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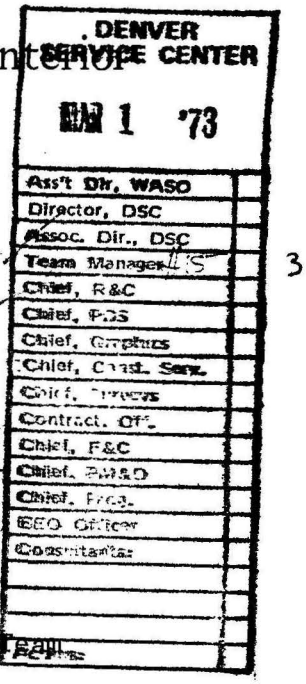

Memorandum

To: Director, Denver Service Center
Attention: Manager, Historic Preservation Team

From: Director, Pacific Northwest Region

Subject: Report on archeological excavations at Fort Vancouver

Enclosed for your use is a copy of the latest report entitled, "Fort Vancouver Excavations - III; 1845 Harness Shop" by John J. Hoffman and Lester A. Ross. Chapters I, II, V, and VI will be particularly useful in planning reconstruction of this particular building.

John A. Rutter

Enclosure

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FORT VANCOUVER EXCAVATIONS - III

1845 Harness Shop

by

J. J. Hoffman

and

Lester A. Ross

United States Department of the Interior

National Park Service

Fort Vancouver National Historic Site

February 1973

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I - INTRODUCTION

This is the third in a series of interim reports detailing the findings, analyses, and conclusions of the Fort Vancouver Archeological Project. Purpose, scope, and methods of the current project have been outlined in previous reports.

Subject of this report is the investigation of the 1845 Harness Shop area at Fort Vancouver which was excavated during early Spring of 1971. At that time, the archeological project was restricted by an avigation easement through the Fort and was limited as to potential areas of operation. While the reconstruction priority of the Harness Shop had not been determined at the time, the area was opened as a logical step in the excavation strategy initiated during late 1970. After exploring remains of the last Bakery and Wash House, as detailed in our first report, excavations were simply continued west into the Harness Shop area.

Our interest in the Harness Shop was heightened by its temporal position. The year 1845 marked the approximate climax of Fort Vancouver's activity as a commercial and administrative center. Thus, this period was selected by the National Park Service for purposes of reconstruction. Regardless of precedent or successive structures on or near the Harness Shop, investigation of the latter was the primary goal of our excavations.

II - HISTORICAL OUTLINE

Before describing excavations, a brief historical outline is necessary to explain the complexity of the area under discussion. To avoid repetitious citing of individual accounts for the outline, we prefer to cite Dr. John A. Hussey's documentation which remains the best history of Fort Vancouver.

The location used for the Harness Shop in 1845 was initially occupied by a Bakery built either during the period of 1837-39 (Hussey 1972:48), or possibly as early as 1835. The latter date is a median date for the major construction period of 1834-36 when the Fort was doubled in size by expansion to the east (Ibid.:2-3). Adjacent buildings considered to be closely contemporary with the Bakery were two Privies and a Wash House that were discussed in our first report.

The appearance of the 1835 period Bakery is not adequately known from historical accounts; however, its location is shown diagrammatically on the Emmons map of 25 July 1841 (Hussey 1957:Pl. II). This map shows a small rectangular building with its long axis oriented east-west, and its east wall in line with the east wall of the Wash House. The building is clearly identified on the map as "No. 7 Bakery - where soft bread & sea biscuit are baked" (Ibid.).

The HBC Line of Fire map of 1844 (Ibid.:Pl. XXV) again shows a rectangular structure in this general location with its long axis oriented east-west. This building is set further in from the Stockade than shown on the Emmons map and occupied a more southerly position. It appears to be aligned with the east-west axis of the final Bakery which is located athwart the eastern wall of the Stockade. The latter structure was discussed in our first report. By late 1844, or early 1845 at the latest, the old Bakery was probably converted into the Harness Shop (Hussey 1972:49). The simplified Vavasour map of 1845 (Hussey 1957:Pl. IV) shows a rectangular structure of 40 by 25 ft. in the appropriate location. Its long axis is oriented east-west, and it is plainly labeled as a Harness Shop. However, its east wall is no longer aligned with the east wall of the nearby Wash House.

The HBC inventory of Fort Vancouver for 1846-47 lists "One harness or saddler's shop, 40 x 25 feet" (Ibid.:Pl. X). That this is the same structure in the same position as it was in 1845 is clearly shown in the Covington map of 1846 (Ibid.:Pl. X). Again, the building's long axis is oriented east-west.

An east-west oriented building continued to stand on the Harness Shop location in 1854 as shown by the Bonneville map (Ibid.:Pl. XV). This map also shows a small, north-south oriented building immediately east of the Harness Shop location. The east-west building may be a butcher shop known to exist in the northeastern corner of the Fort in 1860, and probably as early as 1854 (Ibid.:154). Another small, north-south oriented building is shown on the Bonneville map immediately west of the Harness Shop location. This structure was undoubtedly a recently built kitchen (Hussey 1972:168) associated with the adjacent Chief Factor's House.

An unsigned map of 1855 (Hussey 1957:Pl. XX) shows two small buildings in the Harness Shop position, but with their long axes oriented north-south. No east-west oriented structure is indicated for the location. The Wheeler and Dixon map of 1859 (Ibid.:Pl. XXI) shows two very small square structures in the general Harness Shop location, as well as the Kitchen immediately west. Again, no east-west oriented structure is indicated for the area; however, a harness shop is probably somewhere within the Fort. To quote Hussey (Ibid.:157):

> A saddler's shop is mentioned as existing in 1858, but whether or not it was housed in the same building in that year as it had been in 1846 is not known. From the maps, it would appear that the old saddler's shop of 1845 may have been replaced by two smaller structures before 1854, one of which may have continued to serve as a saddler's shop and the other of which became the butcher shop. Or, only one additional building may have been erected in the northeast corner, in which case it or the old saddler's shop became the butcher shop.

The difficulties of tracing the Harness Shop through time are evident.

One of the few photographs of Fort Vancouver shows a southwest elevation of the Chief Factor's House or manager's residence as it appeared in 1860 (Hoffman and Ross 1972:Fig. 7a). Close inspection of this photograph shows the eastern edge of a small, gabled roof just visible beyond the southeast corner of the Chief Factor's House, but apparently south of the Harness Shop location. Judging from the angle of the gable, the long axis

of the small building must be oriented north-south. That this building could not be the nearby Wash House was pointed out in our first report (Ibid.:78) and confirmed by new historic documentation (Hussey 1972:84).

The U.S. Army had no doubt as to the use of the small building. An inspection team of 15 June 1860 sketched the Fort arrangement and showed a small, square structure on the general Harness Shop location (Hussey 1957:Pl. XXIV). Although the USA map is diagrammatic, the small building appears to be about 25 ft. on a side, as scaled against the Chief Factor's House whose dimensions of 1860 are known. The building is identified by the inspection team as "Butcher shop &c, in ruinous condition" (Ibid.:156). The USA map also notes a small building immediately west of the Butcher Shop that is identified as a kitchen (Ibid.). This structure is in the same location as noted on the Bonneville map of 1854.

To further complicate the structural sequence in the Harness Shop location, the presence of an additional building in the general area has been recently documented (Hussey 1972:84). While the function of this building has yet to be determined, it is known to have been located between the Chief Factor's House and the Wash House. In other words, it was somewhere slightly south of the 1845 Harness Shop location. This "mystery building" was evidently quite new in late 1852, since its still-green wood prevented westward expansion of a fire that destroyed the Wash House in November of that year (Ibid.). This building is not shown on the USA inspection team map of 1860 (Hussey 1957:Pl. XXIV); neither are we confident that it can be seen in the 1860 photo of the northeast corner of the Fort (Hoffman and Ross 1972:Fig. 7a). Apparently, the mystery building was no longer in existence by June of 1860.

Whatever remained of buildings in the Harness Shop area quickly disappeared after the inspection. During late June of 1860 Fort Vancouver was salvaged for building materials by the Army and local civilians. This activity halted after receipt by the Army of an abeyance order from the U.S. Secretary of War (Hussey 1957:158-59). But the worst had been done. As Hussey (Ibid.:159) describes the carnage:

> The manager's residence and the quarters for the subordinate officers remained untouched as apparently did two of the warehouses, the office, the Indian store, and the blacksmith shop; but many of the other structures were in various states of

demolition. The Company store was partly torn down, while one of the large warehouses along the south palisade wall and several other buildings had disappeared entirely.

In summary, the outline shows that we must deal with two distinct factors: (1) the general area occupied by the 1845 Harness Shop as well as any precedent or successive structures; and (2) the structure known as the 1845 Harness Shop. Hussey's documentation of the Harness Shop position clearly shows a change of function through time, from Bakery to Harness Shop to Butcher Shop. Additionally, there appears to be a change of actual structures through time. Thus, we are confronted with problems of sorting out remains that can be confidently identified as those of the 1845 Harness Shop.

III - EXCAVATIONS

As detailed in our first report, a gridded series of excavation units was established for purposes of controlling current investigations. This grid was extended into the area of the 1845 Harness Shop as well as the area immediately south. Thus, activities were confined between the reconstructed north wall of the Stockade and a fence line representing the northern edge of the avigation easement (Fig. 1). An arbitrary excavation unit, termed Feature 130, was projected into the grid at the presumed position of the Harness Shop. We determined this position on the basis of the 1845 Vavasour map of Fort Vancouver which is reproduced by Hussey (1957:Pl. IV).

A bewildering maze of remains was exposed in the Harness Shop position and surrounding area (Fig. 1). These are summarized in Table I as a series of archeological features. The remains are attributable to 3 major occupations of Fort Vancouver. The latest, or NPS component, consists of grid stakes and test pits from past archeological exploration conducted by Louis R. Caywood, plus a functioning water line that runs north-south through the area. Remains of the grid stakes were oriented to the Fort axis and spaced in multiples of 5 ft.

The second component comprises remains of Vancouver Barracks activity. Listed on Table I as the USA component, these features consist mainly of railroad and barracks debris. In the southern area of the excavation, for instance, we uncovered remnants of a railroad spur known to have been used in 1918-19. This spur was discussed in our first report (Hoffman and Ross 1972:17-18). The northern edge of excavation was marred by scattered remains of Vancouver Barracks buildings that are known to have protruded into the Fort during the first half of the 20th Century (q.v. Larrabee and Kardas 1968:58-59). Direct evidence of these buildings was found in the form of thin wooden shingles, tarpaper, and wire nails. Sometime previous to 1947, the buildings were removed. Both construction and removal (or destruction) of the military buildings badly disrupted this portion of the Fort and mixed materials from the USA and HBC occupations.

The third component consists of Hudson's Bay Company remains. Many of these appear to be redeposited, probably by USA action. As indicated in Table I, many of the HBC features are concentrations of fragmented bricks and rotted wood. Our delineations of the concentrations are quite arbitrary since the exposed sector actually consists of one large rubble-strewn area (Fig. 2a). Again, assignment of some of the features to the HBC component is debatable because of rubble mixture. While we have attempted to use artifacts

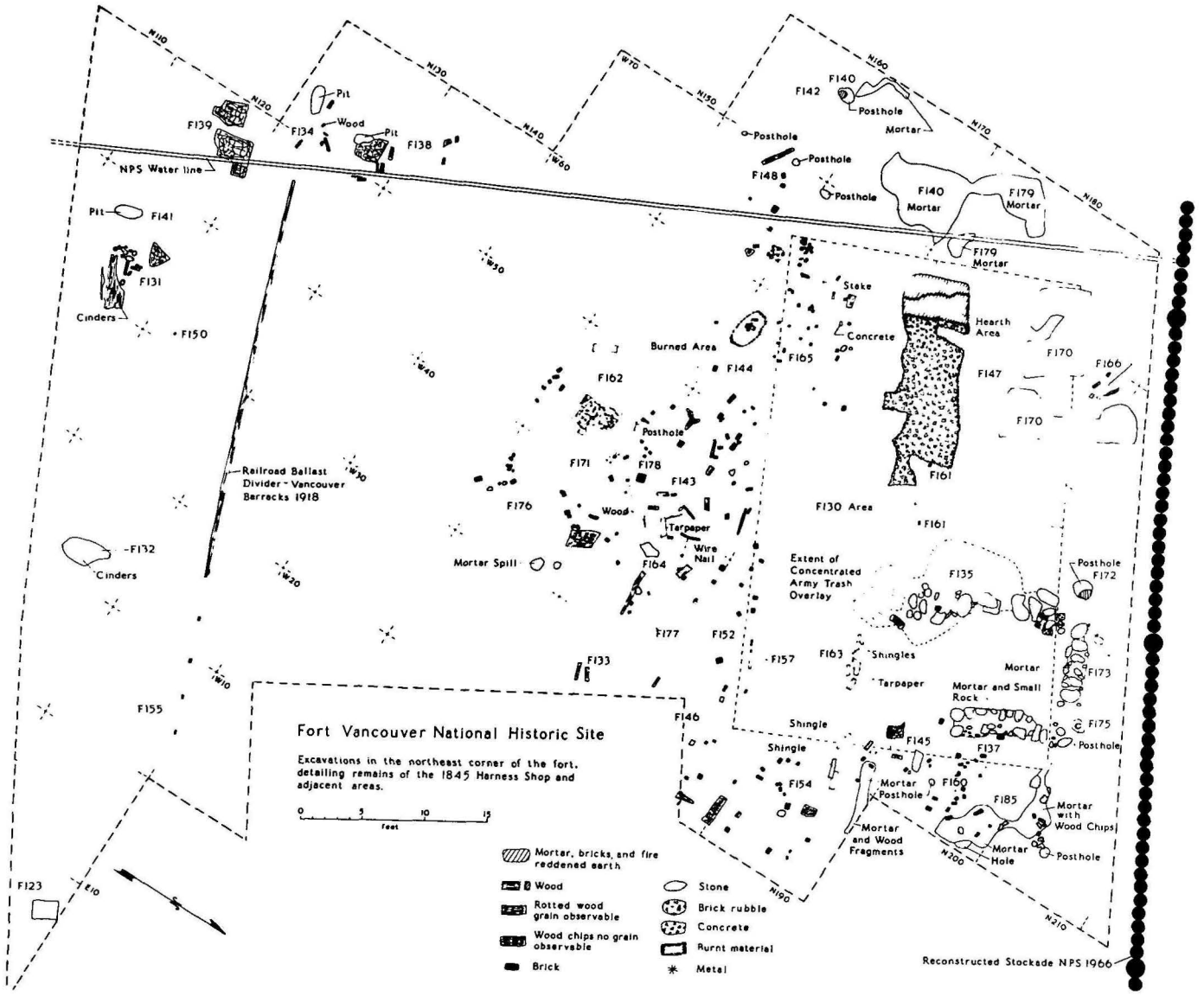


Fig. 1 - Archeological features in and around the Harness Shop area.

Table 1 - Archeological features excavated in Harness Shop area.

Feature	Description	Comp.
123	concentrations of wood dust in a narrow trench; portion of the 1834-36 east Stockade wall	HBC
130	arbitrary excavation unit superimposed on presumed position of the 1845 Harness Shop	---
131	large wooden piece associated with cobbles and cinders; possibly a structural remnant of the adjacent Bachelors' Quarters	HBC
132	cinder patch with coal and ferrous slag	HBC?
133	two parallel wooden pieces	HBC
134	scattered wooden fragments and a shallow hole	HBC?
135	linear pattern of large rock and mortar with occasional brick; west wing of the 1835 Bakery oven foundation	HBC
137	linear pattern of large rock in mortar and small rock fill with occasional brick; east wing of 1835 Bakery oven foundation	HBC
138	scattered wooden fragments and a small hole plus a small wooden stake and fragments	USA?
139	two concentrations of wooden fragments	HBC?
140	two mortar or plaster patches of irregular form; possibly flooring of Chief Factor's Kitchen	HBC
141	rectanguloid pit associated with ferrous material	HBC
142	large posthole with rectanguloid post remains	HBC
143	large trash concentration of brick, wooden fragments, coal, metal, and tarpaper	USA over HBC
144	concentration of brick and wooden fragments, partially in a burnt area	HBC

Table 1 (cont'd.)

Feature	Description	Comp.
145	wooden footing remnant?	HBC
146	wooden fragments and isolated brick redeposited by USA action	HBC
147	large pattern of fragmented brick with hearth area; collapsed chimney or stove platform	HBC
150	Caywood grid stake	NPS
152	scattered brick and wooden fragments; wood is probably USA, brick is redeposited HBC	USA & HBC
154a	scattered brick and wooden fragments; probably redeposited	HBC
154b	scattered shingles, tarpaper, and wire tacks	USA
154c	Caywood grid stakes	NPS
155	two vertical posts of 1918 R.R. spur	USA
157	Caywood grid stake	NPS
160	mortar or plaster patches with brick and wooden fragments and occasional rock; appears to be redeposited	HBC
161	probably Caywood grid stakes	NPS
162	scattered brick and wooden fragments; probably redeposited by USA action	HBC
163	concentration of wooden shingles and tarpaper	USA
164	scattered brick and wooden fragments, wood dust, metal, charcoal, and tarpaper, all disturbed, probably some redeposition	USA mixed with HBC

Table 1 (cont'd.)

Feature	Description	Comp.
165	scattered and concentrated brick and wooden fragments, also rocks and a small posthole; material probably redeposited by USA action	HBC mixed with USA
166	small concentration of wooden fragments and a single brick; possibly redeposited	USA?
170	two test pits from Caywood excavations	NPS
171	intrusive dog burial	USA
172	large posthole aligned with oven foundation; possible structural cover for 1835 Bakery oven	HBC
173	linear pattern of large rock set into mortar; north wing of 1835 Bakery oven foundation	HBC
175	large post and hole aligned with oven foundation; possible structural cover for 1835 Bakery oven	HBC
176	scattered brick fragments, concentration of wooden fragments, and a mortar patch; brick and wood appear redeposited	USA over HBC
177	Caywood grid stake	NPS
178	Caywood grid stake	NPS
179	two thin mortar or plaster patches of irregular forms; a continuation of Feature 140	HBC
185	mortar or plaster patch of irregular form with large rock, brick, and wooden fragments; also a large posthole; except for posthole, all appear to be redeposited from adjacent oven foundations	HBC

Fig. 2 - Excavations in and around the 1845 Harness Shop area.

a - Rubble-strewn area south of the Harness Shop position. Each earthen pedestal contains a concentration of debris. View is west (FOVA neg. 069.51-71/92).

b - Feature 143, a rubble-strewn area immediately south of the Harness Shop position. This feature yielded a mixture of USA and HBC materials. View is northwest (FOVA neg. 069.51-71/74).

A

B

as cultural indicators, the approach was not particularly successful in this area because of site disturbance and mixing of artifacts. A good example of this is Feature 143 where USA artifacts were found partially overlaying and partially mixed with HBC remains (Fig. 2b).

Putative stratigraphic evidence is of some aid in separating features exposed in the Harness Shop area. The upper level of cultural fill was a light-colored, gravelly soil that extended from the present day surface to a depth of 1.8 ft. in some areas, but generally less. This level is shown on Figs. 2a and b as a light-colored band immediately below surface. Almost all features yielding wire nails, tarpaper, and other evidences of recent occupation were found in the light-colored band. Often these were accompanied by Hudson's Bay Company materials. This upper level was the greatest zone of artifact mixture and thus, was considered to be Vancouver Barracks deposition or later. Features found to be completely or partly below the light-colored band generally contained far less artifact mixture and were considered to be HBC in origin. In many parts of the excavation, the contact zone between the Vancouver Barracks level and the darker Hudson's Bay level was suspiciously level as if the top of the HBC level had been truncated by subsequent activity.

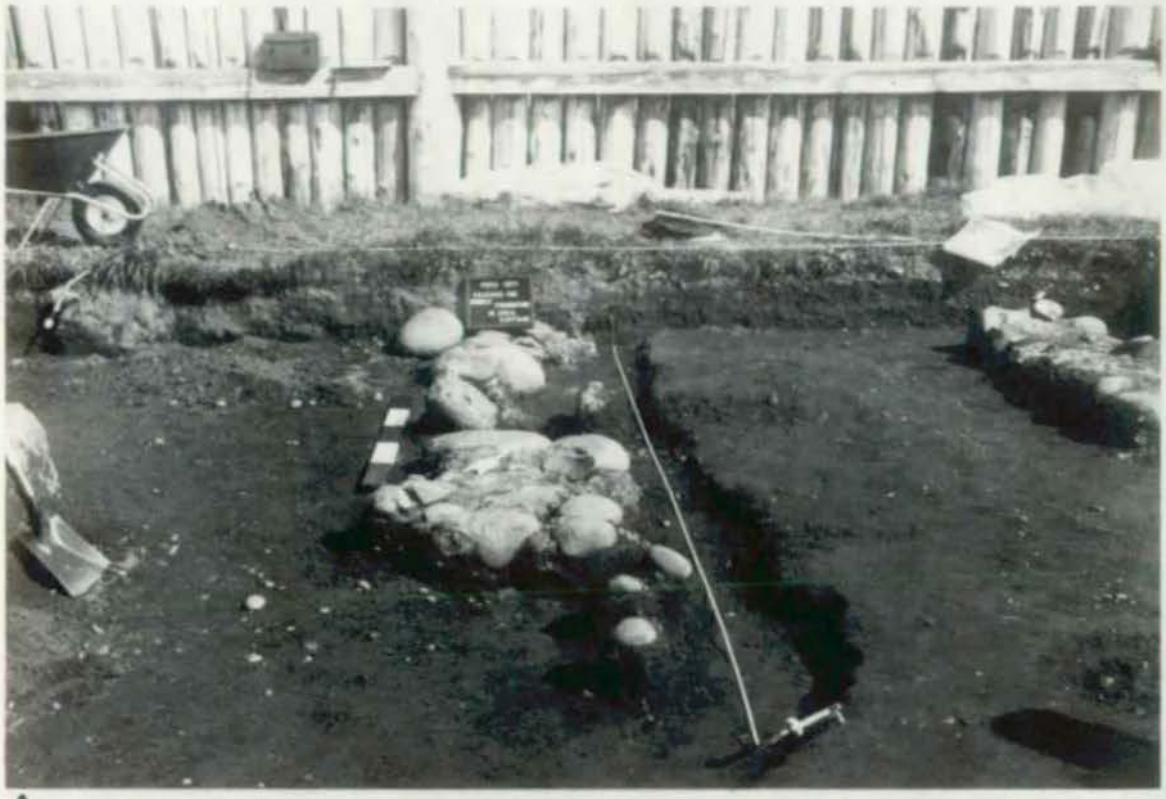
By use of the above criterion, Hudson's Bay Company features have been sorted out and presented as Figure 3. The most striking thing about this map is the complete absence of any wooden features that could be confidently construed as structural footings of the Harness Shop. While small concentrations of rotted wood and wooden fragments are present, there is nothing in their arrangement to support inference of a structure in the Harness Shop position. During exploratory operations of 1950 it was noted that "in the area where the harness shop was supposed to have been located it was impossible to ferret out any positive evidence." (Caywood 1950:3).

Fortunately, some structural evidence is present. Three sides of a stone oven foundation were found in the northeast corner of the Harness Shop position and doubtless represent the initial use of the location as a Bakery (Figs. 1 and 3). Constructed of large, rounded rock set into a matrix of mortar and smaller rock, the foundation measured 8.8 ft. long by 2.4 ft. wide at its eastern wing, and 10.5 ft. long by 2.3 ft. wide at its northern wing (Fig. 4). The western wing was scattered and virtually destroyed by USA intrusions; its measurements of 15.1 ft. long by 3.2 ft. wide do not seem indicative of the original dimensions. This western portion had been exposed during exploratory operations (Caywood 1955:sheet 9 of map 2), and described as "a short section of stone

Fig. 4 - Remnants of the 1835 Bakery.

a - East and west wings of the oven foundation after cleaning off the Vancouver Barracks debris. North wing is not yet exposed. View is north (FOVA neg. 069.51-71/75).

b - North wing of oven foundation at photo center. East and west wings are to the right in the background and foreground, respectively. View is east (FOVA neg. 069.51-71/192).



A

B

foundation found here which might also have been part of the kitchen." (Ibid.:16).

Elevations of the foundation are remarkably consistent. The eastern wing is 0.7 to 1.7 ft. below surface, well within the HBC level at this point. The northern wing is 0.9 to 1.6 ft. below surface and its upper limit coincides with the top of the truncated HBC level in this area. The western wing lay 0.9 to 1.8 ft. below surface, but stratigraphy here was destroyed by Army activities and previous archeological exploration (Ibid.). It appears that the foundation was originally laid below its contemporary surface, although there is no direct evidence of a trench or other prepared excavation.

Judging from the relatively intact portions, the oven foundation originally consisted of three sides of a square that measured about 11 ft. on a side, and was set below surface. Each side was about 2.0 to 2.4 ft. thick and 0.7 to 1.0 ft. deep. The southern or open portion of the square probably faced the interior of a covering structure.

Some evidence of the covering structure may be represented by large postholes found at the northeastern and northwestern corners of the foundation (Fig. 3). Measured from their centers, the holes are positioned 11.4 ft. apart. The large sizes of the postholes, 0.9 and 1.6 ft. in diameter and 3.3 to 3.6 ft. below modern surface, suggest that they represent the substantial base of a covering for the oven, but not the entire Bakery.

Among materials collected from the foundation was a large amount of brick and mortar. No evidence of firing or of a fire box was found in the oven foundation.

A large concentration of brick fragments was found in the western end of the Harness Shop position (Figs. 1 and 3). This had been previously exposed during exploratory operations and described as a brick platform that was probably used as a base for a large kitchen stove (Caywood 1955:16). The concentration formed an irregular pattern 16.0 ft. long by 6.6 ft. wide with a maximum thickness of 0.6 ft. Our observations disclosed fire-reddened soil, a possible hearth, at the west end of the brick rubble and in the same elevation as the brick (Fig. 5). We were unable to locate a 1.0 by 4.0 inch board about 5.5 ft. long that was noted at the west end of the rubble during exploratory operations (Caywood 1955:sheet 9 or map 2). Traces of mortar in the rubble indicated that the brick originally had been laid. However, we are unsure

Fig. 5 - Excavations in the west side of the Harness Shop position.

a - Brick rubble of collapsed chimney during excavation. View is west (FOVA neg. 069.51-71/77).

b - Collapsed chimney after being cleaned. Hearth is to right of the rubble. Scale is 5.0 ft. View is southwest (FOVA neg. 069.51-71/91).

A

B

of the archeological integrity of the brick rubble. Virtually no whole brick were found in the feature, and a piece of modern concrete was recovered adjacent to the brick at an elevation lower than the top of the rubble. We do not know whether the latter is a product of USA intrusions or of previous exploratory operations. While a certain amount of kitchen refuse was recovered in association with the rubble, we are not certain that a stove base is represented. Rather, the brick and possible hearth combination may be remains of a collapsed chimney that was disrupted by post-HBC activity. Some of this activity probably included salvage of reusable brick.

Other Hudson's Bay Company features in and adjacent to the Harness Shop position appear to be either disrupted or redeposited. For instance, the angular patterns of wood and wooden fragments located along the eastern and southern edges of the Harness Shop position are difficult to interpret as structural footings because of their irregular spacings and uneven elevations. The same can be said of wood concentrations in the southwestern sector of the excavation, far removed from the Harness Shop position (Fig. 3).

Previous exploratory operations did reveal two wooden footings near the southern edge of the Harness Shop position. Spaced 12.5 ft. apart center to center, the footings were oriented east-west, and each measured about 1 by 2 ft. (Caywood 1955:16, sheet 9 of map 2). We were unable to relocate these footings.

The mortar patches east and west of the Harness Shop position can be confidently attributed to HBC activity because of the presence of coral in the mortar. Coral of Hawaiian derivation is known to have been reduced to lime for mortar at Fort Vancouver (Hussey 1957:163). Our observations indicate that the reduction was not complete. For instance, over 1500 recognizable coral fragments were collected from excavations in and around the Harness Shop position (Appendix 1). Mortar patches on the west side are probably remnants of a "hard packed plaster floor" exposed during exploratory operations and considered to be the floor of a late kitchen associated with the Chief Factor's House (Caywood 1955:15, sheet 9 of map 2). We encountered the mortar at a slightly greater depth than did Caywood, but this discrepancy and the irregular forms of the remnants are expectable considering landscape improvements and the twenty-year hiatus between excavations. As noted by Caywood (Ibid.), the mortar patterns lacked definite edges. Moreover, they were quite thin, no more than 0.05 ft. at their thickest.

Mortar patches on the east end of the Harness Shop position are less easily understood. It is tempting to consider them to be waste dumps from the construction of the adjacent oven foundation. Indeed, the mortar of both features appears to be identical to us. However, elevations of the eastern patches are between the maximum and minimum elevations of the adjacent foundation. We cannot rationalize this situation without assuming a highly irregular surface within a very small area. All we can say is that the mortar is a true HBC feature by virtue of its coral contents.

The suggestive patterning of mapped rubble along the eastern and southern margins of the Harness Shop position (Fig. 3) is an artifact of archeological excavations. The relatively clear area around the oven foundation and collapsed chimney was originally dug during exploratory operations, while the rubble-strewn area was not (Caywood 1955:sheet 9 of map 2). The current project carefully left all putative structural evidence in situ while exposing both areas. The results of the two operations were to leave a spurious rubble pattern that seemed to outline two sides of a structure.

Despite a virtual lack of in situ structural remains, structural and functional evidence is present in the Harness Shop area in the form of artifact concentrations. These will be discussed in the section of Preliminary Interpretations.

IV - ARTIFACT DESCRIPTIONS

A total of 44,403 artifacts was recovered within the Harness Shop area. A quantitative distribution of these artifacts by their descriptive category appears as Table 3.

Ceramic Ware Fragments

The ceramic ware fragments found totaled 13,808 fragments which have been classified into 6 descriptive ceramic categories (Table 3).

Common Pottery

Seventy-four fragments of common pottery were recovered of which 72 are lustreware fragments and 2 are unidentified. No complete or partially complete wares were recovered, and no manufacturing marks were observed. The lustreware fragments have been separated into 5 distinct decoration categories based upon exterior and interior glaze colors (see Table 2 below).

Table 2 - Categories of lustreware decorated wares.

Category	Exterior Glaze	Interior Glaze
I	blue; white applique; & brown	white
II	blue; gold; & brown	white & purple
III	yellowish brown; gold & brown	white & purple
IV	green & brown	white & brown
V	dark brown; & white, red, brown sand.	white

Majolica

Majolica consists of impure clays mixed with sand and fluxes. After a first firing to 900° C, the biscuit body is covered with a white opaque tin glaze or a white engobe and a transparent glaze. Glazing firing temperatures reach 1000-1100° C, and the final appearance of the ware is white. Finished wares have a buff to brown paste which is very porous and soft (Rado 1969:Table 1, 158-60).

Only 2 fragments of majolica have been recovered, and these were from a single undecorated container lid (FOVA 4306 and 4307) measuring 2 3/4" (outside diameter) x 2 1/8" (inside diameter) x 5/8" (height). No manufacturing marks were observed.

Earthenware

Earthenware fragments, which totaled 12,994 items, have been classified into 3 descriptive subcategories based upon the color of

Table 3 - Quantitative distribution of artifacts by descriptive category.

Descriptive Category	Subtotal	Total
Ceramic Ware Fragments		13,808
Common Pottery	74	
Majolica	2	
Earthenware	12,994	
Stoneware	632	
Vitreous China	86	
Porcelain	20	
Ceramic Personal Items		2,441
Kaolin Tobacco Pipe Fragments	2,429	
Earthenware Doorknob Fragments	5	
Earthenware Tile Fragments	2	
Unidentified Earthenware Fragment	1	
Vitreous China Pipe Fragments	2	
Vitreous China Button	1	
Porcelain Button	1	
Glass Items		7,484
Bottle Fragments	4,039	
Tumbler Fragments	42	
Stemmed Glassware Fragments	15	
Unidentified Curved Glass Fragments	184	
Window Glass Fragments	3,124	
Mirror Glass Fragments	13	
Glass Beads	58	
Glass Rods and Strips	8	
Thermometer Tube Fragment	1	
Metal Items		10,919
Hardware Items	9,192	
Household and Personal Items	56	
Weaponry	57	
Unidentifiable Objects	44	
Unidentifiable Fragments	1,570	
Construction Material		9,625
Brick Fragments	5,215	
Mortar Fragments	4,278	
Plaster Fragments	5	
Concrete Fragments	6	
Tile Fragments	44	
Window Putty Fragments	2	
Tarpaper Fragments	64	
Electrical Insulator Fragments	11	

Table 3 (cont'd.)

Descriptive Category	Subtotal	Total
Stone Items		55
Slate Tablet Fragments	21	
Slate Pencil Fragments	10	
Gun Flints	6	
Pipe Bowl Fragment	1	
Steatite Pipe Stem Fragment	1	
Carved Stone Fragments	2	
Flaked Cryptocrystalline Fragments	8	
Small Stone Bowl	1	
Abraded Stone Fragment	1	
Unidentified Spheroid	1	
Polished Stone Fragment	1	
Carbon Arc Rod	1	
Unidentified Amber Fragment	1	
Leather Items		42
Shoe Sole Fragments	2	
Unidentifiable Fragments	40	
Bone Items		5
Utensil Handle Fragments	2	
Button Fragments	2	
Unidentified Object Fragment	1	
Plastic Items		3
Pipe Stem	1	
Unidentifiable Fragments	2	
Rubber Items		8
Shoe Heel	1	
Button	1	
Pipe Stem	1	
Comb Fragments	2	
Stripping Fragment	1	
Unidentified Object	1	
Unidentifiable Fragment	1	
Wooden Items		3
Polo Ball Fragment (?)	1	
Pencil Fragments	2	
Tortoise Shell Comb Fragment		1
Styptic Pencil		1
Marking Crayons		8
TOTAL		44,403

surface glaze (Table 4).

White Body Earthenware Fragments

White body earthenware fragments totaled 12,820 items which have been classified according to function (i.e. ware vs. product container) and decoration (Table 4).

Undecorated Wares. No complete or partially complete wares were found among the 3935 fragments recovered. One fragment (FOVA 4702) of a creamware platter was recovered with an undated "Davenport" anchor impressed mark.

Table 4 - Quantitative distribution of earthenware fragments.

Category	Subtotal	Total
White Body Earthenware Fragments		12,820
Undecorated Wares	3,935	
Transfer Printed Wares	8,700	
Transfer Printed Containers	5	
Hand Painted Wares	97	
Molded Wares	76	
Mold Applique Wares	7	
Yellow Glazed Earthenware Fragments		93
Mocha Ware	22	
Yellowish Brown Basin	50	
Yellowish Green Snuff Bottles	21	
Brown Glazed Earthenware Fragments		81
TOTAL		12,994

Transfer Printed Wares. Of these 8700 fragments, 4027 have patterns which have been identified, and the remaining 1621 fragments have patterns or marks which might possibly be identified in the future. No complete or partially complete wares were recovered. A list of the identified patterns appear as Table 5, and a list of the marked patterned specimens appears as Table 6.

Transfer Printed Containers. Five container fragments were found, 3 of which (FOVA 1843, 2014, 4495) were 2 or possibly 3 blue transfer printed hair dressing jar lids. On complete jars the following information would appear: "Genuine Bears Grease, Imported by John Gosnell & Co., Successors to Price & Gosnell, 12 Three Kings Court, Lombard Street, London" (Clarke 1960:287).

Table 5 - Quantitative distribution of identified transfer printed patterns.

Manufacturer, Pattern Name, & Color	Subtotal	Total
Spode, Copeland & Garrett, and/or Copeland (3626 fragments)		
"Acorn" - C		88
Flow Purple - 5 PB 2/4		
"Aesops Fables" - C&G, C		116
Blue - 5 PB 2/6 - 5 PB 4/6		
"Alba" - C&G		132
Lt. Blue - 5 PB 4/6	131	
Dk. Blue - 7.5 PB max	1	
"Aster" - C&G, C		50
Grayish Red - 5 R 2/1		
"B700" - C&G		8
Blue - 5 PB 3/6		
"B772" - C&G, C		81
Flow Blue - 5 PB 2/4 - 5 PB 2/6		
"B773" - C&G, C		32
Flow Blue - 5 PB 2/6		
"Beverly" - C&G		12
Blue - 5 PB 2/6	11	
Flow Blue - 5 PB 2/4	1	
"Blue Italian" - S, C&G		139
Blue - 5 PB 2/6 - 5 PB 4/6		
"British Flowers" - C&G, C		260
Blue - 5 PB 2/6 - 5 PB 4/6		
"Broseley" - S, C		235
Lt. Blue - 5 PB 5/6	233	
Dk. Blue - 5 PB 2/6 - 5 PB 3/6	2	
"Broth" - C&G		15
Reddish Purple - 10 RP 2/4		
"Camilla" - C&G, C		502
Blue - 5 PB 2/6 - 5 PB 5/6	472	
Green - 7.5 GY 3/4	22	
Red - 2.5 R 3/6	6	
Brown - 5 YR 3/6	2	
"Chatsworth" - C&G, C		815
Blue - 5 PB 2/6 - 5 PB 4/6	754	
Green - 7.5 GY 3/4	25	
"Saxon Blue" - 5 PB 2/8	21	
Red - 2.5 R 3/8	8	
Brown - 5 YR 2/2	7	
"Chinese" - C&G		22
Blue - 5 PB 2/6 - 5 PB 5/6		

Table 5 (cont'd.)

Manufacturer, Pattern Name, & Color	Subtotal	Total
"Continental" - C		40
Dk. Blue - 5 PB 2/6 - 5 PB 3/6	38	
Brown - 2.5 YR 3/4	2	
"Filigree" - S, C&G		30
Blue - 5 PB 2/6 - 5 PB 4/6		
"Geranium" - S, C&G		44
Blue - 5 PB 2/6 - 5 PB 4/6		
"Hop" - C		16
Flow Bluish Gray - 5 PB 2/2		
"Italian Church" - S, C&G		13
Blue - 5 PB 2/6 - 5 PB 4/6		
"May" - C&G, C		143
Flow Blue - 5 PB 2/6	130	
Blue - 5 PB 2/6 - 5 PB 5/6	13	
"Pagoda" - C&G		21
Green - 7.5 GY 3/4	17	
Lt. Blue - 5 PB 5/8	4	
"Pekin" - C&G (also a mark "S")		90
Blue - 5 PB 2/6 - 5 PB 4/6	62	
Brown - 5 YR 2/4	16	
Lt. Blue - 5 PB 5/8	12	
"Portland Vase" - C&G		40
Blue - 5 PB 3/6 - 5 PB 5/6		
"Queen Mary" - C&G, C		293
Dk. Blue - 5 PB 2/6		
"Rose" - S, C&G		38
Red - 2.5 RP 2/4	30	
Brown - 2.5 YR 2/2	8	
"Rose & Sprigs" - C		44
Grayish Brown - 5 YR 5/1		
"Seasons" - unknown (many variations)		146
Grayish Blue - 10 B 2/2	119	
Blue - 5 PB 4/6	17	
Green - 5 GY 4/6	8	
Red - 2.5 R 3/10	2	
"Tower" - S, C&G		21
Blue - 5 PB 2/6 - 5 PB 4/6		
"Union Wreath" - S, C&G		21
Blue - 5 PB 2/6 - 5 PB 4/6		
"Warwick" - S, C&G		34
Red - 2.5 R 3/8 - 2.5 R 4/8		
"Pekin" or "Pagoda" (Lt. Blue)		80
"B772" or "B773" (Flow Blue)		7

Table 5 (cont'd.)

Manufacturer, Pattern Name, & Color	Subtotal	Total
Davenport		
"Tyrol Hunter"		7
"....n Vase"		19
Blue - 5 PB 2/6 - 5 PB 5/6	13	
Green	6	
Hicks, Meigh, and Johnson		
"Teniers Vignettes"		2
Jack Maddock		
"Fairy Villas"		49
Unknown		
"Blue Willow"		248
"Claremont"		25
"Italian Seaport"		6
"Old Byron"		3
"Peacock"		29
"Royal Gem"		2
"Swiss Cottage		9
TOTAL		4027

Table 6 - List of marked transfer printed earthenware fragments.

FOVA Catalog Number	Pattern Name	Manufacturing Mark
3085, 4439	"Alba"	"Copeland & Garrett + New Blanche"
6587	"B772" or "B773"	"Copeland, Late Spode"
4440, 4444 4595, 6476	"Camilla"	"Copeland & Garrett + New Blanche"
5747	"Camilla"	"Copeland, Late Spode"
6625	"Chatsworth"	"Copeland & Garrett + New Blanche"
4658	"Chatsworth"	"Copeland & Garrett, Late Spode"
6651	"Chatsworth"	"Copeland & Garrett"
4759, 4797	"Chatsworth"	"Copeland, Late Spode"
2140	"Chinese"	"Copeland and Garrett, Late Spode"
5779	"May"	"Copeland, Late Spode"
2141	"Pekin"	"Copeland & Garrett: New Blanche"
5965	"Queen Mary"	"Copeland, Late Spode"
4493	"Rose"	"Copeland & Garrett"
6048, 6304	"Rose"	"Copeland & Garrett, Late Spode"
4865	"Union Wreath"	"Copeland & Garrett, Late Spode"
4634, 4763	"Warwick"	"Copeland & Garrett, Late Spode"
4632, 4339 4867	"Fairy Villas"	"M", "Stone China"
4389	"Peacock"	"Peacock", "D."
1931	?	"...GWO"
4699	?	"Union"
4798	?	"7812 A"
4019	?	Registration Mark "C" (1844) "Copeland, Late Spode"
4659	?	Registration Mark "H" (April), "A" (1845)
4760	?	Registration Mark "A" (1845)
5924	?	Registration Mark "U" (1848)
10501	?	"Porce.... W Adams"

One fragment (FOVA 5599) of a black transfer printed "Ambrosial Shaving Cream" jar lid was recovered. From comparisons with similar specimens in the FOVA Museum, the following information would have been printed on this type of jar lid: "Ambrosial Shaving Cream, Patronized by Prince Albert, Invented & Prepared Only by John Gosnell & Co., Perfumers by Appointment to Her Majesty, 12 Three Kings Court, Lombard Street, London."

One fragment (FOVA 1939) of another blue transfer printed jar lid was recovered, but it has not been identified.

Hand Painted Wares. Of the 97 fragments recovered, no complete or partially complete wares were found. No manufacturing marks were observed, and no meaningful patterns have been recognized.

Molded Wares. Of these 76 fragments, 49 are undecorated, and 27 have hand painted decorations. No complete or partially complete wares were recovered, and no manufacturing marks were observed. No meaningful stylistic patterns have been identified.

Mold Applique Wares. Of the 7 fragments found, no complete or partially complete wares were recovered, and no manufacturing marks were observed. The appliques consist of a blue (10 B 8/4 - 10 B 6/6) floral motif applied to a white bodied ware. This pattern has not been identified.

Yellow Glazed Earthenware Fragments

Mocha Ware. Of the 22 fragments found, no complete or partially complete wares were recovered, and no manufacturing marks have been observed. A few of these fragments may have comprised a mug with a molded handle, but no positive identification could be made.

Yellowish-Brown Basin. Fifty fragments of what appears to have been a yellowish-brown (10 YR 7/6 - 2.5 Y 7/6) basin were recovered, but no dimensions could be reconstructed, and no manufacturing marks were observed. Twenty-two fragments were found which could be fitted together, and their FOVA Catalog Numbers are: 4453, 4501, 4595, 5815, 6047, 6071, 6117, 6137, 6242, and 6343.

Yellowish-Green Snuff Bottles. Twenty-one fragments of snuff bottles were recovered, and such bottles carry the following black transfer printed information: "R. Currey & Co., Snuff Manufacturers, (Successors to John Hardham), 106, Fleet Street, London." Both interior and exterior surfaces have glazes varying from a light yellowish-brown (10 YR 8/2) to a light yellowish-green (2.5 Y 6/4).

Paste colors vary from a light yellowish-brown (10 YR 8/2) to a light yellow (2.5 Y 9/2).

Brown Glazed Earthenware Fragments

Of the 81 fragments found, no complete or partially complete wares were recovered, and no manufacturing marks were observed. There appear to be 4 "types" of brown glazed earthenware fragments present on the basis of exterior and interior color (see Table 7 below).

Table 7 - Types of brown glazed earthenware fragments.

Exterior Glaze Color	Interior Glaze Color	Total
Lt. Gray Brown (10 YR 9/2) to Reddish-Brown (5 YR 3/6)	Dk. Brown (7.5 YR 2/2)	14
Dk. Yellowish-Brown (10 YR 4/6) to Dk. Reddish-Brown (5 YR 2/4) (mottled)	Dk. Reddish-Brown (5 YR 2/4)	62
	Lt. Green (2.5 Y 7/4)	3
	Unglazed	2

Stoneware

Stoneware fragments totaled 632 items including fragments of "Read's India Pale Ale" bottles, assorted ale and/or ink bottles, "Chinese Ginger" jars and lids, "Canton" plates, and fragments from a wide mouthed jar and lid.

"Read's India Pale Ale" Bottle Fragments

Eighty-seven fragments were recovered, but no complete or partially complete bottle was found. Four specimens have portions of the impressed manufacturing mark: "Read's India Pale Ale." Colors for the exterior and interior glazes are variable, and at least 10 different colors or "types" of bottles have been recognized (see Table 8).

Assorted Ale and/or Ink Bottle Fragments

A total of 142 unidentified fragments was recovered, but no complete or partially complete bottles were found, and no manufacturing marks were observed. Colors for the exterior slip-glazed and interior unglazed surfaces are extremely variable, but generally fall within the yellowish-brown color range.

Table 8 - Types of "Read's India Pale Ale" bottles based upon paste color together with exterior and interior glaze colors.

Type	Sub-type	Exterior Glaze Color	Interior Glaze Color	Paste Color
I	A	? - 7.5 Y 6/4	5 YR 2/1	10 YR 7/1
	B	5 Y 6/4 - 7.5 Y 6/4	5 YR 2/2	10 YR 7/1
	C	5 Y 6/4 - 7.5 Y 6/4	10 YR 3/4	10 YR 7/1
	D	5 Y 6/1 - ?	5 YR 2/1	N 6.0/
	E	? - 7.5 Y 6/2	10 YR 6/2	10 YR 7/1
II	A	? - 5 Y 5/6	5 YR 2/1	10 YR 7/1
	B	? - 5 Y 5/6	10 YR 3/4	10 YR 7/1
III	-	2.5 Y 5/6 - 5 Y 6/6	5 YR 2/1	10 YR 8/2
IV	-	10 YR 4/4	10 YR 3/4	10 YR 7/1
V	-	7.5 YR 2/4	10 YR 3/4	10 YR 7/1

"Chinese Ginger" Jar and Lid Fragments

A total of 171 fragments was recovered, but no complete or partially complete jars or lids were found. These fragments have a hand painted blue decoration (5 PB 2/6 - 5 PB 3/6) over a greenish-gray glaze (5 G 7/1). Paste color is a gray (N 8.0/).

"Canton" Plate Fragments

Fifty-five fragments were recovered, but no complete or partially complete plate could be reconstructed. The fragments have a hand-painted blue decoration (5 PB 2/6 - 5 PB 3/6) over a greenish-gray (5 G 7/1) glaze. Paste color is a gray (N 8.0/). The pattern and plate is identical to the specimen described and pictured by Noël Hume as a "typical late Chinese export porcelain plate, the decoration poorly executed in underglaze blue on a greenish-gray body, the rim design known as "Canton"; c. 1810-35. Diam. 7 3/4" (1969:262, Fig. 84).

Wide Mouthed Jar and Lid Fragments

Twelve fragments were recovered, but no complete or partially complete specimens could be reconstructed. These fragments appear to be identical to a reconstructed jar and lid (#428) found in the FOVA Museum vault. Specimen #428 has a "Chinese" molded mark on its base, but it has not been identified.

Unidentified Stoneware Fragments

A total of 165 unidentified fragments was recovered, and no complete or partially complete objects could be reconstructed. One fragment

(FOVA 3051) has a molded manufacturing mark, but it has not been identified (Fig. 6a).

Vitreous China

Eighty-six fragments were recovered of which 58 have a hand painted blue decoration, 3 have a hand painted non-blue decoration, and 25 are undecorated. The blue decorated specimens are fragments of "Chinese Canton" wares, but no complete or partially complete specimens were reconstructed. The non-blue specimens contain 2 fragments of an unidentified ware with a light gray (N 9.0/) paste covered by a red, green, yellowish-green, and black floral design. The remaining non-blue fragment is a stemmed basal fragment (FOVA 2842) with gold trim and a white (N 9.5/) paste.

Porcelain

Twenty fragments were recovered, 5 of which have a faded purple fleur-de-lis applique decoration. Three have a green hand painted decoration, one has a gold and light reddish-brown decoration, 3 constitute the handle of a cup (FOVA 5713), and 8 are undecorated. No complete or partially complete wares were recovered, and no manufacturing marks were observed.

Ceramic Personal Items

The ceramic personal items found totaled 2438 fragments which have been grouped into 7 descriptive categories (Table 3).

Earthenware Items

Kaolin Tobacco Pipe Fragments

Kaolin pipe fragments totaled 2429 items, but no complete or partially complete specimens were recovered.

Bowls. Marked bowl fragments included 4 varieties of impressed "Ford Stepney" marks (Figs. 6b, 7i-l) and 3 unidentified impressed marks. These unidentified marks are incomplete with only one or 2 letters being legible.

One bowl fragment (FOVA 4722) has both raised floral and fluted designs (Fig. 6d) with raised marks on the spur including the letters "L" (left side) and "B" (right side). Two additional raised floral designs were found, but were too fragmentary to illustrate.

One bowl (FOVA 5838) has been molded in the shape of a head, but all that remains is the facial portion minus the nose (Fig. 6c).

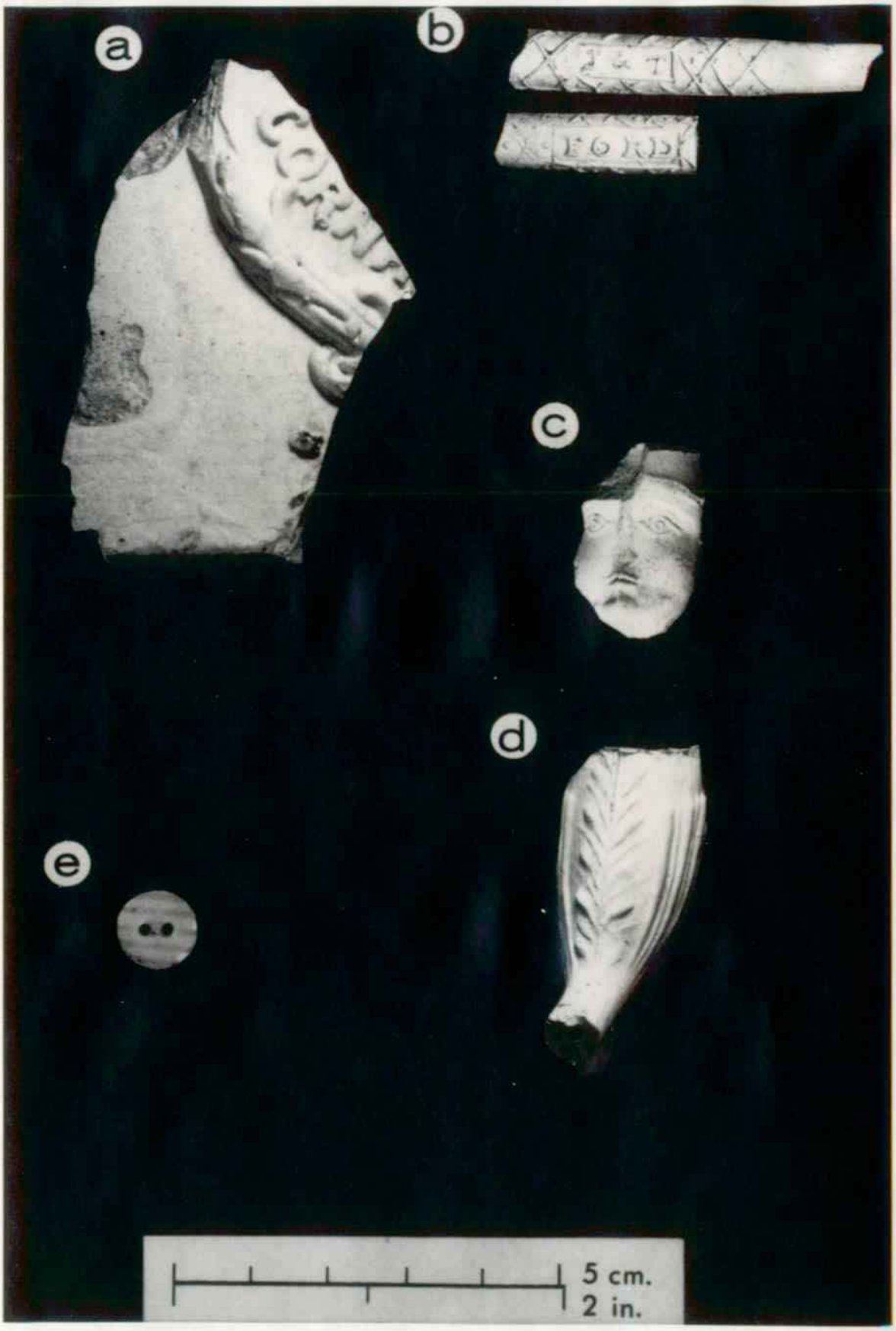
Fig. 6 - Ceramic artifacts.

a - Unidentified stoneware bottle fragment

b - "J. & T. Ford" pipe stems

c-d - Molded pipe bowl fragments

e - Vitreous china button


a
b
c
d
e
5 cm.
2 in.

Two fragments have glazed embossed decorations with one specimen (FOVA 5831a) having both green and purple glazes covering a floral design. The second specimen (FOVA 6053) has a reddish-orange glaze over a raised fluted design.

Stems. Manufacturing marks on stems included raised, relief, and impressed marks. The raised mark is "J & T Ford" against a lattice background (Fig. 6b). Impressed marks include "Gambier a Paris" (FOVA 5653) and "12" (FOVA 4456). The relief mark is "Glasgow" (FOVA 5818).

Spurs. Four combinations of raised letters occur on spurs including: "I, F", "L, B", "R, C", and "I, S" (the first letter is found on the smoker's left). The "I, F" marks occur with "Ford Stepney" pipes, the "L, B" is found on the floral and fluted bowl (FOVA 4722), and the remaining marks have not been associated with any bowl or stem designs.

Doorknob Fragment

Five fragments of a dark reddish-brown doorknob were found, but none of the fragments fit together.

Tile Fragments

Two fragments (FOVA 4276) of a flat, white glazed earthenware tile were found, but its original size cannot be determined.

Unidentified Earthenware Fragment

One fragment (FOVA 2789) of an unidentified earthenware object was found which is curved, and has an incised groove on one surface.

Vitreous China Items

Pipe Fragments

Two fragments (FOVA 5933) of a brown glazed, vitreous china, reed pipe were found. Only the stem with its lower bowl was present, and no manufacturing marks were observed. Use of this type of pipe requires the insertion of a reed mouthpiece.

Button

One 2-hole button (FOVA 5463) with 5 parallel green stripes was found (Fig. 6e) which measured 10.9 mm. (26/64 inch) in diameter.

Porcelain Item

Button

One 4-hole button (FOVA 6344) was found which measured 14.2 mm. (9/16 inch) in diameter.

Glass Items

Glass items totaled 7484 specimens which have been grouped into 9 descriptive categories (Table 3).

Bottles, Tumblers, and Stemmed Glassware Fragments

Bottles

Of the 4039 bottle fragments, no complete or partially complete bottles could be reconstructed. Sixty-seven of these fragments contain molded letters, and many appear to be from "Dr. J. Hostetter's Stomach Bitters" bottles. Two distinctive wine bottle seal fragments were recovered (Fig. 7g-h), as well as one fragment of an unidentified "John Gosnell" product container.

"Black glass" rum bottle fragments comprise the major portion of bottle fragments recovered, and they are found in at least 3 sizes. The smallest has an outside diameter of ca. 6.4 cm. (2 1/2 inches), the next size is ca. 8.0 cm. (3 1/8 inches), and the largest is ca. 9.2 cm. (3 5/8 inches). Lips of these bottles have a wide variety of cross-sections, but all have 2 flanges (Fig. 7a-f). Such bottles were sealed with corks held in place with wire ties (Fig. 7f).

Tumblers

Forty-two clear glass tumbler fragments were recovered, including 2 ten-sided bases (FOVA 4768, 5951) and 2 round bases (FOVA 4713, 4987) which measured 7.0 cm. (ca. 2 3/4") and 7.4 cm. (3") in diameter.

Stemmed Glassware

Fifteen fragments of clear stemmed glassware fragments were recovered, but no distinctive types could be distinguished.

Unidentified Curved Glass Fragments

The 184 specimens of unidentified curved glass are considered to

Fig. 7 - Miscellaneous artifacts.

a-e - Sectional views of "black glass" rum bottle necks

f - "Black glass" rum bottle neck with cork and wire tie *in situ*

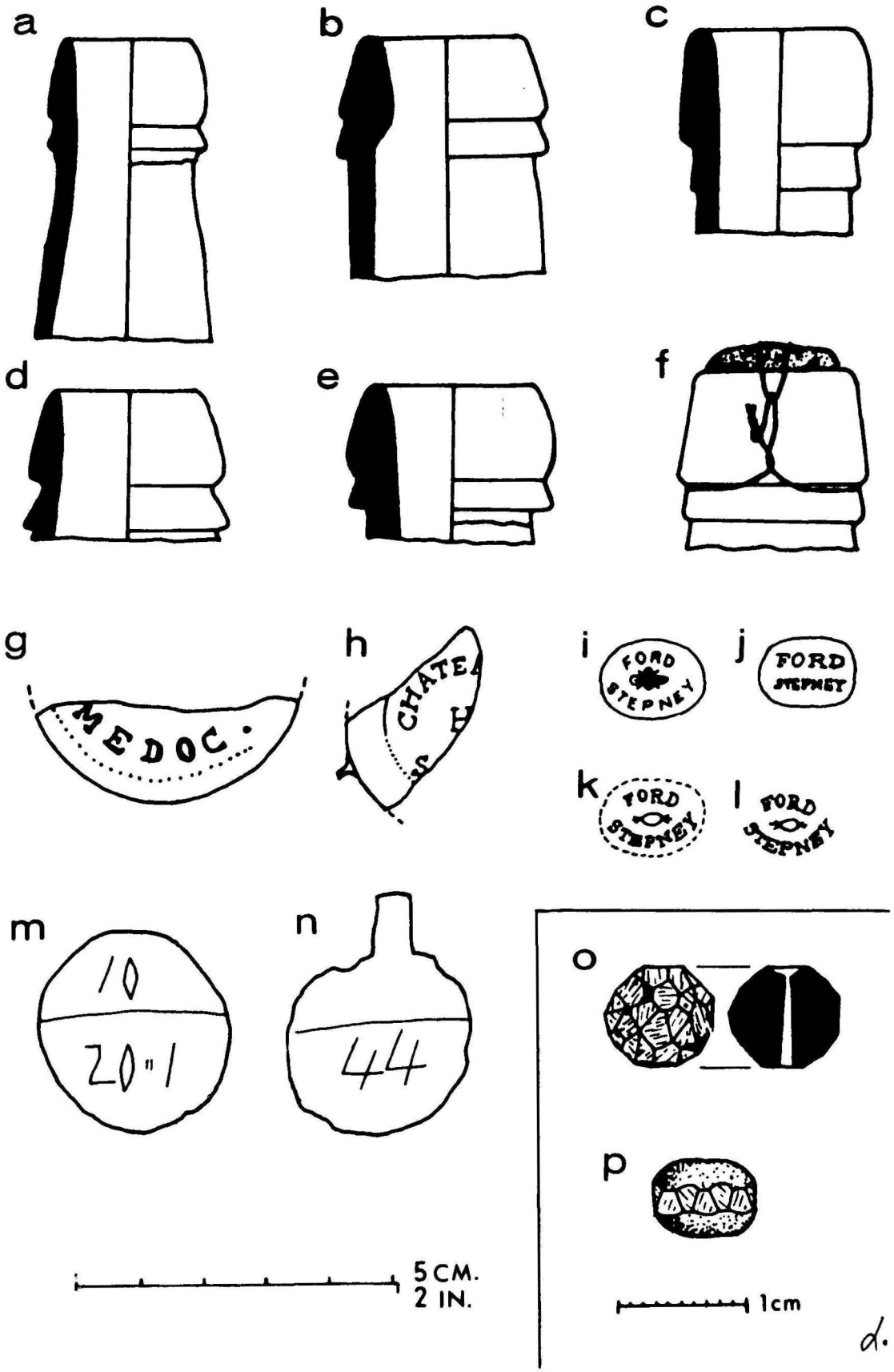
g-h - Fragments of wine bottle seals

i-l - Variations of "Ford Stepney" pipe bowl impressions

m-n - Hudson's Bay Company lead seals

o - Mandrel wound, pressed, faceted, punched bead

p - Wire wound faceted bead


a
b
c
d
e
f
g
MEDOC.
h
CHATE
i
FORD
STEPNEY
j
FORD
STEPNEY
k
FORD
STEPNEY
l
FORD
STEPNEY
m
10
20"1
n
44
5 CM.
2 IN.
o
p
1cm

be either bottle, tumbler, or stemmed glassware fragments. However, no positive identification could be made.

Window Glass Fragments

There were 3124 fragments of window glass recovered. For 3120 specimens, glass thickness varied from 0.8 - 4.3 mm. (ca. 2/64 - 11/64 inch) with a mean of 1.61 mm. and a standard deviation of 0.39 mm. (Fig. 8). These measurements show a bimodal distribution with peaks at 1.2 and 1.6 - 1.7 mm. Presumably, these peaks represent at least 2 major populations of window glass for the Harness Shop area.

Within the sample of window glass was one fragment (FOVA 6570) of brown stained glass with a thickness of 1.0 mm. (ca. 3/64").

Mirror Glass Fragments

Only 13 specimens of mirror glass were recovered, and they varied in thickness from 1.0 - 5.2 mm. (ca. 2/64 - 13/64 inch). Because of the small sample size, no distributions were plotted.

Glass Beads

Fifty-eight beads were recovered and have been described on the basis of color, size of bead, size of hole, type of reflection, and number of facets (see Appendix II). A comparison between these beads and the identification numbers used by Kenneth and Martha Kidd (1970) is presented as Table 9.

Types of beads recovered included hot tumbled and marvered tube beads, plain and faceted wire wound beads, faceted mandrel wound beads, and one fritted bead.

One wire wound bead (FOVA 4934) was recovered which has 12 facets ground around its circumference (Fig. 7p).

Sixteen mandrel wound beads were recovered which have 37 - 53 facets ground on each bead (Table 10). These beads were made on a mandrel by drawing or winding glass from 2 directions toward the center of the bead. Next, either the bead, while still on the mandrel, was pressed into a spheroid with a hole partially through the bead, or the bead was removed from the mandrel and hot tumbled to produce its spheroid shape. The bead then had a number of facets (37 - 53) ground on its surface, and the hole was punched through the remaining glass from the inside (Fig. 7o). The specimens recovered are opaque and in 3 shades of blue.

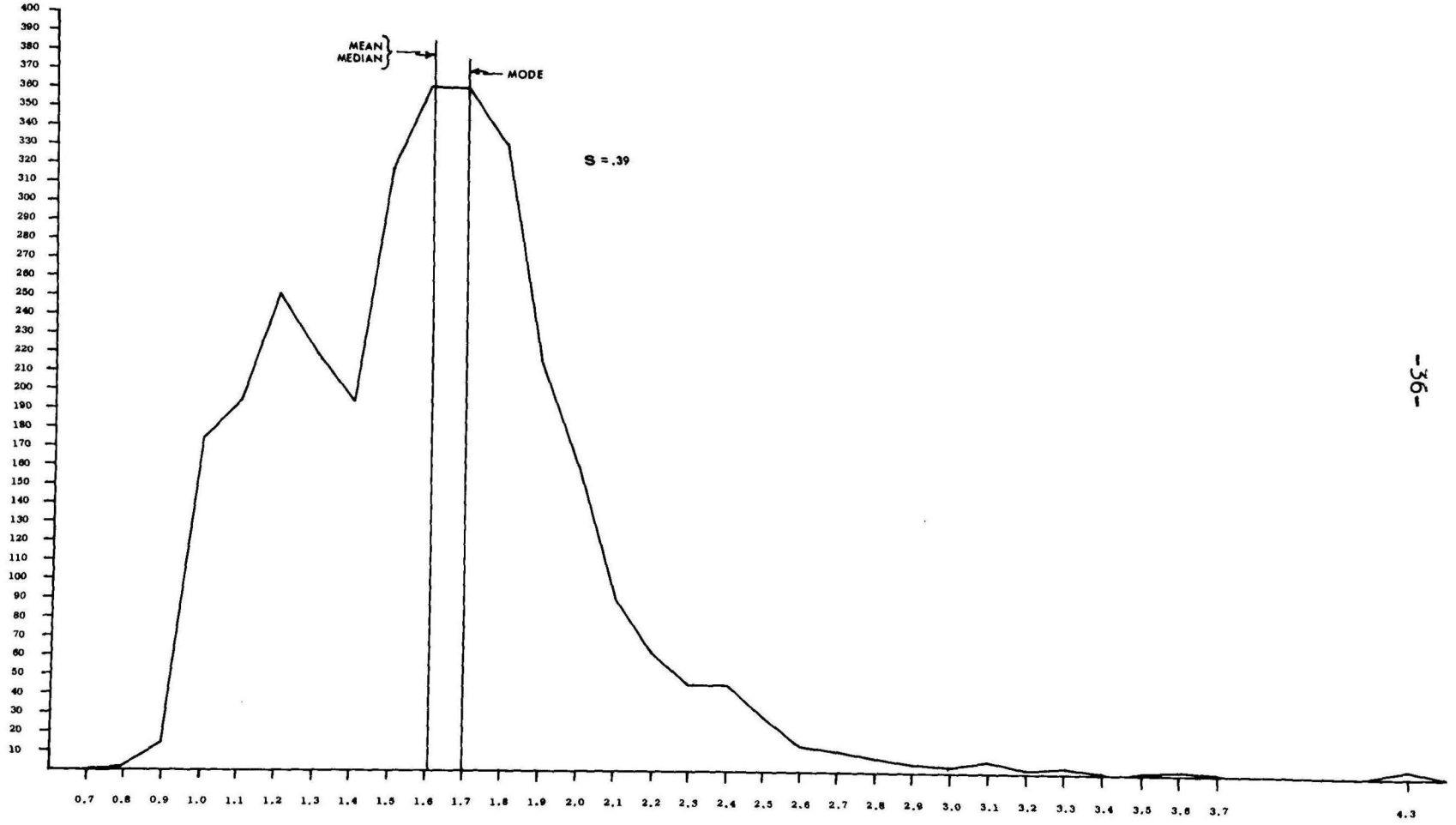


Fig. 8 - Frequency distribution of window glass thickness.

Table 9 - Comparison of beads with Kidds' (1970) identification numbers.

Kidds' Identification Number	Color		Reflection	Number of Facets	Total
	Primary	Secondary			
IIa	N 9.5/		Opaque		11
	10 YR 9/1		Opaque		1
	5 Y 9/1		Opaque		2
	5 Y 8.5/1		Opaque		2
	10 BG 5/6		Opaque		1
	2.5 B 4/6		Opaque		1
	5 B 6/8		Opaque		1
	5 PB 4/6		Opaque		1
	5 BG 4/6		Translucent		1
	10 BG 5/6		Translucent		1
	10 BG 6/8		Translucent		1
	2.5 B 5/8		Translucent		1
	10 B 4/10		Translucent		1
IIIf	7.5 B 7/4	7.5 B 8/4	Opaque	21	2
	5 PB 4/8	5 PB 6/8	Opaque	n.a.	** 1
	7.5 PB 3/10	7.5 PB 5/10	Opaque	21	1
	7.5 PB 4/10	7.5 PB 5/10	Opaque	21	1
	Clear	Whitish	Translucent	21	1
	7.5 PB 3/10	7.5 PB 7/6	Translucent	18 or 21	5
WIb	2.5 B 3/4		Translucent		1
	2.5 B 4/4		Translucent		1
	7.5 PB 3/10		Translucent		1
	10 B 6/6		Opaque		1
WII	5 BG 2/2		Opaque	12	1
Mandrel Wound	2.5 B 8/4		Opaque	37 - 46	9
	5 PB 6/8		Opaque	37 - 46	5
	5 PB 4/8		Opaque	43 - 53	2
Fritted	N 9.5/	see text	Opaque		1
TOTAL					58

Table 10 - Mandrel wound beads.

Color	Reflection	Facets	Total
2.5 B 8/4	Opaque	37, 38, 39, 40, 41, 42, 43, 46	9
5 PB 6/8	Opaque	37, 46	5
5 PB 4/8	Opaque	43, 53	2
TOTAL			16

Table 11 - Glass rods and strips.

FOVA Catalog Number	Shape	Dimensions (mm.) Width	Thick.	Dia.	Color	Reflection
3378	Strip	5.55	1.65		N 8.5/	Translucent
3445	Rod			1.85	N 8.5/	Translucent
4726	Strip	6.90	1.25		10 BG 7/6	Translucent
4844	Strip	n.a.	n.a.		2.5 B 7/6	Translucent
5495	Strip	6.10	1.05		7.5 PB 3/12	Translucent
5522	Strip	10.55	1.85		N 8.5/	Translucent
5722	Rod			2.00	7.5 PB 2/10	Translucent
6551	Strip	5.05	1.10		7.5 PB 3/12	Translucent

Another unique type of bead recovered was a fritted bead fragment (FOVA 4773) made of an opaque white (N 9.5/) glass embedded with pink (2.5 RP 6/8) and blue (10 PB 2/8) fragments of crushed glass. The hole in the bead has a metallic oxide stain which indicates that a metal rod was used while fritting the glass.

Glass Rods and Strips

Eight fragments of glass rods and strips were recovered, and they have been described on the basis of color, reflection, size, and shape (Table 11). No specimen is complete, if such a term can be applied, rather, each specimen is broken at both ends.

Presently, there is no functional explanation for these specimens.

Thermometer Tube

One clear thermometer tube fragment (FOVA 4464) was recovered measuring 4.5 mm. (11/64") in diameter with a flat hole. There are no marks on the glass, and it was probably used as a temperature gauge.

Metal Items

Metal items totaled 10,919 specimens which have been grouped into 5 categories (Table 3).

Hardware Items

Hardware items totaled 9192 specimens which were grouped into 57 categories (Table 12). Only square nails will be discussed in detail.

Square Nails

Of the 6903 square nails recovered, there were 3148 hand forged, 2235 machine cut, and 1520 unidentifiable. Graphic representations of the major styles of nails appear in Fig. 9.

Within the forged nail category, bonnet and rosette headed nails (Figs. 9a-c) comprised the majority, but a number of less frequent styles were also found. Functionally, both bonnet and rosette headed nails would probably correspond to our present day "common" nail.

One unique style of hand forged nails is a countersunk, rosette headed short nail (Fig. 9e) which apparently functioned as a fastener for butt hinges, and corresponds to our present day countersunk screw. Its countersunk head matches the countersunk

Table 12 - Quantitative distribution of metal hardware items.

Item	Total
Square Nails	6903
Square Spikes	15
Wire Nails	1268
Wire Tacks	6
Round Spikes	5
Screws	12
Staples	12
Rivets	4
Bolts	17
Nuts	18
Washers	11
Bolt with Nut and Washer	1
Cotter Pins	2
Hinges	7
Hinge with Nail	1
Hinged Hasp	1
Keyhole Plates	2
Padlock Body	1
Padlock Arm	1
Straping Fragments	375
Wood Binding Straps	4
Chain	1
Chain Links	26
Hooks	4
Eyes	2
Singletree Hitch	1
Rings	6
Ring with Sleeve	1
Ring with Pin	1
Handle	1
Bearing	1
Tube	1
Pipes	4
Pipe Fittings	4
Hose Fitting	1
Pulley Guide	1
Cast Stove Parts	7
Bed Spring	1
Axe Head	1
Rake Tines	4
Files	5
Countersunk Drill Bit	1

Table 12 (cont'd.)

Item	Total
Hoe Blade	1
Trap Parts	7
Tong	1
Wedges	2
Hafted Wedge	1
Horseshoe	1
Ornaments	3
Stock	262
Wire	169
Barbed Wire	1
Lead Sheet	1
Lead Foil	3
Tin Foil	1
Light Bulb Base	1
Flashlight Battery Seal	1
TOTAL	9192

Table 13 - Quantitative distribution of household and personal items.

Item	Total
Buttons	12
Utensils	10
HBC Lead Seals	3
Straight Razor	1
Straight Pins	4
Buckles	3
Needle Fragment	1
Safety Pin	1
Jews Harps	2
Spigot Key Fragment	1
Cork Wire	1
Bottle Caps	3
Can Opener Key	1
Unidentified Can Fragments	13
TOTAL	56

Fig. 9 - Major nail styles recovered from the Harness Shop area.

a - Common hand forged, rosette headed nail (FOVA 5962)

b - Spatulated tip, hand forged, rosette headed nail (FOVA 4738)

c - Common hand forged, bonnet headed nail (FOVA 5806)

d - "L"-shaped, machine cut nail (FOVA 3915)

e - Countersunk hand forged nail (FOVA 4411)

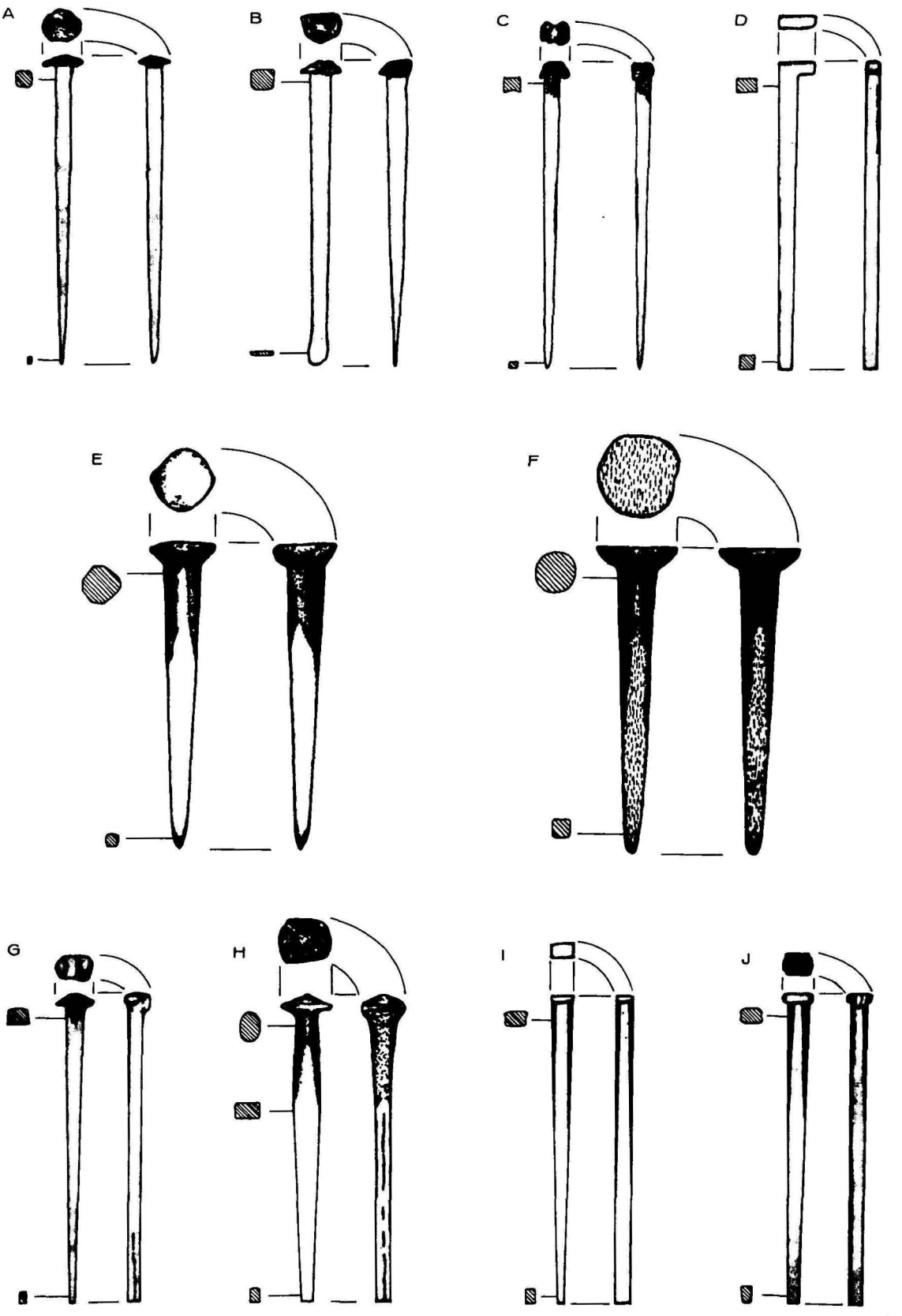
f - Countersunk cast nail (FOVA 4489)

g - Common machine cut, bonnet headed nail (FOVA 6249)

h - Common machine cut, rosette headed nail with two-piece heading marks below head (FOVA 5695)

i - Finishing machine cut, machine headed nail (FOVA 4607)

j - Common machine cut, machine headed nail (FOVA 6296)


A
B
C
D
E
F
G
H
I
J

holes in butt hinges, and one specimen (FOVA 5633) was found still in its hinge. Spatial distribution of this type of nail may prove useful for locating door placements.

Machine cut nails (Figs. 9d and 9g-j) occur predominantly in 6 different penny sizes -- 3d, 4d, 6d, 8d, 10d, and 12d. When frequency distributions for hand forged vs. machine cut nail lengths are compared (Fig. 10), it can be seen that penny size is a valid descriptive category for machine cut nails but not for hand forged nails. Even though hand forged nails cluster about the 6d - 10d sizes, individual penny size populations cannot be distinguished.

The majority of nails larger than 16d are hand forged, broad tipped nails (Fig. 9b). Functionally, this style of nail has yet to be explained.

Machine cut nails have stylistically been classified on the technique used to form the head (i.e. machine vs. hand forged). Machine headed, machine cut nails occur in all the above listed penny sizes, but hand headed, machine cut nails are regularly found only in 6d and 10d sizes. The 6d nails are predominantly bonnet headed. These nail styles presumably have a functional significance, but they presently remain unknown. However, one "L-shaped" style of machine cut nail (Fig. 9d) was probably a flooring nail, but only 3 specimens have been found.

A few brass and copper cast nails and tacks have also been found, but their functions remain unknown. One brass style (Fig. 9f) is similar to the countersunk hand forged nails which were used as butt hinge fasteners. The remaining cast nails and tacks have not been functionally identified.

Household and Personal Items

Fifty-six household and personal items were found which have been grouped into 16 categories (Table 13).

Buttons

Of the 12 buttons found, there were a number of decorated and marked specimens. One copper, flat loop shank "Phoenix" button (FOVA 3921) was found which measured 24.4 mm. (61/64 inch) in diameter. This button has a "No. 1" regiment number, and would be classified as a Style 1, Large Button by Emory Strong (1960, 1968).

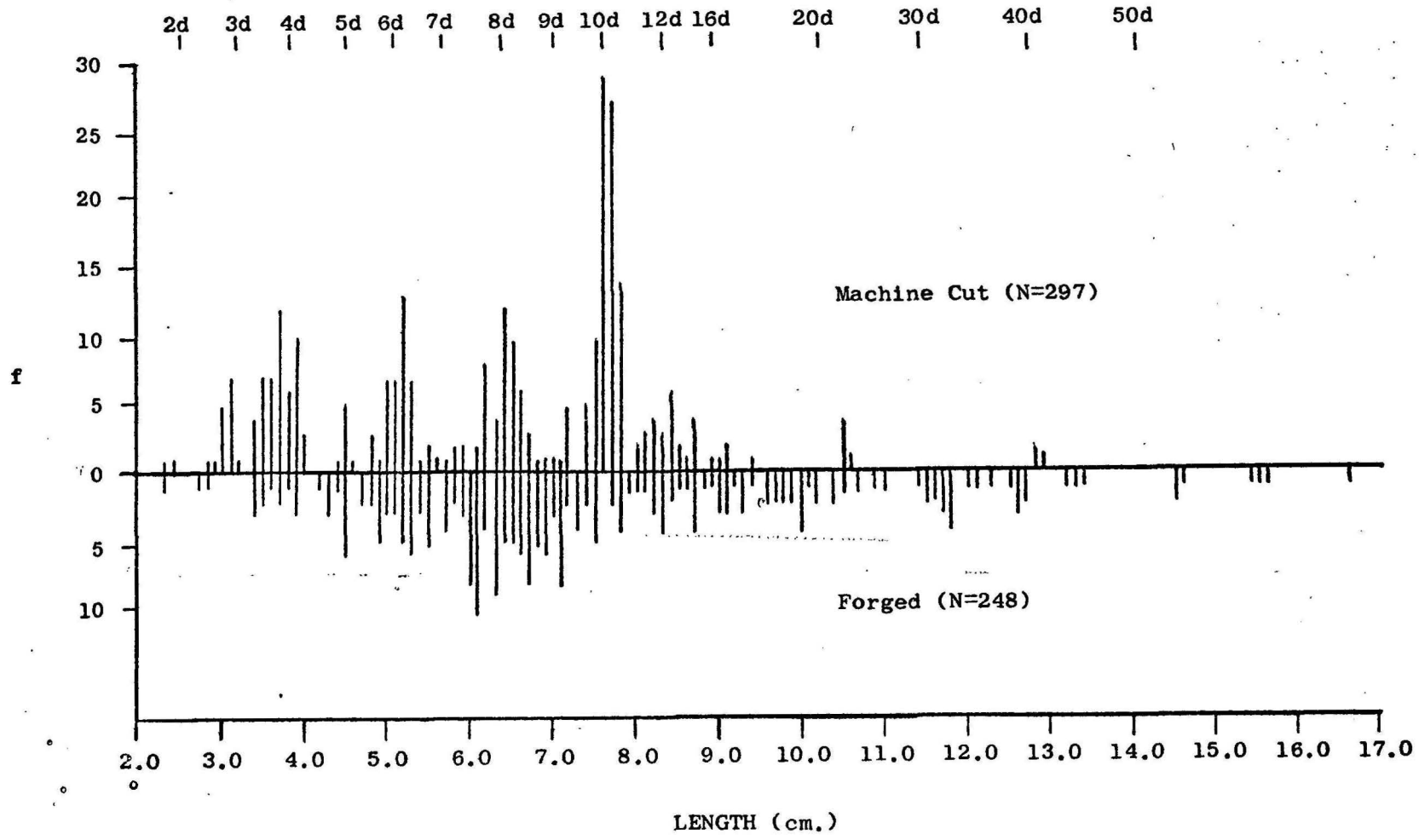


Fig. 10 - Frequency Distribution of Length for Forged and Machine Cut Nails

Other marked buttons included one copper, flat decorated, loop shank button (FOVA 4993) stamped "Best Quality, London"; one brass concave decorated, 4-hole button (FOVA 5608) stamped "/G. E. & R. A. & S./ Patent"; and one gold-plated iron button (FOVA 4434) with a composite copper alloy, loop shank back stamped "Orange Gilt".

In addition, there were 2 tin-plated brass, flat undecorated, loop shank buttons (FOVA 4485, 5698); one brass, flat undecorated, loop shank button (FOVA 5618); one iron concave undecorated, 4-hole composite button (FOVA 5299); one iron, concave undecorated, 4-hole simple button (FOVA 5698); one whitemetal (tin alloy), concave undecorated, 4-hole cast button (FOVA 5647a); one copper, concave decorated, 4-hole button (FOVA 4529); and one copper, undecorated ball-type button (FOVA 4434).

Utensils

Of the 10 utensil fragments found, there were 2 table knife blades (FOVA 3430, 5795), 3 butcher knife blades (FOVA 4692, 5700), one bone handled table knife (FOVA 5710), 3 three-pronged forks (FOVA 4153, 4175, 4416) and one 2-pronged fork (FOVA 4745).

Hudson's Bay Company Lead Seals

All of the 3 seals found retained the original scratch marks, and the marks from 2 of these seals (FOVA 1694, 4754) are reproduced in Fig. 7m-n. Marks on the third seal (FOVA 4386) could not be read when the above Figure was drawn, but after cleaning, the following marks could be read: "IZ/971".

Straight Razor

One straight razor blade (FOVA 5699) was found stamped "... & Sons, ...the...jestise, ...eet".

Buckles

Of the 3 buckles found, 2 were iron belt buckles (FOVA 5152, 6043) and the third was a silver or tin-plated copper decorated fabric buckle (FOVA 3334) stamped "Patent "18/ 5 /4".

Weaponry

Fifty-seven weaponry items were found which have been grouped into 5 categories (Table 14).

Table 14 - Quantitative distribution of weaponry items.

Item	Total
Cartridges	36
Shot	14
30-06 Cartridge Clips	5
Ammo Can Lid	1
Army Qualification Medal	1
TOTAL	57

Cartridges

Of the 36 cartridges found, there were twenty 30-06 Springfield cartridges, nine 30 Krag-rimmed cartridges, six 45-70 Government cartridges, and one unidentified cartridge fragment.

Four of the 45-70 Government cartridges have manufacturing marks indicating that they were manufactured during the 1880's at Frankford Arsenal.

Four of the 30 Krag-rimmed cartridges have manufacturing marks representing 3 different places of manufacture. Two cartridges are from Frankford Arsenal (dated 8-98 and 3-00), one cartridge labeled "U.M.C. 30 U.S.A.", and one labeled "USC Co 30 Gov". One specimen (FOVA 2046) still had its copper jacketed bullet which measured 32.1 mm. (1 17/64 inches) in length by 7.9 mm. (14/64 inch) in diameter.

All of the 30-06 Springfield cartridges found have manufacturing marks dated between 1904-1917.

Shot

Various sizes of shot were found in both lead and iron (Table 15). The musket balls range in size from 13.85 - 14.75 mm., and still retain a remnant of a casting sprue.

Table 15 - Measurements and material identification of shot

FOVA Catalog Number	Dia. (mm.)	Material
1628	14.75	Lead
2143	13.85	Lead
2914	14.45	Lead
3366	26.70	Iron
5131	5.00	Lead
5282	8.20	Lead
5528	33.00	Iron
5711	7.85	Lead
6366	5.00	Lead
6565	5.00	Lead
10516	14.00	Lead

Construction Material

Construction materials, other than those discussed above, totaled 9620 items which have been grouped into 8 categories (Table 3).

Brick Fragments

Of the 5215 brick fragments recovered, 4271 were from imported bricks, 937 from locally manufactured bricks, and 7 were not classifiable.

Imported brick corresponds to our Class #6 brick reported for the Bakery - Wash House area (Hoffman & Ross 1972:58-65). This type of brick was presumably made in England, and used exclusively at the Fort prior to 1844 when the first local brick from the Willamette Valley was acquired. Size of English brick was regulated by Statute, and for the period we are concerned with, the standard dimensions were 8 1/2 x 4 x 2 1/2 inches. No complete bricks were found, but numerous fragments had two or more surfaces which allowed width and/or thickness measurements to be taken.

Imported brick thickness for 444 fragments varied from 5.4 to 7.7 cm. (ca. 2 1/8 - 3 inches) with a mean of 6.70 cm. and a standard deviation of .24 cm. The widths for 82 fragments varied from 10.3 - 11.2 cm. (4 1/16 - 4 7/16 inches) with a mean of 10.82 cm. and a standard deviation of .19 cm. Width and thickness measurements, obtained from 73 of the above fragments, were plotted on a scatter

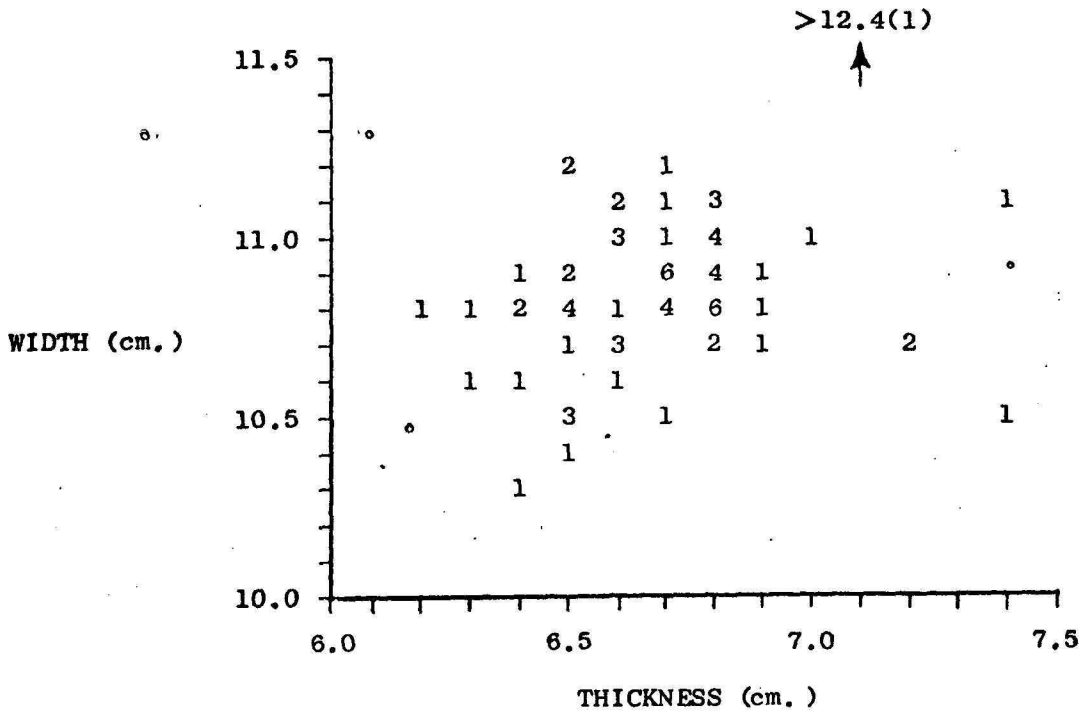


Fig. 11 - Scatter Diagram of Width to Thickness Measurements for Imported Brick (N=73)

diagram to see if more than one population was present (Fig. 11). One major population was observed clustering about a centroid of 10.8 x 6.7 cm. One fragment was found with a thickness of 7.1 cm. and a width greater than 12.4 cm. Presumably, this belongs to a second population.

Our English brick measurements for width and thickness cluster about 4 1/4 x 2 5/8 inches respectively, rather than 4 x 2 1/2 inches as decreed by statute. The reason for this discrepancy has yet to be explained.

Undoubtedly, this population of brick is English brick, and presumably it represents the fire brick order placed by John McLoughlin in 1833-1834 for the Fort's second Bakery (Hussey 1972:47-48). Recounting Hussey, an order for "1 M /1000/ bricks for Bakers oven" was placed by McLoughlin in the Fall of 1833 for Outfits 1836 or 1837 respectively. Later, in 1844, when the third Bakery was built with 5000 local bricks, the second Bakery's oven was presumably dismantled and the bricks reused in other structures. Evidence of this reuse is exhibited in the third Bakery where the same (or at least identical) imported fire brick was used in the construction or repair of its ovens (Hoffman & Ross 1972:75). Presently, we have no historic record of a second shipment of fire brick sent to Fort Vancouver after the 1835-1836 shipment.

Very few measurable fragments of local brick were found, and no statistically valid populations could be determined. However, based on a subjective examination of the measurable specimens, there appear to be 5 groups of local brick which might be distinguishable by size. These groups are:

1. Non-porous gravel textured brick
2. Non-porous clay textured brick (lt. red)
3. Porous clay textured brick (lt. red)
4. Porous silt-sand textured brick (reddish-orange)
5. Porous sand textured brick (buff)

Tile Fragments

Forty-four fragments of brick tile were found including 31 flat unglazed roofing tile fragments, 9 curved glazed tile fragments, 2 curved unglazed tile fragments, one flat unglazed tile, and one burned curved tile fragment.

The roofing tiles have 2 holes along one edge with one or more edges being tapered. One specimen (FOVA 5999) has an inclusion of a flow blue earthenware fragment, and it is hypothesized that this represents a 19th Century tile. The composition and method

of construction of these roofing tiles is identical to that of local brick, and may suggest that these tiles were also of local manufacture.

Stone Items

Fifty-five stone items were found, and they have been grouped into 13 categories (Table 3). The only complete specimen which requires further description is the small stone bowl.

Small Stone Bowl

One bowl (FOVA 4600) was found which had been pecked out of a small cobble. Outside measurements were ca. 2 3/4 (L) x 2 1/4 (W) x 1 3/4 (H) inches.

Leather Items

Forty-two leather fragments were found including 2 shoe sole fragments and 40 unidentified fragments.

Bone Items

Five bone items were found including 2 utensil handle fragments, 2 fragments of a single flat undecorated 4-hole button (FOVA 4992), and one unidentified object fragment.

Plastic Items

Three plastic items were found including one pipe stem and 2 unidentifiable fragments.

Rubber Items

Eight rubber items were found including a shoe heel, button, pipe stem, 2 comb fragments, a piece of weather stripping, and 2 unidentified items.

Wooden Items

Three wooden items were found including half of what appears to be a polo ball and 2 pencils.

Miscellaneous Items

Included within this group are 8 marking crayons, one tortoise shell comb fragment, and one styptic pencil.

V - PRELIMINARY INTERPRETATIONS

In Chapter II we noted that the objective of this report is to sort out archeological remains that can be confidently identified as those of the 1845 Harness Shop. We also noted that the historic record indicates the presence of at least 8 buildings either within the excavated area or adjacent to the east. The eastern structures, 2 privies and the Wash House, were discussed in our first report. Thus, we are confronted with the sorting of 5 buildings: the 1845 period Harness Shop; the 1835 period Bakery; a kitchen known to be in existence by 1854 at the latest; a butcher shop that may have existed by 1854; and an unidentified structure known to exist in 1852. Of these 5, only the Kitchen are the Butcher Shop are known to have lasted until 1860 when the Fort closed (Hussey 1957: Pl. XXIV).

The historic evidence does not clearly indicate whether these 5 buildings were separate and distinct structures or merely a lesser number of buildings that changed functions through time. The maps referred to in Chapter II are largely diagrammatic; they show relative structural positions and sizes but most cannot be accorded the same reliability as the measured drawings of an architect or engineer. To compound our problems, the archeological situation is further complicated by successive occupations and past archeological explorations.

The only large, relatively intact structural remains left in the Harness Shop area are a stone oven foundation and a pattern of brick debris representing either a stove platform or a collapsed chimney. Smaller items of structural significance include 2 postholes that may represent a partial covering for the oven, and mortar patches at the northwestern and northeastern parts of the excavation (Fig. 3). As noted before, previous explorations uncovered 2 probable wooden footings approximately where we would expect the south wall of the Harness Shop. These explorations also revealed a 1.0 by 4.0 inch board about 5.5 ft. long located somewhere on the west end of the brick platform or chimney (Caywood 1952:sheet 9 of map 2). These few items are the only credible, *in situ* structural remains found. The various concentrations, excepting the southernmost wooden piece, are not acceptable as wooden footing remains. They are either too fragmentary to be confidently interpreted as such, or their elevations and positions are too disparate to form recognizable patterns. Yet a large amount of construction material was recovered from current excavations as indicated by the feature map (Fig. 3) and the artifact inventory (Table 3).

Of the artifacts recovered in and around the Harness Shop location, 44% consisted of construction materials. These materials are primarily nails, bricks, mortar and window glass (Table 16).

Table 16 - Construction materials and accessories associated with the Harness Shop area.

Items	Total
Ceramic Doorknob Fragments	5
Ceramic Indoor Tile Fragments	2
Window Glass Fragments	3124
Square Nails (Forged & Machine Cut)	6903
Square Spikes (Forged)	15
Hinges (Butt, Strap, Flat, & Pintle)	8
Hasp (Flap)	1
Keyhole Plates	2
Padlock Parts	2
Brick Fragments (Imported & Local)	5215
Mortar Fragments	4278
Roofing Tile Fragments	31
TOTAL	19,586

We have subjected most of these materials and other items to a distributional analysis based on the frequency of items per cubic foot of excavated area. Those portions of the excavated area where frequencies of individual material categories were significantly above the general background frequencies have been identified as zones of material concentration (Figs. 12-23). We found that frequencies varied quite markedly in excavation units abutting Feature 130, the arbitrary excavation opened on the Harness Shop position. These marked frequency variations reflect variations of excavation procedures rather than past cultural activities. While we are primarily concerned with HBC activities, we must also deal with the marked variations which we believe to be spurious and attributable to USA and NPS activities. By depicting and interpreting the significant frequencies as zones of material concentration rather than absolute frequencies between individual excavation units, we can overcome the spurious variations and clarify the structural events associated with HBC activities. Through these means we believe that we can detect the presence of at least 3 distinct structures: the 1835 period Bakery associated with the stone oven foundations; a kitchen known to exist in 1854 (hereafter termed the post-1852 Kitchen) which we associate with the brick platform/chimney; and portions of the Wash House discussed in our first report.

Distributions of square nails, for instance, shows that the post-1852 Kitchen contains a high frequency of 10d machine cut common nails while structural remains within the Bakery - Harness Shop position contain relatively few nails. The overall distribution of square nails shows a concentration around debris of the brick platform/ chimney and a small concentration east of the oven (Fig. 12).

Most nails are within an 8d to 10d size range, and their quantity suggests use in frame structures rather than heavy timber structures. However, nails east of the oven foundation may be associated with superstructures of the privy pits discussed in our first report rather than the Bakery. The high frequency of nails found between the privy pits and the oven foundation are 8d machine cut common nails, whereas 10d machine cut common nails are the dominant style associated with the brick platform/chimney of the post-1852 Kitchen. This suggests that the Kitchen may have been of more solid construction than the privies.

Local brick, dated post-1844, primarily associates with the post-1852 Kitchen area, while the earlier imported brick, dated about 1835, associates with both the post-1852 Kitchen and the Bakery - Harness Shop position. Both imported and local bricks concentrate around the oven foundation and the platform/chimney (Figs. 13, 14), but local bricks are more frequent around the platform/chimney than the oven foundation. If, as argued in Chapter IV of our first report, the first local brick to be delivered to Fort Vancouver arrived in 1844, then the platform/chimney was built or modified in 1844 or later using this brick. Either way, the brick elements of this Kitchen did not exist before 1844, and Hussey (1972:167-68) dates construction of this Kitchen between 1852-54. Local brick fragments were also recovered from the oven foundation associated with the Bakery - Harness Shop position, indicating possible reuse of the oven foundation during the period of the Harness Shop; that is, after 1844. The imported brick, which we believe to be of English manufacture, may represent the brick ordered by John McLoughlin in 1833-34 for a bakery (Hussey 1972:47). McLoughlin was most anxious to construct this bakery (Ibid.:47-48), which may have been done by the Summer of 1835 if the requisitioned brick arrived with Outfit 1836. The only supply ship we presently know to have arrived from England for Outfit 1836 is the Ganymede which docked at Fort Vancouver on July 30, 1835 (Rich 1941:137). In any event, a bakery was in service at the Fort by late 1835 (Hussey 1972:47), and by 1841 at the latest, a sizable bakery occupied the position of the excavated oven foundation. We believe that the Bakeries of 1835 and 1841 to be one and the same, and that the ovens of this building were initially constructed of English brick.

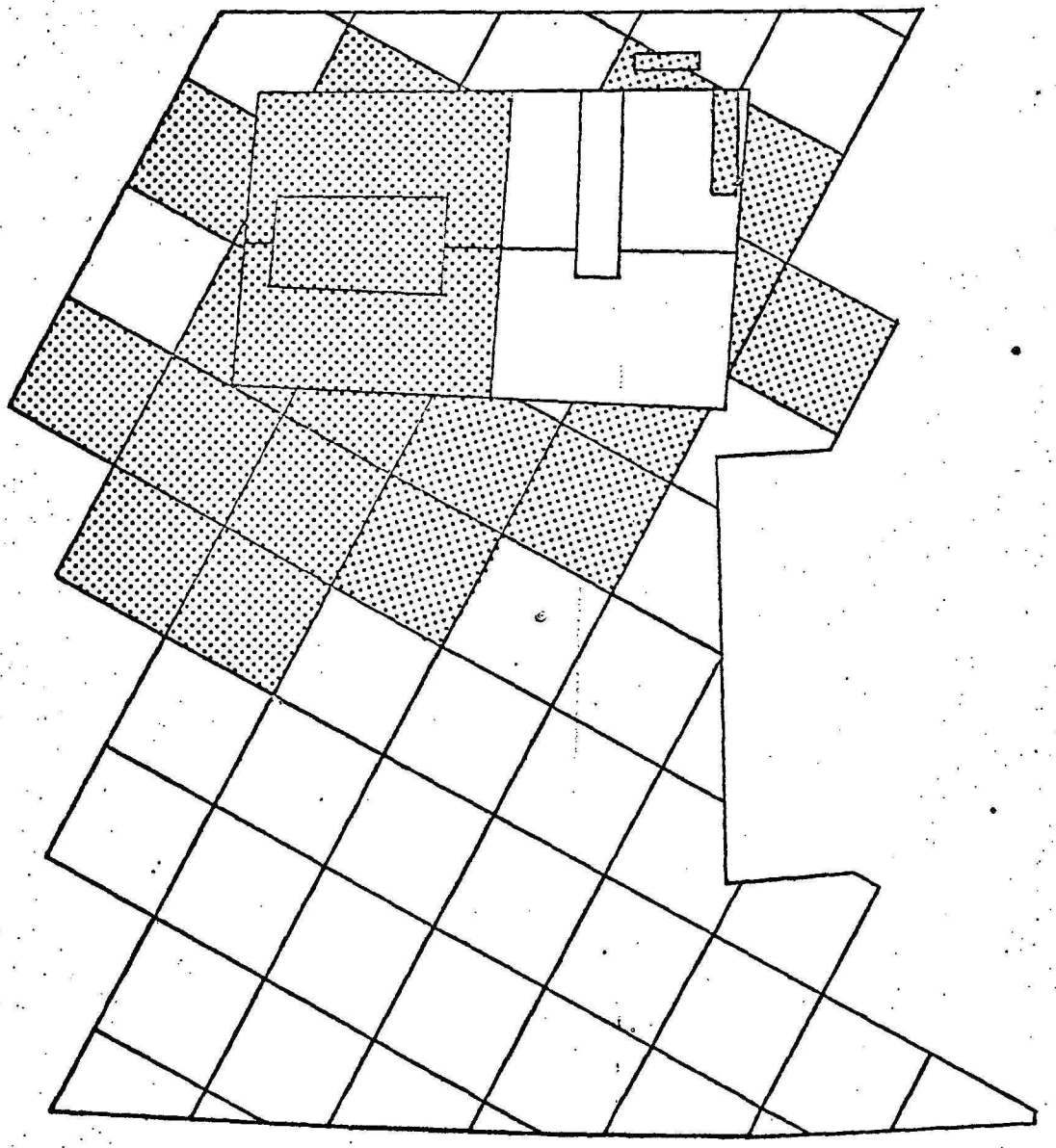


Fig. 12 - Concentration of square nails within the Harness Shop area (f/ft^3 => .69).

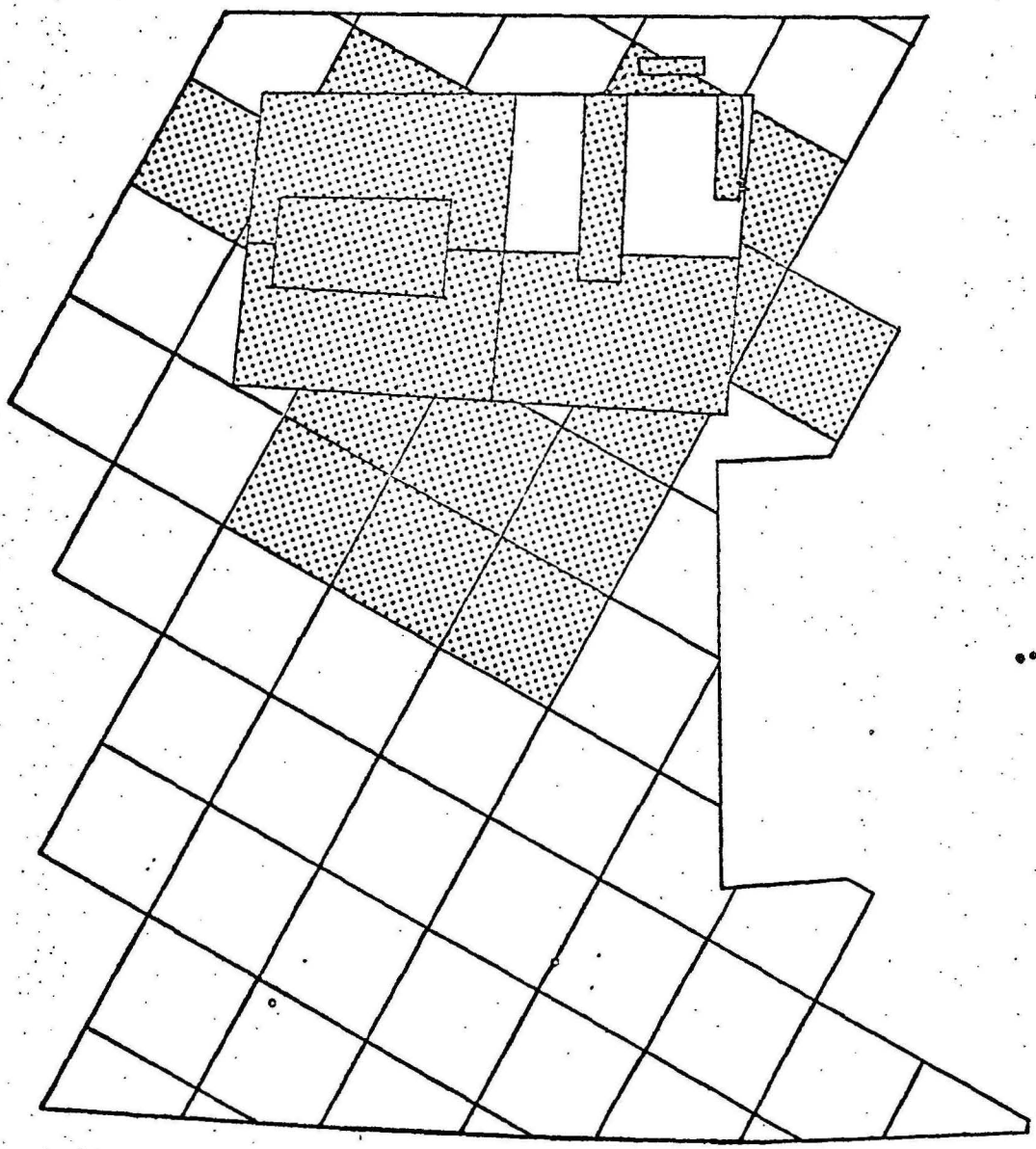


Fig. 13 - Concentration of imported brick within the Harness Shop area (f/ft^3 => .42).

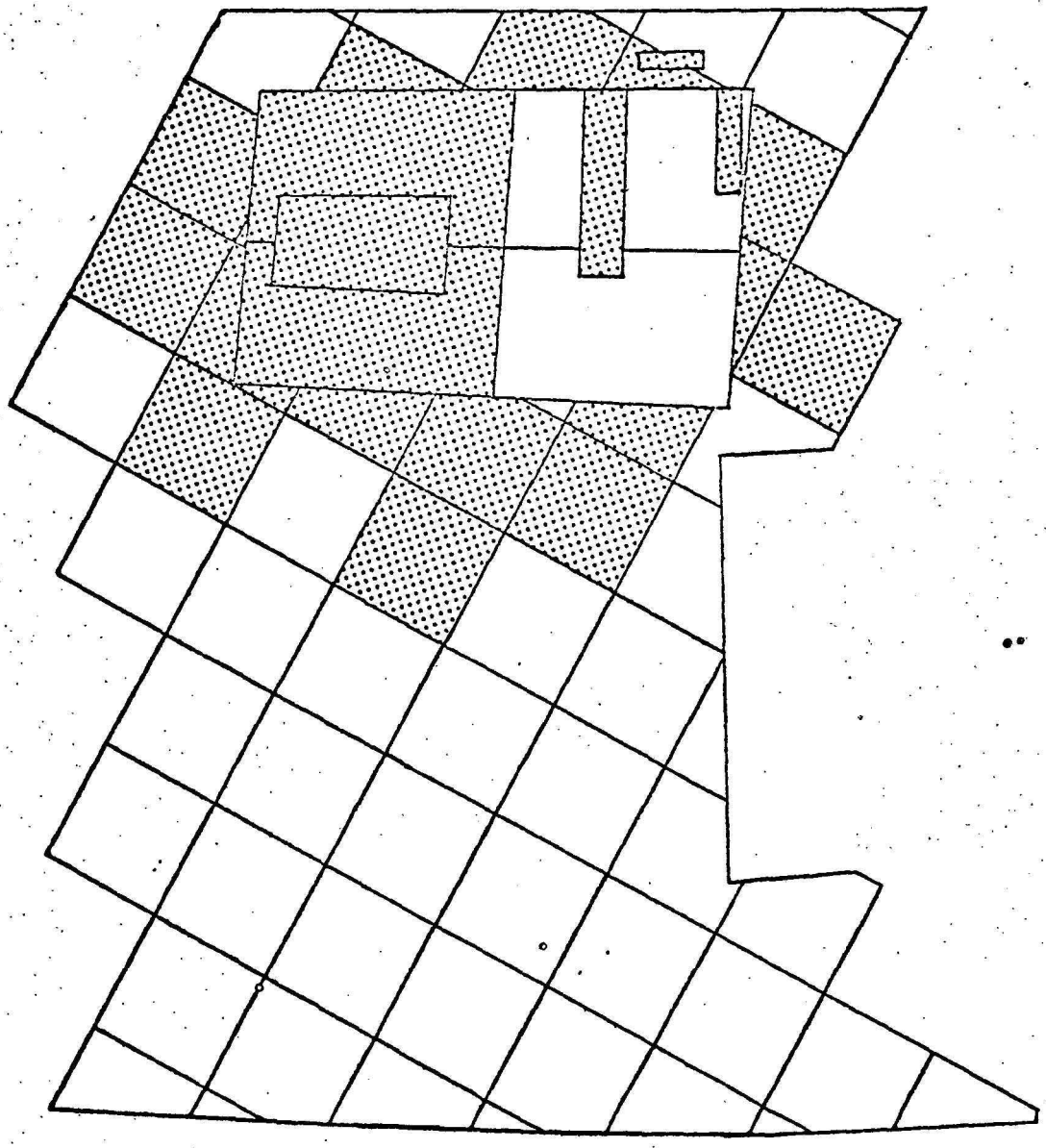


Fig. 14 - Concentration of local brick within the Harness Shop area (f/ft^3 => .09).

We are not aware of historic records detailing additional shipments of imported brick to Fort Vancouver after the probable shipment of 1835. Yet, a sizable amount of imported brick was recovered from remains of the final Bakery built at Fort Vancouver (Hoffman & Ross 1972:68-75). This building is known to have been under construction by September 1844, at the latest (Hussey 1972:48). The direct inference is that brick of the 1835 period Bakery was reused for ovens of the final Bakery. Thus, the ovens of the 1835 period Bakery were largely destroyed, leaving only the subsurface stone foundations. Our reasoning here reinforces the original suggestion that the 1835 period Bakery "...may have simply been transformed into the harness shop." (Hussey 1957:147).

Concentrations of coral and coral-derived mortar (Figs. 15, 16) closely match those of the brick in the areas of the Kitchen and Bakery - Harness Shop. The mortar patches immediately west of the brick platform/chimney are probably remains of the "plaster floor" reported from previous explorations and associated with the post-1852 Kitchen. We are less certain about the uses, if any, of the mortar patches east of the oven foundations (Fig. 3) since these patches lay at elevations lower than the top of the nearby east wing of the subsurface oven foundation. The wide distribution of coral fragments (Fig. 16) probably stems from the erosion and scattering of coral-derived mortar in the area, and most likely reflects the salvaging of brick from the 1835 period Bakery ovens by the Hudson's Bay Company.

Window glass has a limited distribution in the area, with the highest concentration around the post-1852 Kitchen (Fig. 17). It seems reasonable that this building had windows in its southern and eastern walls, and our next report will include analysis of the western portion of this structure and should clarify the window situation. A large amount of window glass was recovered from the excavation of the Harness Shop area, and the quantity suggests that not all of this glass stems from the Kitchen. Fragments found in the eastern portion of the excavation may have been derived from the 1835 period Bakery which, it is suggested, became the 1845 Harness Shop.

Culinary-related items are amply represented in the Harness Shop area. These consist mainly of shell, bone, ceramic, and bottle fragments. Distribution of bone shows a high concentration around the brick platform/chimney (Fig. 18). Superficial examination of this material indicates that it is mainly food bone -- cattle, sheep, pigs, goat, and various fowl. Most appear to stem from the post-1852 Kitchen, but some may have been associated with the Butcher Shop to the east. Distribution of shell is more limited

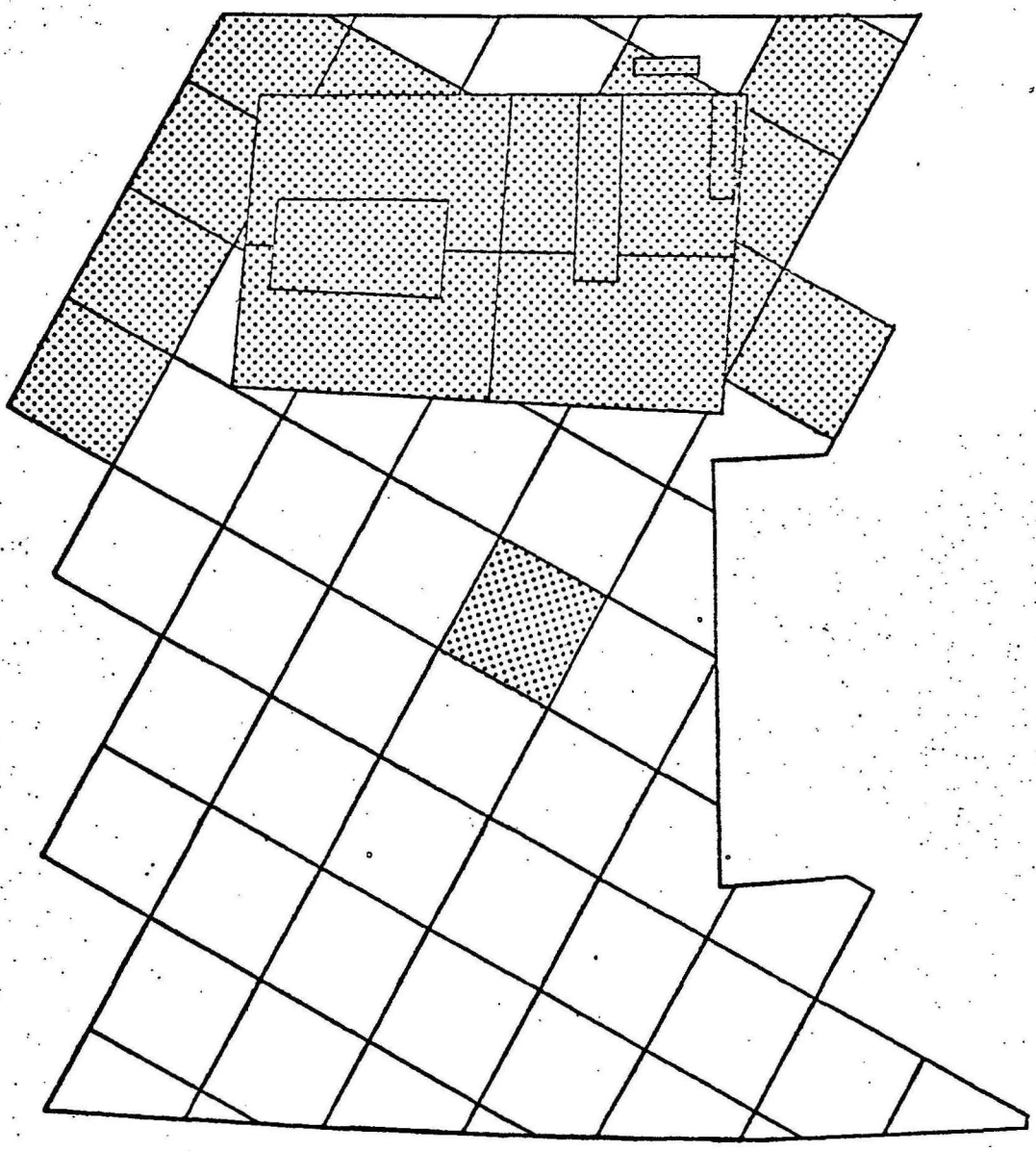


Fig. 15 - Concentration of mortar within the Harness Shop area (f/ft^3 => .41).

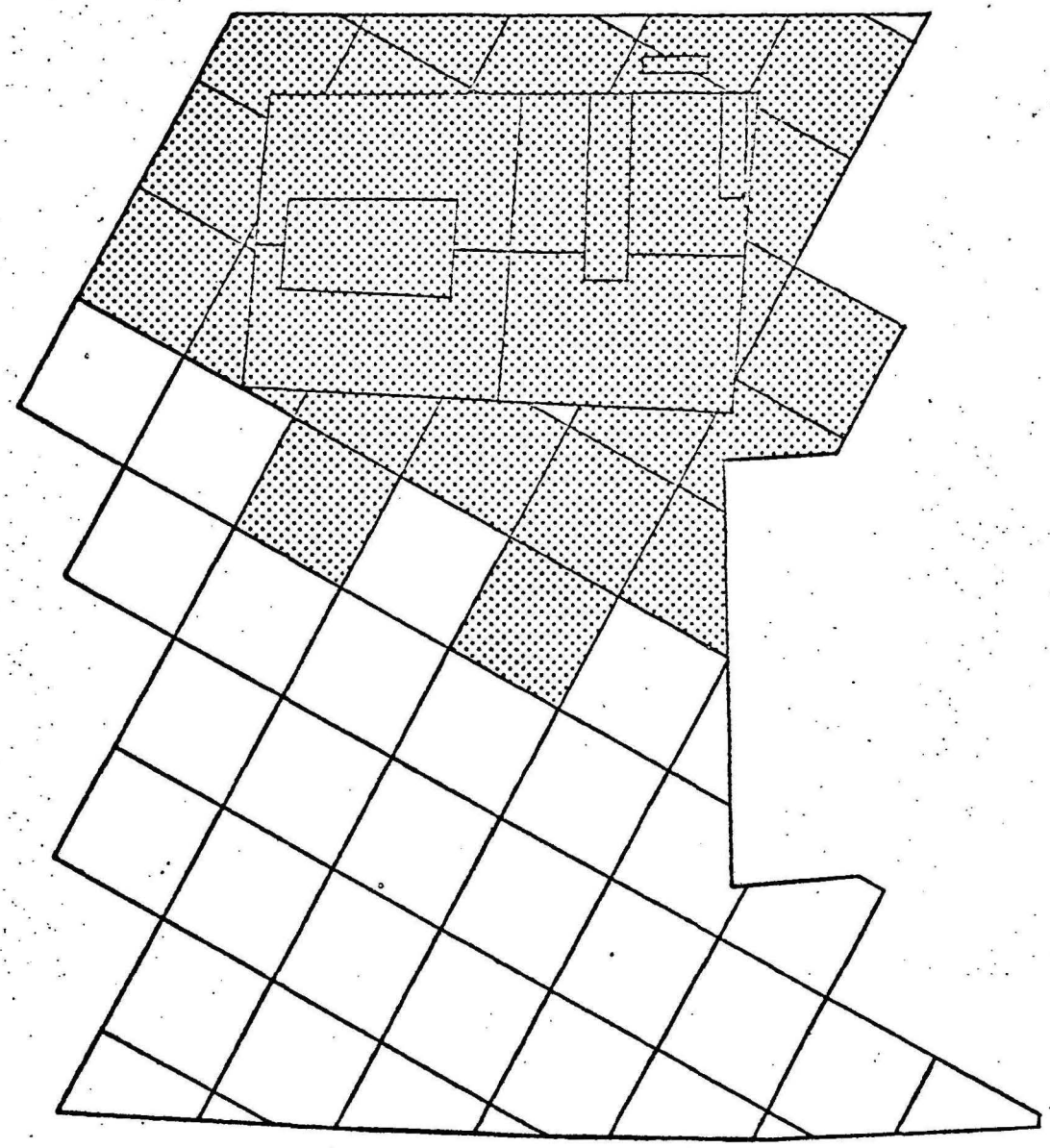


Fig. 16 - Concentration of coral within the Harness Shop area ($f/ft^3 => .15$).

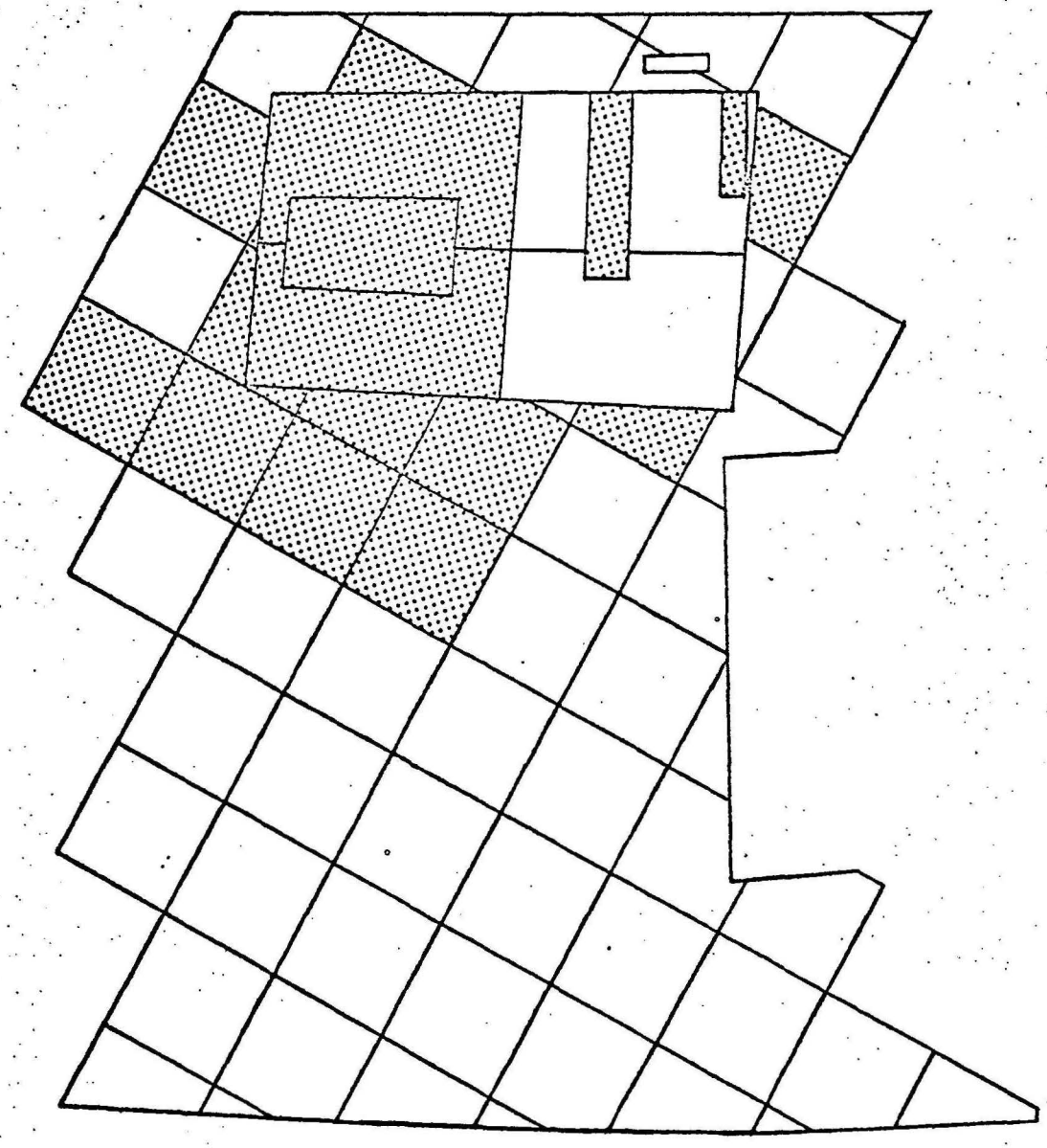


Fig. 17 - Concentration of window glass within the Harness Shop area (f/ft^3 => .31).

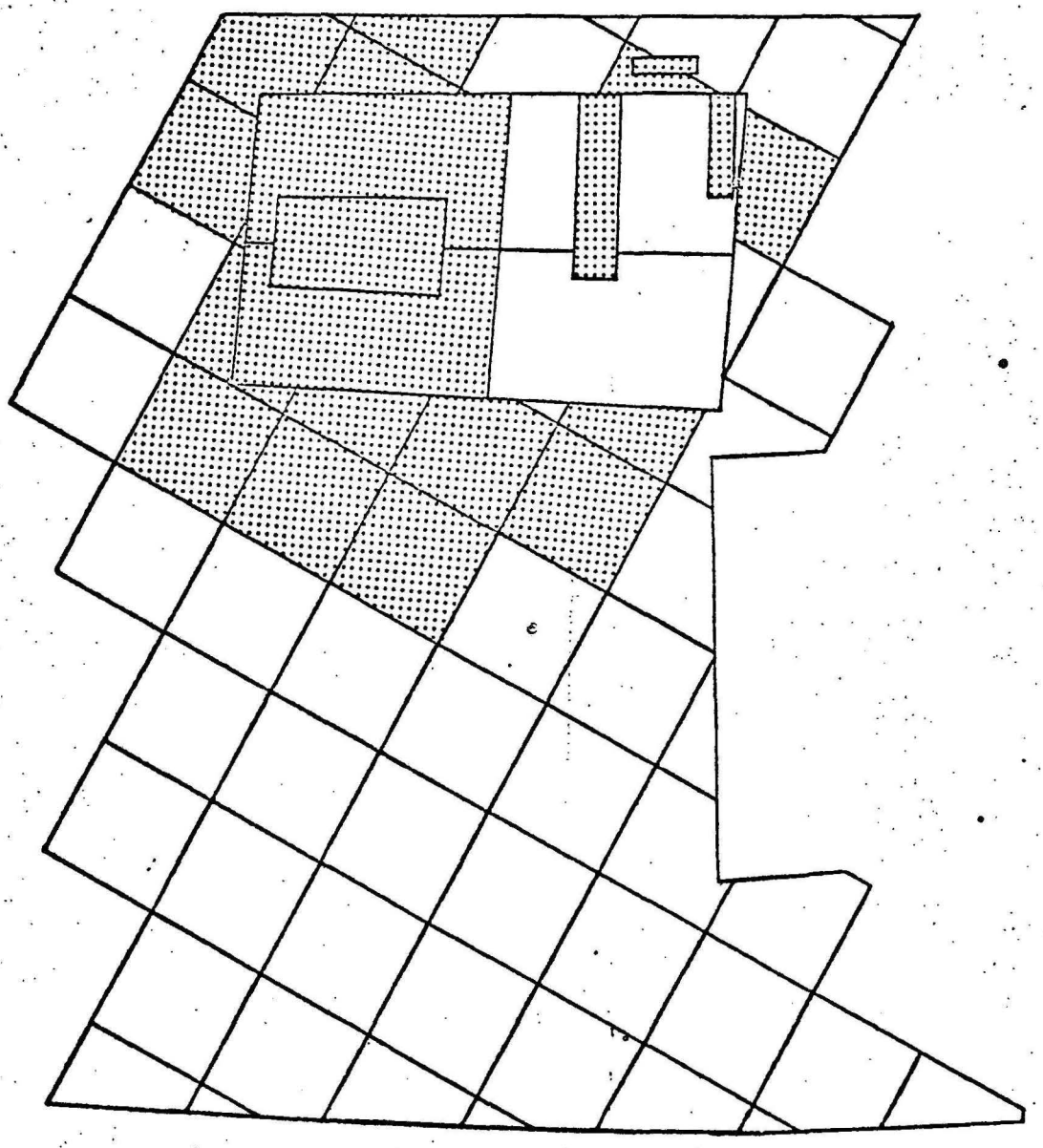


Fig. 18 - Concentration of bone within the Harness Shop area (f/ft^3 => .97).

than that of bone, but again concentrations occur around the post-1852 Kitchen (Fig. 19). This shell is primarily oyster which can be confidently interpreted as remains of foodstuffs.

Distribution of culinary-related ceramics and bottles also concentrates around the brick debris of the post-1852 Kitchen (Figs. 20, 21). Frequencies of ceramics are highest in the Kitchen area and decrease to the south and east. Bottle fragments are similarly concentrated with 2 exceptions. A concentration in the southern sector of excavation may be associated with the adjacent Bachelors' Quarters which have yet to be excavated. The second exception is a concentration in the eastern sector of excavation which associates with the Wash House position. This lends support to recently reported historic evidence that a portion of the Wash House was used as a "cookhouse" in late 1852 and earlier (Hussey 1972:84).

Further culinary evidence is adduced by the distribution of stove parts (not shown). Five of the 7 stove parts listed among the hardware items of Table 12 were recovered from excavation units south and southwest of the brick platform/chimney. It is known that Peter Skene Ogden "purchased for Vancouver Kitchen one of the very largest sized cooking stoves" in 1852 while in New York (Ogden 1852). This stove was placed aboard the Robert Burton which left New York for Fort Vancouver on June 15, 1852. The ship arrived at Astoria on January 22, 1853, and cleared customs on April 26, 1853 (Astoria Custom House Papers 1852, 1853). It is most probable that the "Vancouver Kitchen" of Ogden is our post-1852 Kitchen. The large stove was likely placed in the Kitchen very close to the brick debris noted in current excavations. Unlike previous interpretations, we do not believe the brick rubble represents a platform or base constructed to support a stove (Caywood 1955:16), since the brick remains show no evidence of having been deliberately arranged on the ground or set into mortar. Rather, we believe the brick to be remains of a chimney from the post-1852 Kitchen. The fire-reddened "hearth" area we found at the west end of the rubble probably marks the actual stove location while the board noted at the west end of the rubble during previous explorations may have marked the eastern wall of the Kitchen. The implication here is that the Kitchen had an earthen floor partially covered with mortar, and that the chimney collapsed to the outside of the building during destruction of the Kitchen.

Distribution of coal shows a concentration around and south of the collapsed chimney (Fig. 22). Yet little ash or charcoal was found in the area. Because of these factors, we believe the Kitchen stove was primarily fired with coal rather than wood, and that coal may have been stockpiled outside the Kitchen near its southern side.

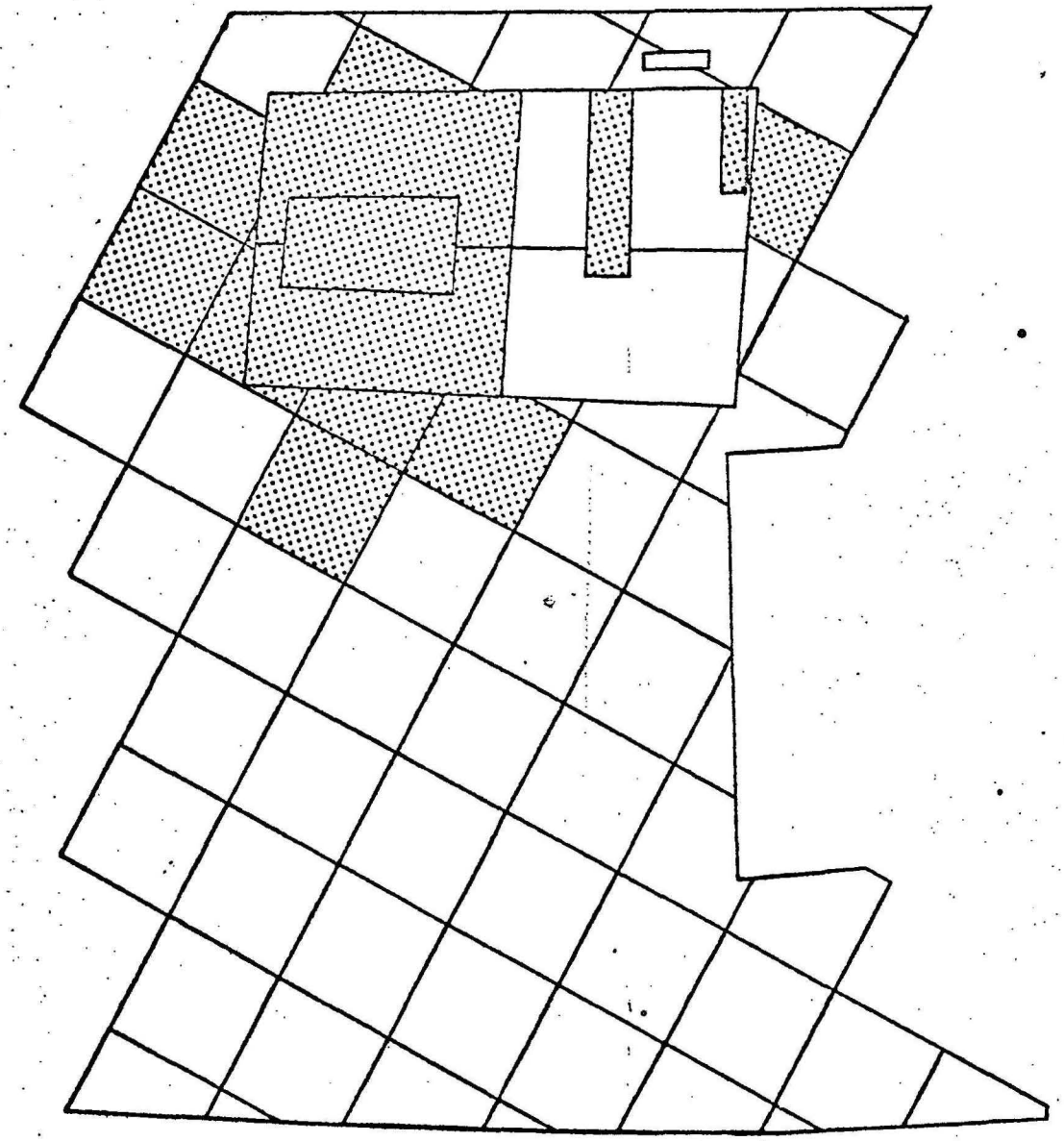


Fig. 19 - Concentration of shell within the Harness Shop area ($f/ft^3 => .19$).

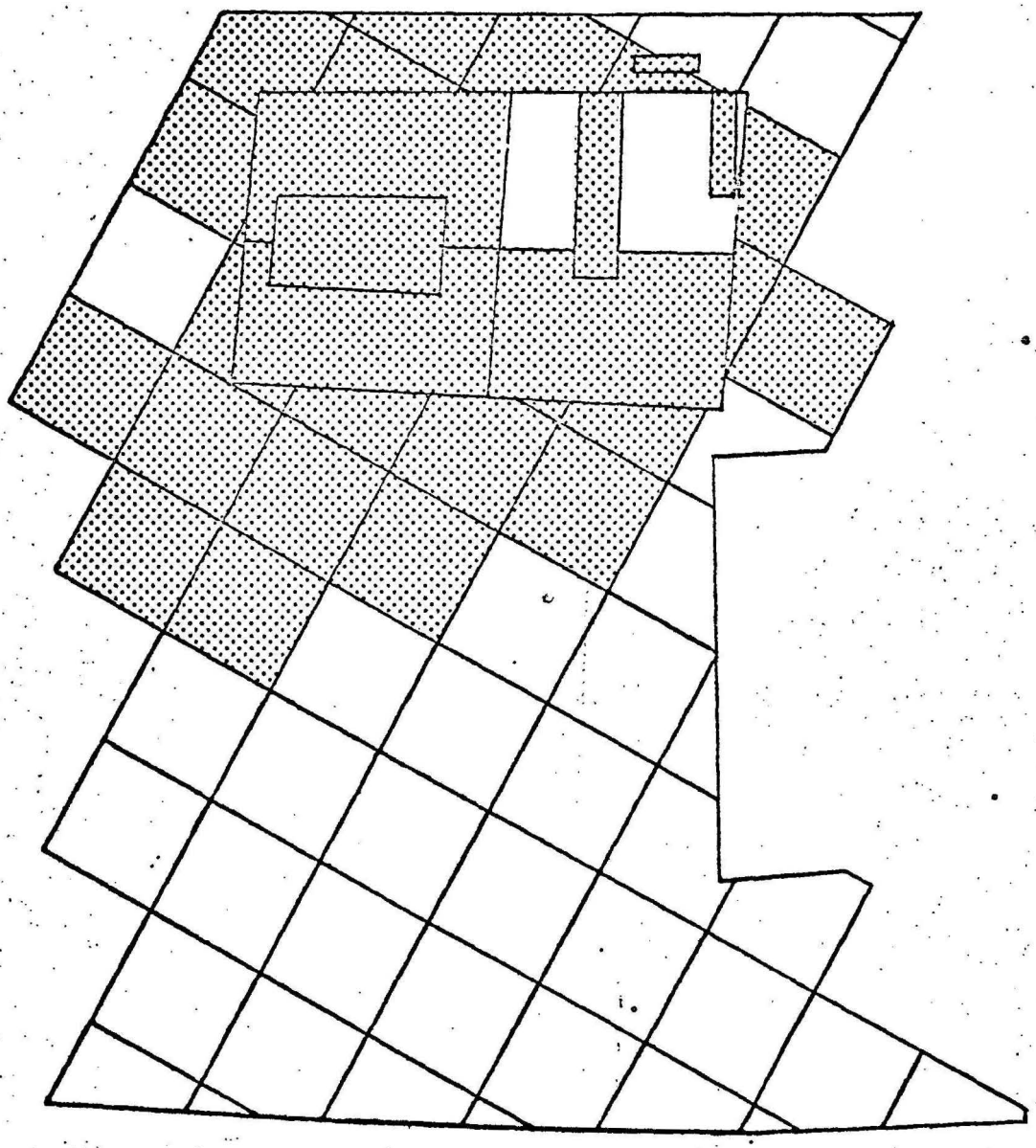


Fig. 20 - Concentration of ceramic wares within the Harness Shop area ($f/ft^3 => 1.10$).

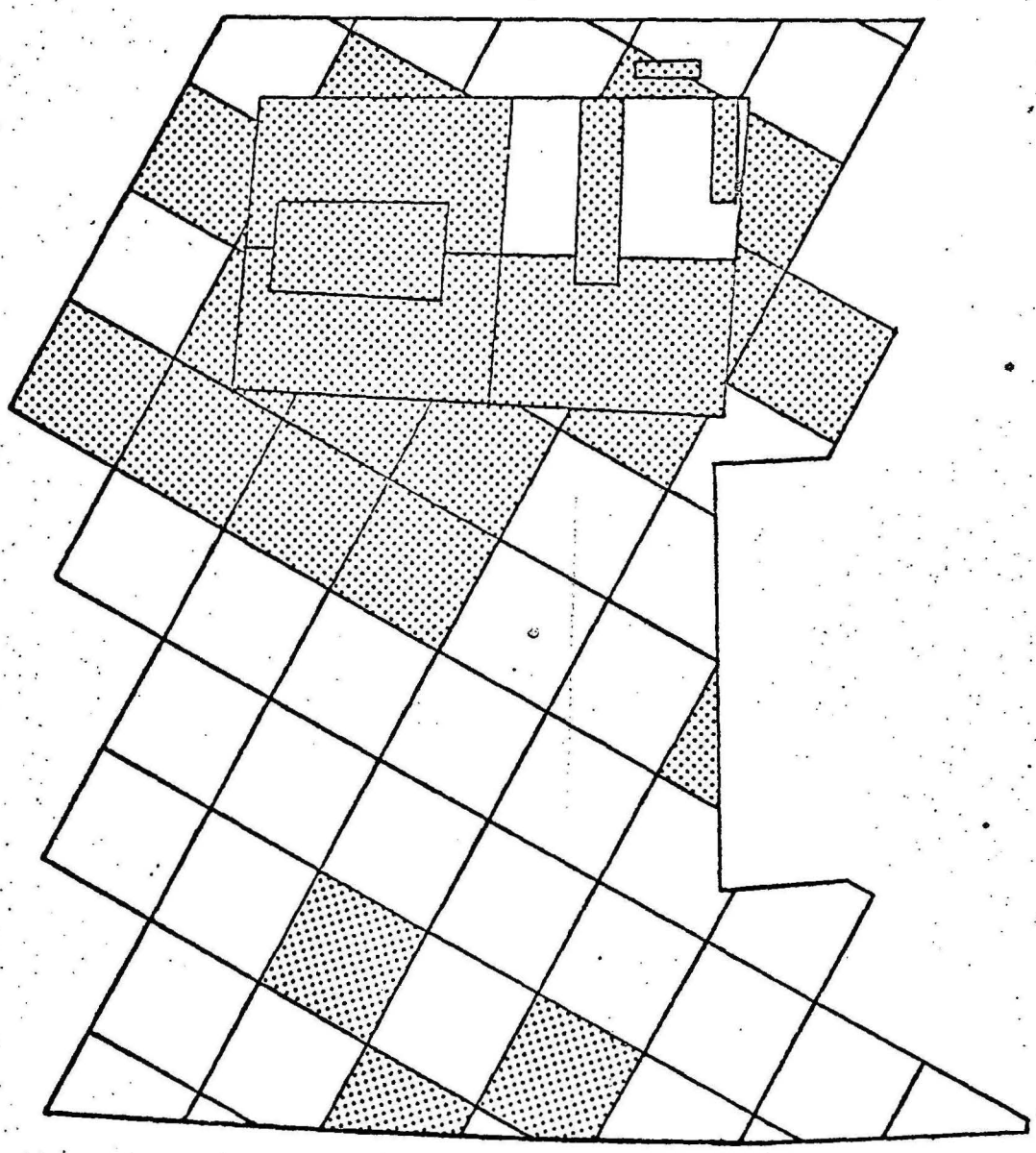


Fig. 21 - Concentration of bottles within the Harness Shop area ($f/ft^3 => .40$).

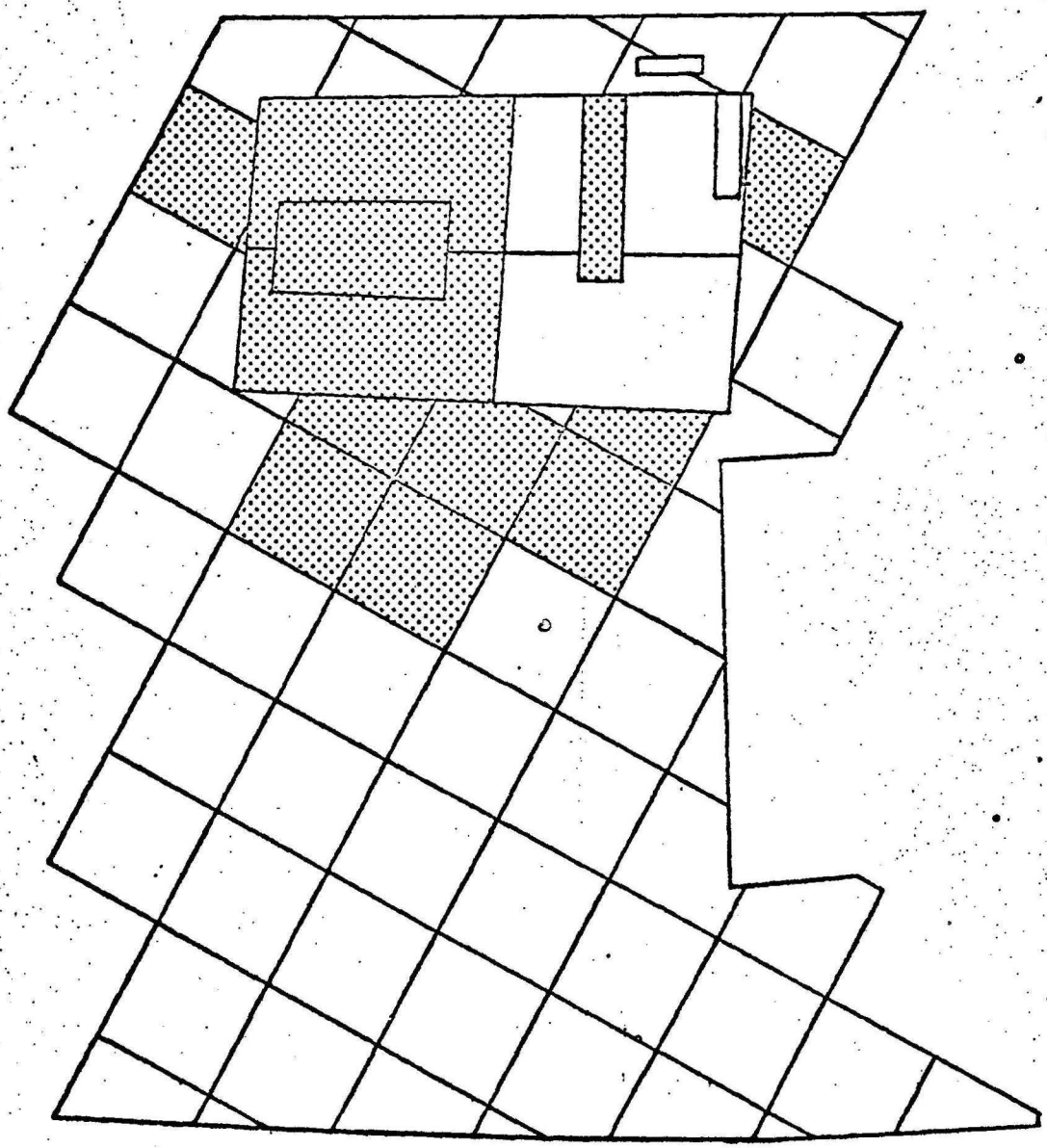


Fig. 22 - Concentration of coal within the Harness Shop area ($f/ft^3 => .44$).

Distribution of clay tobacco pipe fragments (Fig. 23) reflects additional uses of the excavated area. Three areas of high concentration were noted immediately south of the Harness Shop position, northeast of the Bakery oven foundation, and within the collapsed chimney. We are puzzled by the high concentration within the rubble of the collapsed chimney. This may be the results of specimen culling done during previous excavation of the brick rubble and its immediate surroundings. The other 2 concentrations are more readily understood since they lay mainly in areas not previously excavated -- areas that are outside of known structural positions. The concentrations of pipe fragments in these areas probably reflect a Fort policy of restricting smoking to certain areas as a matter of fire precautions. The concentration northeast of the Bakery ovens seems to be a fine example of this policy since it is adjacent to the privy pits, well used and convenient locations.

As noted in our first report, the above privies were located adjacent to the eastern Stockade line of the 1834-36 period. This line was most likely removed about 1844 when the outermost eastern line was constructed. At that time the privy pits were probably filled and their superstructures removed (or destroyed?) to corresponding positions along the 1844 Stockade wall. Thus, the deposition of pipe fragments adjacent to the old privies most likely occurred between 1834 and 1844. This lengthy period would partially explain the large amount of clay pipe fragments found in the area (Table 3).

The combination of structural remains and selected artifact concentrations provide identification for at least 2 of the 5 buildings sought in analysis. These are the 1835 period Bakery and the post-1852 Kitchen. We are uncertain as to the dimensions and construction of the Kitchen at this time since the structure partially lays in an area yet to be analyzed. We do suggest that it was a framed wooden structure with glass windows in its eastern and southern walls, at least, and that it had a sizable chimney made with local and imported brick. Portions, if not all, of the Kitchen floor were covered with a lime product derived from Hawaiian coral. This may have been a device to discourage rodent activity.

Our knowledge of the appearance of the 1835 period Bakery is also nebulous. If we assume the wooden footings reported from previous excavations (Caywood 1955:sheet 9 of map 2) to be part of this structure, we can suggest a width of no less than 20 ft. as measured from the footings to the postholes of the oven covering. This approximates the 25 ft. width historically reported for the

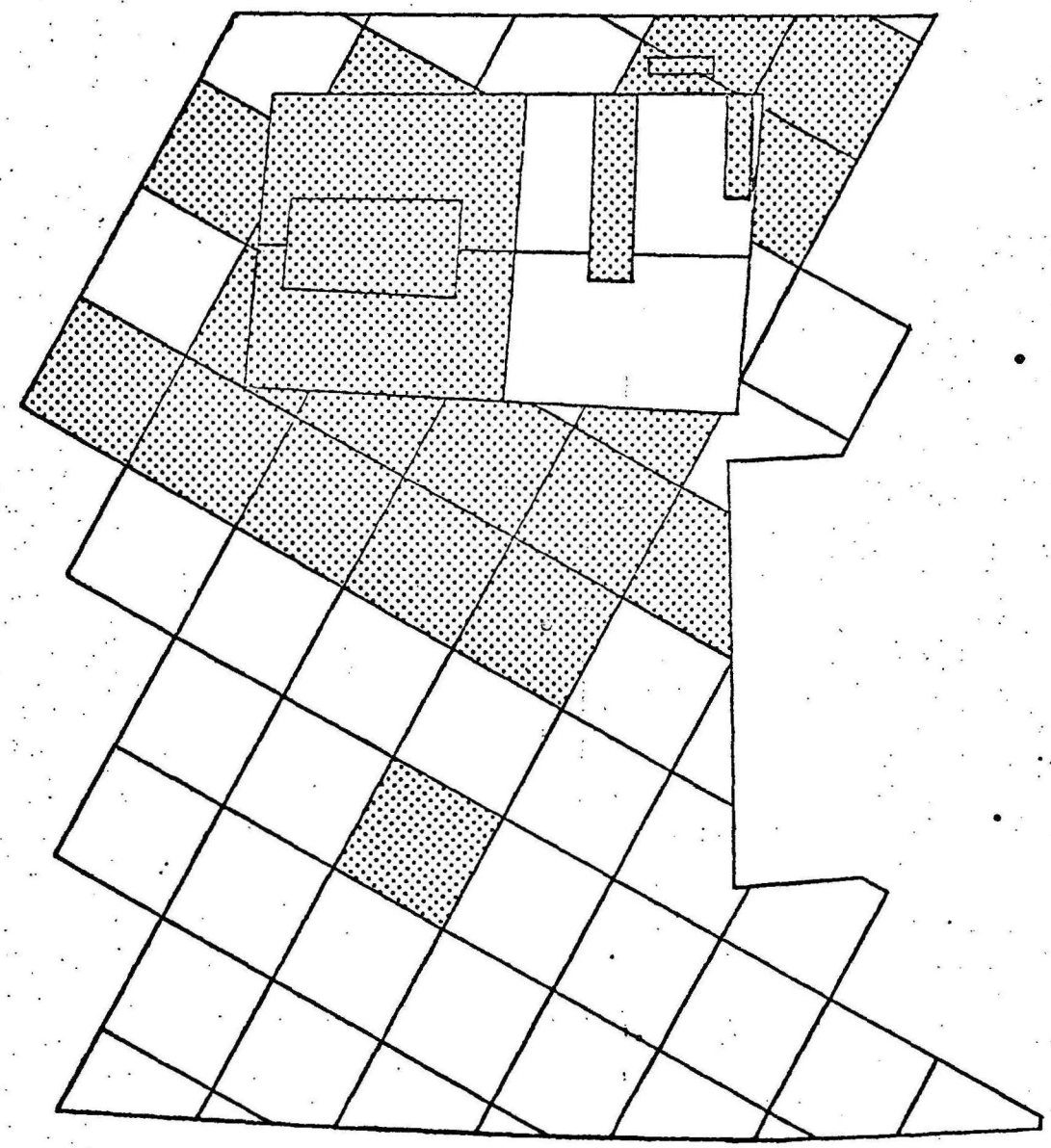


Fig. 23 - Concentration of kaolin tobacco pipes within the Harness Shop area (f/ft^3 $\geq$ .24).

Harness Shop which, as we have discussed, was simply the converted Bakery. The foundations of the ovens and their constituent materials have been discussed previously.

Due to its location relative to other buildings, we presently believe the Bakery/Harness Shop was further converted to the Butcher Shop known to exist by 1854 at the latest. However, we admit that the archeological evidence, as opposed to the historical evidence, for this conversion is equivocal.

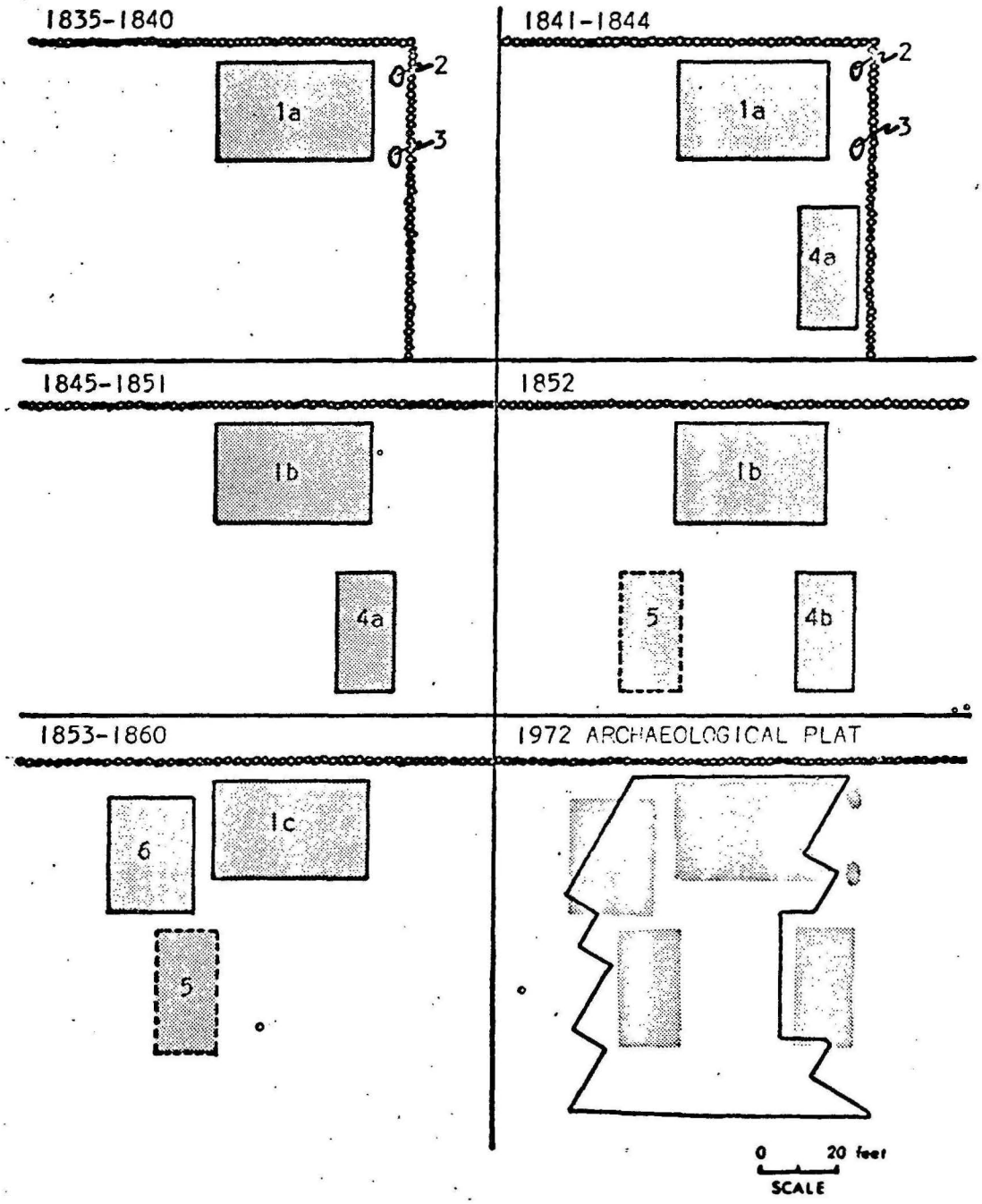
Proceeding from the above discussion, 4 of the 5 buildings sought can be accounted for by 2 structures. One is a kitchen whose functions remained unchanged during its existence. The second structure is the 1845 Harness Shop which was originally built as a bakery and was later converted to a butcher shop. The fifth building is the unidentified structure located somewhere south of the Kitchen and Harness Shop, and only recently discovered by historic research. While there is a scattering of wooden remains in this area (Fig. 3), we are unable to present a clear archeological case for the building.

We began this chapter by noting that at least 8 buildings are historically recorded within the excavated area and immediately east. In a functional sense this is true, although no more than 6 structures existed during the total time period of the area, and only 2 were present in 1845.

These statements are better explained by the hypothetical construction sequence of the area shown as Figure 24. Drawing upon the archeological and historical evidence, we have outlined the possible 15 to 16 years of occupation as 5 periods of time that show the changing appearance and functions of the area. The first part of the sequence shows the northeast corner of the "doubled-in-size" Fort as of about 1835-40. Only 3 structures occupy the area at this time, a Bakery and the 2 privies. During the next period of 1841-44, the Bakery and privies continue their functions and the Wash House is added to the area.

Drastic changes take place during the period of 1845-51. The eastern Stockade wall is pushed out farther to the east and the old wall trench and privy pits are backfilled. While the Wash House retains its original function, the Bakery is converted into the Harness Shop.

The year 1852 brought additional change. The Harness Shop retains its function, but a portion of the Wash House is now used as a "cookhouse." Apparently, this is an interim kitchen that is used after destruction of the original Chief Factor's Kitchen (to be



1a Bakery
1b Harness Shop
1c Butcher Shop
2-3 Privies
4a Wash House
4b Wash House & Temporary Kitchen
5 Unidentified Building
6 Kitchen

Fig. 24 - Hypothetical construction sequence for HBC structures within the Harness Shop area.

discussed in our next report) and construction of the post-1852 Kitchen. Also in 1852, the unidentified building south of the Harness Shop makes its initial appearance.

During 1853-60, the final period of Fort use, the Harness Shop is converted to a Butcher Shop and the Wash House/interim Kitchen is gone, having burned down the previous year. The final Kitchen associated with the Chief Factor's House is in full use, but the presence of the unidentified building cannot be accurately stated in time. Undoubtedly the structure existed in 1853, probably having been built only one year before, but historic evidence clearly shows the structure to be gone by June of 1860. Sometime during this brief period the unidentified building served an undetermined use and simply disappeared from Fort Vancouver.

As noted in Chapter II, U.S. Army maps of Fort Vancouver made in 1854 and 1859 depict a small building immediately east of the Bakery-Harness Shop-Butcher Shop. The position of this small building is almost due north of the former Wash House position. Moreover, a "washing house" is known to exist within the Fort during 1854 (Hussey 1957:154). This small building cannot be the former Wash House whose burning and destruction are well documented. We have not taken account of the small building in our hypothetical sequence since the historical evidence is conflicting and the archeological evidence is nil. Fortunately the problem is irrelevant to the 1845 period.

VI - SUMMARY AND CONCLUSIONS

Most of this report has centered on the post-1852 Kitchen simply because this building left the most abundant evidence. The 1845 Harness Shop is more difficult to identify as a discrete structure due to its changing functions through time.

We conclude that the Harness Shop was simply converted from the second Bakery known to have operated at Fort Vancouver. The structure was originally built in late 1835 and served as a Bakery until late 1844 or early 1845. The ovens were removed at that time, other alterations may have taken place, and the building used as a Harness Shop until about 1853. From the latter date until mid-1860 the building served as a Butcher Shop.

Little is known presently of the building's appearance or furnishings during its use as a Harness Shop. There is nothing in the archeological evidence to contradict the historical evidence that the building was wooden with a ground plan 25 ft. north-south, and 40 ft. east-west. The relative absence of nails, as opposed to concentrations east and west of the shop position, suggest that the shop was more heavily built that the adjacent Kitchen or privies. This seems supported by the discovery of wooden footings during previous excavations. At our present state of knowledge, such footings at Fort Vancouver are associated with the post-in-sill style of heavy timber construction.

Judging from at least one contemporary sketch of the Fort, the building was either one or one and a half stories high with a simple ridge roof. We assume a ground level doorway in the south wall as a matter of expediency. Distribution of window glass suggests the presence of windows in at least the south wall, but we do not know their number or positions.

Most of the furnishings of the Harness Shop were probably removed when the building was converted to a Butcher Shop. There were items suggestive of harness and light wagon repairs recovered in excavation, but much of this evidence was overshadowed by culinary items strewn about the area. While the Harness Shop was undoubtedly a major focus of activity at Fort Vancouver, this activity was obscured by events both earlier and later in time.

APPENDIX I

Summary of Miscellaneous Materials

Cultural material, other than artifacts, totaled 18,293 items and are listed below:

Descriptive Category	Subtotal	Total
Unidentified Bone Fragments		9,745
Coral		1,523
Minerals		4,924
Coal	4,757	
Slag	154	
Asphaltum	8	
Ochre	4	
Sulphur	1	
Shell Fragments		1,920
Wood		127
Fragments	113	
Fruit Pits	14	
Unidentified Substances		54
TOTAL		18,293

APPENDIX II

Glass Bead Measurements

FOVA Catalog Number	Bead Colors		mm. Dimensions		mm. Hole		
	Primary	Secondary	Dia.	Lgth.	Dia.	Reflection	Facets
1655	N 9.5/		1.30	.75	.38-.51	Opaque	-
1943	10 B 6/6		4.55	3.45	1.35	Opaque	-
2878	5 PB 6/8		8.80	8.25	1.10 2.55	Opaque	37
3082	2.5 B 8/4		8.85	7.20	1.10 2.45	Opaque	42
3082	2.5 B 8/4		7.95	7.25	.89-1.00 2.20	Opaque	39
3082	2.5 B 8/4		8.45	7.45	1.25 2.45	Opaque	46
3446	2.5 B 4/6		2.75	2.05	.76-.81	Opaque	-
3387	7.5 PB 3/10		n.a.	n.a.	n.a.	Translucent	-
4089	N 9.5/		2.55	1.40	.76-.81	Opaque	-
4089	N 9.5/		2.60	1.55	.71-.76	Opaque	-
4089	N 9.5/		2.55	1.55	.71-.76	Opaque	-
4089	10 YR 9/1		1.75	1.50	.51-.64	Opaque	-
4127	5 Y 8.5/1		1.95	1.50	.64-.71	Opaque	-
4463	Clear	Whitish	9.00	7.50	3.80	Clear	21
4463	2.5 B 4/4		6.00	5.75	1.60	Translucent	-
4463	2.5 B 8/4		8.10	6.50	1.30 2.50	Opaque	40
4463	5 B 6/8		2.85	2.40	1.00	Opaque	-
4463	5 PB 4/8		9.40	8.75	1.00 2.50	Opaque	53
4463	7.5 PB 3/10	7.5 PB 7/6	6.90	7.05	2.65	Translucent	18
4500	7.5 PB 3/10	7.5 PB 7/6	8.25	6.70	2.80	Translucent	21
4556	2.5 B 8/4		8.30	8.15	.89-1.00 2.15	Opaque	37
4644	10 BG 5/6		3.00	2.25	.89-1.00	Translucent	-
4644	2.5 B 8/4		8.80	7.75	1.10 2.45	Opaque	43
4772	7.5 B 7/4	7.5 B 8/4	9.60	8.85	4.55	Opaque	21
4772	5 PB 4/8		9.05	8.40	1.50 2.55	Opaque	43
4773	Body N 9.5/	2.5 RP 6/8	n.a.	n.a.	4.40	Opaque	-
4874	N 9.5/		2.00	1.70	.64-.71	Opaque	-
4892	7.5 PB 4/10	7.5 PB 5/10	7.65	4.95	3.20	Opaque	21
4934	5 BG 2/2		8.35	6.60	2.60	Opaque	12
5085	N 9.5/		1.50	.85	.38-.51	Opaque	-
5111	5 PB 6/8		n.a.	8.05	n.a.	Opaque	n.a.
5117	10 BG 5/6		1.45	1.20	.38-.51	Opaque	-
5185	7.5 B 7/4	7.5 B 8/4	n.a.	6.90	n.a.	Opaque	n.a.

FOVA Catalog Number	Bead Colors		mm. Dimensions		mm. Hole Dia.	Reflection	Facets
	Primary	Secondary	Dia.	Lgth.			
5224	10 BG 6/8		2.65	2.05	.89-1.00	Translucent	-
5307	2.5 PB 4/6		2.60	1.95	.76-.81	Opaque	-
5307	7.5 PB 3/10	7.5 PB 7/6	n.a.	6.60	n.a.	Translucent	n.a.
5334	7.5 PB 3/10	7.5 PB 7/6	n.a.	6.55	n.a.	Translucent	n.a.
5346	5 Y 5/1		1.75	1.45	.38-.51	Opaque	-
5425	2.5 B 8/4		8.20	6.95	1.00	Opaque	41
					2.50		
5478	7.5 PB 3/10	7.5 PB 5/10	8.90	7.50	3.20	Opaque	21
5515	7.5 PB 3/10	7.5 PB 7/6	5.05	5.65	1.45	Translucent	18
5515	N 9.5/		3.00	1.95	.81-.89	Opaque	-
5549	N 9.5/		2.55	.140	.76-.81	Opaque	-
5602	2.5 B 3/4		6.35	5.35	1.30	Translucent	-
5602	2.5 B 8/4		8.05	7.80	.89-1.00	Opaque	38
					2.80		
5602	N 9.5/		1.70	.95	.64-.71	Opaque	-
5639	2.5 B 5/8		2.15	1.50	.51-.64	Translucent	-
5654	2.5 B 8/4		8.55	7.15	n.a.	Opaque	n.a.
5654	2.5 B 8/4		n.a.	n.a.	n.a.	Opaque	n.a.
5654	5 Y 9/1		2.50	1.50	.76-.81	Opaque	-
5731	2.5 B 8/4		8.40	7.70	1.10	Opaque	41
					2.50		
6090	5 BG 4/6		2.80	2.00	.81-.89	Translucent	-
6122	5 PB 6/8		8.80	7.80	1.20	Opaque	46
					2.55		
6156	5 Y 9/1		2.40	1.70	.76-.81	Opaque	-
6179	N 9.5/		2.65	2.45	.89-1.00	Opaque	-
6193	10 B 4/10		1.55	1.10	.51-.64	Translucent	-
6550	5 PB 4/8	5 PB 6/8	n.a.	7.05	n.a.	Opaque	n.a.
6550	N 9.5/		2.35	1.75	.64-.71	Opaque	-

APPENDIX III

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

Provenience	Lot #	FOVA Catalog #
F130		
Harness Shop	134	1528-1530
Surface	135	1531
0.5-2.0'	422	4563-4577
1.0-1.5'	421	4544-4562
NW 1/4		
0.5-1.0'	417	4377-4409
1.0-1.5'	419	4475-4524
1.5-2.0'	420	4525-4543
SW 1/4		
0.5-1.0'	428	4684-4736
1.0-1.5'	429	4737-4787
1.5-2.0'	430	4788-4811
NE 1/4		
0.5-1.0'	425	4622-4649
1.0-1.5'	426	4650-4670
1.5-2.0'	427	4671-4688
SE 1/4		
0.5-1.0'	423	4578-4605
1.0-1.5'	418	4410-4474
1.5-2.0'	424	4606-4621
F131	431	4812-4822
F111	432	4823-4829
N120 W40	149	1650-1659
F134	433	4830-4835
F135	435	4856-4881
1.0-1.5'	434	4836-4855
F137	436	4822-4900
F138	437	4901-4903
F140		
1.0-1.5'	442	4960-4969
F142	443	4970-4973
F143		
0.5-1.0'	438	4904-4918
1.0-1.5'	439	4919-4943
1.5-2.0'	440	4944-4956
F144	441	4957-4959
	446	5031-5041
F146	543	6156
0.5-1.0'	542	6150-6155b
F147	444	4974-4999
	447	5042-5047
1.0-1.5'	445	5000-5030
1.5-2.0'	448	5048-5063

Provenience	Lot #	FOVA Catalog #
F148		
0.5-1.0'	449	5064-5076
1.0-1.5'	450	5077-5090
F152	452	5095-5111
0.5-1.0'	451	5091-5094
1.0-1.5'	453	5112-5123
1.5-2.0'	454	5124-5125
F154	455	5126-5127
0.5-1.0'	456	5128-5129
1.0-1.5'	458	5131-5132
1.5-2.0'	461	5142-5148
F155	457	5130
F160		
0.5-1.0'	460	5139-5141
	467	5192-5197
1.0-1.5'	463	5150-5163
1.5-2.0'	459	5133-5138
F161	465	5172-5177
F162		
0.0-0.5'	462	5149
0.5-1.0'	464	5164-5171
1.0-1.5'	466	5178-5191
1.5-2.0'	468	5198-5202a
2.0-2.5'	469	5202b-5203
F164		
0.5-1.0'	472	5214-5216
1.0-1.5'	474	5218-5229
1.5-2.0'	470	5204
F165		
0.5-1.0'	473	5217
1.0-1.5'	471	5205-5213
1.5-2.0'	477	5238-5253
F170		
2.0-2.5'	483	5293-5319
2.5-3.0'	484	5320-5341
F171	485	5342-5348
F172	476	5233-5237
2.0-2.5'	475	5230-5232
F173	478	5254-5268
F175	544	6157
F176		
1.0-1.5'	549	6210-6219
1.5-2.0'	546	6173-6182
F185	479	5269

Provenience	Lot #	FOVA Catalog #
Balk between F110 SW 1/4 & N160 W20	480	5270-5274
	482	5284-5292
0.5-1.0'	481	5275-5283
N140 E10		
0.0-0.5'	194	2126-2132
0.5-1.0'	193	2115-2125
1.0-1.5'	195	2133-2145
1.5-2.0'	196	2146-2149
2.0-2.5'	197	2150-2153
N140 E20		
0.0-0.5'	198	2154-2159
1.0-1.5'	199	2160-2161
1.5-2.0'	200	2162-2164
	251	2444-2448
N110 W50		
0.0-0.5'	937	10495-10500
0.5-1.0'	142	1587-1599
	486	5349
1.0-1.5'	138	1552-1559
	938	10501-10509
1.5-2.0'	137	1544-1551
	939	10510-10519
N120 W30	143	1600-1604
	147	1632-1637
0.5-1.0'	145	1618-1621
1.0-1.5'	146	1622-1631
N120 W40		
0.0-0.5'	148	1638-1649
1.0-1.5'	154	1696-1706
1.5-2.0'	153	1686-1695
N120 W50		
0.0-0.5'	151	1665-1679
0.5-1.0'	150	1550-1664
1.0-1.5'	152	1680-1685
1.5-2.0'	157	1734-1747
N130 W10		
0.5-1.0'	160	1775-1777
1.0-1.5'	161	1778-1784
1.5-2.0'	162	1785-1793
2.0-2.5'	163	1794-1795

Provenience	Lot #	FOVA Catalog #
N130 W20		
0.0-0.5'	164	1796-1804
0.5-1.0'	165	1805-1823
1.0-1.5'	166	1824-1832
1.5-2.0'	167	1833-1840
2.0-2.5'	168	1841-1847
N130 W30		
0.0-0.5'	169	1848-1850
1.0-1.5'	171	1860-1869
1.5-2.0'	170	1851-1859
N130 W40		
0.0-0.5'	173	1883-1894
0.5-1.0'	174	1895-1905
1.0-1.5'	177	1935-1954
	381	3957-3960
1.5-2.0'	175	1906-1920
	382	3961-3966
N130 W50		
0.0-0.5'	176	1921-1934
0.5-2.0'	487	5350-5355
0.5-1.0'	179	1968-1979
	383	3967-3968
1918 Ballast Divider	488	5356
1.0-1.5'	178	1955-1967
	385	3974-3983
1.5-2.0'	180	1980-1988
	384	3969-3974
N130 W60		
0.0-0.5'	181	1989-1996
0.5-1.0'	186	2038-2052
1.0-1.5'	184	2007-2024
1.5-2.0'	182	1997-2002
	386	3984-3985
N140 W10		
0.0-0.5'	189	2080-2089
0.5-1.0'	190	2090-2101
1.0-1.5'	284	2779-2791
1.5-2.0'	285	2792-2797
2.0-2.5'	286	2798-2801
Association	287	2862

Provenience	Lot #	FOVA Catalog #
N140 W20		
0.0-0.5'	288	2803-2807
0.5-1.0'	289	2808-2814
1.0-1.5'	290	2815-2817
1.5-2.0'	391	4015-4024
N140 W30		
Association	291	2818-2823
0.0-0.5'	292	2824-2830
0.5-1.0'	293	2831-2845
1.0-1.5'		
(WWI Dock)	365	3756-3759
1.5-2.0'	364	3753-3755
N140 W40		
0.0-0.5'	294	2846-2867
0.5-1.0'	298	2898-2926
1.0-1.5'	295	2863-2880
1.5-2.0'	392	4025-4028
N140 W50		
0.0-0.5'	296	2881-2885
0.5-1.0'	300	2932-2960
	393	4029
1.0-1.5'	297	2886-2897
1.5-2.0'	299	2927-2931
2.0-2.5'	301	2961-2963
N140 W60		
0.5-1.0'	302	2964-2974
1.0-1.5'	308	3013-3025
1.5-2.0'	394	4030-4036
N150 W10		
0.0-0.5'	366	3760-3764
0.5-1.0'	367	3765-3777
1.0-1.5'	368	3778-3786
1.5-2.0'	372	3853
N150 W20		
0.0-0.5'	373	3854-3865
0.5-1.0'	374	3866-3871
1.0-1.5'	375	3872-3885
N150 W30		
0.0-0.5'	376	3886-3904
0.5-1.0'	304	2981-2991
	378	3915-3933
1.0-1.5'	306	3002-3008
	377	3905-3914
1.5-2.0'	379	3934-3941

Provenience	Lot #	FOVA Catalog #
N150 W40		
0.0-0.5'	380	3942-3956
0.5-1.0'	399	4075-4099
1.0-1.5'	400	4100-4119
1.5-2.0'	401	4120-4127
N150 W50		
0.0-0.5'	402	4128-4147
0.5-1.0'	403	4148-4172
1.0-1.5'	404	4173-4189
1.5-2.0'	405	4190-4197
N150 W60		
0.0-0.5'	406	4198-4208
0.5-1.0'	407	4209-4234
1.0-1.5'	410	4248-4272
1.0-2.0' VB	489	5357-5362
1.5-2.0'	409	4239-4247
N150 W70		
0.0-0.5'	408	4235-4238
0.5-1.0'	412	4293-4315
1.0-1.5'	411	4273-4292
1.5-2.0'	413	4316-4325
N160 W20		
0.5-1.0'	303	2975-2980
1.0-1.5'	305	2992-3001
1.5-2.0'	307	3009-3012
N160 W30		
0.0-0.5'	309	3026-3039
0.5-1.0'	310	3040-3056
1.0-1.5'	311	3057-3067
1.5-2.0'	312	3068-3073
N160 W40		
0.0-0.5'	491	5372-5390
0.0-1.0' VB	490	5363-5371
0.5-1.0'	492	5391-5409
1.0-1.5'	493	5410-5435
1.5-2.0'	494	5436-5444
N160 W50		
0.0-0.5'	502	5542-5564
0.5-1.0'	503	5565-5571
0.5-1.0' HBC	513	5694-5741
1.0-1.5'	506	5615-5629

Provenience	Lot #	FOVA Catalog #
N160 W60		
0.5-1.0'	504	5575-5589
1.0-1.5'	505	5590-5614
1.5-2.0'	507	5630-5647a
2.0-2.5'	508	5647b-5660
	547	6183-6200
N160 W70		
0.0-0.5'	510	5672-5678
0.5-1.0'	514	5742-5759
1.0-1.5'	519	5825-5847
1.5-2.0'	509	5661-5671
N160 W80		
0.0-0.5'	512	5685-5693
0.5-1.0'	524	5905-5940
1.0-1.5'	516	5774-5793
1.5-2.0'	511	5679-5684
N170 W30		
0.0-2.0'	515	5760-5773
0.0-0.5'	283	2767-2778
0.5-1.0'	313	3074-3095
1.0-1.5'	314	3096-3111
1.5-2.0'	315	3112-3114
N170 W40		
0.0-0.5'	521	5861-5873
0.5-1.0'	528	5976-5999
1.0-1.5'	518	5805-5824
1.5-2.0'	517	5797-5804
N170 W50		
0.0-0.5'	336	3308-3311
0.5-1.0'	337	3312-3324
	532	6035-6040
1.0-1.5'	338	3325-3355
	341	3401-3427
N170 W60		
0.0-0.5'	339	3356-3362
0.5-1.0'	340	3363-3400
1.0-1.5'	342	3428-3459
1.5-2.0'	343	3460-3466
N170 W70		
0.0-0.5'	520	5848-5860
0.5-1.0'	522	5874-5887
1.0-1.5'	523	5888-5960
1.5-2.0'	526	5949-5960

Provenience	Lot #	FOVA Catalog #
N170 W80		
0.0-0.5'	525	5941-5948
0.5-1.0'	527	5961-5975
1.0-1.5'	529	6000-6012
N180 W30		
0.0-0.5'	531	6019-6034
0.5-1.0'	530	6013-6018
1.0-1.5'	533	6041-6057
1.5-2.0'	534	6058-6064
N180 W40		
0.0-0.5'	536	6080-6081
0.5-1.0'	535	6065-6081
1.0-1.5'	541	6126b-6149
1.5-2.0'	537	6082-6092
	540	6111-6126a
N180 W70		
0.5-1.0'	497	5469-5484
1.0-1.5'	499	5489-5501
1.5-2.0'	498	5485-5488
N180 W80		
0.0-0.5'	496	5457-5468
0.5-1.0'	500	5502-5523
1.0-1.5'	501	5524-5541
1.5-2.0' HBC	495	5445-5456
N190 W30		
0.0-0.5'	538	6093-6100
0.5-1.0'	539	6101-6110
1.0-1.5'	550	6220-6235
	551	6236-6248
	558	6295-6316
1.5-2.0'	552	6249-6260
N190 W40		
0.0-0.5'	548	6201-6209
0.5-1.0'	545	6158-6172
1.0-1.5'	562	6336-6355
1.5-2.0'	553	6261-6266
N190 W60		
0.0-0.5'	554	6267-6272
0.5-1.0'	557	6291-6294
1.0-1.5'	556	6282-6290
1.5-2.0'	559	6319-6320

Provenience	Lot #	FOVA Catalog #
N190 W70		
0.0-0.5'	560	6321-6331
0.5-1.0'	561	6332-6335
	565	6383-6395
1.0-1.5'	555	6273-6281
	564	6367-6382
1.5-2.0'	566	6396-6410
N190 W80		
0.0-0.5'	567	6411-6421
0.5-1.0'	568	6422-6430
		6440-6445
1.0-1.5'	570	6456-6472
1.5-2.0'	571	6473-6485
N200 W40		
0.0-2.0'	572	6486-6500
0.0-0.5'	573	6501-6514
	574	6515-6523
0.5-1.0'	569	6446-6455
	576	6535-6560
1.0-1.5'	563	6356-6366
	577	6561-6579
1.5-2.0'	575	6524-6534
N200 W50		
0.0-2.0'	578	6580-6597
N200 W60		
0.0-0.5'	579	6598-6608
	580	6609-6620
0.5-1.0'	582	6636-6648
1.0-1.5'	581	6621-6635
1.5-2.0'	583	6649-6665
N200 W70		
0.0-0.5'	588	6706-6719
0.5-1.0'	586	6683-6693
1.0-1.5'	585	6672-6682
1.5-2.0'	587	6694-6705
N210 W40		
0.0-0.5'	592	6741-6752
0.5-1.0'	598	6794-6752
1.0-1.5'	593	6753-6763
1.5-2.0'	584	6666-6671
	596	6782-6790
	597	6791-6793
2.0-2.5'	591	6737-6740
N210 W50		
0.0-0.5'	589	6720-6730
0.5-1.0'	600	6832-6847
1.0-1.5'	594	6764-6776
1.5-2.0'	595	6777-6781
2.0-2.5'	590	6731-6736

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