provide exact physical descriptions of many historically referenced objects.

Table 17 -- Artifact categories of the 1844 inventory found archeologically in the Sales Shop.

Artifact Categories	
Earthenware household vessels	Clay pipes
Cut glass beads	Round glass beads
Glass tumblers	Window glass
Looking glass	Nails
Chisels	Saw (triangular) files
Flat files	Iron chains
Iron wire	Chest locks
Pocket knives	Metal hooks and eyes
Thimbles	Needles
Metal buttons	Iron kettles
Percussion caps	Ball and shot
Slate tablets	Slate pencils
Putty	Gun flints

Magazine

Archeological remains of the Magazine consisted primarily of a stone and mortar foundation, masses of brick fragments, and 2 large post casts outside of the foundation (Fig. 5). The foundation varied from one to 2.7 ft. in width (or thickness), and formed a rectangular outline 19 to 20 ft. in maximum length. Historically, the Magazine was 18 ft. square in plan (Hussey 1957:184). Previous archeological testing revealed the foundation to be 19.5 ft. square and 2 ft. thick (Caywood 1955:Pl. 3).

Our excavations demonstrated that the foundation consisted of stone rubble cemented with coral-derived lime. A shallow trench was prepared for the foundation, soaked with water, and filled with the stone and lime mixture. Because of previous disturbance, we do not know the original depth of the trench; therefore we cannot say whether the entire foundation was confined to the trench, or built above the trench. However, our information does indicate that the trench was generally 2 ft. wide. From this we infer the foundation to have been about 2 ft. thick at the time of construction. We assume the historically reported plan dimension of 18 ft. to have been an estimate rather than an accurate measurement. In any event, there is little discrepancy between the archeological and historical data in this respect.

Based on the many brick fragments found in excavation (Table 12) and the distribution of the larger pieces (Fig. 5), we believe the Magazine

walls to have been made of brick. Most of this brick was an imported variety of probable British manufacture. There is no direct evidence for the thickness of the walls; however, judging from the foundations it seems reasonable that the walls were no more than 2 ft. thick and possibly less.

Height of the walls, indeed of the entire Magazine, must have been lower than the Stockade during most of the Fort's use. No historical illustration found to date shows the Magazine roof rising above the Stockade such as is the case with most of the Fort buildings. Many of these illustrations are low angle views that show both plan and elevation of the Fort from various quarters. As a matter of fact, no illustration, save maps, even depicts the Magazine.

Stockade height varied from 8 to 25 ft. over the years, depending on the state of repairs and the observers' accounts, but the most credible estimate is 15 ft. for the 1845 period (Hussey 1972:14-15). Unlike the Stockade, the Magazine probably did not change height over the years; it was a fixed masonry structure. On the basis of present historical evidence, we presume the total height of the Magazine to have been no more than 15 ft. and the walls to have been somewhat less.

Our interpretation of the Magazine roof differs sharply from the historical account. Rather than an arched masonry roof, we believe the Magazine had a freestanding wooden roof of undetermined shape. Our evidence for this consists of the large post casts immediately outside of the foundation, plus an intuitive knowledge of the purposes of a powder magazine.

The large, square post casts were located directly at the exposed corners of the foundation. The casts were exactly 19.5 ft. apart on centers. Each was deeply set within a prepared hole in such a way that post and foundation corners probably abutted. At the southeastern corner, the hole prepared for the post clearly intersected the trench prepared for the foundation (Fig. 5). We hypothesize these posts to have been 2 of the 4 uprights that originally supported a wooden roof over the masonry walls. It is possible that the roof was partially supported by the masonry walls, but we believe that it was largely freestanding. A view of this hypothetical arrangement is shown as Fig. 32.

Freestanding roofs were no novelty at Fort Vancouver. A gable roof of this type is depicted outside of the northern Stockade for the period of about 1846-48 (Hussey 1972:Pl. XV; 1957:frontis). There are some ambiguous examples of pyramidal or hipped freestanding

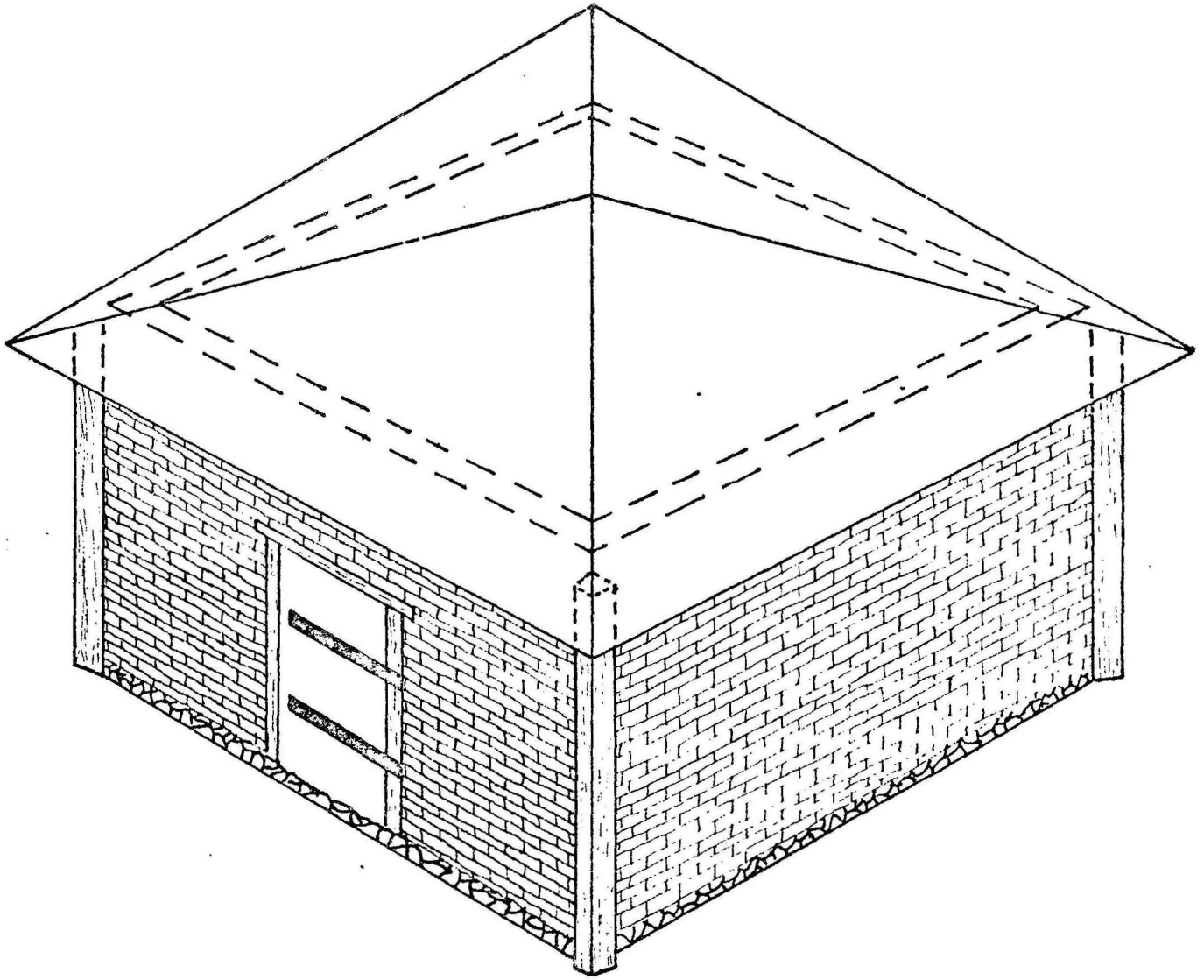


Fig. [illegible] Hypothetical view of the Magazine (not to scale).

roofs depicted outside of the northern Stockade as of 1852 and 1854 (Hussey 1972:XVIII, XX). A clear example of a freestanding hipped roof was photographed inside of the Fort in May of 1860 (Ibid.:Pl. XXVIII). This small structure stood directly east of the northern end of the Sales Shop, but has yet to be historically identified or archeologically located.

As noted in the Introduction, the Magazine probably contained large amounts of powder at any given time. A container of explosive is another way of saying bomb. A small, all masonry structure filled with explosives is a large bomb. HBC personnel were most likely aware of the potential danger -- an explosion of the Magazine would have effectively destroyed the Fort by blast and fire. The free-standing roof we hypothesize served as a safety device for potential trouble. Should the Magazine explode, the force of the blast would be largely directed upward, within the masonry walls, and out through the flimsy roof. Thus, potential blast damage could be contained and fire damage largely minimized.

Our hypothetical view of the Magazine shows a pyramidal roof. This is merely a drafting convenience; we have no idea of the roof's shape or size other than to assume a sizable overhang for efficient protection against rain. However, we would extend our hypothesis to include a fire-retardant surface for the roof. This would seem to be elementary discretion in view of our previous discussion of Company fire policy. We believe the roof was covered with sheet metal. By 1844 at the latest, large amounts of tin, copper, and lead sheets were kept in naval stores and other inventories of the Fort Vancouver Depot (Hussey 1972:276, 282, 285). We also note Chief Factor McLoughlin's requisition of 1831 for "100 Box of Tin for covering Roofs" (Barker 1948:233).

Large amounts of interlocked, iron sheets were recovered during previous archeological tests of the Fort. These are described as "Tin squares" about one ft. square (Caywood 1955:12, 41). While these materials were recovered from areas other than the Magazine, we hypothesize that the safety roof was originally sheathed in metal sheets such as those known historically and archeologically. We are not certain as to how the metal was attached to the roof. The majority of nails recovered from the Magazine excavation are too large or of inappropriate style for attaching sheet metal (Tables 14-16). The few 2d cast tacks recovered may have served this purpose, but their quantity is too low for credibility (Table 16).

Most of the nails found in the Magazine were similar to the shingling and siding nails of the Sales Shop. As previously noted, the

percentages of these items found in the Magazine closely match those of the Sales Shop. It is more likely that these nails came from adjacent warehouses (New Store and Receiving Store) rather than from the Magazine. We presume the metal sheeting of the safety roof to have been attached with nails, but we are unable to identify the nail style.

In our hypothetical view of the Magazine (Fig. 32), we show the exterior facing of the walls to be laid in alternate courses. There is no direct evidence as to the technique of brick laying used in the Magazine. If the walls were about 2 ft. thick, we presume that they consisted of several horizontal courses tied together and faced at the interior and exterior.

Historically, the door to the Magazine was located in the north wall and was copper sheathed (Hussey 1957:184). While we have no evidence as to the appearance of the door, we speculate that it was about surface level, mounted on heavy strap hinges, and set within a heavy wooden frame. The large sliding door bolt (Fig. 14c) found about 8 ft. east of the north wall centerline is a unique style that may have been used on the Magazine. Other putative evidence of the doorway may consist of an exceptionally large stone set in the centerline of the northern foundation, the expected location of a door sill (Fig. 5).

Despite extensive searching, no evidence of a floor or other utilized surface was found at the interior of the Magazine. Where found intact, the top of the HBC occupational layer was higher than the top elevation of the remnant foundation (Fig. 6). Presumably, a floor existed somewhere near the top of this layer within the Magazine, but we were unable to identify it by our limited tests. Thus, there is no archeological evidence as to how powder was racked and stored within the building. We speculate that some sort of device was necessary to raise barrels and kegs above the ground. Perhaps simple wooden platforms were used.

Other than construction material, few of the artifacts found in excavation appear to be functionally related to the Magazine (Table 12). We note relatively high frequencies of ceramics and glassware that would be more suitable in context of a warehouse such as the adjacent New Store and Receiving Store. The archeological presence of clay pipes does not necessarily indicate smoking in or around the Magazine, judging from the historical context. The only explosive-related items found were cannister lids from possible percussion cap containers, metallic cartridges, iron grapeshot, a Minié ball, and a cannon primer. The cartridges and Minié ball are

of USA provenience, the cannon primer may also be, and the cannister lids are ambiguous in identification. It is possible that explosive and fuzed stands of grapeshot were stored in the Magazine, although such ammunition would have been exotic to Fort Vancouver (cf. Hussey 1973:68-75). We are not aware of any reason for keeping regular grapeshot or any solid shot within the Magazine. Also it seems improbable that percussion caps or any fulminate would be stored with powder. In short, there is very little in the archeological inventory that can be confidently attributed to the Magazine.

V - SUMMARY AND CONCLUSIONS

Our investigations of the Sales Shop and Magazine were based on limited archeological testing, historical information, and comparative architectural studies as applied to portions of the historic data. A certain amount of intuition was also necessary to arrive at a credible interpretation of the Magazine remains.

Excavations in the Sales Shop were concentrated along the eastern wall, with additional explorations at the southwestern corner as well as inside and outside of the northern wall. These efforts disclosed a rectilinear alignment of wooden block footings that were spaced at regular intervals and set below surface in prepared holes. Supernumary blocks, or remains thereof, indicated the use of repair footings at points of structural weakness. Wooden shims were placed on the footings to level the large framing sills of the building.

Archeology demonstrated that the plan dimensions of the foundations were 40 by 80 ft. and that basic construction was the post-in-sill technique. By applying archeological dimensions to historical information, and using comparative architectural data, we deduced the framing and dimensions of the Shop east wall. We also arrived at dimensions and elevations of the door, windows, and other features of the wall. By inference, these deductions can be applied to the balance of the Shop exterior where applicable.

Structural history of the Sales Shop and its hypothetical progenitor has yet to be fully detailed. On the basis of available information, we believe the Shop stood in the same position from the early days of Fort Vancouver until 1860. A major renovation between 1841-45, perhaps culminating in 1843, lent the appearance of a virtually new building by 1845. It is this appearance that we have interpreted through various lines of evidence, an appearance that remained essentially unchanged from 1845 to 1860.

Distribution of cultural materials within the excavations largely reinforced and clarified portions of the historic record. Some hardware items such as hinges and a doorknob provide useful information for future reconstruction. Sizes and styles of nails clarified the sheathing and shingling of the heavy timber structure. However, the presence of both forged and cut nails of the appropriate styles indicate that sheathing and shingling of the Shop occurred more than once. The archeological deposits of window glass reinforced our historic observations of evenly spaced windows along the eastern wall. They also suggested the presence of windows in the northern wall, and possibly in the southern wall.

Other fragile and small items distributed in the excavations indicated areas of trash disposal outside of the eastern wall, as well as possible areas of storage within the Shop. Distribution of shot and beads validated the historic presence of a small stoop at the Shop door. An upper level door in the south wall may have been indicated by trash disposal on the ground. The presence of coal and clinkers outside of the eastern wall presented an unresolved problem. Smithing activity may have taken place somewhere in the general area, but we were unable to define it on the basis of our limited excavations.

Distribution and concentration of clay pipe fragments around the door demonstrated a historically known practice of customers waiting their turns outside of the Sales Shop. Among other artifact interpretations, we were able to make a one-to-one correlation between archeological objects and categories of merchandise historically known to have been in the Sales Shop in early 1844. Thus, we can physically define certain merchandise for purposes of refurnishing a reconstructed Shop.

Our interpretations of the Magazine were somewhat at variance with the historical information. Archeology indicated a 20-ft. square building with walls about 2 ft. thick. The foundation was a mixture of stone rubble and mortar poured in a prepared trench. Walls were laid brick that probably had interlocked courses. The total Magazine height was probably under 15 ft., and the walls somewhat less. Historically, access was by a single door in the north wall. This position may have been found archeologically. More credible door evidence consisted of a large, sliding door bolt found in excavation.

Our interpretation of the archeology led to postulation of a free-standing wooden roof for the Magazine. This roof was largely, if not wholly, supported by four large wooden upright timbers set outside the foundation corners. This roof was probably metal-sheathed for fire protection. This unusual roof constituted a safety device that could contain and direct an explosion of the Magazine with minimal damage to the rest of Fort Vancouver.

The Magazine may have been the longest standing structure of the Fort. It is known to have existed by 1832, it may have been built earlier, and it stood in one position until 1860. As such, it serves as a structural datum for dating other portions of the Fort on historic evidence.

Despite careful investigation, we were unable to determine the internal appearance of the Magazine. Neither were we able to find any credible

evidence in the recovered artifacts of materials historically known to have been stored in the small structure.

The Sales Shop and Magazine are important buildings to an understanding of the history and functions of Fort Vancouver. The Magazine was the major, if not sole, repository for explosives. These were one of the major categories of items traded into the Pacific Northwest by the Hudson's Bay Company. As implied in the Introduction, explosives probably had as many constructive uses as destructive. The emergent lumbering and agricultural industries, for instance, required large amounts of blasting powder for land clearing and road building.

The Sales Shop was one of the primary foci of daily activity within the Fort. Its storage and retail facilities not only supplied HBC personnel with many of life's necessities and little luxuries, they also catered to outside trade such as travelers and settlers. In addition to the supply and maintenance of Company activities, both buildings provided services and materials necessary to early American emigrants in the Old Oregon country.

APPENDIX I

Summary of Miscellaneous Material from the Sales Shop and Powder Magazine

Sales Shop

Descriptive Category	Subtotal	Total
Bone Fragments		22
Coral Fragments		13
Minerals		5478
Coal	3146	
Slag	129	
Clinkers	2176	
Cinders	2	
Asphaltum	7	
Red Ochre	1	
Chalk	14	
Mica	2	
Petrified Shell Cast	1	
Shell Fragments		4
Plant Fragments		22
Wood	4	
Charred Wood	18	
GRAND TOTAL		5539

Powder Magazine

Descriptive Category	Subtotal	Total
Minerals		39
Coal	17	
Asphaltum	1	
Slag	13	
Clinkers	2	
Chalk	5	
Mica	1	
Plant Fragments		6
Wood	4	
Charred Wood	2	
Unidentified Substance		3
GRAND TOTAL		48

APPENDIX II

List of Provenience Units with their
Corresponding Lot and FOVA Catalog Numbers
for the Sales Shop and Powder Magazine

Sales Shop

Provenience	Lot#	FOVA Catalog#
Backfill, Sales Shop	1879	19980-19996
F442		
EU 6, 1.5-3.3'	1832	19531-19540
F460		
S150 W510, 0.5-1.0'	1833	19541-19545
S150 W510, 1.0-1.5'	1834	19546-19553
S150 W510, 1.0-1.5', HBC	1835	19554-19555
S150 W510, 1.5-2.0', HBC	1836	19556-19560
F461		
S160 W520, 0.5-1.0'	1837	19561-19571
S160 W520, 1.0-1.5'	1838	19572-19579
S160 W520, 1.5-2.0'	1839	19580-19584
S160 W520, 2.0-2.5'	1840	19585-19588
F462		
S147 W513, 0.9-1.4'	1841	19589-19592
S147 W513, 1.4-1.9'	1842	19593-19601
S147 W513, 1.9-2.4'	1843	19602-19604
S150 W510, 1.5-2.0'	1844	19605-19610
F463		
S150 W520, 0.0-0.5'	1845	19611-19619
S150 W520, 0.5-1.0'	1846	19620-19636
S150 W520, 1.0-1.5'	1847	19637-19641
S150 W520, 1.5-2.0'	1848	19642-19643
S151 W522, 0.0-0.5'	1849	19644-19649
S151 W522, 0.5-1.0'	1850	19650-19658
S151 W522, 1.0-1.5'	1851	19659-19660
S160 W520, 1.0-1.5'	1852	19661-19665
F466		
EU 2, 0.5-1.0'	1853	19666-19677
EU 2, 1.0-1.5'	1854	19678-19690
EU 2, 1.5-2.0'	1855	19691-19696
F467		
EU 1, 1.3-1.8'	1856	19697-19713
F469		
EU 4, 0.0-0.5'	1857	19714-19723
EU 4, 0.5-1.0'	1858	19724-19734
EU 4, 1.0-1.5'	1859	19735-19753
EU 4, 1.5-2.0'	1860	19754-19764
F470		
EU 3, 0.6-1.1'	1861	19765-19774
EU 3, 1.1-1.6'	1862	19775-19788
EU 3, 1.6-2.1'	1863	19789-19794
F471		
EU 2, 1.0-1.5'	1864	19795-19799
F474		
EU 2, 1.0-1.5'	1865	19800-19801

Provenience	Lot#	FOVA Catalog#
F475		
EU 6, 0.0-0.5', VB	1866	19802-19831
EU 6, 0.5-1.0', VB	1867	19832-19849
EU 8, 0.5-1.0'	1868	19850-19858
F476		
EU 5, 0.5-1.0', HBC	1869	19859-19866
EU 5, 1.0-1.5', HBC	1870	19867-19885
F478		
EU 8, 0.5-1.0'	1871	19886-19895
EU 8, 1.0-1.5'	1872	19896-19909
EU 8, 1.5-2.0'	1873	19910-19913
F480		
EU 8, 1.0-1.5'	1874	19914-19920
F481		
EU 8, 1.0-1.5'	1880	19997-20005
F496		
EU 9, 1.0-1.5'	1875	19921-19933
F503		
EU 8A, 0.0-0.5'	1876	19934-19941
EU 8A, 0.5-1.0'	1877	19942-19961
EU 8A, 1.0-1.5'	1878	19962-19979
S140 W510		
0.0-0.5'	1736	17986-17995
0.5-1.0'	1737	17996-18020
1.0-1.25', HBC	1738	18021-18035
S147 W513		
0.0-0.9', VB	1830	19508-19514
0.9-1.4', HBC	1831	19515-19530
S150 W510		
0.0-0.5'	1739	18036-18047
0.5-0.9'	1740	18048-18062
0.9-1.0', HBC	1741	18063-18085
1.0-1.4', HBC	1745	18135-18154
S151 W522		
0.0-0.5'	1828	19497-19499
0.5-1.0'	1829	19500-19507
S160 W510		
0.0-0.5'	1742	18086-18103
0.5-0.6'	1743	18104-18110
0.6-1.0', HBC	1744	18111-18134
S160 W520		
0.0-0.5'	1746	18155-18162
0.5-0.6'	1747	18163-18178
0.6-1.0', HBC	1748	18179-18197
1.0-1.1', HBC	1749	18198-18206
S170 W520		
0.0-0.5'	1750	18207-18217
0.5-0.6'	1751	18218-18223
0.6-1.0', HBC	1752	18224-18241

Provenience	Lot#	FOVA Catalog#
EU 1		
0.0-0.8', VB	1781	18523-18536
0.8-1.3', HBC	1782	18537-18564
EU 2		
0.0-0.5', VB	1823	19406-19420
0.5-1.0', HBC	1824	19421-19442
EU 3		
0.0-0.6', VB	1810	19115-19132
0.6-1.1', HBC	1811	19133-19169
EU 4		
0.0-0.5', VB	1812	19170-19184
0.5-1.0', HBC	1813	19185-19216
EU 5		
0.0-0.5', VB	1814	19217-19234
0.5-1.0', HBC	1815	19235-19258
1.0-1.5', HBC	1825	19443-19446
EU 6		
0.0-0.5', VB	1816	19259-19272
0.5-1.0', HBC	1817	19273-19291
EU 7		
0.0-1.5', VB	1818	19292-19312
EU 8		
0.0-0.5', VB	1819	19313-19334
0.5-1.0', HBC (?)	1820	19335-19356
EU 8A		
0.0-0.5'	1826	19447-19464
0.5-1.0'	1827	19465-19496
EU 9		
0.0-0.5'	1821	19357-19370
0.5-1.0'	1822	19371-19405

Powder Magazine

Provenience	Lot#	FOVA Catalog#
F319		
EU 11, 0.0-3.0'	1890	20146-20155
F477		
EU 11, 0.0-0.5'	1891	20156-20165
EU 11, 0.5-1.0'	1892	20166-20183
EU 12, 0.0-0.5'	1893	20184-20187
EU 13, 0.5-1.0'	1894	20188-20198
F483		
EU 13, 0.5-1.0'	1895	20199-20205
EU 13, 1.0-1.5'	1896	20206-20221
EU 13, 1.5-2.0'	1897	20222-20223
EU 13, 2.0-2.5'	1898	20224
F491		
EU 11, 1.0-1.5'	1899	20225-20233
EU 11, 1.5-2.0'	1900	20234-20239
EU 11, 2.0-2.5'	1901	20240-20241
F509		
EU 12, 0.5-1.0'	1902	20242-20248
EU 13, 0.5-1.0'	1903	20249-20259
EU 13, 1.0-1.5'	1904	20260
EU 11		
0.0-0.5'	1881	20006-20033
0.5-1.0'	1882	20034-20050
1.0-1.2'	1883	20051
EU 12		
0.0-0.5'	1884	20052-20075
0.5-1.0'	1885	20076-20091
1.0-1.5'	1886	20092-20093
EU 13		
0.0-0.5'	1887	20094-20118
0.5-1.0'	1888	20119a-20137
1.0-1.5'	1889	20138-20145

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